Evaluation of the AEWA International Single Species Action Plan for the Conservation of the Taiga Bean Goose (*Anser fabalis fabalis*)

AEWA European Goose Management Platform

EGMP Technical Report No.25

Results Achieved And Implementation Performance

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Evaluation Report

EGMP Technical Report No. 25

Prepared by the Taiga Bean Goose Task Force of the
AEWA European Goose Management Platform

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1. Executive Summary

The AEWA International Single Species Action Plan for the Taiga Bean Goose (TBG ISSAP) expires in 2025. This report evaluates the performance and results of the TBG ISSAP since its adoption in 2015 and makes recommendations for the future of the Plan.

The data for this evaluation was gathered through a combination of desk analysis, a questionnaire sent to the Range States, and consultations with members of the Taiga Bean Goose Task Force (TBG TF) under the European Goose Management Platform (EGMP). The analysis presented here, undertaken by the members of the EGMP TBG TF, the AEWA Secretariat and the EGMP Data Centre, is largely based on the information about implementation and effectiveness of the Plan's actions received through the questionnaire and existing data on population monitoring available through the EGMP Data Centre. A draft of the evaluation report was presented for comments from the TBG TF, after which it was further refined for presentation to the AEWA Technical Committee. The evaluation report was considered by the 20th meeting of the AEWA Technical Committee, which accepted it for submission to the AEWA Standing Committee; and was subsequently approved by the Standing Committee in March 2025.

The report shows that progress has been made towards achieving the ISSAP's goal, purpose and objectives and that the ISSAP has partially achieved the planned results, with more implementation progress in the essential and high priority actions. The achievements varied between the Management Units (MU), both in terms of changes in population size and implementation of the actions described in the ISSAP. Progress was evaluated using a scoring system ranging from 1 to 5, as envisioned by the guidance annexed to the evaluation report template. The achievements of the ISSAP at Management Unit (MU) level can be summarised as follows: (see Table 1 for details)

- In the Western Management Unit (WMU), population size has stabilised yet remains below the target. Action implementation had an average score of 3.08 (Good progress).
- In the Central Management Unit (CMU), population size has reached the long-term goal. Action implementation had an average score of 3.11 (Good progress).
- In the Eastern 1 Management Unit (EMU1), there are indications of a stabilisation of the population size. Action implementation had an average score of 1.90, with uncertainty due to limited data availability (Limited progress).
- In the Eastern 2 Management Unit (EMU2), the situation is largely unknown, and the action implementation could not be assessed due to lack of data.

These results suggest it is important to continue the adaptive management and conservation actions of the TBG ISSAP (with relevant adjustments) for several reasons, including, *inter alia*: (1) A continuation of the adaptive harvest management (AHM) programme is crucial to ensure that a stable population can be maintained in the CMU; (2) Continued research activities are necessary to understand the reasons for the decline or failed recovery of the remaining populations and to further concretise conservation actions to recover the WMU, EMU1 and EMU2. These MUs are now recognized as populations in Table 1 of AEWA's Annex 3, and this change needs to be reflected in the revised ISSAP.

The key conclusion is the need for continued implementation of conservation and management actions directed towards the Taiga Bean Goose, scaling up successful activities and revisiting elements of the plan that require revision. It is recommended to proceed with a full revision of the ISSAP, including goals, objectives, framework for action, and definition of populations.

2. Glossary and Acronyms/Initialisms

AEWA: Agreement on the Conservation of African-Eurasian Migratory Waterbirds

AHM: Adaptive Harvest Management

CMU: Central Management Unit

EGM IWG: European Goose Management International Working Group

EGMP: European Goose Management Platform

EMU: Eastern Management Unit

FRV: Favourable Reference Value

HPAI: Highly Pathogenic Avian Influenza

ISSAP: International Single Species Action Plan

ISSMP: International Single Species Management Plan

MOP: Meeting of the Parties to AEWA

MU: Management Unit

TBG: Taiga Bean Goose

TBG TF: Taiga Bean Goose Task Force

WMU: Western Management Unit

3. Introduction

3.1. Development of the Plan

Paragraph 2.2.1 of the Action Plan in Annex 3 to the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) provides that the Parties to the Agreement "shall cooperate with a view to developing and implementing international single species action plans for populations listed in Category 1 of Column A of Table 1 as a priority and for those populations listed with an asterisk in Column A of Table 1. The Agreement Secretariat shall coordinate the development, harmonisation and implementation of such plans". Furthermore, Paragraph 2.2.2 provides that Parties to the Agreement "shall prepare and implement national single species action plans for the populations listed in Column A of Table 1 with a view to improving their overall conservation status. This action plan shall include special provisions for those populations marked with an asterisk. When appropriate, the problem of accidental killing of birds by hunters as a result of incorrect identification of the species should be considered".

Target 1.4 of the AEWA Strategic Plan for 2009-2017 aimed for International Species Action Plans (ISSAPs) to be "developed and implemented for the most threatened species listed in category 1 and categories 2 and 3, marked with an asterisk on column A of Table 1", while target 2.5 aimed to ensure adaptive harvest management of quarry populations at international scale. Similar targets have subsequently been agreed in AEWA's Strategic Plan for 2019-2027, with target 1.2 aiming for all priority species/populations to be covered by effectively implemented Species Action Plans at flyway level, and target 2.4 aiming for adaptive harvest management regimes to be in place and effectively implemented at flyway level within the framework of Species Action or Management Plans. The North-east European/North-west European population of the Taiga Bean Goose was prioritised for an AEWA International Single Species Action Plan to be developed throughout the population's flyway range in 2012. The Taiga Bean Goose was one of the few declining goose populations in the Western Palearctic; the wintering population size estimated at 100,000 birds in the mid-1990's had decreased to 63,000 by 2009. However, the Bean Goose is globally categorised as a species of Least Concern in the IUCN Red List, as no distinction is made between subspecies, and the population of the Tundra Bean Goose *Anser fabalis rossicus* is considered stable and is much more abundant than the Taiga Bean Goose *Anser fabalis fabalis*.

Under AEWA, a distinction is made between the subspecies (and their populations) and the former North-east European/North-west European population of the Taiga Bean Goose was listed on Column A, Category 3c* of Table 1 of the AEWA Action Plan in 2012. This categorisation means that hunting of Taiga Bean Goose may continue on a sustainable use basis within the framework of an International Single Species Action Plan. The other AEWA-listed population of the Taiga Bean Goose (West & Central Siberia/Turkmenistan to West China) is on Column A, Category 1c, which implies strict protection.

The International Single Species Action Plan for the Conservation of the Taiga Bean Goose *Anser fabalis fabalis* was jointly initiated by the Finnish Ministry of Agriculture and Forestry, the Finnish Wildlife Agency and the UNEP/AEWA Secretariat. Financial support for the action planning process was provided by the Finnish Ministry of Agriculture and Forestry. An action planning workshop with representatives from the Range States and key stakeholders was held in Tuusula, Finland on 12–14 November 2013. A first draft was prepared by the drafting group led by the Finnish Wildlife Agency and submitted to the workshop participants and the AEWA Secretariat for comments in May 2014, and after a revision based on the comments and suggestions received, a second draft was presented for consultation with the Range States and the AEWA Technical Committee in November 2014. The final draft was presented to the 6th Session of the Meeting of the Parties to AEWA in November 2015 for adoption. This Action Plan broadly followed the revised format for Single Species Action Plans approved by the 4th Session of the Meeting of the Parties to AEWA in September 2008. The plan has reached the end of its 10-year life span in 2025, with the result that a decision needs to be made regarding whether to retire, extend, update or revise the plan.

3.2. Key concepts and processes provided for in the Plan

The AEWA International Single Species Action Plan for Taiga Bean Goose was the first flyway conservation plan under AEWA for a quarry species in decline. The ISSAP drew from AEWA's experience with the ISSMP for the Svalbard population of the Pink-footed Goose *Anser brachyrhynchus*, which constituted the first AEWA (and European) adaptive flyway management plan implemented internationally for a waterbird population.

The TBG ISSAP outlined the distribution and status of the subspecies, actual and potential threats to the population, and laid out the framework for action including an overall goal, objectives and key actions to achieve the required results at the level of four (4) designated Management Units (Western, Central and Eastern 1 & 2 Management Units / sub-populations) with varying status and objectives. The plan did not seek to pre-determine the possible actions to be implemented by Range States with regard to harvest or possible hunting bans. Such actions were planned to be developed by the Range States at MU-level within the context of an adaptive harvest management framework following the adoption of the ISSAP.

The ISSAP introduced, for the second time in the AEWA region, a population target agreed among Range States and key stakeholders. The target reflected the conservation purpose of the plan and was defined as a milestone towards restoring the population and maintaining it at a favourable conservation status. Since it was intended to recover the population while allowing for sustainable recreational harvest, the ISSAP emphasised the need for development and implementation of an adaptive harvest management framework for the relevant MU(s). When the ISSAP was developed, there was no precedent for defining Favourable Reference Values (FRVs) in the context of AEWA implementation and the AEWA MOP had not yet adopted the current Format and Guidelines for ISSAPs, which called for the identification of FRVs in all future plans. The TBG ISSAP therefore did not identify FRVs. However, embedded in the target is an expression of a population size with minimal risk of extinction under agreed levels of harvest.

3.3. Implementation Structures

The implementation of the Taiga Bean Goose ISSAP was initiated in 2016, as the species was included in the AEWA European Goose Management Platform (EGMP). A Taiga Bean Goose Task Force was established under the EGMP, providing annual recommendations to the European Goose Management International Working Group (EGM IWG). Harvest recommendations are based on the annual status and assessment report provided by the EGMP Data Centre. In most Range States, national working groups have been established to support the implementation of the EGMP ISSAP and ISSMPs, including issues related to Taiga Bean Goose.

