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Bird Census News is the Journal of the European Bird Census Council or EBCC. The EBCC exists to promote the organisation and development of atlas, census work and population studies in all European countries; it promotes communication and arranges contacts between organisations and individuals interested in census and atlas work, primarily (but not exclusively) in Europe.

Bird Census News reports developments in census and atlas work in Europe, from the local to the continental scale, and provides a forum for discussion on methodological issues.

Cover illustration by Evgeniy Koblik

Bird Census News
Volume 35/1–2, December 2022

EDITORIAL

Adapting the bird monitoring work in the new situations

Europe has experienced drastic societal changes during the last three years. First the Covid-pandemic and then the war in Ukraine. Luckily the most difficult phase of the Covid-pandemic is over and now it is time to look at how the pandemic might have affected our wildlife and monitoring schemes. The current issue of Bird Census News has two articles related to this: how the lockdown affected behaviour of birds and but also the behaviour of monitoring people, which can have consequences to efficiency of the schemes.

The two other monitoring articles are dealing with the importance of a touristic island in Iceland to bird conservation, and with information on the distribution of birds in a poorly known area in Western Siberia. The Icelandic case study is a good reminder that local information is needed to make management plans and implement actions for protecting the nature values. The article from Siberia reminds us that despite the new political constraints, we should keep on exchanging bird monitoring information between the countries, including Russia. Birds do not recognise political borders and thus understanding the population changes of species for conservation actions we need good international collaboration.

Last, the current issue continues introducing board members of the EBCC. This time the communication officer Jean-Yves Paquet.

I hope you enjoy the articles of the new volume!

Aleksi Lehikoinen
Editor Bird Census News

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Response of urban birds to Covid-19 lockdown: evidence from surveys reporting complete checklists in Catalonia

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After two dramatic years, Europeans are just recovering their life style previous to the Covid-19 outbreak and getting over the severe social restrictions imposed during the pandemic. When the World Health Organization officially declared the Covid-19 pandemic in March 2020, all countries took measures to stop virus spread. One of the most drastic of these measure was confining people to their homes. Spain applied one of the strictest and longest lockdowns in Europe, starting on 14 March and lasting until the end of June 2020. During this period, people could not leave their homes, except for purchasing basic consumer goods. Only the most essential services, such as markets, groceries or hospitals, remained open.

This unprecedented situation provided an exceptional opportunity to study urban wildlife responses to less crowded, noisy and polluted cities and gain unprecedented mechanistic insights into how human activities affect wildlife. For this reason, on 15 March 2020, the Catalan Ornithological Institute launched the project *#JoEmQuedoACasa* (I stay at home) using ornitho.cat, the reference website for birders in Catalonia. The aim was to collect information about bird responses to the new environmental conditions in urban areas resulting from people's confinement. In addition, the project was important to keep engaged ornitho.cat users and boost data submission, despite of constrained outdoor activities.

During the first month of the strictest lockdown, project participants recorded 1,290 complete checklists of birds observed from balconies, rooftops or yards at their homes, representing 1,248 hours of surveys in 149 sites spread across Catalonia. Then, we gathered the 6,911 complete checklists submitted to ornitho.cat during the same period between 2015 and 2019. This historical data was classified into urban and non-urban checklists according to the environment where surveys were conducted. Historical urban data represented baseline data, while historical non-urban data were included as control data without human disturbances. Finally, we selected the 16 most common sedentary urban species in Catalonia. Our final dataset contained more than 131,000 bird observations and allowed us to test specifically: 1) Did urban birds occur more frequently in response to human-empty cities? and 2) Were urban birds more detectable as a consequence of quieter cities? We used hierarchical occupancy models to disentangle the effects of individuals' presence (first question) and detection (second question) in our bird data, while controlling for survey duration and time.

The prevalent impression at the beginning of the pandemic was that nature was getting back its space into our empty cities. However, the overwhelming majority of the studied species did not change their probability of occurrence during the lockdown compared to the period 2015–2019. Only three species, Feral Pigeons *Columba livia*, Collared Doves *Streptopelia decaocto* and Monk Parakeets *Myiopsitta monachus*, were more prevalent in 2020 bird surveys. Interestingly, they represent the most city dwelling birds and consequently their population increase could hardly rely on non-urban populations that moved into urban areas during the lockdown period. Their higher prevalence in the recorded checklists during the lockdown was probably due to the constraints of observers to survey birds only from their homes and thus, to predominantly observe the most urbanite birds.

Interestingly, detection probability increased in most species during lockdown surveys. Such increase was especially remarkable in early morning with an average estimated increase of 27% of bird detectability at sunrise compared to the previous years (Fig. 1). In fact, most species shifted their daily pattern of detectability during the

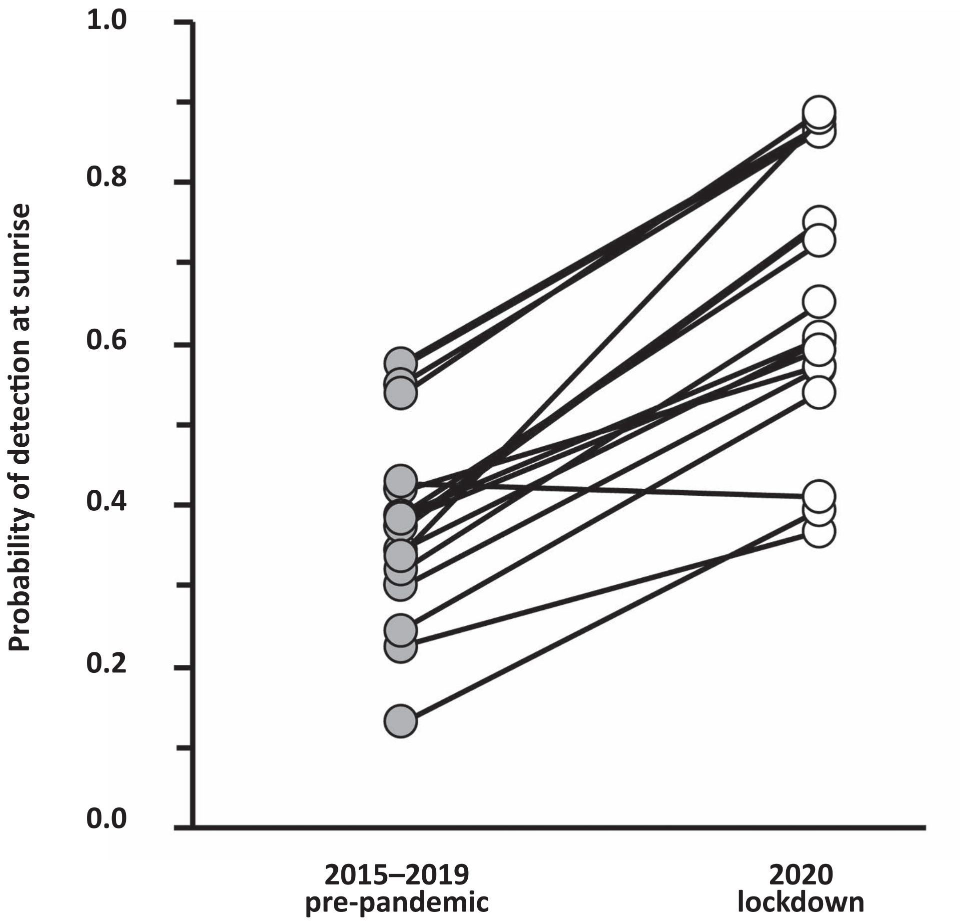

Fig. 1. Probability of bird detection in urban areas at sunrise before (2015–2019) and during (2020) the Covid-19 lockdown. Each dot represents a studied species.

lockdown. In 2020, detectability peaked at dawn and decreased until midday in most species, while in the historical urban checklists the peak of detectability was around mid-morning. Interestingly, the new lockdown pattern of detectability resembled more the pattern found in non-urban environments than that observed in urban areas in many species (Fig. 2).

The spring 2020 lockdown decreased drastically human presence and activities in urban environments, this being especially obvious during rush hours. In the case of morning rush hours, the released early morning acoustic space could be recovered by the dawn chorus. Therefore, urban birds quickly shifted their daily activity to match their maximum singing activity with dawn, as observed in natural conditions. This adaptive behaviour response to the exceptional conditions caused by people lockdown was mediated by phenotypic plasticity, as the environmental scenario in urban areas changed radically from one day to the next. Urban birds are already used to some extent to notable changes in our human routines, as those happening between working and weekend days. Therefore, the observed behaviour response demonstrates the ability of urban birds to take the maximum profit of our cities by an extraordinary behavioral flexibility.

Another important lesson from our study was that daily patterns of bird detectability were somewhat different between urban and non-urban populations. Most census protocols assume that the best moment to detect birds is early morning. We found that this happens only under natural conditions without human disturbance. If the detectability peak in urban populations is reached later (Fig. 2), their abundance would be systematically underestimated by the sampling time recommended in most bird census protocols.

This article is based on the authors' published research in the Proceedings of the Royal Society B (DOI: 10.1098/rspb.2020.2513). The authors warmly thank the users of ornitho.cat for sharing their observations and their long-term involvement in this project.

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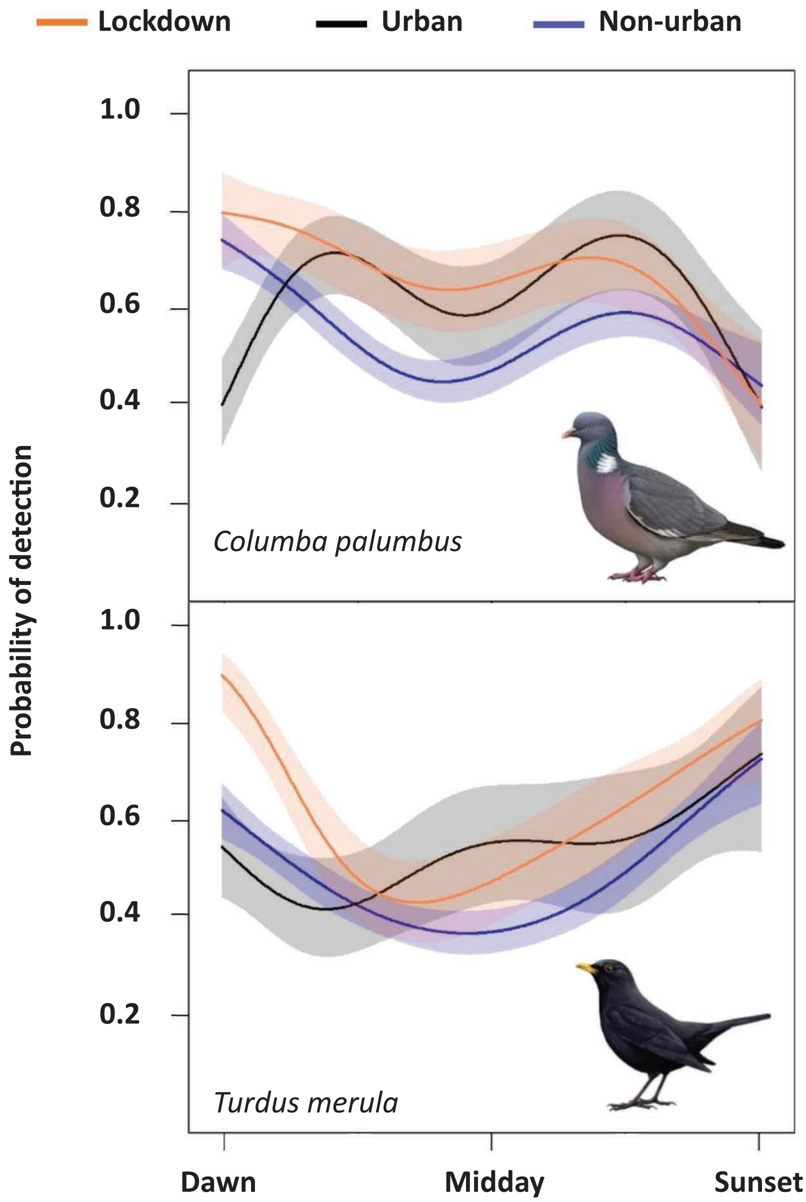

