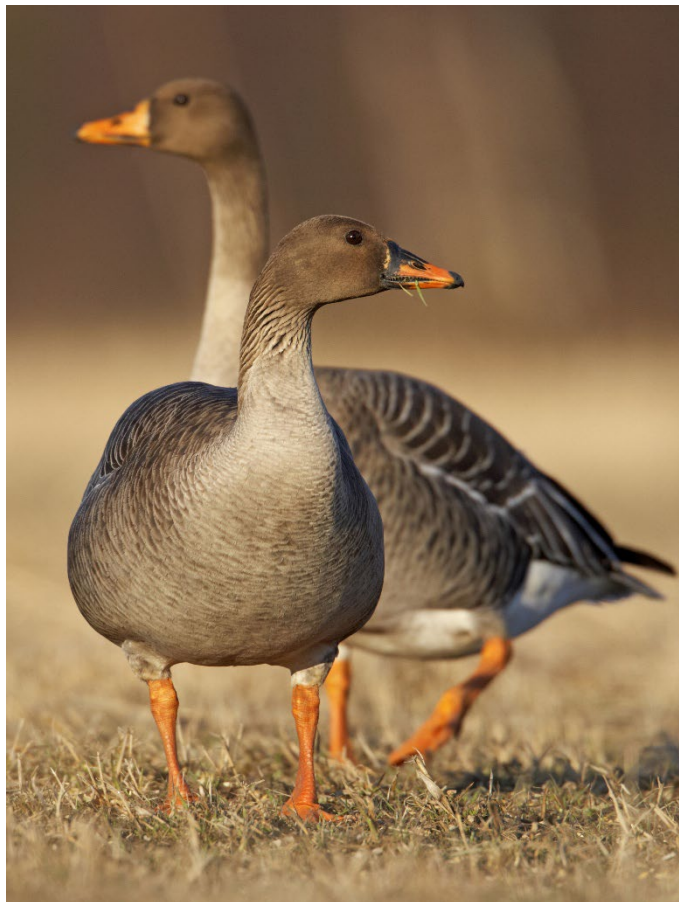


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**DEFINING FAVOURABLE REFERENCE VALUES FOR THE FINLAND & NW  
RUSSIA (br) POPULATION OF THE TAIGA BEAN GOOSE  
(*ANSER FABALIS FABALIS*)**

**DRAFT REPORT**

**EGMP Technical Report No. XX**



**November 2025**

*(Finalisation pending until adoption of the revised International Single Species Action Plan for the Conservation of the Taiga Bean Goose by the 9<sup>th</sup> Session of the Meeting of the Parties to the African-Eurasian Migratory Waterbird Agreement, 11-14 November 2025)*

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[11-14 November 2025: Revised Taiga Bean Goose ISSAP submitted to AEWA MO9 for adoption]

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## **Table of Contents**

List of Abbreviations .....	3
Summary .....	4
1. Introduction .....	4
2. Population status and defining the Favourable Reference Population (FRP) .....	6
3. Favourable Reference Range (FRR) .....	8
4. Favourable Reference Habitat (FRH).....	15
5. Proposed Favourable Reference Values.....	16
References.....	17

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## **List of Abbreviations**

AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
AFMP	Adaptive Flyway Management Programme
AV	Agreement Value
CMS	Convention on the Conservation of Migratory Species of Wild Animals
DV	Directive Value
EGMP	European Goose Management Platform under AEWA
ISSAP	International Single Species Action Plan
ISSMP	International Single Species Management Plan
IPM	Integrated population model
FCS	Favourable Conservation Status
FRH	Favourable Reference Habitat
FRP	Favourable Reference Population
FRR	Favourable Reference Range
FRV	Favourable Reference Values
MOP	Meeting of the Parties to AEWA
MVP	Minimum Viable Population

## Summary

This document presents a technical description of how Favourable Reference Values (FRVs) were derived under the African-Eurasian Migratory Waterbird Agreement (AEWA) for the Finland & North-western Russia (br) population of the Taiga Bean Goose (*Anser fabalis fabalis*). This population is subject to an International Single Species Action Plan (ISSAP), which was first adopted by the 6<sup>th</sup> session of the AEWA Meeting of the Parties (MOP6) in 2015. A revised version of the ISSAP, including FRVs for this population, was submitted to AEWA MOP9 (being held on 11-14 November 2025). [The FRVs defined in this document will only be considered final once the revised ISSAP is adopted.]

The Finland & NW Russia (br) population of the Taiga Bean Goose breeds in Russia, Finland, Sweden and Norway. Non-breeding geese undertake a moult migration to Novaya Zemlya in north Russia. The population winters in Sweden, Denmark and Germany. The population reached a historic peak in the 1980s but declined in the following decades. Following a hunting moratorium in Finland and an adaptive harvest management framework to recover the population, the population has grown since the mid-2010s. To define the Favourable Reference Values in support of the population's Favourable Conservation Status, a reference-based approach is used to set the Favourable Reference Population (FRP) value at the historic level of 57,000 individuals (spring). The Favourable Reference Range (FRR), which represents the current range, is set at 880,300 km<sup>2</sup> for the breeding range and 2,208,200 km<sup>2</sup> for the non-breeding range (including land and sea). With regard to the Favourable Reference Habitat (FRH), the population makes use of a suite of agricultural habitats including extensive grasslands and intensively farmed croplands outside the summer period. Despite a deterioration of the breeding habitat, it has not hindered the growth of the population so far. Hence, both non-breeding and breeding habitats appear to be of sufficient extent and quality to sustain the FRP.<sup>1</sup>

## 1. Introduction

The long-term goal of the revised International Single Species Action Plan (ISSAP) for the Taiga Bean Goose is to “*Restore and/or maintain each of the four populations of Taiga Bean Goose to/in a Favourable Conservation Status*”. This goal reflects Parties' commitment (per Article II.1 of AEWA's Agreement text) to restore populations of AEWA species to, and maintain them at, a Favourable Conservation Status (FCS).