3.4. Goal, Purpose and Objectives of the Plan

The long-term goal of the ISSAP is to "restore and maintain the population at a favourable conservation status of 165,000–190,000 birds in total (5,000–10,000 individuals in Western, 60,000–80,000 individuals in Central and 100,000 individuals in Eastern 1 & 2 sub-populations, with stable or increasing trends)."

The purpose of the Action Plan is to "stabilise the overall population size as well as the numbers in each sub-population at least at their current levels within 5 years, and to enable the sub-populations to start to recover and increase within 10 years."

To achieve the goal and purpose of the ISSAP, the following key objectives were established in consultation with national authorities and key stakeholders:

1. Increase survival rate of adults.
2. Increase reproductive rates.
3. Stop ongoing loss, fragmentation and degradation of habitats and restore lost, fragmented and degraded habitats.

The ISSAP identifies the following targets in each of the MUs for the next 20 years from its adoption (i.e. by 2035):

- Western: 4,000 birds
- Central: 60,000 birds
- Eastern 1 & 2: 30,000 birds.

3.5. Plan Evaluation

This evaluation has endeavoured to follow the report template and guidance for the Evaluation of AEWA international Single and Multi-species Action and Management Plans (agreed by the AEWA Technical Committee, September 2023) as closely as possible. However, when the ISSAP for the Taiga Bean Goose was compiled and later implemented, such evaluation criteria had not yet been developed. Therefore, there were no pre-determined indicators in the ISSAP and the mechanism to evaluate results and implementation performance was not defined foreseeing possible evaluation. As a result, the results and performance of the ISSAP cannot be assessed in precisely the way recommended by the guidelines. The guidance itself recognises that the evaluation approach will require a degree of customisation in instances such as the TBG ISSAP.

To complement the data already compiled by the EGMP Data Centre, data for this evaluation report was obtained through a questionnaire sent to the Range State representatives. The questionnaire data was processed by the Secretariat and further analysed by the EGMP TBG TF with the help of the Secretariat and the Data Centre. This evaluation report has been compiled by a team composed of the Task Force members in co-operation with the Secretariat and Data Centre. It was additionally considered by the 20th meeting of the AEWA Technical Committee, which accepted it for submission to the AEWA Standing Committee; and was subsequently approved by the Standing Committee in March 2025.

4. Two-Step Evaluation

The two-step evaluation follows the decision tree for the retirement, extension and revision of AEWA species action and management plans (see document AEWA/MOP 8.22).

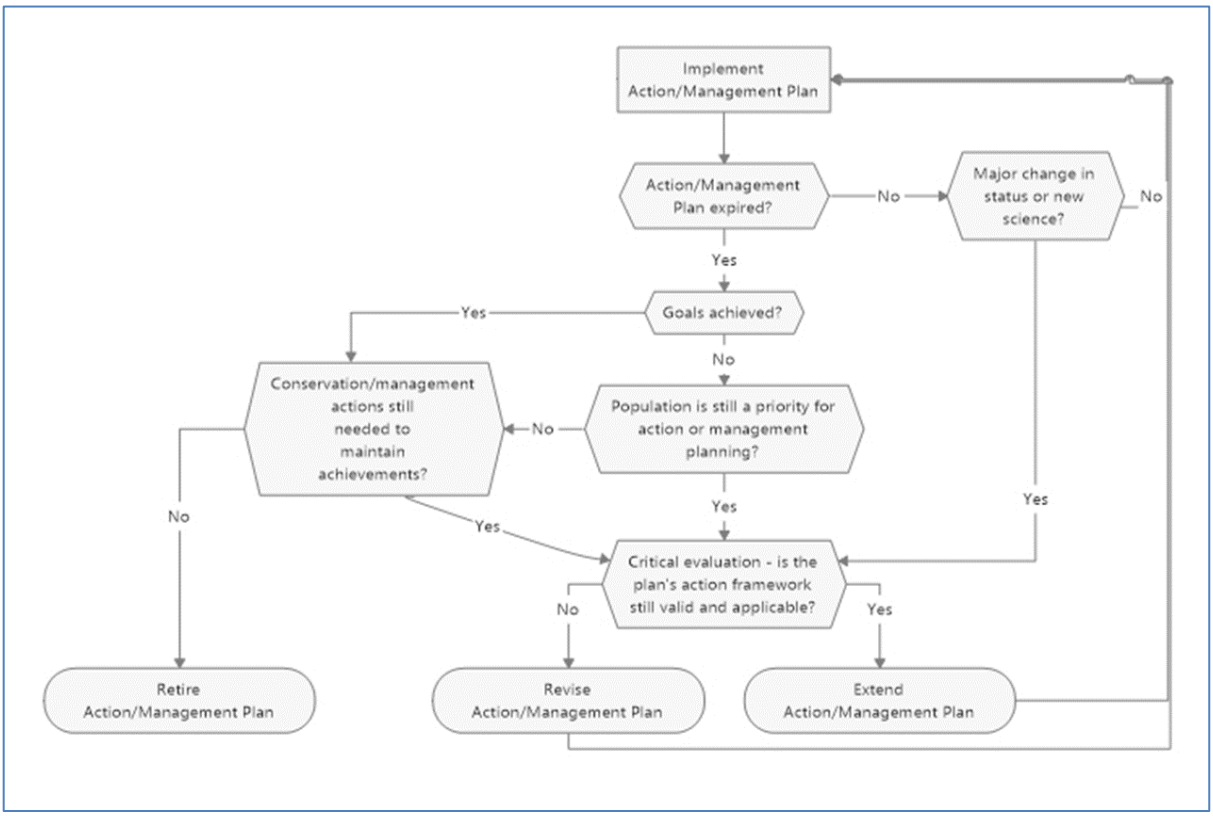
Step 1

I. Have the goal and purpose been achieved?

The long-term goal of the ISSAP was to restore and maintain the population at the favourable conservation status of around 165,000-190,000 birds with stable or increasing trends throughout the range. Individual goals for each of the MUs (termed "subpopulations" in the ISSAP) were set at 5,000-10,000 individuals in the Western, 60,000–80,000 individuals in the Central and 100,000 individuals in the Eastern 1 & 2 MUs. Further to that, targets for the population size in 2035 were defined as 4,000 birds in the Western MU, 60,000 birds in the Central, and 30,000 birds in the two Eastern MUs – a total of 94,000 birds.

The purpose of the ISSAP was to stabilise the overall population size as well as the numbers in each sub-population at least at their 2015 levels within 5 years, and to enable the sub-populations to start to recover and increase within 10 years. Although estimates were provided with some uncertainty, the total population size in 2015 was believed to be around 51,500 individuals in total, in the Western (1,500 individuals), Central (35,000 individuals), and Eastern 1 (15,000) MUs. The size of the Eastern 2 MU was unknown.

The most recent estimate of the population size of the Western MU was 1,174 (Johnson et al. 2024). Despite some fluctuations, this subpopulation has been stable in the recent decade, possibly with a slight increase recorded since 2015. Unfortunately, the range appears to be contracting, and since 2019 less than 10 birds have been recorded wintering in England. The goal and purpose for this subpopulation has thus not been achieved in full, although it has apparently stabilised.



The most recent estimate of the size of the Central MU is from March 2024, when the IPM-based population estimate was 75,363 (66,829 – 84,837) individuals (Johnson et al. 2024). This population has thus achieved the goal and purpose of the current ISSAP as well as reached the long-term population goal.

The most recent population size estimate of the Eastern 1 MU is 17,000-20,000 birds as indicated in the Red Data Book from Krasnoyarsk Krai (2022) (Sonia Rozenfeld pers. comm.). No information is available to indicate a trend for this population, but the recent figure is comparable to the estimate provided in the ISSAP which may indicate a stabilisation.

No information was available on the size and trend of the Eastern 2 MU, while an analysis of data gathered using popular citizen-science platforms in Central Asia provided new insights about possible staging and wintering sites in the region (see Annex 2).

Overall, considerable progress has been made towards achieving the goal and purpose of the ISSAP. However, the lack of data on the Eastern 1 & 2 MUs prevent proper assessment of population size and trends for the Russian breeding populations. As these populations have experienced the most significant decline in the past, failing to restore and maintain them will have a significant negative impact on the overall success of the conservation of the Taiga Bean Goose.

II. Is the population / species still considered by the AEWA Technical Committee a priority for action or management (with recovery objectives) planning?

The most recent prioritisation of species/populations for action and management planning was undertaken by the AEWA Technical Committee at its 18th meeting, in March 2023 (AEWA/TC18.15 Ins.1). However, the approach applied by the Technical Committee at this and previous meetings excluded all species that were already adequately covered by an AEWA International Species Action Plan. There is therefore a misalignment between this question in the Evaluation Report Template and the Technical Committee's approach to prioritisations. The Technical Committee should determine how best to rectify this for future evaluations (e.g., by amending this question in the template or adjusting its approach to prioritisations to include species/populations whose International Species Action Plans will be reaching the end of their lifespans during the triennium). In the interim, however, it is possible to apply the categories of priority that have been agreed by the Technical Committee to the relevant populations of Bean Goose.