Fig. 2. Examples of daily patterns of detectability observed in the studied species for each group of checklists (orange: recorded during the 2020 lockdown; black: recorded in urban sites between 2015 and 2019; blue: recorded in non-urban environments). Shaded areas represent the 95% confidence intervals.
Illustrations © Martí Franch/Catalan Ornithological Institute

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The impact of Covid-19 on the UK Breeding Bird Survey and the production of population trends

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Introduction

The UK Breeding Bird Survey (BBS) has run annually since 1994, with volunteers visiting a stratified random sample of up to c. 4000 1-km squares. BBS data are used to produce population trends for about 120 bird species and nine mammal species and feed into Government statistics, indicators and PECBMS trends. Until 2020, the BBS had only experienced one year of poor coverage, during 2001 when an outbreak of Foot and Mouth disease prevented access to the countryside. The emergence of the Covid-19 pandemic in early 2020 changed that. Governments around the world adopted different strategies to manage the pandemic. In the UK, restrictions on people leaving their homes for nonessential travel were key measures employed to limit the spread of the virus. This nationwide 'lockdown' commenced on 23 March 2020, just prior to the start of BBS fieldwork, and ecological fieldwork did not qualify as a permitted activity. The four UK countries relaxed restrictions at different times, meaning fieldwork could commence to varying degrees at varying times across the UK. These temporally and spatially varying constraints on fieldwork had major impacts on volunteers' ability to undertake fieldwork, leading to concerns that data from 2020 would be insufficient and/or too biased to be used for trend production. As we move beyond 2020, that field season gradually recedes through the time series, but we need to understand the implications of using or removing these data on the trends we produce. We undertook a thorough analysis of patterns of coverage and biases, and tested the impact of these patterns on emergent population trends. Full details of these analyses can be found in Gillings et al. (2022) and in Noble & Gillings (2022), and a summary is provided here.

BBS coverage in 2020

Across the UK, 2029 1-km squares were surveyed in 2020, around half the number surveyed in recent years. Coverage reductions varied between countries, being most extreme in Wales (–82%) (Fig. 1). The survey design relies on two visits per square to increase the detection of scarce species, and to encompass the phenologies of a wide range of species: in 2020 only 10% of squares received both visits, with this figure varying widely between countries. Crucially, it was the early season visits that were missing (89% reduction versus 48% reduction for late season visits at UK level), and those few early visits were made on atypical dates. Squares surveyed in 2020 were biased with respect to habitats, especially on early visits and for squares in Scotland where people had to stay close to home.

BBS trends with 2020 as the final year

BBS data in 2020 were therefore limited in scale, biased spatially, temporally and with respect to habitats covered: by all accounts, it seems unlikely that such data would be suitable for trend production. Nevertheless, as several thousand volunteers took the time to make the surveys, and given the keen interest in how bird numbers varied through the pandemic, we felt it was important to test whether any robust trends could be produced. Owing to the very small sample sizes and large biases in 2020 data for Scotland, Wales and Northern Ireland, we tested whether robust trends could be produced for England. We used the complete BBS time series from 1994 to 2019 for which we knew the true observed trends (e.g. as published in Harris et al. 2020), and then degraded the 2019 data to replicate as closely as possible the levels of coverage reductions and

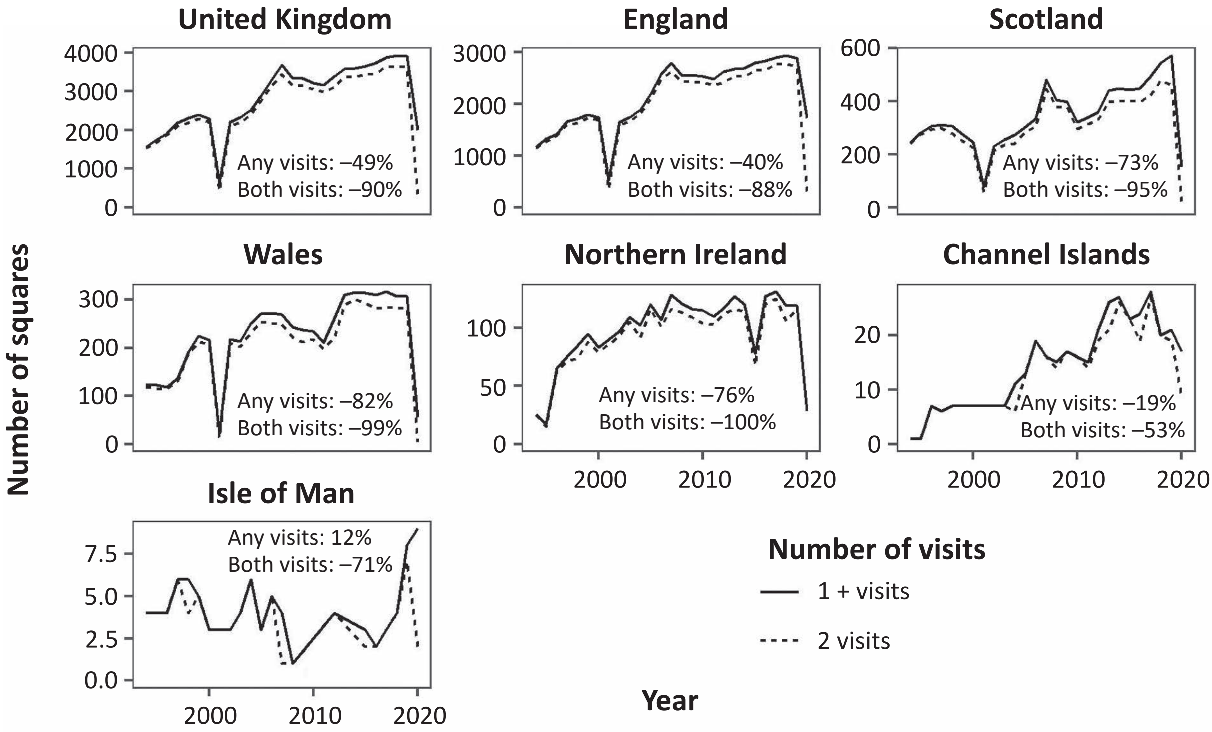

Figure 1. Numbers of BBS squares surveyed annually in the UK and constituent countries and dependencies. Separate lines are shown for the number of squares surveyed once (solid line) or twice (dashed line).

biases seen in 2020. We then reanalysed this 'degraded dataset' to test how trends were affected in comparison to the true trends extracted from the complete dataset. BBS trends are calculated using a generalised linear model with site and year effects, applied to a dataset comprising the maximum count of each species per square and year. Using this conventional approach trends were underestimated for 94% of species, with the errors being greatest for species that are usually detected in greatest numbers on early visits. We tested several alternative ways of producing trends and found that acceptably accurate trends could be produced for a subset of 57 species (about 40% of the normal total) if we used only the late visit data from all years. This allowed us to publish indicative trends for this subset of species in England, with the aim to revert to standard trend production techniques in subsequent years once normal coverage was resumed.

BBS trends with 2020 as the penultimate year

Coverage in 2021 returned to normal levels, and upon completion of fieldwork the 1994–2021 data would normally be used to produce smoothed population trends. By convention we use data from the full time series to calculate the smoothed trend but change estimates are calculated between the 2nd and penultimate years owing to greater uncertainty at the ends of the fitted smoothing splines. Given the coverage issues and biases outlined above, we intended to exclude all 2020 data from trend production. Consequently, the penultimate year would be 2020 so we needed to test that a smoothed trend estimate for 2020 would be robust in the absence of data for that year. We tested this using data for the period 1994–2019. We computed the true trends as normal, i.e. smoothed trends and change estimates with bootstrapped confidence limits for the period 1995–2018. We then omitted the 2018 data and repeated the process and compared change estimates from these degraded data to the true data. In general, errors were very small and centred on zero, albeit with a slight positive bias. This small bias was a year specific effect. When we repeated this analysis for a different period (1994–2018 data, with 2017 omitted) the bias was small and negative. This is because many species trends have inter-annual fluctuations (or observation biases) that mean individual trend points are above or below the smoothed line. Omitting such points causes these small deviations in the smoothed trend line. Reassuringly, these differ-

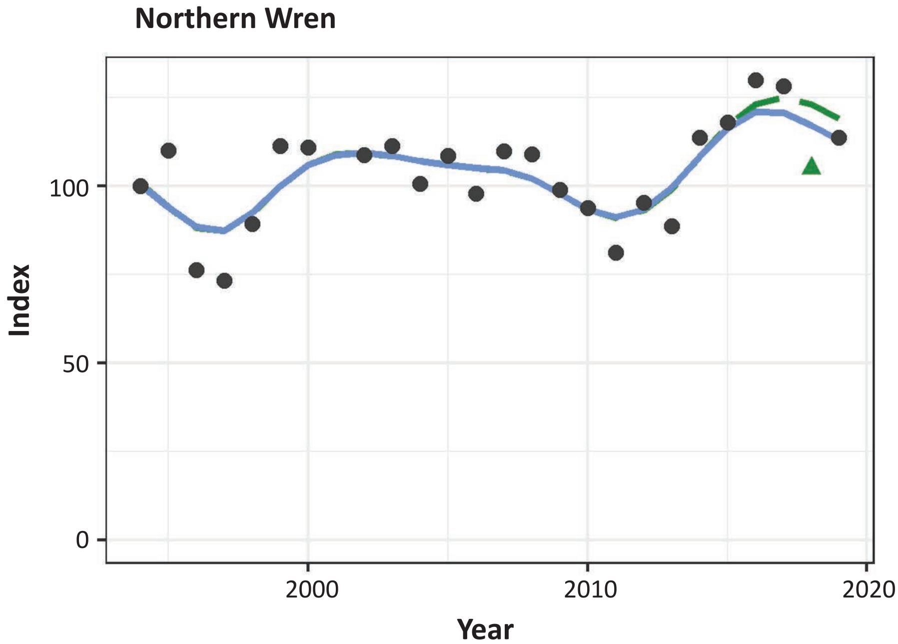

Figure 2. The true smoothed population trend for Wren (solid line) compared to the smoothed trend apparent when the penultimate year was omitted (dashed line). Points show the annual unsmoothed index values (the triangle marks the value for 2018 that was omitted when producing the degraded trend).

BTO volunteer conducting a BBS survey. Photo: David Tipling/BTO

ences are very small and for all but two species (Common Whitethroat *Sylvia communis* and Nortchern Wren *Troglodytes troglodytes*; Fig. 2) there was no significant difference between the degraded and true change estimates. This gives us confidence in 1995–2020 trend estimates produced using data for 1994–2021, with 2020 data omitted entirely.

Conclusion

The effects of Covid-19 restrictions on volunteer bird surveys in the UK in 2020 were significant and large enough to impact our ability to produce population trends in the immediate aftermath. Fortunately, as we move beyond 2020 these effects are dampened by a rapid return to high coverage. Being able to test coverage patterns against the structured survey design enabled us to easily evaluate the scale of any problems in coverage. Degrading data according to realistic scenarios was an effective tool for testing alternative ways of generating robust population trends.

Acknowledgements

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Census of breeding seabirds in Vigur Island, Westfjords, Iceland in 2021

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Abstract. The Vigur Island bird census focused on the main bird species found on the island: Black Guillemots *Cepphus grylle*, Northern Fulmars *Fulmarus glacialis*, Great Cormorants *Phalacrocorax carbo*, gulls *Larus* sp., Eurasian Oystercatchers *Haematopus ostralegus*, and Arctic Terns *Sterna paradisaea*. The Arctic Tern population was estimated by counting nests, using a transect line method. Due to the hatching of the eggs, the survey had to be stopped and only 60% of the colony area was covered. The results show that in summer 2021, Vigur hosted 1092 ± 246 SD Black Guillemot individuals, 28 ± 8 SD oystercatchers, 19 ± 8 SD Cormorants, 120 ± 34 SD Fulmars, and 58 ± 20 SD European Herring Gulls *Larus argentatus* and Lesser Black-backed Gulls *Larus fuscus*. We counted 440 occupied Arctic Tern nests, leading to an estimation of 880 breeding adults.