While AEWA's Agreement text does not provide its own definition of FCS, it incorporates through reference<sup>2</sup> the following definition, provided by Article I.1(c) of the Convention on Migratory Species (CMS):

"Conservation status" will be taken as "favourable" when:

1. population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems;
2. the range of the migratory species is neither currently being reduced, nor is likely to be reduced, on a long-term basis;

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<sup>1</sup> According to the available guidance and past practice, the FRH is defined to mean that there is sufficient extent and quality of habitat to sustain the FRP.

<sup>2</sup> AEWA Article I.2.

3. there is, and will be in the foreseeable future, sufficient habitat to maintain the population of the migratory species on a long-term basis; and
4. the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management.

At the time of the adoption of the first edition of the Taiga Bean Goose ISSAP by the Meeting of the Parties (MOP) to AEWA in 2015, there were no guidelines or established procedures for how to interpret and apply the concept of FCS under AEWA; and AEWA still lacks a MOP-adopted guidance document on this topic.<sup>3</sup> However, in 2017 the AEWA Technical Committee endorsed a short provisional guidance document on the interpretation of FCS. Moreover, since 2015, the processes to develop International Single Species Management Plans (ISSMPs) and Adaptive Flyway Management Programmes (AFMPs) for Barnacle Goose and Greylag Goose (implemented in 2018) as well as for Pink-footed Goose (draft revised ISSMP submitted to AEWA MOP9) have produced detailed, species-specific discussion papers to inform the definition of FCS of the target populations.

Favourable Reference Values (FRVs) were used as measurable indicators that describe hypotheses about the size of the population, its distribution and the availability and quality of habitat that describe the FCS (Doc. AEWA/EGMIWG/Inf.5.12). The Revised Format and Guidelines for AEWA International Single and Multi-species Action Plans (adopted in 2022 by AEWA MOP8, with further revisions submitted to MOP9) envision that FRVs will be established for each population covered by an ISSAP, and that these will be established in accordance with the CMS definition of FCS.

The Taiga Bean Goose is divided into four biogeographic populations, formerly treated as management units (Marjakangas et al. 2015). For three of the populations (the Scandinavia (br), Germany & Poland (nbr) and Central Asia (nbr) populations<sup>4</sup>) we lack reliable population estimates, and knowledge of the distribution of the two eastern populations is scant. Therefore, information is currently insufficient to define FRVs (see Doc AEWA/TBG/ISSAP/1.8). This document presents Favourable Reference Values (FRVs) for the Finland & NW Russia (br) population of Taiga Bean Goose for which we have more reliable information about population size, distribution and habitat use.

The biological background information, major shifts and pressures on the population, which are behind the definition of the FRV, have been provided in the [draft] revised ISSAP for the Taiga Bean Goose.

In the absence of MOP-adopted AEWA guidance on defining FRVs, the assessment below follows the considerations outlined in the EU (Bijlsma et al. 2019; DG Environment 2023) and AEWA Technical Committee guidelines and takes into account AEWA's past practice in setting FRVs – in particular, for the Greylag Goose and Barnacle Goose (Doc. AEWA/EGMIWG/Inf.6.10; Doc. AEWA/EGMIWG/Inf.6.11).

The EU guidance (DG Environment 2023) and previous processes under AEWA have recognized two different approaches to establish FRVs: either an approach based on historic reference levels (comparing the current situation to a more favourable historical situation, i.e. a 'reference based' approach), or an approach based on modelled information for the population, i.e. a 'population based' approach.

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<sup>3</sup> A process has commenced to develop guidance on the interpretation and establishment of Favourable Reference Values under AEWA, for submission to the AEWA MOP. However, it is anticipated that this process will only be completed in time for submission to MOP10, in 2028.

<sup>4</sup> The former Western, Eastern 1 and Eastern 2 Management Units respectively.