Categories of priority agreed by the AEWA Technical Committee at TC18

Priority 1a: Globally Threatened/Near Threatened species listed on AEWA Annex 2 and other populations listed in Column A of Table 1 of AEWA Annex 3, Categories 1(a), 1(c) or 2 or 3 marked with an asterisk in long- or short-term decline and of which for at least one population at least one Contracting Party has entered a reservation to their uplisting to Column A of Table 1 of AEWA Annex 3;

Priority 1b: globally Threatened and Near Threatened species listed in Annex 2 of AEWA based on their global Red List Status (other than those in Priority 1a);

Priority 2: populations of globally Least Concern species listed in Column A of Table 1 of AEWA Annex 3, Categories 1(a), 1(c) and in long- or rapid short-term decline or in categories 2 or 3 and marked with an asterisk (other than those in Priority 1);

Priority 3: populations of globally Least Concern species listed in Column A of Table 1 of AEWA's Annex 3, Categories 1(a) and 1(c) in Table 1 of AEWA Annex 3 not in long- or rapid short-term decline.

Application of categories of priority to relevant Bean Goose populations (as currently listed in Table 1 of AEWA's Annex 3)	
Scandinavia/Denmark and UK population of *Anser fabalis fabalis* (Western MU in the current ISSAP)	As a population of a globally Least Concern species listed in Column A, Category 1(c) of Table 1, but not in long- or rapid short-term decline, this population meets the criteria for **Priority 3**.
Finland and NW Russia/Sweden, Denmark and Germany population of *Anser fabalis fabalis* (Central MU in the current ISSAP)	As a population of a globally Least Concern species listed in Column A, Category 3 of Table 1 and marked with an asterisk, but not in long- or rapid short-term decline, this population meets the criteria for **Priority 2**.
West Siberia/Poland and Germany population of *Anser fabalis fabalis* (Eastern 1 MU in the current ISSAP)	As a population of a globally Least Concern species listed in Column A, Category 2 of Table 1 *without* an asterisk, this population **does not meet the criteria for any of the above-mentioned categories of priority**.
West & Central Siberia/Turkmenistan to W China of *Anser fabalis johanseni* (listing under *Anser fabalis fabalis* expected at MOP9) (Eastern 2 MU in the current ISSAP)	This population belongs to a globally Least Concern species and is listed in Column A, Category 1(c) of Table 1, with no reservations having been entered in respect of this listing. Long- or rapid short-term decline would qualify the population for Priority 2. In the absence of such decline, the population would nevertheless still qualify for Priority 3. Since no information is available on the population's trend, the precautionary principle could be relied upon to include it under **Priority 2**.

III. Are conservation or management actions still needed to maintain achievements?

The evaluation suggests that continued implementation of conservation and management actions is needed. The main reasons include:

- Without the structure and coordination provided by the AHM for the CMU and its implementation through the EGMP, it is likely that coordination of monitoring and sustainability of harvest will deteriorate, leading to unfavourable population trajectories.
- Need for conservation work and further understanding of the reasons affecting the population development of the WMU and EMU 1&2.
- Need for continued enforcement of the hunting regulations on Bean Geese in the main Taiga Bean Goose areas.
- Continued maintenance of wet grasslands as natural feeding habitats and consideration of the negative impacts of the development of renewable energy and infrastructure projects on Taiga Bean Goose breeding, staging and wintering areas is necessary.
- Need for (continued) regular monitoring of the Taiga Bean Goose.

- Need for identifying key determinants of the unresolved lack of recovery of the relict English wintering flocks, considering whether objectives should include the recovery of former sub-populations and flyways. If so, an objective related to the re-establishment of the northern English wintering flock could be considered. A self-contained flock with direct breeding-to-wintering-ground linkage might be a realistic aspiration with a population of a few hundred birds, paralleling the status of the flock that winters in central Scotland.
- Effects of Highly Pathogenic Avian Influenza (HPAI) are currently poorly and loosely monitored. For example, considering the small size of the EMU2 and possible wintering sites identified (Sorbulak Lake system, Eastern Issyk-Kul Lake IBA, Tacheng County, Farmland of South-west Xinjiang), there is a risk that the geese may be vector of introduction or strongly affected by HPAI in case of epidemic outbreaks in Russia and Central Asia.
- Poaching for waterbirds is widespread in wintering areas of EMU1 and 2.

IV. Recommendations for the future of the Plan

It is recommended to continue with the implementation of the ISSAP for the Taiga Bean Goose populations.

Step 2

Is the Plan's action framework still valid?

I. Are there new insights, biological or other background information, emerging issues or threats?

New insights and emerging issues include:

- Change from the AEWA definition of the North-east European/North-west European population of the Taiga Bean Goose with four identified MUs (Western, Central, Eastern 1 and Eastern 2) to four different AEWA populations with individual listings in the Table 1 of the AEWA Action Plan:
  - Western MU → Scandinavia/Denmark and UK population;
  - Central MU → Finland and NW Russia/Sweden, Denmark and Germany population;
  - Eastern 1 MU → West Siberia/Poland and Germany population;
  - Eastern 2 MU → currently listed as a population of Bean Goose (subspecies johanseni), it is expected to be re-listed as a population of TBG at AEWA MOP9.
- Improved knowledge from GPS-tagged birds about the flyways and migratory patterns along with other information of the MUs/populations.
- Rapid increase of sustainable energy developments, wind farms and solar farms especially.

II. If there are new issues, does the action framework of the Plan need to be changed to address these?

Yes. The 8th Session of the Meeting of the Parties (MOP 8) to AEWA (September 2022, Budapest, Hungary) changed the population structure of the TBG. The former MUs of Taiga Bean Goose were listed as individual AEWA populations, which altered the legal context of the populations compared to former MUs and therefore necessitates revisions of the ISSAP and its Action Framework.

In addition, Range States have identified the following issues:

- Genetic studies have uncovered additional moulting sites and suggested migration routes during the reproductive season.
- The ongoing war in Ukraine poses unpredictable effects on migratory behaviour and patterns. Special measures may be required for birds encountered in Ukraine during migration.
- The planning of renewable energy projects in Germany (wind farms, solar farms) will affect feeding areas of Taiga Bean Geese in Mecklenburg-Vorpommern and northeastern Brandenburg in a large scale. Areas with large wind and solar farms lose their functionality as feeding areas and may even

affect roosting sites, if they are constructed too close to roosts (wind farms) or at roosts (floating solar panels).

- Renewable energy infrastructure projects in Denmark threaten important sites used by TBG.
- Taiga Bean Geese wintering in Germany are impacted by climate change, with later arrival in autumn, earlier departure in winter/spring and increasing numbers wintering further east in Poland. As Poland is not a party to AEWA, the ISSAP is not implemented in the country. Especially, hunting is an important threat to Taiga Bean Geese in the Range State, which needs to be addressed with special conservation measures.
- HPAI is a potential driver of population-level impact and may affect Taiga Bean Goose populations in the future. Climate change may (through short-stopping of several species) increase the competition between goose species in suitable feeding areas.
- Possible threat due to radioactive contamination of TBG in moulting grounds in Novaya Zemlya, potentially affecting the majority of the TBG (Piironen et al.), as well as food security of hunters shooting and eating geese.

In addition, the TBG TF has identified the following issues proposed to be considered in the revision of the Action Framework:

- The threat assessment of the ISSAP should be revised to re-evaluate the prioritisation of the actions, leading to possible amendments, additions or deletion of actions.
- The relative simplicity of the AHM process for the Taiga Bean Goose should be continued to the extent possible.
- Very few TBG winter in England – short-stopping may increase the need for detailed surveys in NW Denmark.
- Nature restoration projects, for example in Denmark, may result in landscape changes such as afforestation and changes in wetland areas.
- A genetic study has been carried out at breeding grounds in Norway to estimate the number of breeding pairs. This has revealed new moulting sites.
- Increased threats to staging and moulting sites of the CMU and E1&E2
- The list of Range States may need a revision, taking into consideration recent assessments of range.
- The E2 is not currently listed as a TBG population but is expected to be re-listed as TBG at the next AEWA MOP.

Further to that, a revised format for AEWA Single and Multi-species Action Plans was adopted at AEWA MOP8. Revision of the ISSAP presents an opportunity to align it with this revised format.

III. Is the intervention logic of the Plan working?

The data for this assessment has been collated based on two main sources: (1) information provided by the Range States (Belarus, Denmark, Estonia, Finland, Germany, Latvia, Norway, Sweden, The Netherlands, Ukraine, and the United Kingdom) through a questionnaire, and comments provided by the TBG TF members; (2) data from the EGMP database, which can be accessed via the EGMP website.

As is recommended by the guidance accompanying the evaluation report template, the assessment follows the methodology described in the Progress Report on the Implementation of the AEWA Strategic Plan 2019-2027 (see Doc. AEWA/MOP 8.11). The scoring has been performed by the compilation team and reviewed by the TBG TF. The justifications for the scoring are presented in Annex 1.

The results suggest the intervention logic of the Plan is working, despite a significant variation in progress among MUs. Higher priority actions scored better on average, and good progress overall was achieved for the Western and Central MUs.

a. To what extent have actions been implemented?