Introduction

Located just South of the Arctic circle, Vigur Island is a famous Icelandic touristic place in the Westfjords, known for being home to several iconic bird species, such as the Atlantic Puffin *Fratercula arctica* (hereafter Puffin), the Black Guillemot *Cepphus grylle* or the Common Eider *Somateria mollissima* (hereafter Eider). Famous for being home to 100,000 Puffins (Hansen 2019), a colony of Black Guillemots, and nesting Arctic Terns *Sterna paradisaea.* Vigur also welcomes marine mammals. Indeed, both Harbour Seals *Phoca vitulina* and Grey Seals *Halichoerus grypus*, come to rest in the southern part of the island. Vigur is also part of the maritime heritage with one of Iceland's oldest windmills, associated buildings, and a working boat (Fig. 1). Moreover, the island has a long tradition of wild Eider farming (circa 5,000 breeding pairs). Owned by a family living there year-round, this private island can be visited both for its historical heritage and for its abundant wildlife. The island attracts many tourists, photographers, and nature lovers from all around the world, mostly from June to September (BirdLife International and Directorate-General for Environment, European Commission 2015; Vigur Island 2021). With an average of 100 and up to 200 tourists visiting the island daily through several boat rotations, birds are likely to suffer from extensive disturbances.

Despite the efforts of the local guides to keep cohesive groups, visitors often find themselves scattered in several patches, progressing at different speeds, as tourists often have heterogeneous physical conditions (Fig. 2). This can be of particular concern when visitors enter the tern colony, thereby disturbing both terns and other bird species for several tens of minutes, often exceeding half an hour. This duration directly clashes with Walsh et al. (1995) recommendation that the disturbance should not exceed 20 min.

Even though different tours can be proposed to visitors, the average journey consists of boats coming from the nearby city of Ísafjörður, with groups of 10 to 60 tourists (Figs 1–2). With a pier located in the southeast, visitors immediately see seals, at low tide, before visiting the eiderdown workshop. They usually follow a guided tour during which they walk alongside the coast. There, they can observe birds breeding in Vigur. Between May and August, an Arctic Tern colony nests close to the buildings in the southern part of the island (Fig. 3). Arctic Terns are a highly territorial species, which does not hesitate to attack predators or humans coming close to the nests. Visitors are given a wooden stick they hold above their head to avoid any direct attack from terns, while they walk on the pathway (Fig. 2). Finally, they are invited to have coffee, to taste rhubarb jam, and traditional Icelandic sweets like happy marriage cake (Hjónabandssæla) made on site.

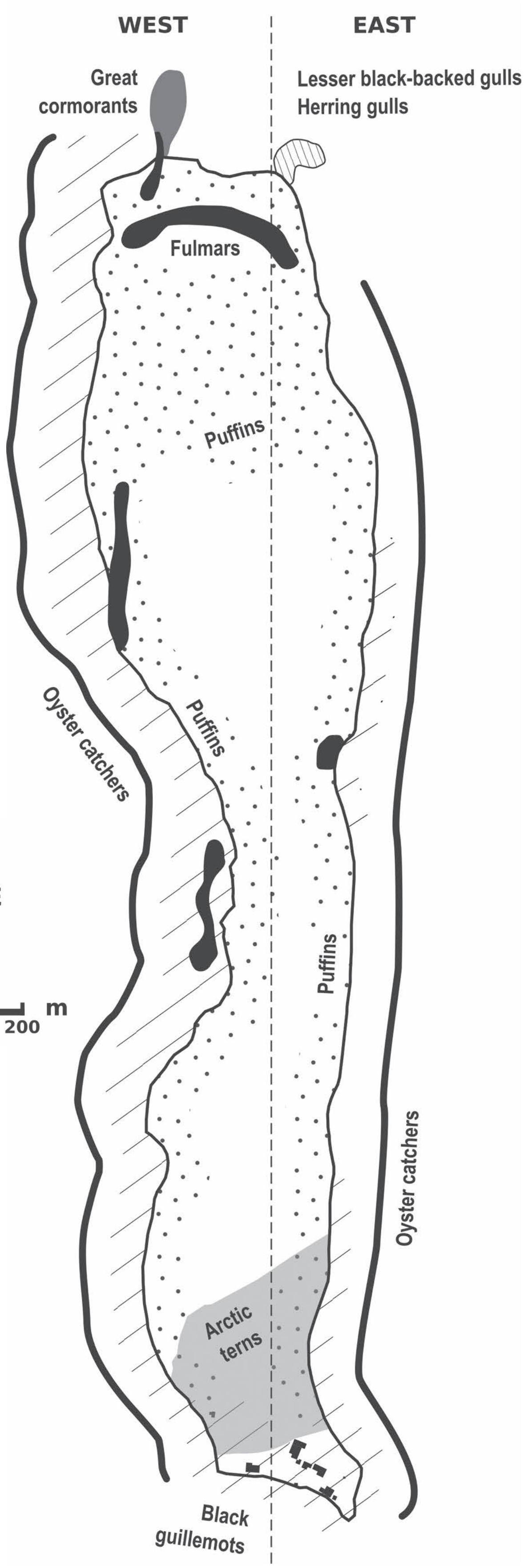
Fig. 1. Most used trio of touristic circuits in Vigur Island, Iceland.

Depending on their condition and the time of the visit, some visitors (e.g., groups of photographers, scientists, etc.) are welcomed to 'free roam' on the island, where they can see Northern Fulmars *Fulmarus glacialis* (hereafter Fulmar), Great Cormorants *Phalacrocorax carbo* (hereafter Cormorants), gulls, Puffins, and Black Guillemots in wild landscapes. Two guest houses also give visitors the possibility to stay overnight. With a length of 2 km for a width of only 400m, mostly rocky shores, and an important cliff in the north of the island, Vigur is a place where different species cohabit close to each other, including the vicinity of humans, in a context of tourism. Hence, monitoring bird populations is of critical importance, to evaluate the condition of each colony and develop appropriate management and conservation strategies to avoid stress linked to tourism activity.

This paper highlights the first census of this kind in Vigur Island. During Summer 2021, populations of the following bird species were censused: Black Guillemot, Eurasian Oystercatcher *Haematopus ostralegus* (hereafter Oystercatcher), Fulmar, Cormorant, European Herring Gull *Larus argentatus* and Lesser Black-backed Gull *Larus fuscus*. Three species of these are nationally threatened according to IUCN Red List criteria: Puffin (Critically endangered, CR), Black Guillemot (Endangered, EN) and Arctic Tern (Vulnerable, VU) (Fuglavernd 2021) and three species are also threatened in Europe: Fulmar (VU), Oystercatcher (VU) and Puffin (EN) (BirdLife International 2021). Linked to the eiderdown harvesting activity, Eider were not counted. The aims of this research were:

1) to estimate population sizes of different bird species in Vigur Island for researchers, policy-

Fig. 2. Tourists, holding flag sticks, walking through the Arctic Tern *Sterna paradisaea* colony, thus generating disturbance in Vigur Island, Iceland.



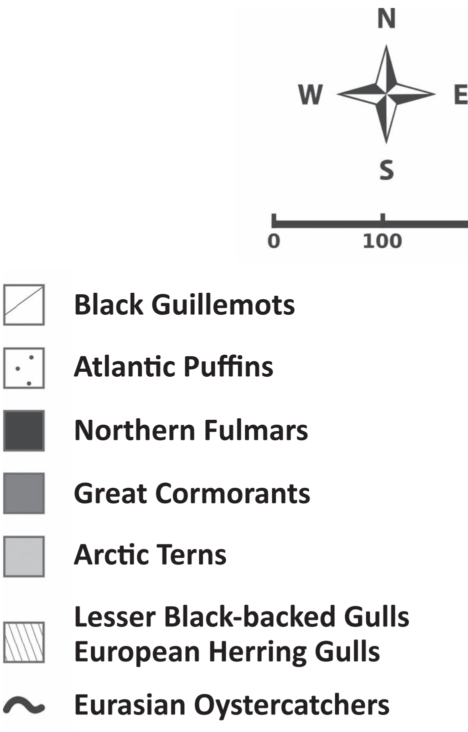


Fig. 3. Schematic distribution of the main species. Map of the seabird populations counted during the 2021 census in Vigur Island, Iceland.

makers, and conservation stakeholders, as well as a larger audience;

2) to test monitoring methods in the specific touristic context of Vigur.

Fig. 4. Arctic Tern *Sterna paradisaea* colony area and sampled units in Vigur Island, Iceland.

Methods

Arctic Tern census

The Arctic Tern colony population was estimated through a survey using the transect line method (Steinkamp et al. 2003; Sutherland et al. 2004). To properly assess the maximal extent of the colony on Vigur Island, two complete rounds of the perceived area were done along the shore while taking the GPS coordinates of the isolated nests. The GPS position of the farthest tern taking off

Table 1. GPS coordinates of Arctic Tern *Sterna paradisaea* nests* defining the colony boundaries in Vigur Island in 2021.

Outer nest	Latitude	Longitude
1	66.050163	–22.827526
2	66.049485	–22.827735
3	66.048935	–22.828074
4	66.048657	–22.827967
5	66.048389	–22.827849
6	66.047944	–22.827315
7	66.048051	–22.828070
8	66.048017	–22.828503
9	66.047797	–22.829916
10	66.047709	–22.830076
11	66.047905	–22.830660
12	66.048745	–22.831522
13	66.049508	–22.829945

* Outer nests are nests defining the limits of the Arctic tern colony. Three remote nests were also observed out of the area, with no apparent connection to the colony.

during human disturbance was recorded (Fig. 4, Table 1). Transects were defined according to topography and safety (e.g., rocks, Puffin holes, and open galleries), paying special attention not to disturb terns beyond an acceptable threshold of 20 minutes (Walsh et al. 1995). Consequently, we organised the survey into several short sessions rather than a single long visit. Particular attention has been paid to birds' eventual signs of stress. Similarly, work has been avoided in poor weather conditions such as wind, since high winds make it difficult for terns to return to their nest (Walsh et al. 1995). Moreover, the hatching season began during the counting process, increasing the risk of hurting new-born chicks.

Arctic Tern nests and eggs were counted over six days from the 25th of June to the 29th of June 2021, and the 1st of July. The two-day gap between the 29th and 1st is due to exceptionally strong winds, causing the adults to sometimes take 10 minutes to get back to their nest. The time at which eggs were counted was defined in accordance with the touristic schedule, both to protect birds and tourists (Fig. 2). As much as possible, we tried not to have transect lines crossing pathways when tourists were on the island. The transect line method consists of dividing the research area into units where counting is performed using mobile lines to avoid re-counting areas. 30 units of 20 × 30 metres were defined, starting on the 30m borders of the transect and dividing it into 6 meter wide corridors (Fig. 5), observers counted half of the sampled area. Joining at the middle, the two observers exchanged their respective counts and finished the transect by verifying the other's number. This, to double check results and decrease observers' biases (Fig. 5) (Voříšek et al. 2008).

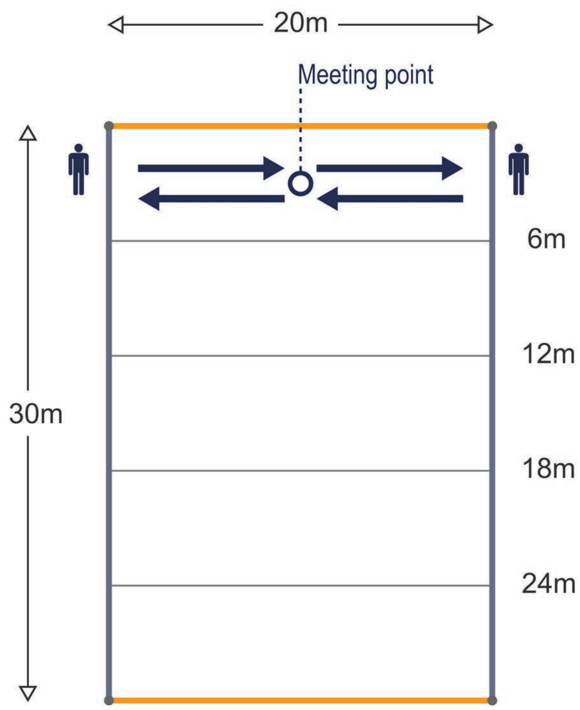


Fig. 5. Double counting by transect method used in Vigur Island, Iceland.