## **2. Population status and defining the Favourable Reference Population (FRP)**

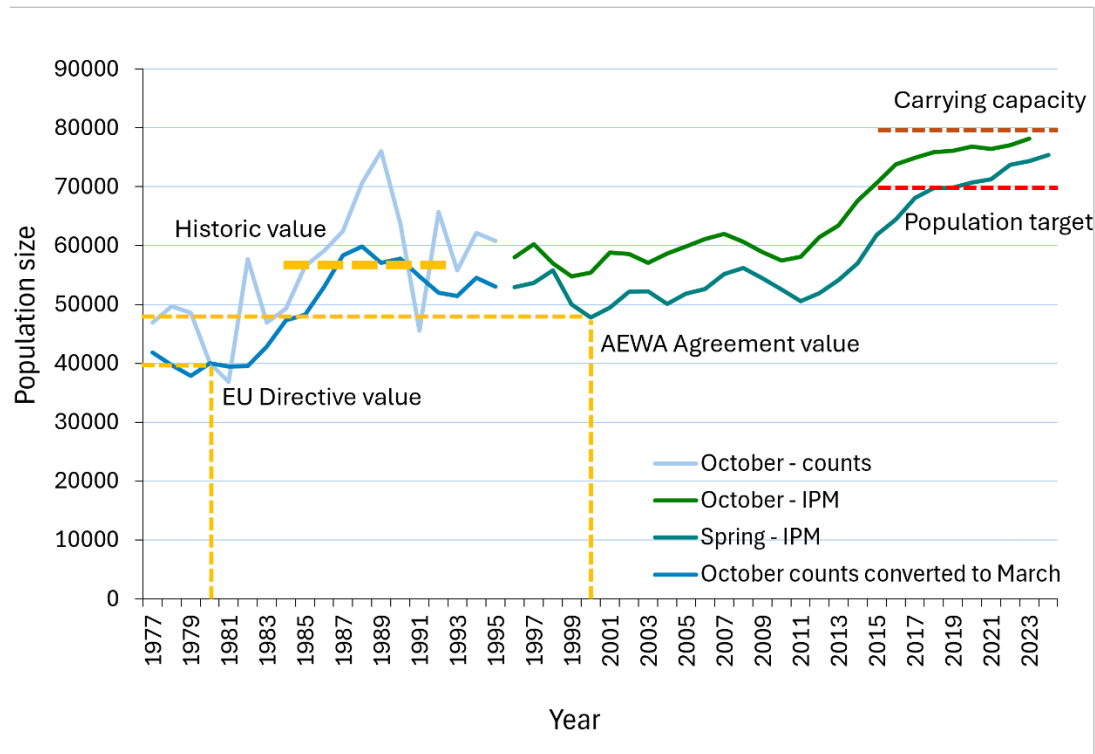
According to the available FRV guidance, FRPs shall exceed both legal thresholds, such as the EU Directive and the AEW Agreement Values (DV and AV respectively), and the Minimum Viable Population (MVP) for demographic and genetic viability. Per the CMS definition of FCS, abundance should also approach historic levels (as far as this is feasible and consistent with wise wildlife management). Unfortunately, the availability of demographic information is insufficient to define a demographic MVP, and genetic information is not available to assess genetic viability. Therefore, we apply allometric relationships to estimate the MVP following the recommendation of Bijlsma et al. (2019). For birds larger than 1 kg, the recommended upscaled MVP is thereby estimated at 2,500 breeding pairs, which we translate into winter population size (of individuals) using the standard multiplier factor of 3.0 widely used for waterbirds (Meininger, Schekkerman and van Roomen 1995). This results in an estimated upscaled MVP value of 7,500 individuals. Throughout the years when population counts have been performed, the population has been well above that level (at least by a factor of five).

The availability of historical data allows the use of the reference-based approach for defining the FRP for the Finland & NW Russia (br) population of the Taiga Bean Goose breeding in Fennoscandia and northwestern Russia, with staging and wintering grounds covering Finland, Sweden, Denmark and northeast Germany. Systematic counts performed in Sweden in October since 1977 can be assumed to include almost the entire Finland & NW Russia (br) population (Fig. 1). The population is currently estimated at c. 75,000 individuals in spring (Johnson et al. 2024). Historically, the population appears to have increased during the 1970s and 1980s, reaching a peak of 71,000 - 76,000 geese counted Sweden in October in the late 1980s (Nilsson, van den Bergh and Madsen 1999) (Fig. 1). For Denmark, the number of Bean Geese that can be attributed to the Finland & NW Russia (br) population only reached a few hundred individuals in October in the 1980s (Madsen 1986). For northeast Germany the historic numbers are uncertain but probably no more than 2,000 in October (T. Heinicke unpublished data). At that time, almost all geese occurring in Sweden were regarded to be Taiga Bean Geese, as the number of Tundra Bean Geese was considered to be only few hundred individuals (Nilsson, van den Bergh and Madsen 1999). However, systematic surveys conducted by experts during 2009-2012 found up to 10,000 Tundra Bean Geese in the autumn flocks in Sweden (Heinicke and de Jong 2013). Assuming this was also the case in the late 1980s, the peak number of Taiga Bean Geese in October in the late 1980s was more likely at 60,000-66,000 and, including Germany, the total Finland & NW Russia (br) population at 63,000-68,000.

From the late 1980s to the mid-2010s, the population declined to a level of 50,000 to 60,000 (spring) (based on an integrated population model (IPM), including a fixed amount of 4,000 Tundra Bean Geese in the flocks; Johnson et al. 2024). Following the introduction of a hunting moratorium in Finland in 2014, the population steadily increased, reaching the median recovery target of 70,000 that had been defined in the 2015 ISSAP in the late 2010s. The IPM indicates that the population is approaching carrying capacity, predicted to be around 80,000 individuals (Johnson et al. 2024) (Fig. 1).

To define a reference-based FRP, we have used the spring population size (which has also been done for the Pink-footed Goose). Therefore, we have converted the Swedish autumn counts from 1977-1995 to spring estimates, subtracting the IPM-based difference between autumn and spring population estimates (see Fig. 1), equivalent to a 10.3 % reduction in numbers from autumn to spring. Using the average peak autumn population size of 65,500 in the late 1980s as the benchmark, the peak spring population was 57,000 individuals, which has been used as the historic reference value.

In comparison, the DV is 40,000 (1980) and the AV 48,000 (2000). Compared to the upscaled MVP of 7,500 individuals in winter, the historic reference value is 7.6 times higher, and the legal AEWA Agreement value is 6.4 times higher. Since the historic value exceeds the legal values, **the FRP has been defined at the historic value of 57,000 individuals (spring).**



**Figure 1.** Trajectory of the Finland & NW Russia (br) population of the Taiga Bean Goose. The graph is based on autumn counts in Sweden 1977-1995, integrated population model assessments for autumn and spring, 1996-2024, as well as a calculated conversion of the autumn counts to spring estimates, using a 5-year running mean, 1977-1995. Shown is also the spring population size at the time when the EU Birds Directive came into force (40,000 in 1980), the AEWA Agreement came into force (48,000 in year 2000), as well as the historic reference population size (57,000 in year 1988). In the upper right corner are shown the median population target that had been included in the 2015 ISSAP as well as the model-predicted carrying capacity of the population size. See text for detailed explanation of how the historic reference value was derived.