Seventeen actions were identified in the ISSAP and scored based on the best available information for each MU. The average score of actions for each MU is as follows:

- Western MU: 3.08 (Good progress)
- Central MU: 3.11 (Good progress)
- Eastern 1 MU: 1.90 (Limited progress)
- Eastern 2 MU: Not assessed

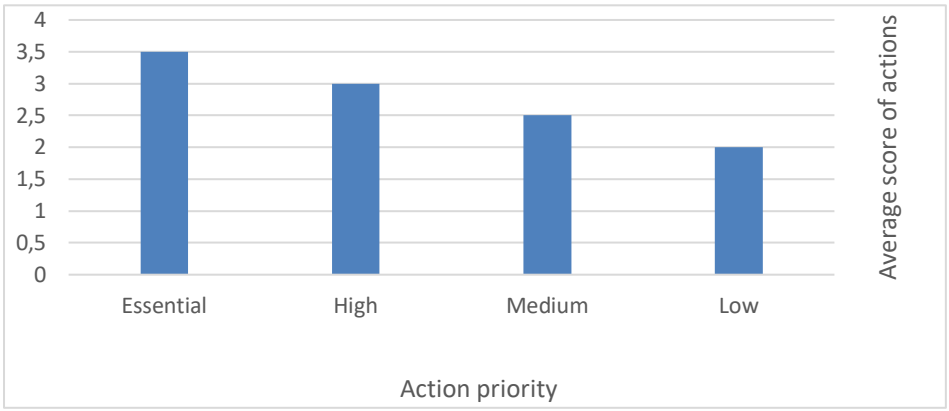


Figure 1. *Average scoring of the implementation of actions according to the defined priorities in the ISSAP (see Table 1 for details).*

Action score	Not assessed	Not implemented / not achieved / no progress / regress	Limited progress	Good progress	Significant progress	Implemented / achieved	Mean result / objective score
0							0
1							0.1 – 1.0
2							1.1 – 2.9
3							3.0 – 3.9
4							4.0 - 4.9
5							5

Figure 2. *Scoring system*

Table 1. *Actions defined in the ISSAP, score and summary of the main achievements. The evaluation of achievements, measures implemented by Range States and their effectiveness is presented in Annex 1.*

Action	Priority	Western MU	Central MU	Eastern 1 MU	Eastern 2 MU	Overall Score	Summary
Action: 1.1.1. Develop and implement international adaptive harvest management framework. Obey the principles of sustainable harvest management and decision-making framework for harvest management as described in the revised AEWA Guidelines for sustainable harvest of migratory waterbirds adopted by AEWA MOP6. Obtain accurate estimates of (sub) population size and robust demographic and harvest data.	Essential	5	5	2	0	**4**	Successful implementation of AHM in the Central MU, and moratorium on hunting in the Western MU. Lack of information about hunting of Eastern populations although measures have been implemented in Germany and Ukraine.
Action 1.1.2 Develop and implement an international framework for resolving agricultural conflict which includes the Taiga Bean Goose, including the use of non-lethal methods.	Medium	3	4	3	0	**3**	Good progress where conflicts exist. Better coordination of non-lethal methods at landscape level can increase their effectiveness.
Action: 1.1.3. Raise awareness amongst hunters on the need and ways to reduce crippling	Medium	N/A	4	1	0	**4**	Significant progress in awareness in the Central MU. No progress in Eastern 1 MU. The issue is not relevant for the Western MU. Overall, more focused campaigns are still needed to achieve better results.
Action: 1.2.1. Strengthen enforcement on persecution through intentional poisoning, harvest of moulting birds and shooting outside of season	High	0	3	2	0	**3**	Uneven progress across Central and Eastern 1 MUs. Misidentification, inadequate personnel training and vastness of remote areas remain obstacle for enforcement.
Action: 1.2.2. Raise identification skills and awareness of the status of different goose species amongst hunters	High	4	4	2	0	**3**	Good progress in hunters' identification skills and conservation awareness in most Range States. Gaps in coverage, standardisation, and effective outreach persist.
Action: 1.3.1. Maintain and strengthen predator control measures in breeding and moulting areas	Medium	N/A	2	1	0	**2**	Relatively stable predator populations in Finland and Sweden suggest that impact has not significantly worsened or improved over the past decade. Due to Arctic Fox conservation efforts, localised Red Fox management, in northernmost Finland has had positive effects for TBG.
Action: 1.4.1. Maintain and strengthen alien predator control and eradication measures in breeding and moulting areas	Medium	3	3	0	0	**3**	Impacts generally rated as low across Range States. Monitoring initiatives in Norway, Sweden and Finland. Racoon Dog has been managed in Finnish Lapland, but less controlled in southern breeding areas. Organised hunting for mink in Sweden.
Action: 1.5.1. Comply with AEWA provisions on the phasing out of lead ammunition for hunting in wetlands	High	4	4	2	0	**3**	Majority of countries have implemented measures to phase out the use of lead ammunition.

Action: 1.6.1. Minimise oil pollution by strengthening enforcement of rehabilitation of oil stations	Medium	2	2	0	0	**2**	While Norway and Sweden reported no enforcement of rehabilitation of oil projects, no events of oil contamination in breeding areas were reported.
Action: 2.1.1. Introduce seasonal reserve protection at key staging and breeding areas	Essential	3	4	0	0	**3**	Most countries have identified critical sites and introduced seasonal protections, but the reported effectiveness of these measures varied. Limited effectiveness in Sweden and lack of seasonal protection in Norway increase the risk of impact for the Western MU.
Action: 2.1.2. Involve local stakeholders in the voluntary reduction of human access to key breeding areas in critical periods	Medium	1	1	0	0	**1**	Only limited initiatives to restrict access to key breeding sites.
Action: 2.2.1. Maintain the unharvested-fields-for-birds programme within the Common Agricultural Policy (CAP) of the European Union	Medium	N/A	2	0	0	**2**	Significant increase in covered areas compared to prior CAP funding periods in Finland, but with low effectiveness due to focus on mitigating damage caused by other large bird species.
Action: 3.1.1. Continue the adaptation of forestry operations to take into account wildlife, in particular Taiga Bean Goose	High	2	3	2	0	**2**	Moderate progress in Finland with few Range States implementing specific measures. Need for targeted efforts to align forestry practices with wildlife conservation and scaling up implementation remain high.
Action: 3.1.2. Continue restoring mires used by Taiga Bean Geese that have been affected by past drainage.	High	4	4	0	0	**4**	Implementation of mire restoration programmes by several countries with moderate to high effectiveness.
Action: 3.2.1. Maintain grassland restoration as part of CAP, in agricultural policies and actions to restore suitable grasslands as feeding habitat in key staging areas.	Low	0	2	2	0	**2**	Measures implemented only in Estonia and Finland with varying impact.
Action: 3.3.1. Take account of Taiga Bean Goose breeding, staging and wintering habitats in the planning of new oil and gas and renewable energy developments	Medium	2	2	2	0	**2**	Limited progress. New oil and gas and renewable energy developments still pose high risk for the species.
Action: 3.4.1. Restore wet grassland habitats in staging and wintering areas	Medium	4	4	3	0	**4**	Relevant restoration activities being undertaken in several countries with good impact. Increase in scale and targeted actions could improve benefits.

b. To what extent have results and objectives been achieved?

The discussion in this section outlines progress towards achieving the ISSAP's objectives and provides associated scores for each objective. Progress towards specific results is outlined in Annex 1.

Objective 1. Increase survival rate of adults

Score 3: Good progress

Efforts to increase the survival of the Taiga Bean Goose have involved a combination of regulatory measures, management strategies and targeted conservation actions aimed at addressing key threats to the species. These include controlling legal and illegal hunting, mitigating predator impacts and reducing environmental hazards.

Finland and Denmark, where Taiga Bean Goose is huntable, have implemented an adaptive harvest management framework under the EGMP, regulating hunting to ensure that legal harvest does not jeopardize adult survival. Due to hunting restrictions the total harvest of the Central MU has averaged 453 birds (sd = 71) in 2023-2024. Harvest rates declined following the Finnish harvest moratorium in 2014, and this decrease in harvest rate correlates with strong growth in the population. From 2021, there is no open season for Bean Goose (both subsp.) in Sweden, only hunting to prevent damages on crops is permitted. This has reduced the offtake by approximately 90 %. Estimates of apparent survival increased markedly and have averaged 91% (sd = 1%) in 2019-2024. No survival estimate exists for the Western MU of Taiga Bean Goose. Information on the Eastern 1 & 2 MUs has been limited (Johnson et al. 2024).

Additionally, efforts have been made in reducing illegal harvest through awareness raising, though it remains an open question to what extent TBG are shot due to misidentification with other species, which can be a problem, especially to the Western population. Lack of monitoring and enforcement of illegal harvest persist as a challenge in several Range States. Predator control measures, particularly against native species like the Red Fox, have been applied to protect geese during vulnerable breeding periods, while non-lethal conflict management techniques have helped mitigate agricultural damage. Efforts to minimize lead poisoning through the phasing out of lead ammunition have further reduced lead pollution in wetlands. Despite varying levels of success across different Range States, these collective actions have significantly contributed to increasing survival rates of Taiga Bean Goose.

Objective: 2. Increase reproductive rates

Score 3: Good progress

Efforts to enhance the reproductive rates of the Taiga Bean Goose have achieved good progress in the Central MU. Posterior estimates of the intrinsic reproductive rate have varied little over the last ten years and have averaged 0.32 (sd = 0.03) (or approximately 24 % young absent any density-dependent effects). The proportion of juveniles in the Western MU showed a positive trend over the last decade, but still significantly lower than the average from 2005-2013. For the winter 2023/2024, within a flock of 90 birds, 14 juveniles were recorded, including one brood of three juveniles and one brood of two, resulting in a juvenile percentage of 15.5% (Johnson et al. 2024). Information on the status of the West Siberia/Poland and Germany population has been limited. However, Taiga Bean Goose was included in the Red Data Books of Yamalo-Nenets Autonomous Okrug (since 2023) and Krasnoyarsk Krai (since 2022) resulting in official protection in large parts of their Russian breeding range (Sonia Rozenfeld pers. comm.).