Due to access difficulties in some parts of the colony, and after having found many hatched eggs and chicks, we were unable to survey the whole colony. Consequently, we decided to analyse our data to see if an estimation of the total population was possible.

A correlation test was done between the cumulated number of nests and the area covered. The correlation was calculated using a generalised model approach in R (version 4.1.0; R Core Team 2021), plotting the cumulative number of nests against the sampled area, and using the Kendall correlation coefficient. We used Kendall's τ as it is non-parametric, hence fitting the relatively low number of points we had, and our assumption that we did not cover the full extent of the colony. The total number of nests for the whole colony was then estimated using the equation obtained, as well as using the mean density (nests per square metre) multiplied by the maximum estimated area. This created a range estimate of the population size. Heatmaps of the census were obtained using the software QGis version 3.10.14 (Fig. 6).

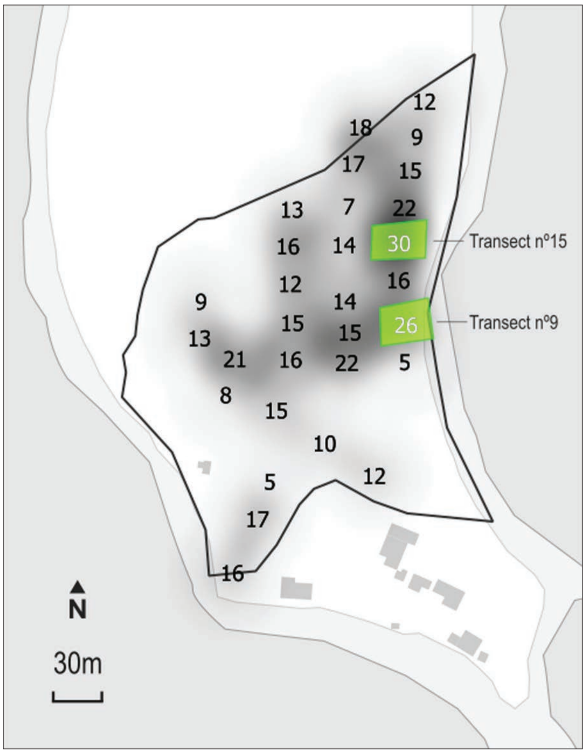


Fig. 6. Heatmap figure presenting the number of nests in the colony of Arctic Terns *Sterna paradisaea* in Vigur Island.

Other bird species census

Prior to any counting, we performed two visits around the island to locate important nesting and resting spots, identify field specificities, potential difficulties and finalise the design of our counting plan. Therefore, we decided to split counting sessions into two types: sessions dedicated solely to guillemots and sessions dedicated to the five other species of birds. Considering an Arctic Tern colony nesting close to the buildings, and the need to lower potential disturbance, we started both sessions from the southeast, towards the northeast; consequently, we walked at the edge, and in places inside of the tern colony, at the beginning and at the end of the session (Fig. 3).

Observations were made using Observer Focus TM 10 × 34 binoculars and by sound if validated by the sighting. The 'double-observer' approach was used to account for detectability (Sutherland 2006; Voříšek et al. 2008). A total of five counting sessions were conducted around Vigur for Black Guillemots, Oystercatchers, Gulls, Cormorants, and Fulmars by two observers together at the same time.

Due to difficulties in species recognition all gull species were combined.

Black Guillemot census

Black Guillemots were counted around the island (Fig. 7). We also decided to adapt our methods and the time of counting according to the sun to help species identification. Indeed, in the morning, the sea appeared very bright due to reflectance, preventing us from distinguishing, for example, Black Guillemots from Puffins. Counts were done on the western side of the island in the mornings and on the eastern side in the afternoons. Likewise, fieldwork was adapted according to the weather or tourist groups visiting the island, considering that Black Guillemots can be found close to or on buildings that are visited. Results from counting points were recorded for later analysis and comparison between observers (Nichols et al. 2000; Sutherland 2004). Prior to mixing the data, the collected data were analysed using R to detect any bias from the observers. To do so, datasets from both observers were compared using a Wilcoxon-Mann-Whitney test. Assuming that the results of the previous test were non-significant, data were combined (2 × 5 sessions, accounting for 10 sessions) to estimate the mean and standard deviation of each species population. The results were then displayed using QGis.

Results

The Puffin and the Black Guillemot are distributed around the island in great numbers, with Puffins getting as far inland as Borg, while Black Guillemots stay along the shore. The census of Arctic Terns on the island of Vigur showed a clear concentration of the population around human structures, especially the so-called 'pump house' (transect n. 9, Fig. 4). However, the colony covers most of the southern area of the island, and up to its middle, both inland and along the shore. Oystercatchers were found to use the whole island; they were distributed in pairs around the island, stationed mainly along the coast. About 28 Oystercatcher individuals were counted and are believed to nest in Vigur. However, the GPS positions of nests were not recorded. At least 58 gulls were found resting (no nesting observed) on the far northeastern point of the island, in apparently clearly defined spots. Up to 19 Cormorants were recorded at the far northwestern spot of the island. The population of Fulmars (around 120 individuals) was divided into three areas: the

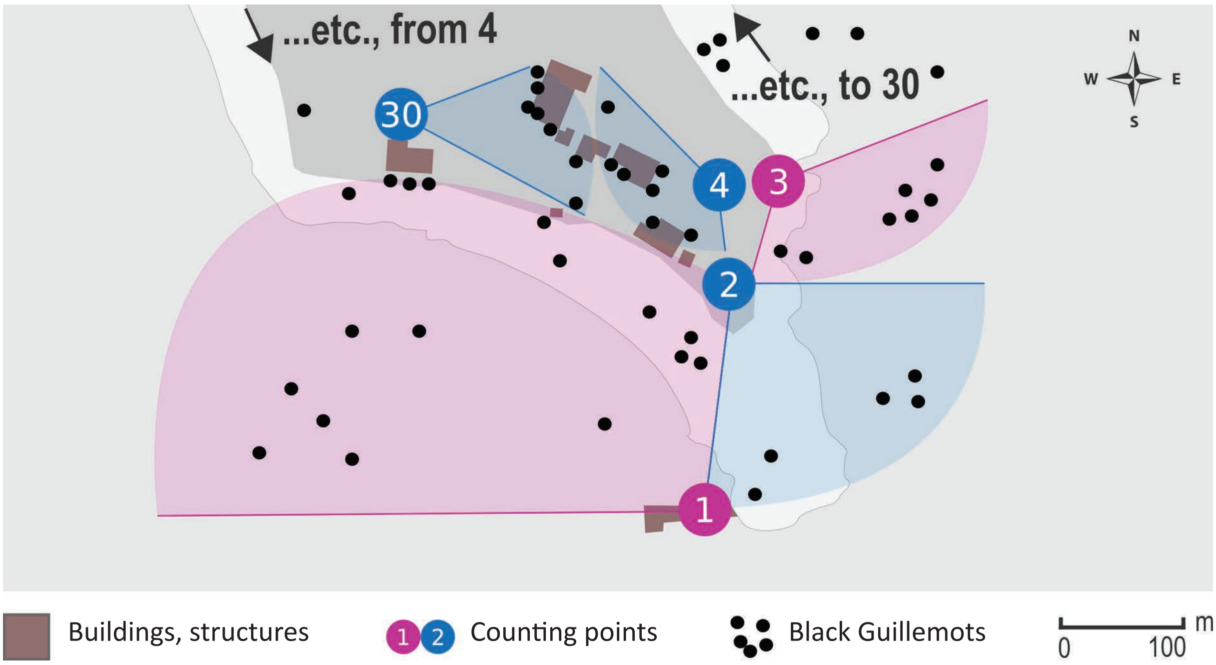


Fig. 7. Schematic illustration showing examples of the counting point principle used for the Black Guillemot *Cepphus grylle* census in Vigur Island.

north face of Borg, some specific cliffs along the western shore, and one unique spot of 12 individuals on the eastern side (Fig. 3).

Arctic terns

Figure 4 presents the Arctic Tern colony. Three remote nests were also observed outside of the area, with no apparent connection to the colony (Fig. 4, Table 1). We counted 440 nests from the 30 sampling units, which represent 18,000m² . These nests included 722 eggs and 90 chicks. This represents a density of 0.0244 nests per square metre (Table 2) and a mean number of eggs per nest of 1.8. With 440 occupied nests, it is reasonable to estimate that this corresponds to a total of 880 breeding adults (Perrins 2003).

Descriptive statistics: Arctic Terns

The correlation between the cumulated number of nests and the area covered was verified using Kendall's τ (P < 0.001), and was found to be a linear correlation like so:

Cumulated number of nests = –6.467 + 0.026 * Covered area

Based on this equation, on the mean density of nests per square metre, and considering a total colony area estimation of 29850 m², the total number of nests on Vigur Island could be estimated between 730 and 769. This represents between 1460 and 1538 breeding adults during the breeding season on Vigur.

Table 2. Summary table of Arctic tern *Sterna paradisaea* census in Vigur Island in 2021.

Per unit	Nests	Nest density by m²	Eggs	Chicks
Minimum	5	0.0083	7	0
Mean	14.67	0.0244	24.07	3
Maximum	30	0.0500	48	9
Standard deviation	5.71	0.0095	9.81	2.51
Total	440	NA	722	90

Owing to the fragmented habitat of the tern colony, leading to not evenly distributed nests, we were expecting a Standard Poisson distribution, characteristic of herd behaviour (Heinänen et al. 2008). The heat map (Fig. 6) illustrates this behaviour as the highest concentration of nests is in transects 9 and 15, associated with a more barren near coast environment (n° 15) and the pumphouse proximity (n° 9). Thus, showing gregarious nesting.

Black Guillemots

The census, made of five counting sessions, showed that 1092 ± 246 (SD) Black Guillemot individuals were present around Vigur. Table 3 presents the results of the five sessions for the two observers (A and B). The two sets of observations

Table 3. Results of the breeding Black Guillemot *Cepphus grylle* individual counts in Vigur Island in 2021.

Counting point	Session 1		Session 2		Session 3		Session 4		Session 5	
	4/07		9/07		10/07		13/07		15/07	
	A	B	A	B	A	B	A	B	A	B
1	30	30	17	19	54	44	160	151	179	194
2	16	29	11	12	19	15	60	70	45	46
3	39	40	2	2	19	19	28	21	22	24
4	67	88	5	5	16	16	12	17	32	28
5	40	40	51	47	86	90	16	18	25	25
6	52	44	2	0	38	40	32	31	24	28
7	30	43	17	23	23	20	42	46	29	60
8	57	65	6	5	17	14	28	27	29	33
9	54	41	2	0	30	33	23	22	14	13
10	15	17	2	3	60	53	26	27	22	19
11	47	47	6	6	16	17	11	13	17	14
12	15	15	0	0	39	35	67	74	57	57
13	10	10	4	4	33	35	33	31	64	62
14	21	20	12	13	35	37	14	14	20	22
15	15	28	23	28	53	46	38	38	56	59
16	2	2	28	31	47	45	27	27	81	79
17	53	100	12	13	23	22	32	30	24	24
18	20	30	0	0	30	33	53	59	33	26
19	52	52	1	1	21	26	21	21	32	33
20	14	17	1	1	33	30	22	24	11	13
21	6	9	1	0	44	35	18	19	24	23
22	0	0	0	0	17	19	28	27	19	20
23	0	0	1	0	19	17	19	18	65	62
24	4	4	77	68	33	37	19	17	28	31
25	11	11	53	43	46	45	38	35	65	63
26	5	5	85	96	157	171	35	34	25	28
27	15	15	86	87	133	126	34	32	13	13
28	24	24	187	222	44	48	62	65	10	12
29	38	40	115	121	26	26	33	33	73	77
30	14	5	45	47	195	205	85	82	82	80
Total	766	871	852	897	1406	1399	1116	1123	1220	1268
Mean/session	819		875		1403		1120		1244	
Mean	1092 ± 246									

were proved similar by a Wilcoxon-Mann-Whitney test (P = 0.7916), allowing us to use all 5 counting sessions in the calculation.