Considering the available EU Guidance, the definition of ‘Favourable Conservation Status’ in the Convention on Migratory Species (CMS), and the previous processes for defining FRVs under AEWA, the following considerations should be made concerning the Favourable Reference Population (evaluation is written in *italics*):

1. The Favourable Reference Population should be a viable component of its ecosystem in the long-term<sup>5</sup>.

*This appears to be fulfilled for the Finland & NW Russia (br) population given its recovery in response to a hunting moratorium and recent slowing of population growth, suggesting that carrying capacity is approached.*

<sup>5</sup> The CMS definition of FCS includes the following element: “population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems”.

2. Abundance should approach historic levels as far as it is feasible and consistent with wise wildlife management<sup>6</sup>.  
*Abundance of the Finland & NW Russia (br) population has exceeded the known historic levels, which has been accomplished by a hunting moratorium and a carefully managed slight reopening of hunting opportunities under an adaptive harvest management framework under the European Goose Management Platform (EGMP).*
3. The Favourable Reference Population should be at least the size when the EU Birds Directive came into force. In previous determinations of FRPs under AEWA it was similarly agreed that, in principle, the FRP should be at least the size when the Agreement came into force.  
*The Finland & NW Russia (br) population exceeds the size when the EU Directive came into force and when AEWA came into force.*
4. Both DG Environment (2017) and the AEWA Technical Committee (2017) recognise that FRVs do not automatically correspond to the ‘potential values’ such as carrying capacity, but these should be used to understand restoration opportunities and constraints.  
*The Finland & NW Russia (br) population has not reached carrying capacity but appears to be approaching it; however, there remains restoration opportunities with regard to habitat restoration, control of alien predators and better control of human disturbance on the breeding grounds.*
5. When applying the reference-based approach and the population has not undergone visible shifts or reductions in the past and the current population size is large enough to ensure the long-term viability of the population, DG Environment (2017: p.117) advise that the Favourable Reference Population size should be equal to the current population size except for populations that are secure and have triggered human-wildlife conflict. In that case the FRP should be lower than the Current Value.  
*The Finland & NW Russia (br) population of the Taiga Bean Goose has increased recently and can be regarded as secure; concerns of damage to agricultural crops caused by Taiga Bean Geese exist (particularly in Sweden). Therefore, it is justifiable that the FRP can be defined at a level below the current level.*

### **3. Favourable Reference Range (FRR)**

It follows from points (2) and (4) of the CMS definition of FCS that the current range is not to be reduced and that distribution should approach historic coverage. Additional considerations concerning the determination of FRR include the following: the range should include all significant ecological variation, should be sufficiently large to allow the long-term survival of the population, and should, in principle, be at least as large as it was when the Birds Directive and AEWA entered into force. If the current range is insufficient to support the FRP, then the FRR should take that into account and be larger.

The knowledge about the range of the Finland & NW Russia (br) population as well as the other three populations of the Taiga Bean Goose has improved dramatically within the recent decade with the application of GPS-tags and individual tracking throughout the annual cycle. Hence, based on GPS-tracking and accelerometry it is possible to derive staging and wintering sites, migration paths across

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<sup>6</sup> The CMS definition of FCS includes that: “the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management”.

land and seas as well as nesting sites at high resolution (Schreven et al. 2023). Despite the high resolution of the data, the tracking information needs to be used with care.

Firstly, the tagged individuals may be limited geographically and therefore not be representative of the full range of the population as a whole. In case of the Finland & NW Russia (br) population, there has been no tagging performed on the breeding grounds in Russia which may lead to a geographical gap in coverage. To some extent, this has been compensated by captures of individuals on spring migration in Finland or autumn migration in Sweden, which has turned out to include Russian breeding individuals.

Second, there is a peripheral temporal and spatial overlap between individuals of the Finland & NW Russia (br), Scandinavia (br) and Germany & Poland (nbr) populations (not yet fully described), which can be difficult to unravel. In the tracking data available for this treatment, there was for example what we regarded as a Germany & Poland (nbr) population individual caught in Sweden in autumn but migrating to the east of the ordinary Finland & NW Russia (br) population range for subsequent breeding attempt and moulting. Likewise, there was an individual caught in Finland in spring going to the breeding grounds of the Scandinavia (br) population.

Thirdly, if tagging primarily targeted a certain social segment, for example adult females, it may not be representative for the immature or non-breeding segments of the population.

To define the **Favourable Reference Breeding Range** for the Finland & NW Russia (br) Taiga Bean Goose population, we used the following sources of information:

- 1) Nest locations of satellite-tracked Taiga Bean Geese ( $n = 130$ ) from 2018 to 2025. For a subset of these locations, see Piironen et al. (2022). A small proportion of the birds ( $n = 10$ ) were marked in northwestern Denmark during winter, while the rest were marked in Finland during spring at the breeding and stopover sites, and during moult at moulting sites. These birds scattered throughout the breeding distribution, although birds breeding in Finland and in Russia close to the Finnish border are overrepresented in the sample. Birds breeding in Sweden or further east in Russia are underrepresented. We considered all the GPS-tagged birds with nest positions to belong to the breeding range of the Finland & NW Russia (br) population, except one bird breeding at the border of Norrbotten and Västerbotten counties in Sweden, which likely belonged to the Scandinavia (br) Taiga Bean Goose population. Breeding includes pre-nesting site use, nesting and brood-rearing. The breeding period was defined as ranging from 21 April to 20 August.
- 2) Finnish bird atlases (compiled by Valkama et al., 2011), European breeding bird Atlas (Keller et al. 2020) and other literature (especially Marjakangas et al. 2015 and Heinicke et al. 2018 and references therein). We used published information regarding breeding locations and previous breeding range delineations to supplement information from the satellite-tracked birds.

To define the **Favourable Reference non-breeding Range** for the Finland & NW Russia (br) Taiga Bean Goose population, we exclusively relied on GPS-tracking information since this is the most reliable source for mapping migration paths over sea and land as well as staging areas with poor coverage by ground surveys.