Over the past decade, human impact on breeding and staging habitats for the Western and Central MUs has been kept at low levels, supported by seasonal protections and the use of scaring devices and diversion fields. While some Range States have demonstrated good effectiveness in conservation actions, challenges persist in addressing remote habitats, logistical constraints and lack of information from Eastern 1 and 2 MUs. Although

promising initiatives, such as Finland's Unharvested-Fields-For-Birds programme and private conservation efforts, their scope and effectiveness remain limited.

Objective: 3. Stop ongoing loss, fragmentation and degradation of habitats, and restore lost, fragmented and degraded habitats

Score 2: Limited progress

Wildlife-friendly forestry practices and habitat restoration projects have shown localised success, particularly in areas where sustainable forestry models are being integrated into land management. However, the slow pace of implementation and the time required for large-scale adoption of new practices have limited broader impacts. Awareness initiatives for forestry professionals have contributed to promoting sustainable practices, but their effectiveness remains dependent on translating awareness into actionable measures.

Mire restoration projects, including large-scale efforts restoring thousands of hectares, have had moderate to high effectiveness in improving habitat conditions. For example, these restorations have led to ecological recovery and enhanced habitat suitability in important areas in Finland and areas in the UK that, despite not being used by TBG in recent decades, could potentially support the species in the future. However, the vast scale of degraded peatlands suggests a need for expanded efforts to achieve population-level impacts. Grassland restoration efforts, supported by the EU's Common Agricultural Policy, have been partially effective. While localised gains have been achieved in improving feeding habitats, changes in subsidy systems and limited management areas have hindered broader effectiveness.

Conservation considerations integrated into renewable energy development planning have had limited progress. Challenges such as cumulative effects of infrastructure development on migration corridors and feeding areas underscore the need for more comprehensive planning approaches.

Overall, despite the success of restoration initiatives and improvement in the sustainability of forestry sector in some regions, the scale of measure remains low compared to the pace of habitat degradation. Scaling up efforts, addressing implementation barriers, and adopting adaptive management approaches will be crucial for fully achieving the objective and ensuring the long-term conservation of the Taiga Bean Goose habitats.

c. What were the main obstacles hindering implementation and achieving defined results and objectives?

The main obstacles hindering the implementation of conservation measures included limited resources to scale up successful local initiatives, insufficient data on Eastern 1 and 2 MUs, and a lack of engagement from some Range States.

Latvia pointed out the need for improved data acquisition from breeding areas, which have been constrained by geopolitical instability, particularly due to the ongoing war in Ukraine.

Ukraine reported that the war had severely limited its capacity to focus on migratory waterbird conservation.

The United Kingdom has faced difficulties in maintaining and recovering wintering populations, particularly in England, partly due to short-stopping, a phenomenon beyond management control.

In Sweden, lack of resources has hindered efforts to effectively manage and increase the knowledge about the Western MU.

Finland identified slow progress in forestry and mire restoration due to the long-term financial commitments required for such projects, and noted that managing predation by native species, such as the Red Fox, across extensive, remote areas was economically unfeasible. Additionally, Finland raised concerns about the cumulative impacts of large-scale wind energy projects along key migratory routes. These challenges underscored the need for a coordinated, flyway-wide approach to mitigate emerging risks.

5. Conclusion and Recommendations

It is recommended to proceed with a full revision including goal, objectives and framework for action, as necessary.

Annex 1. Review of Progress Based on Information Provided by Range States

Result: 1.1. Legal harvest does not jeopardise an increase of adult survival rates.

Significant progress has been made in implementing AHM frameworks to ensure that legal harvest of Taiga Bean Geese is sustainable in Finland and Denmark. Non-lethal methods to reduce agricultural conflicts, including scaring techniques, diversionary fields and compensation schemes, have also been applied in several countries with varying levels of success. In Denmark and Sweden, these methods have been integrated into broader agricultural management strategies. In Finland and the Netherlands, while similar approaches have been used, they have been often more focused on other goose species, with secondary relevance for Taiga Bean Geese. Most Range States reported that minimal to no agricultural damage is caused by TBG.

Awareness-raising initiatives aimed at reducing crippling rates among hunters have also seen varied implementation. In Denmark and Sweden, comprehensive educational programs and campaigns have been implemented with notable effectiveness. Finland has reached a broad audience through magazines and training materials, while other countries have also engaged in awareness-raising, noting initiatives at early stages or limited hunter engagement.

Action: 1.1.1. Develop and implement international adaptive harvest management framework. Obey the principles of sustainable harvest management and decision-making framework for harvest management as described in the revised AEWA Guidelines for sustainable harvest of migratory waterbirds adopted by AEWA MOP6. Obtain accurate estimates of (sub) population size and robust demographic and harvest data.

The implementation of AHM of Taiga Bean Goose has seen significant progress in Finland and Denmark, two Range States where legal hunting currently occurs. Finland has established an AHM framework that includes geographic and temporal hunting restrictions, daily and seasonal bag limits and mandatory hunting bag reporting. These measures are supported by legislation that allows annual adjustments based on harvest and population modelling. Finland has implemented AHM for Bean Goose following Ministerial Decree 497/2024, which stipulates:

a. For Taiga Bean Goose: 1 week hunting season at the end of August. Restricted geographical area of open season in northern breeding areas. Restrictions include 1 goose/hunter/season quota. Restrictions includes also ban on use of bait and hunting over agricultural land.
b. For Tundra Bean Goose: 2-month hunting season October-November when most Taiga Bean Goose have migrated. Restricted geographical area of open season.

Denmark has implemented similar measures, geographically defined hunting seasons and comprehensive monitoring of bird populations and harvest data. Both countries demonstrate effective coordination of sustainable harvest management and adaptive decision-making under the EGMP.

In other Range States, the relevance and application of AHM is lower. For instance, in Sweden, the Netherlands and Latvia, the Taiga Bean Goose is not hunted due to its protected status or rarity, while in Sweden conditional hunting of the Taiga Bean Goose to prevent agricultural damage is allowed. Ukraine has implemented shooting limitations on all goose species through national legislation but has not participated in coordination mechanisms under EGMP or implemented a formal international AHM framework as the recommendation for TBG is a moratorium for the relevant MU. Germany has enforced a hunting ban in key regions but reports challenges in species identification and data validation.

Action 1.1.2 Develop and implement an international framework for resolving agricultural conflict which includes the Taiga Bean Goose, including the use of non-lethal methods.

Several countries adopted non-lethal methods, with moderate to high levels of effectiveness. Denmark, for example, employed diverse measures, including scaring techniques, disturbance management and the strategic use of “spill crops,” which were evaluated as effective in reducing agricultural conflict. Similarly, Sweden

implemented scaring devices, diversionary fields and a compensation scheme for farmers, though the rising pressure from other bird species alongside geese added complexity to the implementation of these measures, leading to a moderate effectiveness rating. Latvia also employed a compensation system for agricultural losses, which was similarly rated as moderately effective.

Estonia and Finland reported the use of scaring methods; however, in Finland, measures were primarily applied to Barnacle Goose and Greylag Goose, with secondary applicability to TBG. The effectiveness of these measures was also rated as moderate, highlighting their relevance within broader agricultural conflict management efforts. In contrast, other countries, such as Ukraine and Belarus, reported minimal or no conflict involving TBG. Germany reported ongoing challenges with uncoordinated scaring methods, aimed at the more abundant goose species and causing disturbance for TBG.

The Netherlands highlighted a slightly different scenario, with goose accommodation areas established for other species but with limited relevance for TBG, which primarily fed on harvest remains and caused minimal damage. This approach indirectly benefited TBG but was not specifically targeted at resolving conflicts involving this species

Non-lethal methods for managing agricultural conflicts with TBG showed varied effectiveness, largely influenced by their design and implementation. Scaring techniques and diversionary fields were commonly used, with moderate success in deterring geese. Compensation schemes have also been employed, providing financial relief to farmers but failing to address the root cause of damage, which may limit their long-term effectiveness. Measures like spill crops offered alternative food sources and reduced conflict, while broader habitat management approaches can support coordination of measures at landscape level.

Action: 1.1.3. Raise awareness amongst hunters on the need and ways to reduce crippling

The progress of implementing awareness-raising initiatives aimed at reducing crippling rates among hunters varied across Range States. For example, Denmark has implemented a comprehensive approach, including campaigns, articles and scientific projects, which has contributed to a significant reduction in crippling rates. Sweden has also provided information through campaigns and educational programmes for new hunters, which have been reported to be highly effective.

Finland has utilised training materials and magazine articles to inform hunters, reaching 87 % of the target audience through its hunting magazine. However, Finland noted that further focused campaigns may be needed to achieve measurable reductions in crippling. Similarly, Ukraine offered general training on preventing bird crippling, but these initiatives were considered partially effective, with room for improvement in the quality of knowledge provided.

Some countries, including Belarus and Germany, have not yet implemented awareness-raising initiatives, while the United Kingdom has indicated that such initiatives are not necessarily due to the protected status of the TBG. The Netherlands has recently begun incorporating awareness-raising efforts into training courses, which are still in the early stages.

Overall, most important Range States have established long-standing and highly effective programs, and some are still developing their efforts. The overall effectiveness ranges from moderate to highly effective, suggesting that further knowledge sharing and targeted efforts could be beneficial.

Result: 1.2. Illegal harvest is reduced to nonsignificant levels.

Illegal harvest has shown a sustained decline across Range States, with most countries reporting negligible or minimal levels. The prevailing trend is assessed as either stable or declining in all Range States, reflecting significant progress over the past decade.