Other bird species

The remaining four species were also counted in five sessions. The census showed that 120 ± 34 (SD) Fulmar individuals, 28 ± 8 (SD) Oystercatchers, 58 ± 20 (SD) gulls, and 19 ± 8 (SD) Cormorants were present on and around the island (see Table 4).

Discussion

Arctic Terns

The Arctic Tern density of 0.0244 nests per square metre with a mean number of 1.8 eggs per nest was found to be slightly higher than in study of Mallory et al. (2017) in the Canadian Arctic. Vigur's topography, leading to inaccessible parts of the tern colony, windy weather, and the daily presence of tourists made the complete survey of the colony by the transect line method impos-

Table 4. Vigur seabird population census results.

Common name	Counted population (mean)	Standard deviation	Coefficient of variation
Eurasian Oystercatcher *Haematopus ostralegus*	28	8	28.5
Great Cormorant *Phalacrocorax carbo*	19	8	42.1
Northern Fulmar *Fulmarus glacialis*	120	34	28.3
Gulls *Larus* sp.	58	20	34.4

sible in the time allotted to us. Sampling 100% of the area would require more time, waiting for good weather conditions, or disturbing birds beyond 20 minutes. Despite having two complete weeks allocated to this study, we were only able to work six days in the field on terns. Allocating more time would inevitably have led beyond the nesting and hatching period. Consequently, the transect line method is not an ideal methodology to quickly survey the population of Arctic Terns in Vigur. However, this method is totally suitable for comparative monitoring of the tern population. We recommend collecting the GPS coordinates of the colony area on a yearly basis to monitor the size of the colony area and to regularly sample the number of nests and eggs (e.g., three to five transects a year). Although such a monitoring scheme cannot provide an absolute comparison, it can define a trend of the tern population in Vigur, particularly if the same rectangles are sampled (Fig. 6).

The results of the model show a linear correlation between the number of nests and the sampled area. Hence, we suspect that our results are still in the linear part of the logarithmic curve of the model defined by the above-mentioned linear correlation, and do not reflect the gregarious behaviour of the Arctic Tern (Heinänen et al. 2008), especially around human constructions. A more extended count of the Vigur colony would correct this model and make it more accurate, allowing us to estimate the total population of the colony from a sample, or at least to correct the number of nests counted in transects (Fig. 8).

The estimate of the number of breeders could be improved by using the geographical extent of the colony and adding habitat parameters to the model. One of the major flaws in this model is that it considers the nests, hence counting only the breeders (Pomeroy et al. 2018) and excluding the non-breeder from the estimation of

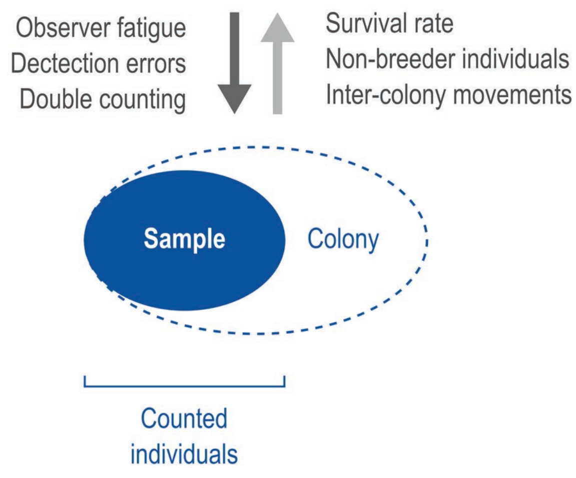


Fig. 8. Uncertainties impacting the Arctic Tern *Sterna paradisaea* census.

the population. We should stress that the model considers only nests and thus does not cover the non-breeding part of the population. Furthermore, we also lack information on hatching success and daily survival rates of the nests (Vigfusdottir 2012; Vigfusdottir et al. 2013). To reach an accurate and comprehensive population estimation, weather conditions, competition for food, predation, and behavioural responses to human disturbance should also be included in the modelling work (Syrová et al. 2020). Excluding these parameters, as well as non-breeders, can lead to severe underestimation. Moreover, population studies in Greenland show that breeding dispersal between colonies is common (Egevang & Frederiksen 2011), highlighting the presence of birds changing colonies between years. Even though terns tend to return to their birth colony (Devlin et al. 2008; Perrins 2003), breeding dispersal will also influence the output of the population estimates. Hence, long-term monitoring of Vigur's bird populations is highly important, especially when evaluating the potential influence of daily tourism and eiderdown collection.

Other bird species

Black Guillemots' count was the only one being statistically analysed prior to mixing each observer's counts due to the sheer number of birds found notably at sea. Such a high number of Black Guillemots at several counting points didn't allow proper communication between the observers, thus increasing the risk of missing individuals. Our survey found more than twice as many Black Guillemots than reported in the earlier survey conducted in 2000 (200 pairs or 400 individuals in 2000, this study 1092 ± 246 individuals) by the local research institute (Náttúrufræðistofnun Íslands, 2021a). This difference could be explained by different factors, among which the method used or the age of the last count (2000). Another explanation would be the population of Black Guillemots fleeing the observers while they moved forward, thus resulting in double counts during this survey. However, since Black Guillemots were counted when on the shore most of the time (i.e., near their nest), this is highly unlikely. Despite being found at sea on different belts, with Puffins usually the farthest, followed by Common Eiders, Black Guillemots were sometimes hard to identify where the belts overlapped. Cormorants and Fulmars were counted at their resting spots, making the communication quick and accurate, leading to equal counts between the observers. Gulls and Oystercatchers, being vocal in the presence of humans, were easy to spot using both hearing and visual perception, allowing equal counts as well.

For Puffins, binocular counting led to unusable results. Puffins were too numerous all around the island to perform an accurate, reliable, and relevant population estimation, regardless of the method used. Attempts to count birds from photographs led to similar results, with poorly identifiable and distinguishable puffins among other birds, especially Black Guillemots when at sea. Furthermore, they are estimated to be around 30,000 pairs according to Náttúrufræðistofnun Íslands (Icelandic Institute of Natural History IINH) giving about 100,000 birds, including non-breeders (Hansen 2019). Other methods based on the number of burrows present in Vigur will be used to estimate the breeding population. To properly count Puffins, a photographic approach seems to be the most sensible, as it allows minimal disturbance and an ideal counting environment. The approach developed by Pérez-García (2012) was done precisely with this mindset and would be ideal to test in Vigur. Precaution should however be taken regarding this method, as it was developed to count birds while flying rather than resting at sea (e.g., Black Guillemots and Puffins). In addition to alcids, Arctic Terns and Eider (i.e. the most abundant species on the island) could be counted by using this methodology. Using the IUCN global Red List classification, none of the species fall above the ‘Near threatened NT’ category, except puffin, deemed EN (IUCN, 2019, 2018a, 2018b, 2018c, 2018d, 2018e, 2018f). Things change drastically when the classification is done according to the European Red List, where most of the species are either EN or VU. Except the Lesser Black-backed Gull and Black Guillemots, categorised as LC (BirdLife International 2021). Finally, at the Icelandic level, the image gets grimmer as only the Cormorant stays at the LC level. All the others are VU at best, with the Puffin being the highest at ‘Critically Endangered CE’. The lack of data on the state of the gull populations in Iceland puts them de facto in the ‘Data Deficient DD’ category (Náttúrufræðistofnun Íslands, 2021b, 2021a). The Red list classifications of the breeding species in Vigur highlights that surveys like this one are needed to understand and assess status of seabird populations around Iceland. It then remains important to monitor wildlife in the case of a place like Vigur Island, which is a keystone for both conservation and local tourism.

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Contribution to the breeding bird fauna of the Mansi language area (Western Siberia, Russian Federation)

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Abstract. The paper is a supplement for specifying distribution of breeding birds in the westernmost Siberia, in the area which has rarely been visited by ornithologists, based on data collected in 1979–1987. The findings include for instance an expansion in the known distribution area of Dusky Thrush *Turdus eunomus*. On the other hand, a couple of species are pointed out which likely are absent as breeding birds in the region, in contrary to former opinions.

Introduction

In Europe, we are used to the relatively high accuracy of distribution of all breeding bird species e.g. presented on the 50 km × 50 km level (Keller et al. 2020). In many countries, national bird atlases have been prepared using 10 km × 10 km or 5 km × 5 km grids. The situation is far less satisfactory if we deal with the whole Western Palearctic which, from the biogeographical point of view, is a more logical unit than Europe. Large areas in Sahara, the Middle East and Western Siberia have been studied unevenly, and in a number of 50 km × 50 km squares no ornithological data has ever been collected at all.

In the field guide of birds of the Urals and Western Siberia, it is mentioned: "Great part of our vast region has been poorly studied by ornithologists, the boundaries of ranges of many species are depicted very approximately simply because they are not known more precisely" (Ryabitsev 2001: 10). This has been the main incentive to compile this overview, though it is based on non-systematic observations.

Some decades ago, I visited the westernmost part of Western Siberia over a period of six summers, to gather names of natural objects and other linguistic data of the Mansi language. As is my custom, I also took notes about the birds I noticed at different villages, and also recorded remarks about birds made by local hunters and fishermen. Though none of my trips were dedicated to ornithological research, a part of the collected data may be of some use for improving the knowledge about the breeding bird fauna of this region.

Material and methods

Between 1979 and 1987, I visited most of the villages and hamlets (50+) where the Mansi language is (was) spoken (Fig. 1). Thus, the study area is located mainly in the western part of the Halypúsz (Beryozovo)[1] district of Tyumen' oblast and in the Szápsza (Ivdel') district of Sverdlovsk oblast, but also in the north-western part of the Motúsz (Kondinskoye) district, north-western part of the Soveckiy district and the northern part of the Masztõrúsz (Oktyabr'skoye) district of Tyumen' oblast. The Mansi-speaking villages are situated mainly along the rivers Many Ász (Malyi Ob'), Tágt (Severnaya Sos'va), Szakv (Lyapin) and Tápsz (Tapsuy), along the upper courses of the Lússzm (Loz'va) and Polum (Pelym) rivers, and at some tributaries of the Hontõng (Konda) river. Thus the study area is crescent-shaped and remains within the middle taiga zone (only the Szakv basin is situated within the northern taiga). The south-westernmost visited settlement was Túkta (Tokhta; 61°11′N 59°43′E), the north-westernmost Szúkõrja (Shchekur'ya; 64°16′N 60°51′E), the north-easternmost Pukszámt (Neremovo; 63°42′N 65°06′E) and the south-easternmost Tojpávõl (Shugur; 60°13′N 66°28′E). In addition, some ornithological notes were taken in the neighbouring Khanty- or Russian-speaking settlements along the Ász (Ob'), Hontõng, Polum and Lússzm rivers. All of the visited villages and hamlets are marked in Fig. 1.

[1] For writing place names in the Mansi language, I have used the orthography of the Hungarian language which is their closest related one using Latin transcription. In the brackets, place names in Russian are added.