For analysis, we had the following tracking information available:

Finland: 150 tags deployed 2013-2024

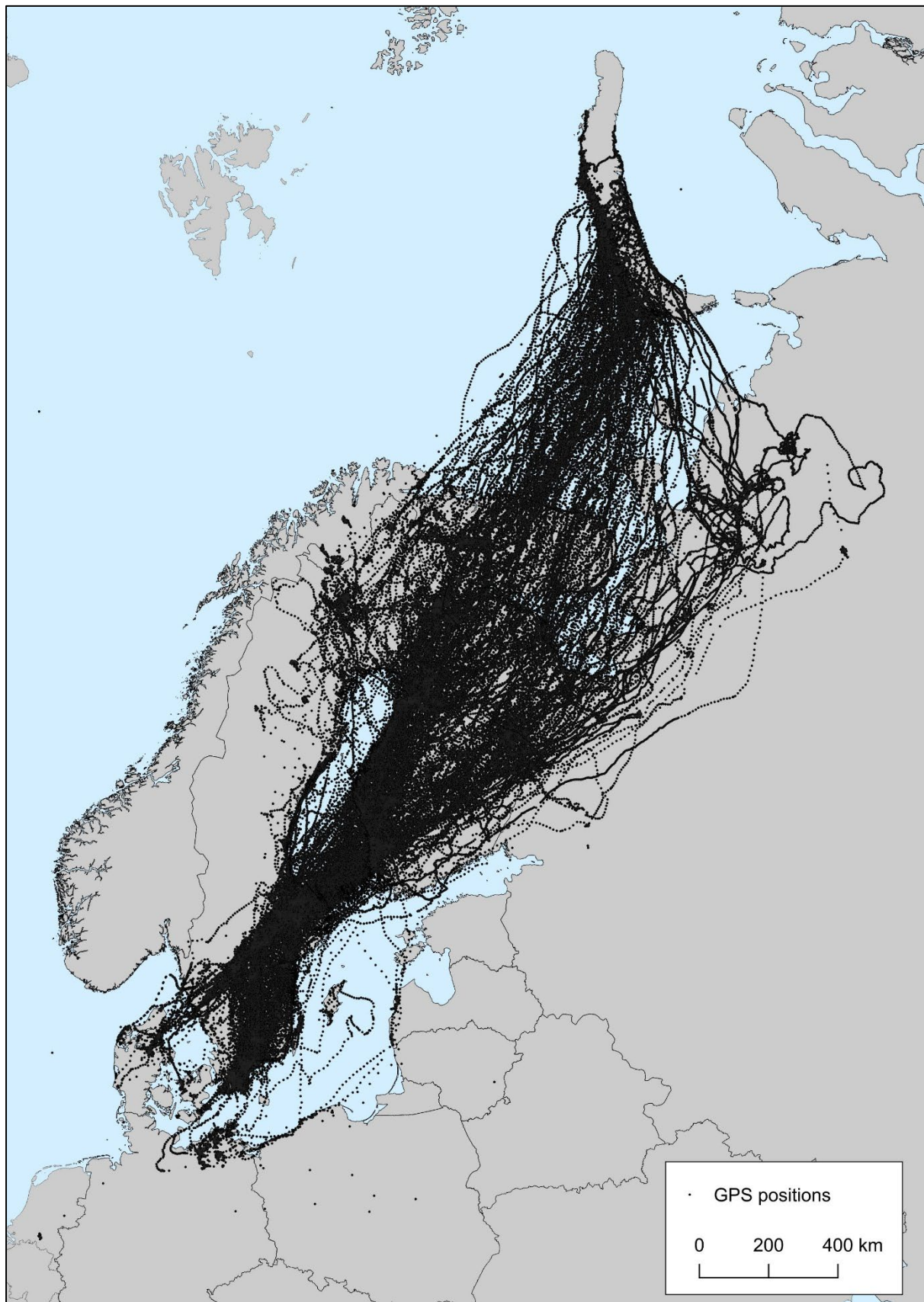
Denmark: 27 tags deployed 2014-2024

Sweden: 23 tags deployed 2023-2024

Germany: 3 tags deployed 2024

In Figure 2, we show the coverage of the GPS-tracking throughout the annual range of the Finland & NW Russia (br) population of the Taiga Bean Goose. The main range used by the bulk of tagged individuals follows a NE-SW direction, from the moulting grounds in Novaya Zemlya in the northeast, across Fennoscandia (main breeding grounds) onwards to southwest Finland, across the Baltic to the southern part of Sweden (the main wintering area). Routes used by fewer individuals go west of the Bothnian Bay to south Sweden and northeast Jutland in Denmark. Furthermore, some individuals continue to the coastal region in northeast Germany. Notably (and only recently detected) is that some individuals also migrate via the east coast of the Baltic Sea (along Poland and the Baltic States), to breeding grounds in the southeast of the breeding range in Arkangelsk Oblast, Russia. The volume of birds using this route is yet unknown but probably relatively small, judged on the assumption that these geese primarily go to wintering grounds in northeast Germany, where only relatively small numbers (possibly up to a few thousand) winter.

Figure 2 also shows that some of the tracks overlap with the known range of the Scandinavia (br) population of the Taiga Bean Goose, partially in the Swedish breeding range, as well as in northwest Jutland in Denmark. In case of the latter, it is known that the geese tagged as Finland & NW Russia (br) population did not stay permanently in the range of the Scandinavia (br) population but returned to the Finland & NW Russia population's range. Furthermore, the Taiga Bean Geese occurring in western Poland may originate from the range bordering the Germany & Poland (nbr) population, with an exchange between the two populations.