Denmark has emphasised the role of self-regulation within the hunting community to bring illegal harvest down, identifying species misidentification as the primary issue of occasional killing of TBG, which affects an estimated 50 birds annually. Similarly, Belarus and Latvia report fewer than 20 cases annually.

Finland has implemented awareness campaigns aimed at the hunting community, but structural barriers in enforcement persist. Specifically, the inability to inspect hunters' equipment in the field without an official investigation mandate has hampered effective oversight. In Germany, hunting of Bean Geese has been prohibited in states such as Mecklenburg-Vorpommern since 2020 and Brandenburg since 2019. However, challenges remain, particularly with enforcement and occasional species misidentification during the legal hunting of other species.

In the United Kingdom and the Netherlands, illegal harvest is negligible due to the low numbers of Taiga Bean Geese. Conversely, Estonia and Ukraine lack specific data, pointing to significant gaps in harvest monitoring systems, particularly for Eastern populations. Ukraine faces compounded challenges, including low enforcement capacity and difficulties in monitoring vast rural areas, which limit its ability to address a series of illegal activities including harvest and bird poisoning.

Overall, while illegal harvest levels remain low in most countries, addressing these gaps through standardized training, increased capacity-building for species identification, and strengthened enforcement strategies will be crucial to maintaining illegal harvest at insignificant levels.

Action: 1.2.1. Strengthen enforcement on persecution through intentional poisoning, harvest of moulting birds and shooting outside of season

Progress is uneven among Range States. Belarus and the Netherlands reported complete progress, emphasising strong enforcement frameworks and minimal issues with illegal activities. Similarly, Estonia and Latvia have achieved significant progress, though obstacles like the vastness of remote areas remain a barrier to comprehensive enforcement in Estonia.

Conversely, other Range States have faced significant challenges. Ukraine, for example, reported limited progress, hindered by a lack of trained enforcement personnel and the practical difficulty of monitoring large, remote areas. These issues resulted in low levels of prosecution despite known incidents of bird poisoning. Finland also experienced similar difficulties, compounded by limited enforcement authority and structural barriers such as the inability to conduct field investigations or inspect vehicles for illegal harvests. However, Finland has achieved moderate success in preventing illegal activities and is working toward improvements, including through new legislative proposals to expand power of inspections by law enforcement officers.

Germany has enforced hunting bans on Bean Goose in Mecklenburg-Vorpommern since 2020 and Brandenburg since 2019, achieving significant progress, but continues to struggle with enforcement gaps due to inadequate personnel training. Illegal hunting persists, often due to species misidentification, underscoring the need for targeted training initiatives.

Denmark has achieved moderate progress but considers illegal harvest a negligible issue. Often the hunters themselves will react if others are carrying out illegal activities. Sweden, however, has failed to enforce legal restrictions resulting in no progress in this area despite unknown levels of illegal harvest.

These results highlight the critical need for enforcement strategies tailored to the national circumstances, particularly in regions with limited resources or significant geographic challenges. Despite the low levels of illegal harvest, collaborative efforts across law enforcement agencies, enhanced training and engagement of the hunter community could support more consistent enforcement across Range States, contributing to maintaining illegal harvest law and ensuring protection to the Taiga Bean Goose.

Action: 1.2.2. Raise identification skills and awareness of the status of different goose species amongst hunters

Many Range States, such as Ukraine, Latvia, Denmark, Belarus, Estonia, the Netherlands, Sweden and Finland, have implemented programs to enhance hunters' identification skills, with varying levels of effectiveness. Ukraine and Latvia have incorporated training programs for hunters, with Latvia including interactive tests before the start of the hunting season and mandatory hunter examinations, which provide foundational knowledge for species identification.

Finland has developed broad-reaching awareness campaigns through hunters' magazines and education websites, indicating substantial coverage. For example, identification of TBG has been raised in articles in the hunters' magazine, reaching the vast majority of Finnish hunters. The front page of magazine number 4/2024 (distributed to the 350,000 registered hunters in the country) showcases a picture of a Taiga Bean Goose and a headline on how to identify the subspecies. According to a reader survey, the hunters' magazine is read by 87 % of all hunters in Finland. In the electronic magazine, over 30 articles have been published related to Taiga Bean Goose. While the majority of hunters are reached, it remains unclear how many of them follow the recommended best practices. More focused training initiatives or information campaigns may be necessary to measurably increase hunters' identification skills.

Denmark has employed methods such as videos, leaflets and articles to address misidentification issues. In recent years, some goose hunters have undergone specialisation, adopting a more professional approach. In Sweden, efforts focused on new hunters, with identification training included in their education. Despite this, the challenge of reaching existing hunters and providing continuous education remains a critical obstacle. Belarus and the Netherlands both reported partial effectiveness of the activities aimed at enhancing identification skills of hunters. Belarus has made progress through publishing of a guide for waterfowl for hunters.

In contrast, Germany has not implemented dedicated activities to enhance hunters' identification skills or raise conservation awareness specifically for goose species. Although basic identification is covered in hunter training, the lack of standardisation across federal and state levels leaves significant gaps in capacity development. Furthermore, hunters with successful examinations do not need to participate in additional training courses, therefore, most active hunters are not reached by any capacity development activities. The United Kingdom reported that due to the localised distribution of Taiga Bean Geese the risk of misidentification with other species is minimal.

Awareness-building efforts showed varying degrees of success. Overall, while progress has been made in improving hunters' identification skills and conservation awareness, gaps in coverage, standardisation, and effective outreach persist in several Range States. Strengthened coordination, standardised training programs and the continuation of targeted campaigns would be necessary to reduce and maintain illegal harvest to nonsignificant levels.

Result: 1.3. Impact of huntable native predators in breeding and moulting areas is reduced.

While most Range States are unaffected by predator impacts due to the absence of Taiga Bean Goose breeding populations, Finland and Sweden continue to face challenges. In Sweden, the impact of predators on Taiga Bean Goose populations has been moderate. Sweden reported that the population of predators has remained relatively stable over the past decade, and there has been no significant increase in their numbers despite an absence of predator control measures. As a result, the threat to the geese has not worsened in recent years.

In Finland, the situation is more concerning, with a larger impact of predators. Over the past decade, Finland has observed that the Red Fox population follows the cyclical patterns of rodent populations, which can lead to spikes in fox numbers during certain years. Although Finland has reported that the Red Fox population has been relatively stable, population surges can significantly increase the predation pressure on Taiga Bean Goose

nests and young geese, posing a substantial risk to the reproductive success. These cyclical fluctuations can lead to significant variations in predation risk, depending on the year.

The relatively stable predator populations in Finland and Sweden suggest that while the impact has not significantly worsened over the past decade, targeted predator management, especially during Red Fox population spikes, could be beneficial to further reduce the risks to successful TBG reproduction. Strengthening the monitoring in key breeding areas would help ensure preparedness of predator control measures.

Action: 1.3.1. Maintain and strengthen predator control measures in breeding and moulting areas

The implementation of predator control measures to reduce the impact of huntable native predators has been restricted to Finland and Belarus. Belarus reported predator control, implementing year-round hunting across relevant areas. Finland has faced significant challenges due to the vast and remote nature of its TBG breeding range. While, due to Arctic Fox conservation efforts, localised Red Fox management in northernmost Finland has also had positive effects for TBG, country-wide measures have been limited in scope, with low effectiveness. Achieving broader, landscape-level impact has been constrained by resource limitations and the high costs associated with predator control over remote areas. Other Range States reported no predator control measures, either because TBG populations are too low, predators are not considered a threat or the species does not breed or moult in their territories.

Result: 1.4. Impact of alien predators in breeding and moulting areas is reduced.

The impact of alien predators on Taiga Bean Goose reproduction and adult survival is generally low across Range States. In Norway, the impact is rated as small, with the temporal trend over the last decade assessed as neutral, based on field registrations and genetic analysis of feathers, suggesting a stable situation.

In Finland, the Raccoon Dog *Nyctereutes procyonoides* poses a potential threat to TBG populations. While its population is managed in Finnish Lapland, it remains denser and less controlled in southern breeding areas. Despite this, the impact has remained small, reflecting stable predator populations over the past decade. Sweden has rated the impact as negligible due to the rarity of alien predators such as the American Mink *Neovision vision* in TBG habitats.

Action: 1.4.1. Maintain and strengthen alien predator control and eradication measures in breeding and moulting areas

Finland and Sweden have implemented targeted measures to manage alien predators in breeding and moulting areas. Finland has operated a long-term Raccoon Dog eradication project in Northern Finland, co-funded by Sweden and Norway, aimed at limiting the species' expansion into neighboring countries. This initiative has achieved significant reductions in Raccoon Dog populations within the project areas. The project contributes to maintaining low Raccoon Dog populations in the Taiga Bean Goose breeding range regions. Focused eradication efforts are implemented in key bird conservation areas across the country. While primarily benefiting duck conservation, these activities have also positively impacted TBG populations. Sweden's efforts centered on the organised hunting for the American Mink, particularly around fishery management areas. These measures address specific local concerns; however, their scope and documented outcomes for TBG conservation remain limited.