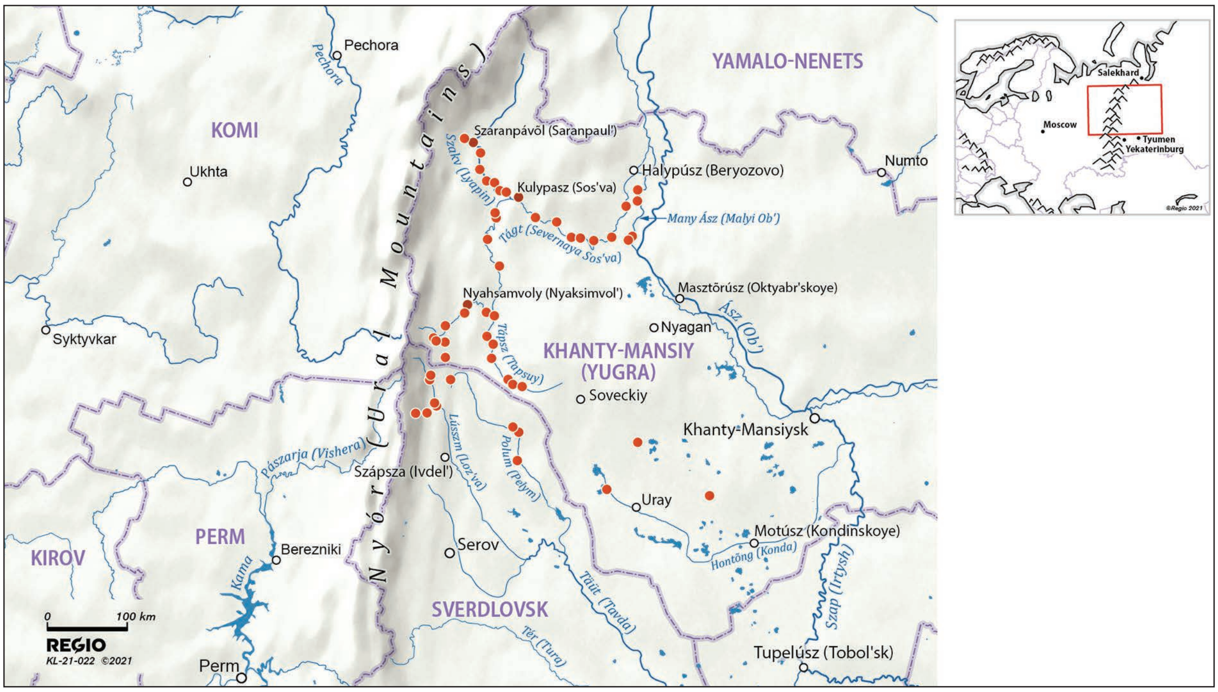

Figure 1. Location of visited villages and hamlets in the Mansi language area in 1979–1987.

Field work took place on 9th–19th August 1979, 8th–25th August 1980, 12th June–18th July 1982, 10th–25th June 1983, 10th–17th July 1985 and 25th June–4th July 1987. Thus, only the four latter trips coincide with the proper breeding season, however most of the villages where I made observations in 1979 and 1980 were revisited in later years. In 1980 and 1987, I was accompanied by the ichthyologist Arvo Tuvikene, and in 1980 also by botanists Pille Tomson and Ann Raidve (Polma).

In most cases, I visited only villages and their nearest vicinity, which makes the potential species list shorter than it otherwise might be. Between the villages, I usually moved by motorboats of local inhabitants or by public or institutional river vessels; and in the Hontõng basin — by local planes. More thorough contact with forest and mire habitats took place only in 1982 (travelling over watershed areas between the Lússzm / Polum and Polum / Tágt basins on foot) and in 1987 (by inflatable boat along the Tápsz river). Montane habitats of the Ural mountains were out of my reach, and I lack any data on their specific species (Rock Ptarmigan *Lagopus muta*, Eurasian Golden Plover *Pluvialis apricaria*, Eurasian Dotterel *Eudromias morinellus*, Swinhoe's Snipe *Gallinago megala*, Long-tailed Jaeger *Stercorarius longicaudus*, White-throated Dipper *Cinclus cinclus*, White's Thrush *Zoothera aurea*, Black-throated Accentor *Prunella atrogularis*, Citrine Wagtail *Motacilla citreola*, Lapland Longspur *Calcarius lapponicus*, Snow Bunting *Plectrophenax nivalis*).

As my notes reflect the bird community of the 1980s, I tried to compare them with contemporary and earlier data. It seems that the bird fauna of the Mansi language area has been studied very poorly. S. Reztsov visited the upper Lússzm basin in 1896 (Reztsov 1904). Montane habitats of the Urals were studied in 1926–1928 (Portenko 1937) but only occasional notes concern the journey of this expedition along the Tágt and Szakv rivers. Data from the uppermost Szakv basin were collected in 1972–1973 (Balakhonov 1978), and in the vicinity of Jalpõngnyol (Shaytanka), lower Tágt, in 1973 (Vartapetov et al. 1980). The latter place, as well as the Many Ász basin, has also been visited in 1897 (Deryugin 1898). The southern part of the former Konda-Sos'va Nature Reserve was situated within the Mansi language area and thus studied ornithologically in 1931–1946 (Raevskiy 1982). Some censuses were also carried out in the central part of the Hontõng basin in 1959 (Panteleev 1972). All other observations and studies on the birds of Western Siberia before 1990, which have been available to me, come from outside the Mansi language area.

English and scientific bird names and their sequence follow the taxonomy presented in the Handbook of the Birds of the World and BirdLife International digital checklist (2020).

Table 1. List of common and uncommon bird species which were presumably widespread in the Western Siberian study area.

Common species	Uncommon species
Common Cuckoo *Cuculus canorus* Oriental Cuckoo *Cuculus saturatus* Common Sandpiper *Actitis hypoleucos* Common Greenshank *Tringa nebularia* Wood Sandpiper *Tringa glareola* Mew Gull *Larus canus* Eurasian Magpie *Pica pica* Northern Nutcracker *Nucifraga caryocatactes* Hooded Crow *Corvus corone cornix* Willow Tit *Poecile montanus* Siberian Chiffchaff *Phylloscopus tristis* Lesser Whitethroat *Sylvia curruca* Eurasian Nuthatch *Sitta europaea* House Sparrow *Passer domesticus* White Wagtail *Motacilla alba* Brambling *Fringilla montifringilla* Eurasian Bullfinch *Pyrrhula pyrrhula* Rustic Bunting *Emberiza rustica* Yellow-breasted Bunting *Emberiza aureola*	Hazel Grouse *Bonasa bonasia* Willow Grouse *Lagopus lagopus* Western Capercaillie *Tetrao urogallus* Black Grouse *Lyrurus tetrix* Garganey *Spatula querquedula* Common Crane *Grus grus* Eurasian Curlew *Numenius arquata* Common Snipe *Gallinago gallinago* Short-eared Owl *Asio flammeus* Osprey *Pandion haliaetus* Hen Harrier *Circus cyaneus* Eurasian Sparrowhawk *Accipiter nisus* Northern Goshawk *Accipiter gentilis* White-tailed Sea-eagle *Haliaeetus albicilla* Three-toed Woodpecker *Picoides tridactylus* Lesser Spotted Woodpecker *Dryobates minor* Eurasian Hobby *Falco subbuteo* Siberian Jay *Perisoreus infaustus* Sedge Warbler *Acrocephalus schoenobaenus* Fieldfare *Turdus pilaris* Bluethroat *Cyanecula svecica* Orange-flanked Bush-robin *Tarsiger cyanurus* Whinchat *Saxicola rubetra* Common Stonechat *Saxicola torquatus* Northern Wheatear *Oenanthe oenanthe* Olive-backed Pipit *Anthus hodgsoni* Red Crossbill *Loxia curvirostra* Reed Bunting *Emberiza schoeniclus*

Results

Below, I will only briefly mention the species with even distribution, and comment more thoroughly on data concerning species with different frequency and/or distribution pattern. The "default" situation of distribution always refers to maps in Ryabitsev (2001).

<u>*Evenly distributed species*</u>

The species listed in Table 1 were distributed in suitable habitats over all the study area — they had been observed in all dialect areas and in many visited sites, sometimes in high numbers.

The common species list of Table 1 should also be supplemented by the following species: Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Willow Warbler *Phylloscopus trochilus*, Arctic Warbler *Phylloscopus borealis*, Garden Warbler *Sylvia borin* and Redwing *Turdus iliacus*. These species were widespread except for in the south-east (Hontõng river basin) where they were not noticed, however this could have been because of the field work time in mid-July. Panteleev (1972) registered all these species in the Hontõng basin in 1959 except the Pintail and Willow Warbler. Indeed, Willow Warbler was also absent at upper Tápsz between Hori szúnt (Saratovskiy Bufernyy) and Hulyumpávõl (Hulyumpaul') on 25th–28th June 1987 (but common downstream of Hulyumpávõl). On the other hand, Pintail was a well-known species to local inhabitants throughout the Hontõng basin.

Though Black Woodpecker *Dryocopus martius* and Common Raven *Corvus corax* were observed only in the southern part of the study area (upper Tágt, upper Lússzm, upper Polum, the Raven also in the Hontõng basin), they were well-known species to Mansi in all dialect areas and presumably breed throughout the study area, as shown on the maps in Ryabitsev (2001).

The following species were widely distributed over all or most of study area, but were not noticed or occurred in lower numbers in some parts of it:

* Common Goldeneye *Bucephala clangula*, Tufted Duck *Aythya fuligula* and Mallard *Anas platyrhynchos* were rather widespread in the northern part of the study area (Many Ász, Tágt, Szakv and Tápsz basins) but not noticed in the south (Lússzm, Polum, Hontõng). However, local inhabitants of the latter basins knew these species well;

* Terek Sandpiper *Xenus cinereus* followed exactly the same registration pattern but this species

might be rare or totally absent in some southern regions (areas without larger rivers, especially towards the Urals). Local Mansi considered it a rare breeding bird only at upper Polum;

* Common Tern *Sterna hirundo* was rather widespread but not noticed in the Lússzm, Tápsz and upper Tágt river basins, upstream of Kulypasz (Sos'va). According to local inhabitants, this species occurred only during migration in those basins;

* Black Kite *Milvus migrans* and Little Bunting *Emberiza pusilla* were rather widespread except in the south-west (Lússzm and Polum river basins) where they were not noticed;

* Collared Sand Martin *Riparia riparia* was widespread and often numerous in the northern part of the study area (Ász, Tágt and Szakv basins), scarcer in upper Lússzm; not registered in other southern basins (Hontõng, Polum, Tápsz), although local inhabitants of the two latter basins know the species well;

* Great Spotted Woodpecker *Dendrocopos major*, Greenish Warbler *Phylloscopus trochiloides*, Spotted Flycatcher *Muscicapa striata* and Common Redstart *Phoenicurus phoenicurus* were widespread in all southern and central regions but fewer records from villages at lower Tágt (downstream of Kulypasz) and at Szakv;

* Song Thrush *Turdus philomelos* was widespread in all southern dialect areas, a few records northwards up to Kulypasz but not noticed downstream at lower Tágt nor at Szakv;

* Green Sandpiper *Tringa ochropus*, Bohemian Waxwing *Bombycilla garrulus*, Common Chaffinch *Fringilla coelebs*, Common Rosefinch *Carpodacus erythrinus* and Eurasian Siskin *Spinus spinus* were widespread except north-east (river basins of lower Tágt downstream of Kulypasz, and Many Ász) where not noticed, except for two registrations of Common Chaffinch at the Many Ász and one record of the Green Sandpiper in a neighbouring Khanty village Mulipávõl (Muligort).

The uncommon species listed in Table 1 were observed in different regions in less than 10 cases because their density was not high, their breeding habitats were visited occasionally and/or their displaying period had passed and thus detectability may have decreased before the season of my field trips. Presumably, they were distributed throughout the study area which in many cases is supported by data gathered from local inhabitants.

Unevenly distributed species

Whooper Swan *Cygnus cygnus* turned out to be rather common around the Many Ász river but single pairs or broods were also observed in the Szóraht (Kempazh) river basin (from the helicopter) and on Lake Túrvat (uppermost Tágt).

All four observations of Goosander *Mergus merganser* were from the vicinity of Manyja-szúntpávl (Ust'-Man'ya; upper Tágt), with flightless broods upstream of it (19th–20th August 1980). As the bird was well-known by local inhabitants of all regions, its actual distribution may be much wider. Nevertheless, the species seemed to be more typical of fast flowing mountain rivers.

Although I observed Northern Shoveler *Spatula clypeata* only in the Ász and lower Tágt basins, it was probably distributed widely, which is supported by the species recognition among local inhabitants throughout the study area. The same was valid for Eurasian Wigeon *Mareca penelope* noticed by me in the Ász and Szakv basins.

The only village within the study area where Feral Pigeon *Columba livia f. domestica* was met was Szórtõngja (Sartyn'ya), at lower Tágt (13th July 1982).

All Red-throated Loons *Gavia stellata* and Arctic Loons *Gavia arctica* were observed in the middle Tágt and Szakv basins, the latter species also at the Tápsz. However, both species are well-known by local people throughout the study area and presumably have a widespread distribution, especially the Arctic Loon.