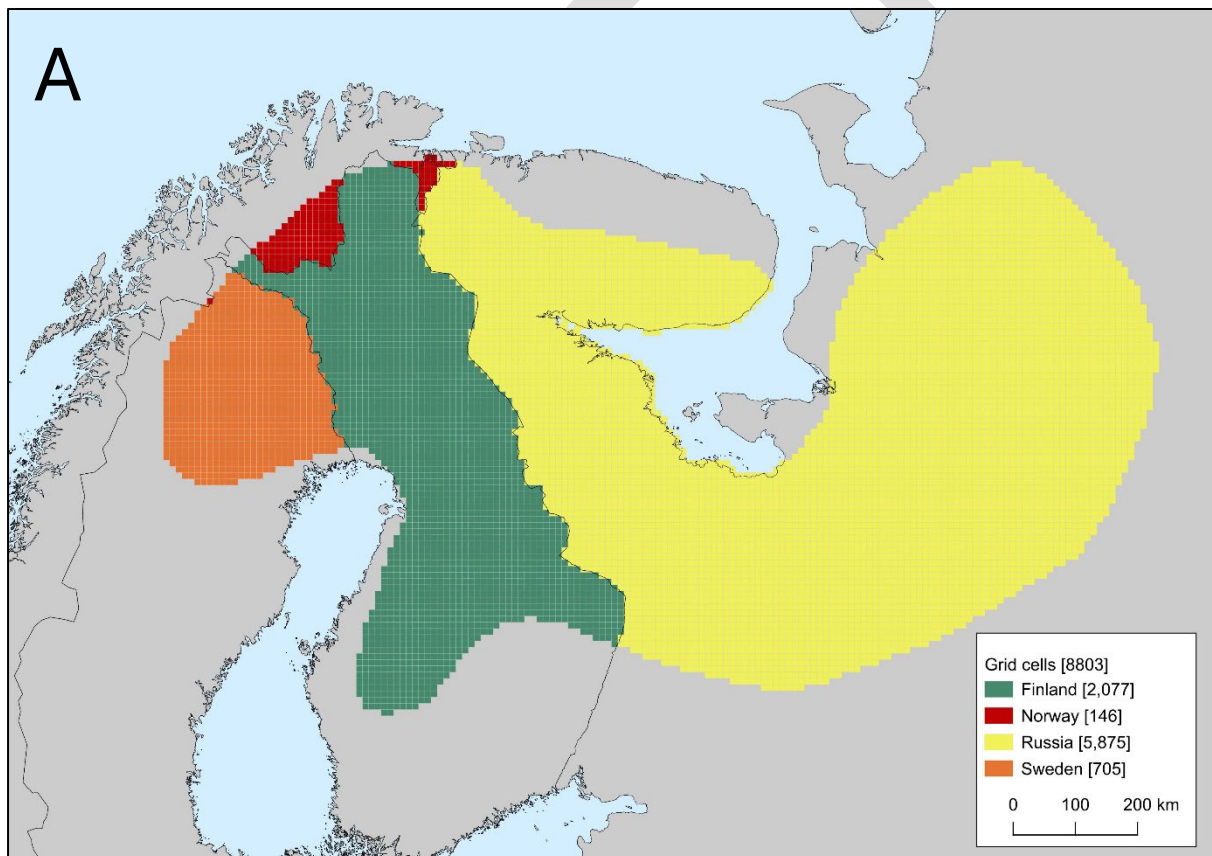


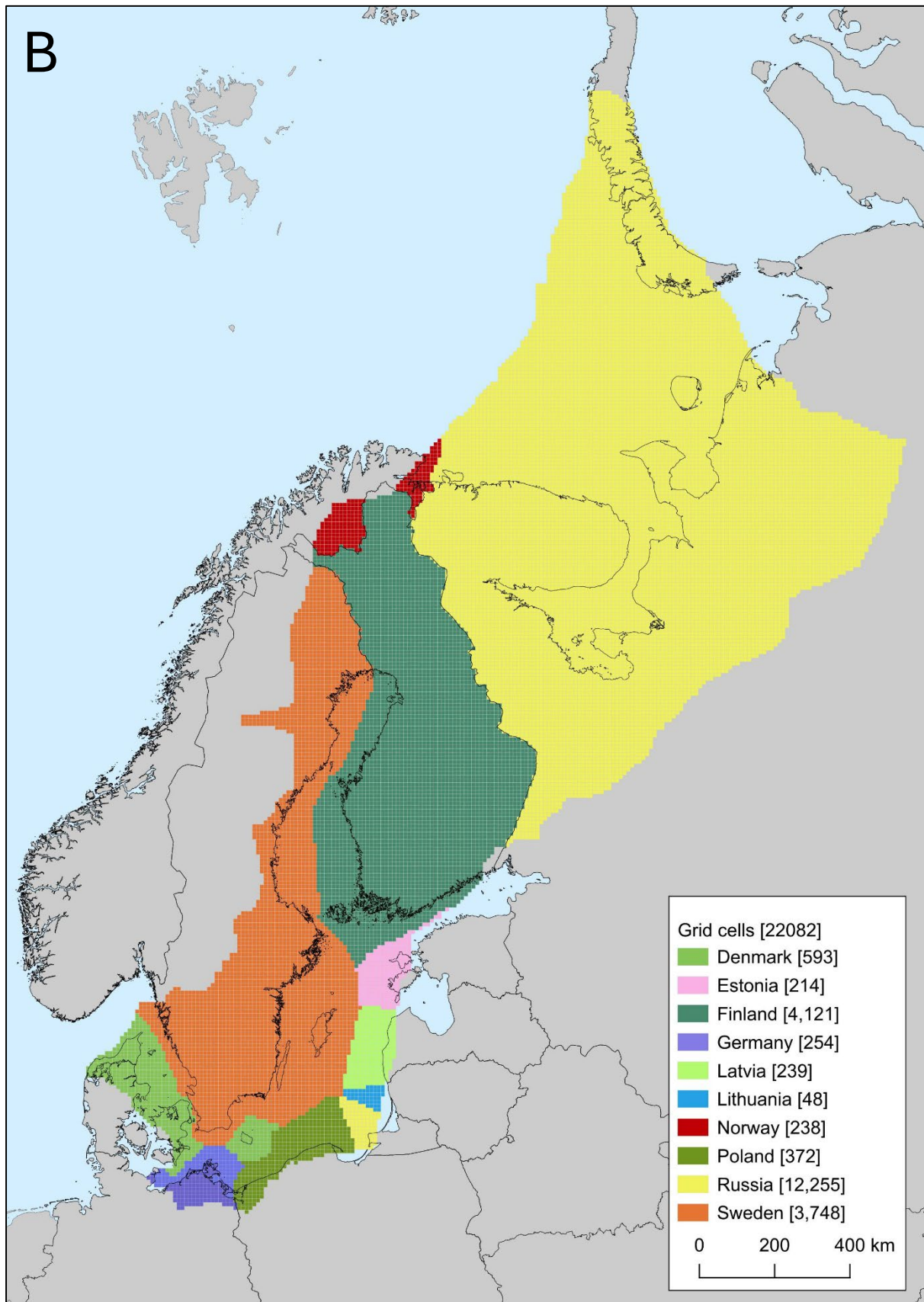
**Figure 2.** Overview of the tracking data used for analysis of the Favourable Reference Range of the Finland & NW Russia (br) population of the Taiga Bean Goose. All individual tracks are depicted.