Result: 1.5. Lead poisoning is minimised

Action: 1.5.1. Comply with AEWA provisions on the phasing out of lead ammunition for hunting in wetlands

Majority of countries have implemented measures to phase out the use of lead ammunition in wetlands, demonstrating progress toward minimising lead poisoning in line with the AEWA provisions. Since 15 February 2023, a uniform ban on lead ammunition in wetlands and a 100-meter buffer zone has been enforced

across all EU member states under Regulation No 1907/2006, including Denmark, Germany, Finland, Estonia, Latvia, the Netherlands and Sweden. Finland's approach also includes a mobile application to help hunters identify restricted areas, alongside a ban on lead shot for waterbird hunting established in 1996. Denmark has maintained a national ban on lead ammunition for nearly 30 years. The United Kingdom has phased out lead ammunition in wetlands since 1999, with phased legislation implemented across England, Wales, Scotland and Northern Ireland over the subsequent decade. Further plans are being considered to expand the ban across all environments across England, Scotland and Wales. Conversely, in Ukraine, legal initiatives have been proposed but not yet adopted, and Belarus has yet to implement specific measures.

Result: 1.6. Oil poisoning and contamination in breeding areas is minimised

Action: 1.6.1. Minimise oil pollution by strengthening enforcement of rehabilitation of oil stations

No events of oil contamination in breeding areas were reported. While Norway and Sweden reported no enforcement of rehabilitation of oil projects, the issue is not relevant for Finland as there are no oil-drilling operations in the country.

Result: 2.1. Disturbance in breeding and spring staging areas is reduced

Efforts to reduce disturbance in Taiga Bean Goose breeding and spring staging areas have successfully kept the impact at low levels. While human activities such as forestry, agriculture and recreation continue to impact breeding populations, disturbance levels are generally small and have remained stable over the past decade, suggesting some success in mitigating worsening impacts. Spring staging areas have benefited from measures such as scaring devices and diversion fields, with trends showing neutral to positive outcomes. Seasonal reserve protection at key sites has contributed to conservation efforts, achieving high effectiveness in Denmark, Belarus and Estonia and proving to be somewhat effective in Sweden and Finland. In Finland, the key breeding and spring staging sites are protected, while the protection of the remaining vast and remote breeding range areas has not been cost-effective and currently deemed as unnecessary. There have been no efforts to involve local stakeholders in voluntarily reducing human access to breeding areas across the relevant Range States. In Finland, defining areas for voluntary access reduction is challenging due to geographic factors and the "Right to Roam" legislation, giving Finnish locals and visitors the freedom for the recreational use of natural areas. Overall, while progress has been made, achieving long-term reductions in disturbance in breeding and staging areas requires strengthened coordination, targeted protections and continued stakeholder engagement.

Action: 2.1.1. Introduce seasonal reserve protection at key staging and breeding areas

Most countries with significant breeding or spring staging areas identified critical sites and introduced seasonal protections, marking the overall trend in reducing disturbances stable. However, the reported effectiveness of these measures varied, influenced by geographical and logistical factors.

In Denmark, seasonal protections were notably effective due to strong national legislation, while Estonia benefited from the inclusion of key areas in broader conservation area networks such as Natura 2000. Finland and Sweden reported moderate effectiveness of these measures. In Finland, key spring staging and breeding sites were protected, but the vast and remote nature of the breeding range left some critical areas outside designated reserves, where additional protections is not cost-effective and considered not necessary at the moment. Similarly, Sweden expanded its network of protected areas, yet the effectiveness of these measures has been limited. Norway did not implement seasonal protections, but some key areas are within existing protected areas, resulting in positive outcomes.

Overall, while the establishment of seasonal reserves represented progress, some challenges persist in addressing remote habitats, ensuring targeted conservation and overcoming logistical constraints. Strengthened

coordination, resource allocation and adaptive management remain essential for maximising the effectiveness of these protections and supporting the conservation of staging and breeding areas.

Action: 2.1.2. Involve local stakeholders in the voluntary reduction of human access to key breeding areas in critical periods

The relevant Range States have indicated no initiatives to restrict access to key breeding sites. In Finland, the remoteness of breeding areas and the country's "Right to Roam" legislation are a barrier to efforts to reduce access. Similarly, Sweden reported no effective measures to restrict access. Both Sweden and Finland, evaluated the action as not effective.

Result: 2.2. Interspecific competition in spring staging areas is reduced.

Action: 2.2.1. Maintain the unharvested-fields-for-birds programme within the Common Agricultural Policy (CAP) of the European Union

Efforts to reduce interspecific competition in spring staging areas through unharvested-fields-for-birds programs under the EU's Common Agricultural Policy (CAP) have shown limited implementation and effectiveness. Among the relevant countries, Finland is the only one to have established such a program, representing a significant increase in covered areas compared to prior CAP funding periods. However, its effectiveness has been low, primarily due to its focus on mitigating damage caused by other large bird species, such as barnacle geese, cranes and swans, rather than specifically addressing the needs of the Taiga Bean Goose. Other Range States either lacked similar programs or reported no knowledge of such implementation efforts.

Result: 3.1. Impact of forestry works is reduced.

Progress toward reducing the impact of forestry on the Taiga Bean Goose has increased across Range States but remains limited. Finland has made advancements by integrating wildlife-friendly forestry practices and undertaking habitat restoration projects with significant benefits at the local scale. However, the pace of implementing new sustainable forestry models and the time required to integrate these practices into large-scale management have limited their broader impact. In Belarus, awareness initiatives are estimated to have reached approximately 40-50% of forestry professionals, highlighting efforts to promote wildlife-friendly practices. However, specific implementation of these practices has yet to be documented. These findings suggest that while awareness exists in some Range States, further efforts are needed to translate it into actionable measures. The findings underscore the importance of continued adaptation of forestry operations to better account for Taiga Bean Goose.

The new EU restoration law is expected to support efforts to increase restoration of degraded ecosystems, including forests and mires, providing financial incentives, and promoting sustainable forestry practices. It may facilitate standardised conservation measures across member states, enhancing monitoring and data collection, and capacity-building for forestry professionals. These can help scale up and accelerate conservation efforts, ensuring forestry operations align with Taiga Bean Goose conservation goals.

Action: 3.1.1. Continue the adaptation of forestry operations to take into account wildlife, in particular Taiga Bean Goose

Efforts to adapt forestry operations to account for the conservation needs of the Taiga Bean Goose remain limited, with few Range States implementing specific measures. Belarus and Sweden reported no adaptation efforts. Belarus estimated that 40–50% of forestry professionals were informed about wildlife accounting methods, but the lack of implementation has diminished the overall impact. Finland, in contrast, showed moderate progress by integrating wildlife-friendly forestry practices, particularly focused on game birds and undertaking habitat restoration in cooperation with state forestry operations. These measures have shown

moderate effectiveness as they are hindered by the slow implementation of new forestry models and the cumulative time required to operationalise and apply methods in forest management. The findings suggest the need for targeted efforts to align forestry practices with wildlife conservation, particularly through educating forestry professionals, scaling-up implementation and accelerating the integration of forestry management strategies in the most important breeding areas.

Action: 3.1.2. Continue restoring mires used by Taiga Bean Geese that have been affected by past drainage.

Efforts to restore mires affected by past drainage have shown a wide range of implementation across Range States. Norway and Ukraine reported no targeted initiatives. Denmark, Finland, Sweden, Belarus, and the United Kingdom implemented restoration programmes with moderate to high effectiveness, most of which, while not exclusively targeted at TBG, have resulted in positive outcomes for the species. In Denmark and Sweden, mire restorations were part of broader initiatives benefiting all waterfowl. Finland has undertaken significant restoration efforts, restoring over 36,000 hectares of protected mire habitats since 1980 and 12,000 hectares within state-managed forests. While these actions have localised benefits, Finland underscored the need for upscaling efforts to achieve meaningful impacts at the population level, particularly given the vast area of drained peatlands (around 5,5 million hectares) in the country. The upcoming EU restoration law is expected to support these activities, particularly for sites with minimal economic value but significant environmental damage.

The UK has made significant investments in peatland restoration through funding from EU LIFE, Scottish Government, Defra and other streams, including the Solway Basin in Cumbria (a site formerly used by Taiga bean geese) and the Slamannan Plateau in Scotland (currently used by Taiga bean geese). The Slamannan Bog Restoration Project has rehabilitated over 230 hectares of degraded lowland raised bog, including the Fannyside Muir, a winter roosting site for Taiga Bean Geese. Restoration efforts have involved installing over 4,300 dams to retain water, creating shallow pools through cell-bunding and removing conifers and scrub to prevent habitat drying. These measures have led to ecological improvements, such as the recovery of peat-forming mosses and the immediate colonisation of pools by dragonflies and wading birds. While Taiga Bean Geese have not used the Solway basin in recent decades, the restored peatlands there are now in better condition to potentially support the species in the future.

Result: 3.2. Grassland habitats in spring staging areas are restored and maintained.

3.2.1. Maintain grassland restoration as part of CAP, in agricultural policies and actions to restore suitable grasslands as feeding habitat in key staging areas.

Grassland restoration as part of the Common Agricultural Policy (CAP) to support Taiga Bean Goose feeding habitats in spring staging areas was implemented by Estonia and Finland. Estonia has evaluated the implementation of these measures as highly impactful. Finland recognised the importance of wet grasslands and coastal meadows but reported that recent changes in subsidy systems, reduced management areas and the loss of traditional grazing practices have limited the effectiveness of restoration efforts. In contrast, Norway, Sweden, Belarus and Denmark indicated absence of restoration efforts.

Result: 3.3. Breeding, staging and wintering habitats are not further lost due to oil and gas or renewable energy developments.