Eurasian Oystercatcher *Haematopus ostralegus* was registered mainly along the Ász but also at the lower Tágt (Voszõngtur (Vanzetur) 18th June 1983). Along the middle and upper Tágt, the species was known only as a transit migrant by local Mansi.

In addition to the expected occurrence of Little Gull *Hydrocoloeus minutus* in the Many Ász and Hontõng basins, at least one pair was noticed also at Hószloh (Hoshlog; at Szakv) on 4th–6th July 1982. Breeding records of Black-headed Gull *Larus ridibundus* were limited to the Ász, lower Tágt (Ánja (Aneyeva) village) and Hontõng basins.

Barn Swallow *Hirundo rustica* was registered sparsely in different sites in the southern part of the study area (the Hontõng basin, upper Polum, upper Lússzm, upper Tágt). The northernmost breeding sites were situated in Nyahsamvoly (Nyaksimvol') in 1980 where it was regarded a recent newcomer (and it was not breeding any more in 1987). Additionally, the species inhabited Ánja at lower Tágt at least in 1982 but was lacking in all villages between them. However, local inhabitants remembered that "in the past" the species had bred in more villages, e. g. Hulyumszúnt (Hulimsunt) at middle Tágt, Lópmusz (Lombovozh) at Szakv, Púj Nyárõ Humit (Verhniye Narykary) at Many Ász, etc. To facilitate nesting, people added a special board to the eaves of their house.

Common Starling *Sturnus vulgaris* was noticed in two separate regions: upper Lússzm basin (Vísszm, Jalpõngja úsz) and upper Szakv basin (Szúkõrja, Szaranpávõl (Saranpaul'), Hószloh). According to local inhabitants, Starlings bred as newcomers also elsewhere at Tágt and Szakv in the 1970s–1980s, but mostly temporarily, e.g. in Nyahsamvoly they became extinct by 1987.

Mistle Thrush *Turdus viscivorus* was mainly observed in the south-west (upper Lússzm, upper Polum), with the northernmost specimens near Lépja pávl (Leplya), uppermost Tágt. An isolated place of occurrence was in a burnt wood near Szórtõngja, at lower Tágt.

Though all my checked registrations of Black-throated Thrush *Turdus atrogularis* were made at the Tápsz, this species was probably distributed much more widely. The same is valid for Eurasian Wryneck *Jynx torquilla* recorded in the Tápsz and upper Lússzm basins.

Eurasian Tree Sparrow *Passer montanus* was recorded in villages at lower Tágt — Pánszuj (Igrim), Ánja, Szórtõngja, Kulypasz –, at the Szakv — Horõngpávõl (Hurumpaul') — and, on the other hand, in the very south: in Szupõr põ̃võl (Supra) and in the railway settlement of Pelym. It seems to be lacking in most of the study area.

As most of observations of Western Yellow Wagtail *Motacilla flava* were made in August, all these observations may have already considered passing through migrants. Probably it is a scarce breeding bird mainly in the northern and western parts of the study area.

Two-barred Crossbill *Loxia leucoptera* has been observed only twice, in both cases at the Szakv river in July 1982 (Szúkõrja and Lópmusz).

Species at their eastern or northern boundary of distribution

According to local inhabitants, Common Woodpigeon *Columba palumbus* was a newcomer everywhere (even in the south-westernmost part of the study area) except probably the Hontõng basin. It was still rare everywhere. During my trips, I observed the species five times, in all cases in 1982: at Vísszm (Ushma; upper Lússzm basin), in and downstream of Manyja-szúnt-pávl (upper Tágt), in the cemetery of Szórtõngja (lower Tágt) and in a fresh boreal forest near Szúkõrja (upper Szakv).

All observations of Common Swift *Apus apus* are limited to the southern part of my study area (upper Tágt, upper Lússzm, upper Polum, Hontõng basin), with the northernmost birds recorded near Tápsz-szúnt-pávõl (Ust'-Tapsuy). Common Swift shares this distribution pattern with Great Tit *Parus major* whose northernmost records were noticed at Kerszkolõngja pávl (upper Lússzm, 16th June 1982) and at Nalmpávõl (Tápsz river, 26th June 1987).

Three species were observed at the southernmost edge of the study area. The only record of Corncrake *Crex crex* dates back to 10th June 1983 in Masszava (Massava), middle Polum basin. I observed Little Ringed Plover *Charadrius dubius* only in Szuojim (Shaim; Hontõng basin) on 14th July 1985. Eurasian Golden Oriole (*Oriolus oriolus*) was heard at Lugovoy airport (Hontõng basin) on 13th July 1985. All these species were unknown to Mansi. They are probably absent in most of the study area except the Hontõng basin where reported also by Raevskiy (1982) and Panteleev (1972).

Northern Lapwing *Vanellus vanellus* was noticed along the Ász but also in the upper Tágt, Lússzm and Hontõng basins. According to local inhabitants, this species has also settled in mires of middle Tágt, Tápsz and Szakv basins, as a rare newcomer. In the 1910s–1940s, the Lapwing was only an accidental behind the eastern border of the study area (Shukhov 1916, Raevskiy 1982). This expansion is in line with recent and future trends in distribution in the European part of Russia (Keller et al. 2020, Huntley et al. 2007).

Registrations of Black-tailed Godwit *Limosa limosa* turned out to have similar pattern: at the Many Ász (widespread) and lower Tágt (Tumpovõl-túr mire near Kúrtja (Toboldino)), but an agitated pair was also observed in the Manytúr mire 9 km south of Manyja-szúnt-pávl (upper Tágt) on 25th June 1982. Taking into consideration that the species was relatively common in large mires of the former Konda-Sos'va Nature Reserve in 1931–1946 (Raevskiy 1982) and occurred in the Hontõng basin in 1959 (Panteleev 1972), it might have been much more widespread. However, the species was almost unknown to local Mansi unlike most other waders.

Display flights of Eurasian Woodcock *Scolopax rusticola* were noted in the southern part of the study area (upper Tágt, Tápsz, upper Polum) but according to local Mansi the species is also present in upper Lússzm, middle Tágt, Szakv and maybe also Many Ász basins.

All the few checked registrations of European Honey-buzzard *Pernis apivorus* and Goldcrest *Regulus regulus* were made at the Tápsz and upper Tágt. The only observation of Greater Spotted Eagle *Clanga clanga* was made at lower Tápsz on 30th June 1987.

Registrations of Eurasian Buzzard *Buteo buteo* are limited with uppermost Tágt and upper Lússzm basins, with the northernmost specimens near Manyja-szúnt-pávl.

The only Grey-faced Woodpecker *Picus canus* and Common Kestrel *Falco tinnunculus* were observed at Vísszm (upper Lússzm basin) on 16th and 17th June 1982, respectively. A nest of the first mentioned species was found. According to local inhabitants, Grey-faced Woodpecker was a rare inhabitant also in the upper Tágt (up to Nyahsamvoly in the north) and Tápsz basins. The Common Kestrel seems to be absent from village and floodplain landscapes in the whole Tágt basin (incl. Szakv and Tápsz).

Red-backed Shrike *Lanius collurio* was observed only three times and only in the westernmost parts of the study area: 12th August 1979 upstream of Szúkõrja (adult with a fledged juvenile), 18th August 1980 upstream of Manyja-szúnt-pávl (fledged juvenile) and 16th June 1982 near Vísszm.

Coal Tit *Periparus ater*, European Robin *Erithacus rubecula* and Tree Pipit *Anthus trivialis* were recorded in the south-western part of the study area (upper Tágt, Tápsz, upper Lússzm, upper Polum). Elsewhere there is only one observation of the Tree Pipit from the lower Tágt region (11th July 1982 Szórtõngja).

The range of Eurasian Skylark *Alauda arvensis* should cover all the study area (Ryabitsev 2001). However, I registered the species only outside of it, near Uvat (at the Irtysh river), and maybe on 15th June 1983 also near Nyárõ Humit (on floodplains of the Many Ász). It seems to be lacking in most of the study area.

The only two Booted Warblers *Iduna caligata* were noticed in a birch overgrowth near Túkta (upper Lússzm basin) on 13th June 1982. The song of River Warbler *Locustella fluviatilis* was heard on 25th June 1987 upstream of Nalmpávõl (Nalmipaul') at the Tápsz River.

Though the distribution of Blyth's Reed-warbler *Acrocephalus dumetorum* should cover all of the study area, I registered the species only in the south-western part of it (upper Tágt, upper Lússzm, upper Polum). The northernmost specimens were heard singing at and near Tápsz-szúnt-pávõl on 1st –2nd July 1987. The species was more numerous in Russian settlements at the edge of the study area — Jalpõngja usz (Vizhay) and Hori szúnt — in a more anthropogenic environment.

The distribution of Long-tailed Tit *Aegithalos caudatus* was similar to the last mentioned species: all registrations come from the upper Tágt and upper Lússzm basins, with the northernmost specimens near Tápsz-szúnt-pávõl (further north at Hulyumszúnt, local inhabitants considered it an autumn visitor from the south). In places at the Tápsz river, the species was strikingly numerous in 1987, with abundant broods. The distribution and commonness of European Pied Flycatcher *Ficedula hypoleuca* is similar, but this species was also met in the south-east (Hontõng basin). The northernmost singing males were registered at Kerszkolõngja pavl (upper Lússzm) and near the mouth of the Nyurmja river at the Tápsz, i. e. at 61°40'–62°.

The only male of Eurasian Blackcap *Sylvia atricapilla* was heard singing near Soltitpavõl at the Tápsz river (27th June 1987).

The distribution of Common Whitethroat *Sylvia communis* seems to be limited to the south-westernmost edge of the study area (upper Lússzm, upper Polum). The same is valid for Yellowhammer *Emberiza citrinella* which was noticed only at Jalpõngja úsz and Túkta (both upper Lússzm basin) on 12th–13th June 1982.

Grey Wagtail *Motacilla cinerea* turned out to be a common species along the rivers Tágt (upper course, upstream of Nyahsamvoly) and Tápsz. The only observation elsewhere was made near Túkta (Lússzm basin).

Species at their southern or western boundary of distribution

Four adults and six flightless juveniles of Bean Goose *Anser fabalis* were observed on 30th June 1987 on lower Tápsz, downstream of the mouth of the Vórja river. The species distribution was probably patchy but, according to local Mansi, may cover most of the study area except the Hontõng basin where it was only considered as a transit migrant (Tojpávõl (Shugur), Csantõrjõ (Chantyr'ya), etc.).

Siberian Gull *Larus fuscus heuglini* was registered only in the northern part of the study area (Ász, lower and middle Tágt, Szakv basins) upstream up to Horõngpávõl on the Szakv.

The only three observations of Merlin *Falco columbarius* were made at Kulypasz (1980) and Szórtõngja (1982) but the species may be distributed much further south. The Peregrine Falcon *Falco peregrinus* was observed soaring on 10th August 1980 near Kulypasz.

Siberian Tit *Poecile cinctus* inhabited the whole Tágt basin up to its uppermost course in the south-west (Manyja-szúnt-pávl, Túrvat) but I did not register it in more southern basins and even not at the Tápsz river.

On 10th–12th August 1979, a large number of adults and juveniles of Dusky Thrush *Turdus eunomus* were observed SW of Szúkõrja (upper Szakv). Three years later it became evident that there exists a permanent breeding population — on 2nd July 1982, I noticed agitated adults SE of the same village in a mixed landscape of old riverbeds and fir-dominated fresh boreal forest. Probably this population forms an isolated distribution patch, as there are no other observations from the study area. However, in September 1876 one specimen of this species was shot in Ustrem (at the Many Ász, NE of the study area) (Shukhov 1916).

Redpoll *Acanthis flammea* was recorded only once at Nyahsamvoly (3rd July 1987).

Pine Bunting *Emberiza leucocephalos* was observed twice: SE of Szórtõngja (11th July 1982) and near Szupõr põ̃võl (16th July 1985; adult carrying food for young).

<u>*Probable non-breeders*</u>

* A pair of Red-breasted Goose *Branta ruficollis* was observed on 2nd July 1987 ca 16 km downstream of Nyahsamvoly (upper Tágt). Local inhabitants of the same region consider this species a rare transit migrant, probably some pairs stay as summer visitors.