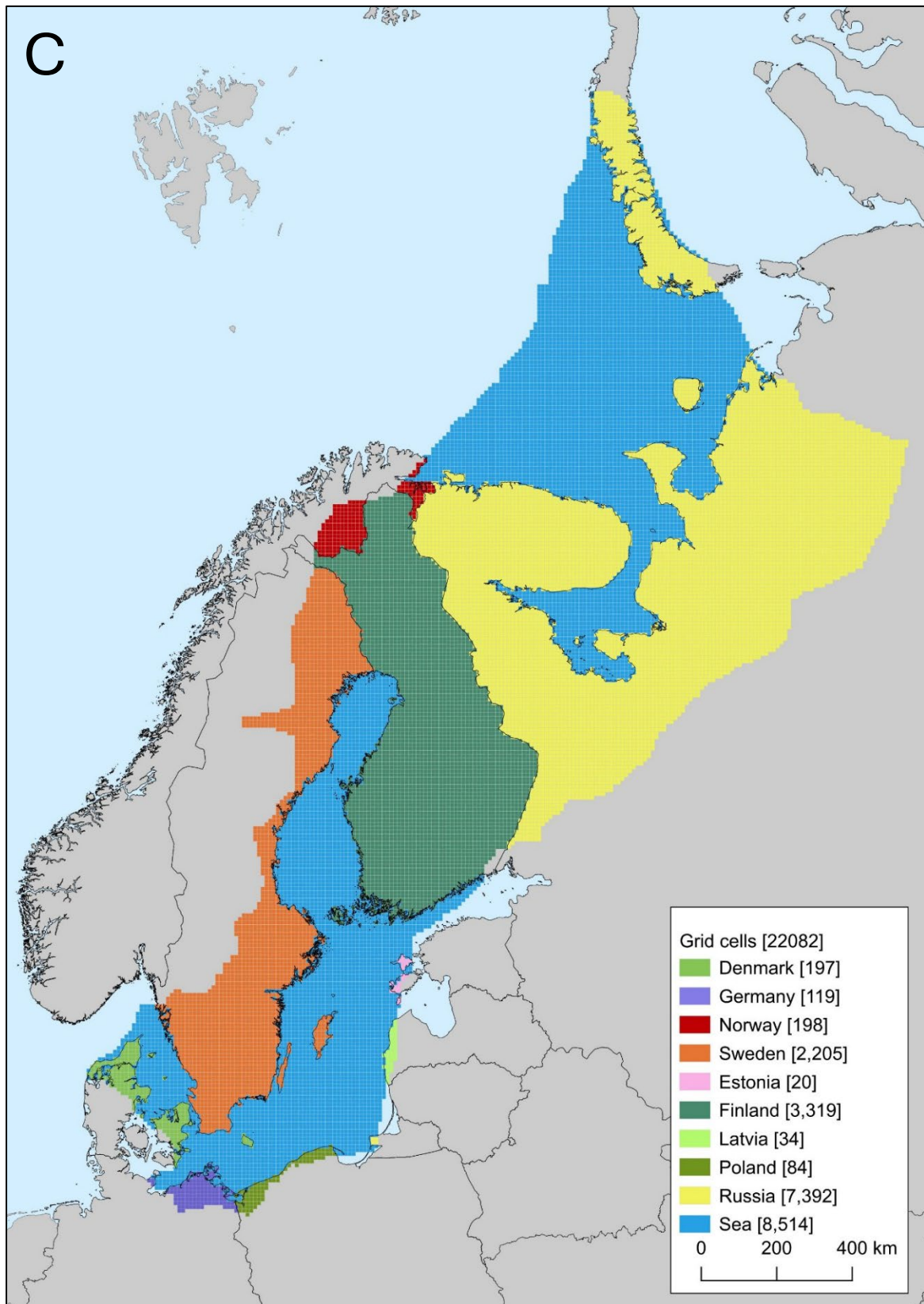
To describe the non-breeding movements and migration performed during the breeding period and inside the breeding range, we filtered individuals which made a move of more than 50 km between days during 21 April to 20 August, indicating that they did not attempt to breed or had given up the breeding attempt and eventually undertook a moult migration out of the breeding range. In the analysis it turned out that the filtering to a high degree captured migration leaps of up to several hundred kilometres within few days, reflecting moult migration in direction of Novaya Zemlya in North Russia in the second half of June. We only used GPS-tracks for these individuals after the first date of the move.