Action: 3.3.1. Take account of Taiga Bean Goose breeding, staging and wintering habitats in the planning of new oil and gas and renewable energy developments

Efforts to mitigate the impacts of oil, gas and renewable energy developments on Taiga Bean Goose habitats reveal a diverse landscape of implementation and outcomes across Range States. Finland incorporated wildlife

considerations into all energy development plans, although implementation has faced challenges in addressing cumulative impacts, particularly in in remote breeding areas, key staging sites and migration corridors. If existing wind farm plans are realised, a large portion of TBG breeding and migration areas could be affected, leaving few unobstructed migration paths below 400 meters in altitude between Finland and Sweden. This cumulative impact raises concerns about the long-term viability of TBG populations in these regions, despite the formal integration of conservation considerations in planning processes.

In Germany, regional and wind farm planning only partially considers TBG habitats. The State Brandenburg has implemented a 2 km buffer zone around the Lower Odra National Park to restrict wind turbine construction, but this measure is insufficient as key feeding areas for the birds often fall outside this zone. While wind farms are prohibited in Special Protection Areas (SPAs) where TBG is a relevant species, SPAs frequently exclude critical feeding areas for geese, swans and cranes, leading to incomplete habitat protection. Additionally, approval processes for renewable energy projects generally disregard feeding areas outside SPAs. In Schleswig-Holstein, resting sites for geese and swans are considered in spatial planning for wind energy projects, though the state is rarely visited by TBG.

Denmark engaged in discussions to address project-specific measures for agricultural areas used by TBG. Currently, one renewable energy project is planned in agricultural areas which TBG use as wintering habitat. Measures to reduce impacts are being discussed. United Kingdom reported little overlap of terrestrial habitats used by TBG with energy developments, but highlighted possible interactions along TBG migration routes around offshore windfarm development in eastern Scotland.

Result: 3.4. Impact of agriculture on natural Taiga Bean Goose habitats is minimised.

Norway and the United Kingdom reported negligible impacts of agriculture on natural TBG habitats. In the UK, many habitats used by TBG were part of protected site networks, safeguarding them from significant agricultural harm. Feeding areas were primarily on improved or semi-improved grasslands. Broader regulations, such as Environmental Impact Assessment (EIA) regulations, prevented the conversion of unimproved land, while land-use changes for housing or industrial purposes were subject to planning regulations that should consider TBG needs.

Denmark and Finland assessed the agricultural impacts as minor. Finland observed a positive trend due to agri-environmental schemes and winter vegetation cover, which provided benefits to staging TBG. Belarus and Estonia reported moderate impacts. Estonia noted a negative trend, citing increasing pressures from agriculture. Sweden and Germany identified larger impacts (4 and 5, respectively). Sweden noted that agriculture had intensified providing sufficient supplies of food for TBG around the year. However, this has also drained wetlands and limited natural foraging sites. In general, the country reported no major changes in the past decade. Germany indicated significant habitat loss, particularly in the Lower Odra National Park, where wet grasslands declined due to expanded protected areas that prohibited active land use. This forced TBG to rely on feeding areas across the Polish border, where hunting posed additional risks.

Action: 3.4.1. Restore wet grassland habitats in staging and wintering areas

Several Range States, including Denmark, the UK, Belarus, Estonia, Sweden and Finland reported restoration efforts as successful. In contrast, Germany's efforts were considered not effective, with challenges such as the exclusion of TBG as a target species in restoration projects and the loss of suitable feeding areas. For example, restoration projects in wintering areas in Mecklenburg-Vorpommern and Brandenburg have not considered that such grassland complexes could be important feeding areas for Taiga Bean Geese. Therefore, no restoration project took Taiga Bean Geese into account as target species. Restored grassland areas are often completely rewetted and/or rewetted with no land-use afterwards potentially leading to disappearance of suitable feeding areas after restoration.

Denmark, the UK, Belarus, Sweden and Finland evaluated their efforts as partially effective. These projects were often limited in scope or faced challenges such a competition with other species or incomplete habitat suitability. Denmark reported work in progress to designate areas as temporary flooding zones to support the geese. In the UK, areas used by TBG are generally protected and managed through agri-environment funding. Although Sweden has invested in wet grassland restoration, the areas remain relatively small, and the quality of the food provided may not be as high as what is available in conventional fields. Additionally, there may be competition for resources from other more common species, which could limit the success of the restoration efforts for TBG. Norway, Ukraine and the Netherlands reported no relevant restoration activities, with Ukraine and the Netherlands noting the absence of TBG staging or wintering areas.

Annex 2. Compilation of Available Data on Bean Geese in The Eastern 2 Management Unit using Popular Citizen Science Platforms

Compiled by Jérémie Berlioux, Chairman of the Ornithological Society Kyrgyzstan (OSKG)

Data were gathered using popular citizen-science platforms in Central Asia, namely Ebird, I-naturalist and the series of websites Birds of Kazakhstan, Birds of Kyrgyzstan and Birds of Xinjiang. The information has been selected based on the availability of the location and a reasonable accuracy of the identification. The data collated is to be taken with caution because of the risk of confusion between the Taiga and Tundra Bean Geese. Birders in Kyrgyzstan and Kazakhstan tend to lump both species into one. Yet experienced observers tend to claim that Tundra Bean Geese are much less numerous than Taiga Bean Geese.

Data collected show several important wintering areas for the Eastern 2 MU:

- **China: Tacheng Prefecture, Emin County**. A mainly agricultural landscape with important grassland and wetlands. Population observed range from single birds to a flock of 345 birds (October 2019), along with important flocks of Greylag Goose.
- **China: Urumqi region**. A mainly agricultural landscape with large water reservoirs. Population observed range from a few individuals to 500 (October 2023). Observers noted that the large flocks where migrating, and that the region is a known site for Greylag Goose
- **China: Aksu, Kashgar, Hotan – western tip of Xinjiang**. Landscape is agricultural with regular irrigation reservoirs and wetlands. Population ranges from individuals to 400 in Kashgar (February 2023 with 50 Greater White Fronted Geese).
- **Kyrgyzstan: Eastern Issyk-Kul Lake IBA**. Landscape agricultural and wetlands. Populations observed in Autumn with migrating flocks of up to 450 individuals (October 2023). Small groups observed wintering.
- **Kazakhstan: Sorbulak Lake system**. Steppe and agricultural landscape. Well monitored site with flocks ranging from a few individuals to several hundred (counts very conservative and based on the photos made available by observers on birds.kz).
- **Kazakhstan: regular visitors of the southern shore of Kapshagai Reservoir**. Agricultural landscape and wetlands. Population: few dozens observed between October and December.
- **Kazakhstan: valley of Katon-Karagay.** Forest and agricultural landscape. Regular observation in April, along with main other species of water birds and with Tundra Bean Goose.

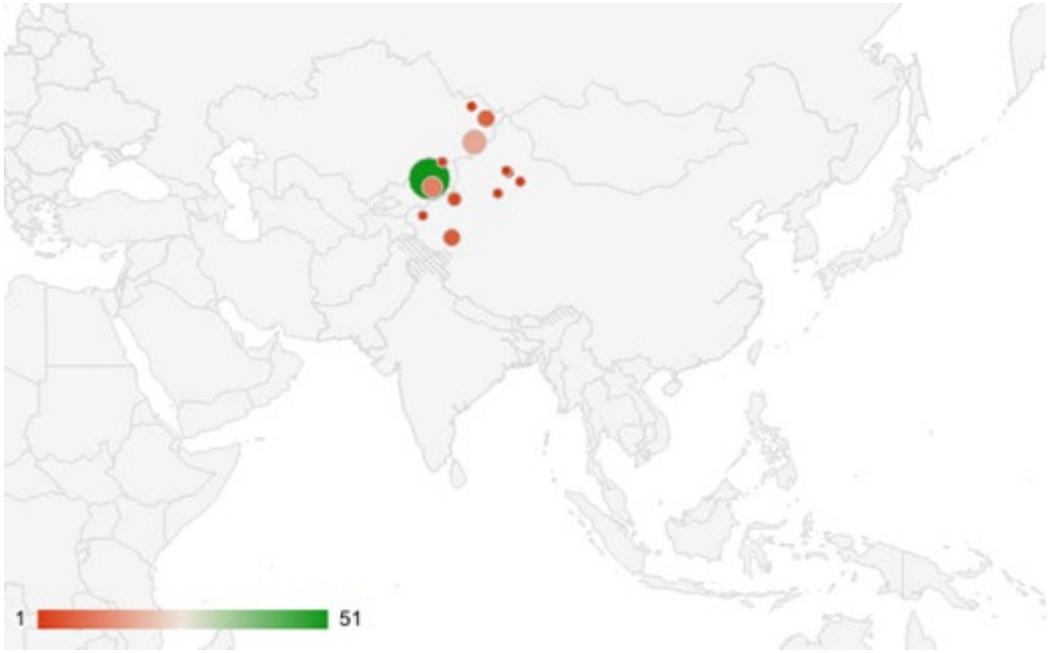


Figure 1. Number of observations in Central Asia on citizen science platforms. 1= 1 entry. 51= 51 entries.

Maximum size of the flocks observed: 500 individuals. Population dispersion is high during the winter with a territory of approximately one million square kilometres (including desert and mountain ranges unsuitable for the species).

If there are new issues, does the action framework of the Plan need to be changed to address these?

- Highly Pathogenic Avian Influenza is poorly and loosely monitored in Central Asia. Considering the small size of the population and some of the wintering sites identified (Sorbulak Lake system, Eastern Issyk-Kul Lake IBA, Tacheng County, Farmland of South-West Xinjiang), there is a risk that the geese may be vector of introduction of the Influenza, or affected in case of epidemics.
- Large scale wind farms and energy infrastructure projects in Western China and Kazakhstan could present a risk to the population. Better understanding of their migration strategy required.
- Poaching for waterbirds is widespread in East Kazakhstan and Kyrgyzstan.

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