* A Bar-tailed Godwit *Limosa lapponica* was recorded on 10th August 1979 near Szúkõrja, and a male Ruff *Calidris pugnax* on 17th August 1979 at Lópmusz (both in the Szakv basin). These observations likely consider stopover birds during migration but possible breeding within the northern taiga zone cannot be excluded.

* A pair of Temminck's Stint *Calidris temminckii* was noticed on 15th June 1983 at Lúj Njárõ Humit (Nizhniye Narykary; at the Many Ász), and a single bird on 13th July 1982 at Szórtõngja (middle Tágt). It is difficult to guess whether there may have been an exceptional or isolated nesting site (in the first case), or non-breeding birds spent their summer south of the continuous breeding range which is (was?) quite close the study area, starting from Ustrem at the Many Ász in 1897 (Deryugin 1898).

Discussion

On the basis of such randomly gathered data, no major conclusions can be drawn. Certain specifications of the range boundaries of a few species were presented above.

However, Ryabitsev (2001) presumes the occurrence of a number of species within the study area which I did not register at all. Analysis of this list may deserve some attention. These lacking species may be considered in four different groups.

Firstly, I excluded most of the uncertain and dubious records from the data — however, these might be the only ones for some species (Eurasian Pygmy-owl *Glaucidium passerinum*, Smew *Mergellus albellus*, Golden Eagle *Aquila chrysaetos*, Yellow-browed Warbler *Phylloscopus inornatus*, Siberian Rubythroat *Calliope calliope*, Dunnock *Prunella modularis*).

Secondly, there are a number of species whose breeding habitats (e.g. large mires and other wetlands) were visited occasionally, which are not very abundant, and/or are vocally active in spring (before the season of my field trips). Presumably, they are distributed throughout the study area or at least in most of it, which in many cases is supported by data gathered from local inhabitants (Table 2). One should also note that maybe the critically endangered Siberian Crane *Leucogeranus leucogeranus* still bred in the 1980s in some remote mires (local Mansi considered it a very rare bird in the Ász and Tágt basins, and declared it probably extinct in the Szakv basin). By now, its total Western Siberian population is estimated at less than 20 individuals (IUCN 2022).

Thirdly, there are some species which had been presumed to breed in the study area, but which most probably were not breeding in the area, either due to the absence of suitable habitats or to the former tendency to include the area covered by occasional breeding or by mere observations into the permanent distribution range. I regard the following six species absent from the study

Table 2. List of species which were likely breeding in the Western Siberian study area, but were not observed during the study visits.

Group	Species
Likely uncommon breeding species in the area	Horned Grebe *Podiceps auritus* Spotted Crake *Porzana porzana* Whimbrel *Numenius phaeopus* Great Snipe *Gallinago media* Boreal Owl *Aegolius funereus* Great Grey Owl *Strix nebulosa* Ural Owl *Strix uralensis* Eurasian Eagle-owl *Bubo bubo* Great Grey Shrike *Lanius excubitor* Lanceolated Warbler *Locustella lanceolata*
Likely breed in the northern part of the study area	Velvet Scoter *Melanitta fusca*[1] Pintail Snipe *Gallinago stenura*[2] Jack Snipe *Lymnocryptes minimus* Arctic Tern *Sterna paradisaea* Northern Hawk-owl *Surnia ulula* Rough-legged Buzzard *Buteo lagopus*[3] Red-throated Pipit *Anthus cervinus* Pine Grosbeak *Pinicola enucleator*
Likely breed in the southern part of the study area	Common Pochard *Aythya ferina*[4] Stock Dove *Columba oenas* Oriental Turtle-dove *Streptopelia orientalis* European Nightjar *Caprimulgus europaeus* Common Coot *Fulica atra* Black Stork *Ciconia nigra*[5] Long-toed Stint *Calidris subminuta* White-winged Tern *Chlidonias leucopterus* Northern Long-eared Owl *Asio otus* White-backed Woodpecker *Dendrocopos leucotos* Red-footed Falcon *Falco vespertinus* Eurasian Jay *Garrulus glandarius*[6] Icterine Warbler *Hippolais icterina* Pallas' Grasshopper-warbler *Locustella certhiola* Hawfinch *Coccothraustes coccothraustes* Long-tailed Rosefinch *Carpodacus sibiricus* European Goldfinch *Carduelis carduelis*
May breed in the Many Ász basin	Greylag Goose *Anser anser* Greater Scaup *Aythya marila*[1] Gadwall *Mareca strepera*
Likely inhabit foothills of the Urals and the uppermost Szakv basin	Red-breasted Merganser *Mergus serrator* Yellow-browed Warbler *Phylloscopus inornatus*

[1] well-known as a transit migrant, [2] at least in Szakv basin, [3] at least in the Urals, [4] rare, [5] at least in the Hontõng basin, [6] locals know it up to 63° in the north at middle Tágt

area as breeding birds, at least in the 1980s: Common Quail *Coturnix coturnix*, Common Scoter *Melanitta nigra* (locals observed during transit migration), Eurasian Jackdaw *Corvus monedula* (locals observed accidentally), Rook *Corvus frugilegus* (locals observed it as a newcomer but no rookeries exist), Northern House Martin *Delichon urbicum* and Northern Wren *Troglodytes troglodytes*.

Fourthly, there are three more species which should be widespread according to Ryabitsev (2001): Eurasian Treecreeper *Certhia familiaris*, Red-throated Flycatcher *Ficedula albicilla*, Meadow Pipit *Anthus pratensis*, as well as Parrot Crossbill *Loxia pytyopsittacus* in the western part of the study area. In the 1980s all four were also familiar to me by vocalizations, and I did not made any observations in the study area, which seems to indicate the absence (or extreme rarity) of them. Nevertheless, Meadow Pipit breeds numerously in the montane tundra of the Urals (Portenko 1937) and it might breed within large mires of the northern part of the study area (this habitat was not visited there), but it is obviously absent from floodplains and other grasslands. Danilov (1965) also states that he has not found the species south of Muzhi, according to Ravkin (1978) it was absent at Polnovat (both behind the NE boundary of the study area), and it was only recorded as a rare transit migrant in the former Konda-Sos'va Nature Reserve (Raevskiy 1982).

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EUROPEAN MONITORING NEWS

Introducing the EBCC board: Jean-Yves Paquet

Aleksi Lehikoinen

What is your title and the current working position?

I'm Head of the Department of Studies of Natagora, one of the main nature conservation associations in Belgium, and one of the two BirdLife partners in my country, together with Natuurpunt, our sister organisation in Flanders. Natagora combines conservation actions, nature education and conservation biology activities. We mostly focus on bats, amphibians, reptiles and, of course, on bird study and protection. Natagora is indeed the result of the union of several naturalist associations including Aves, committed to bird study and protection in Belgium since 1953, and Aves is still the name of our ornithological journal. I'm very proud to work with a team of about 15 experts in biodiversity monitoring, working in good collaboration with thousands of volunteering naturalists.

Can you tell more about how you are using citizen science data in your work?

Citizen science is at the heart of our everyday job, rooted in the passionate work of hundreds of naturalists, some of whom created our association more than 60 years ago. All birdwatchers, experienced or not, can contribute in many ways to a knowledge network that encompasses a bird recording portal, dedicated monitoring schemes and also specific projects, i.e. monitoring of the effect of agro-environment schemes on birds. Our idea is also to develop tools that are both useful for science and conservation, and enjoyable and useful for the users themselves, hence our investment in Observation.org data portal (Observations.be in Belgium). We believe it is very important that the users get easy access to nice visualisation tools (maps, graphs, lists,...) of their own records, and an easy visualisation of other observations. This portal was seen by some as a "rarity-focus birder tool" in the beginning, but it turns out to be an essential tool for the knowledge of nature in Belgium and abroad, as it not only focuses on birds but also any other living organisms. Many institutions are now requesting Observations.be data and using them for applied or more fundamental research. However, the core of our citizen data is still based on more standardised counts, common terrestrial bird monitoring, wintering waterbird counts but also surveys of colonial and rare breeding birds. Twenty years after the last one, we just started a new bird atlas project, both in the breeding season and, for the first time, in the winter. For all these projects, collaboration with the EBCC family is very important, and we are very happy to contribute to PECBMS, EBBA2 and EuroBirdPortal. We think observer involvement is increased by showing that their data are fed into these international projects. We were particularly happy a few years ago to welcome Petr Voříšek (at that time PECBMS coordinator) and Verena Keller (EBBA2 leading author) at our national bird conferences.

One of our goals is also to help ornithologists that are focusing on species-specific studies, or any ecological studies about birds and habitat, to publish their work. My colleagues and I devote some time to either help them with data curation, statistical analysis or even the writing process. The wealth of field data meticulously collected by specialised ornithologists in their free time is simply amazing. These data could really bring important insight into some ecological questions, but they are sometimes sleeping for ever in their notebooks, simply because "field people" don't have time or expertise to bring them to light. Citizen science data are therefore not limited to big data.

Personally, I also like field trips with birdwatchers who are still developing their skills (Natagora developed a comprehensive set of long-term training programmes for birdwatchers). I'm always amazed by their eagerness to learn and to better record birds they watch for their pleasure in their free time.

Did your PhD thesis concern birds? If yes, could you tell a bit more about it?

Not at all! I did a PhD in molecular microbiology. I have always been fascinated by the interactions between all living organisms, being birds or bacteria. I learned a lot during these years, and enjoyed it very much, but with time you realise that you can't live all your passions with only 24 hours a day. So I jumped on an opportunity to redirect my career by working on forest biodiversity and eventually bird ecology. As an undergraduate, I also had the chance to go for a five-month training in the Ebro Delta, where I participated in a study on wintering Marsh Harrier. During this stay, I met some of the people that are now working at the Institut Català d'Ornitologia, deeply involved in the EBCC projects.

What is your current role in the EBCC?

As "Communication Officer" in the EBCC board, I'm trying to help other people, especially Aleksi to run Bird Census News and contribute to the EBCC Twitter account (https://twitter.com/_EBCC). I also had the chance to chair the Scientific Programme Committee for our conference in Lucerne in spring 2022. I'm also involved in the EuroBirdPortal steering committee.

In which monitoring programmes have you participated in the field?

I have covered common bird monitoring plots in Belgium since 1990, and wintering waterbird plots for many years too. I also particularly enjoy breeding passerine monitoring, especially farmland or open-habitat species. One of my favourite field actions is to participate in the breeding bird atlas. It gives you the opportunity to explore new locations, and sometimes to discover unnoticed little jewels of nature, that you would never have visited without the "excuses" of searching for breeding birds. A great moment of fun was to contribute to EBBA2 in some remote corner of Europe with a group of travelling birdwatching friends.

Do you have a favourite bird or birding habitat/location?

It's difficult for me to choose one "favourite" bird or birding location, there are so many in Belgium and abroad. I started watching birds many years ago in a relatively well-preserved extensive farmland habitat in the south of Belgium, a large landscape of meadows, hedges and small rivers. There are very few roads crossing it, a very rare situation in Belgium! For me there is nothing more relaxing than to wander from one meadow to another, looking for new Red-backed Shrike territories and discovering Black Storks feeding on the small river.

Your text in the next issue?

Bird Census News is meant as a forum for everybody involved in bird census, monitoring and atlas studies. Therefore we invite you to use it for publishing articles and short reviews on your own activities within this field such as (preliminary) results of a regional or national atlas or a monitoring scheme, species-specific inventories, reviews or activity news of your country (as a delegate: see also below).

Instructions to authors

– Text in MS-Word.
– Author name should be with full first name. Add address and email address.
– Add short abstract (max 100 words).
– Figures, pictures and tables should not be incorporated in the text but attached as separate files.
– Provide illustrations and figures both in colour.
– The length of the papers is not fixed but should preferably not exceed more than 15 pages A4 (including tables and figures), font size 12 pt, line spacing single (figures and tables included).
– Authors will receive proofs that must be corrected and returned as soon as possible.
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– References in the text: Aunins (2009), Barova (1990a, 2003), Gregory & Foppen (1999), Flade et al. (2006), (Chylarecki 2008), (Buckland, Anderson & Laake 2001).
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