We followed the guidelines for mapping range proposed by the EU (Bijlsma et al. 2019, DG Environment 2023), using a 10 km x 10 km grid. For GPS-tracks, we only regarded a grid cell as used, if we have at least two independent records from the grid cell. We have included the migration corridors across open sea and mountains as part of the range. In this presentation, we have not separated between geese recorded on the ground or passing. Because the tagged geese may accidentally not have passed over all grid cells in the non-breeding range, we drew an outer polygon around the tracks at sea and land, and grid cells not used by geese inside the polygon were filled.

The FRR for the breeding and non-breeding areas are shown in Figure 3.







**Figure 3.** Favourable Reference Range for the Finland & NW Russia (br) population of the Taiga Bean Goose. *A*: Breeding grounds, *B*: Non-breeding area, divided into sea (used as migration path) and land (used for passage and roosting / foraging) per country and, *C*: Non-breeding area, divided into land per country and sea for the entire range. Numbers in parenthesis show the number of 10 km x 10 km grid cells used by the geese in the range states. The FRR reflects the current situation (2023-2024).

**Table 2.** Favourable Reference Range (in km<sup>2</sup>) for the Finland & NW Russia (br) population of the Taiga Bean Goose (current situation). Range covering sea represents migratory range overseas.

	Breeding	Non-breeding (land)	Non-breeding (land and sea)
Russia	587,500	739,200	1,255,500
Finland	207,700	331,900	412,100
Sweden	70,500	220,500	374,800
Norway	14,600	19,800	23,800
Denmark		19,700	59,300
Germany		11,900	25,400
Poland*		8,400	37,200
Lithuania*		0	4,800
Latvia*		3,400	23,900
Estonia*		2,000	21,400
Total	880,300	1,356,800	2,208,200

Note: \*not considered principal range states for the population

There is little evidence of major changes in the range of the Finland & NW Russia (br) population of the Taiga Bean Goose since the 1970s (Marjakangas et al. 2015; Keller et al. 2020). In Sweden, a range contraction of the Taiga Bean Goose has been observed, but this appears mainly to have affected the Scandinavia (br) population (Eriksson and Henricsson 1990). Therefore, it is justified to consider that the current range supports the population well above its FRP of 57,000 individuals. Recent discoveries of migration pathways based on GPS-tracking, such as the intensive use of Novaya Zemlya for moulting and summering grounds, and the use of the eastern Baltic Sea as migration path, shows the value of this technology, which can also be applied further to clarify the delineation between the Finland & NW Russia (br) and the Germany & Poland (nbr) population which remains uncertain and beyond the reach of observational studies.

#### 4. Favourable Reference Habitat (FRH)

According to the available guidance and past practice, the FRH is defined to mean that there is sufficient extent and quality of habitat to sustain the FRP.

For Finland it is known that the quality of the breeding habitat has deteriorated due to intensive forestry causing drainage of Bean Goose breeding habitats (Marjakangas et al. 2015; draft revised ISSAP in consultation). Nevertheless, according to expert judgement, there is still ample habitat available for breeding Taiga Bean Geese. For the remaining breeding range, and primarily Russia, the habitat conditions are poorly described. The population has grown during recent decades due to a hunting moratorium in Finland, suggesting that until now, the breeding habitat has not been limited. However, as suggested by an increasing density dependent effect on the population size (Johnson et al. 2024), nesting habitat may become limiting in the future.

With regard to moulting habitat quality, most of the Finland & NW Russia (br) population (immatures and failed breeders) undertakes a moult migration to Novaya Zemlya (Piironen, Paasivaara and Laaksonen 2021). So far, it appears that the area has provided sufficient habitat for not only increasing numbers of Taiga Bean Geese but also other moulting and breeding goose species such as Pink-footed Geese (Madsen et al. 2023).

With regard to staging and wintering grounds, Taiga Bean Geese have traditionally utilized extensively managed grasslands as the primary foraging habitat, supplemented by waste cereal or root crops and, during cold spells, winter cereal fields (see Marjakangas et al. 2015 for references). An increasing transition to modern agricultural habitats may partly be caused by lack of maintenance of traditionally farmed grasslands (see draft revised ISSAP in consultation), partly by the fact that agricultural crops, for example winter cereal fields offer higher food and energy intake rates than grasslands during cold periods (Vergin, Clausen and Madsen 2025). The intensification of the farming practices has mostly been beneficial for the Taiga Bean Geese, although pre-nesting habitat availability in terms of extensive grasslands has been raised as a concern (draft revised ISSAP in consultation). Compared to other goose species, Taiga Bean Geese are highly site faithful to their staging and wintering areas but can switch among different habitat types and fields within their sites. This characteristic of the species may pose a future threat to the habitat availability in light of climate and land use changes and increasing demands on open land for energy power plants. So far, this has not hindered the growth nor the overall range of the population.

## **5. Favourable Reference Values**

According to the reference-based approach to define FRP for the Finland & NW Russia (br) population of the Taiga Bean Goose, the [draft] revised Taiga Bean Goose ISSAP sets the FRP for this population at the historic level of 57,000 individuals (spring). The FRR, which represents the current range primarily based on new GPS-tracking technology, is set at 880,300 km<sup>2</sup> for the breeding range and 2,208,200 km<sup>2</sup> for the non-breeding range (including land and sea). With regard to the FRH, the population makes use of a suite of agricultural habitats including extensive grasslands and intensively farmed croplands outside the summer period. Despite a deterioration of the breeding habitat, it has not hindered the growth of the population so far. Hence, both non-breeding and breeding habitats appear to be of sufficient extent and quality to sustain the FRP.

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