Taiga Bean Goose (*Anser fabalis fabalis*) Flyway Management Workshop

Discussions, considerations, recommendations

Taiga Bean Goose Management Workshop took place in Kristianstad Sweden on December 5th 2013. The workshop was linked to the AEWA (African-Eurasian Waterbird Agreement) International Single Species Action Planning (ISSAP) process. This workshop gave an opportunity to have a deeper understanding of the situations in the wintering areas, especially Sweden. Focus was on the preparation of the implementation of the forthcoming ISSAP and in the issues that were raised in the Outcomes and Recommendations –document of the ISSAP workshop held in Tuusula, Finland November 12-14th 2013.

The event was attended by representatives of hunter's associations from Sweden, Finland and Latvia as well as Swedish authorities from county and national levels, members of ISSAP Drafting Team and an expert of Human Dimensions on wildlife management from the University of Illinois, USA.

In the meeting a special workshop session was held. In the session the forthcoming actions to be taken in order prepare the implementation of ISSAP were discussed. The focuses of the discussions were on the following topics and in the Fennoscandian breeding population (Central Management Unit):

- Possible coordinated hunting restrictions along the Flyway in relation to the development of the Adaptive Harvest Management framework
- Impact of protective hunting on Taiga Bean Goose in Sweden
- Future harvest reporting to provide better than present estimates of the harvest levels.

Prior to the workshop the AEWA ISSAP Drafting Team had a meeting on December 4th 2013. In this meeting the coordinated annual monitoring were discussed. The focus was on following topics:

- Mid-January counts for total population size
- Productivity
- Survival rates

The discussions, outcomes and possible recommendations are provided as 'minutes of the meeting' in the Annex 1 of this letter. A draft for international monitoring program is provided as Annex 2.

On behalf of the organizers and the workshop participants,

Mikko Alhainen
Finnish Wildlife Agency

The workshop was organized by Swedish Association for Hunting and Wildlife Management and Kristianstad University in co-operation with Finnish Wildlife Agency

ANNEX 1: Workshop session discussions, outcomes and recommendations

An adaptive harvest management framework for the Taiga Bean Goose will be developed within the context of the ISSAP.

The short-term goal of 10 years of the forthcoming ISSAP will be to stop the decline and stabilize the population size at least on the current level. In practical terms for Central Management Unit this would mean a population of at least 35 000 birds. For this Management Unit likely sustainable level of harvest shall be estimated when developing the Adaptive Harvest Management framework for the population. For goose species in general sustainable level of harvest can be around 10 % of the population if there are no other major factors than hunting affecting the survival.

The key issue for the success of this process and hunters involvement is in the acceptance of the whole approach of Adaptive Management on Flyway level, when working on the key issues causing the decline of the population. The decline of Taiga Bean Goose is a combination of several factors (habitat degradation, total harvest levels and possible unknown factors affecting the population). It was recognized that the actions to be taken to restore the habitats are national decisions and to a high degree related to the Common Agricultural Policy and actions of forest management. In terms of harvesting this quarry population we need a broader scale at a Flyway level to ensure that the harvest of this shared resource is at a sustainable level and the harvest is divided amongst and within countries in a way that is considered fair amongst the hunters.

It was also stated from the Hunters organizations that acceptance of bag limits or other restrictions on the harvest will probably benefit from a plan that includes habitat restorations and actions on other limiting factors than hunting.

From the Range States of Central Management Unit Finland and Denmark has strongly restricted the harvest of Taiga Bean Geese in order to allow the population to recover. In Sweden, the hunting is restricted to the key wintering areas in two southernmost counties with daily shooting time until 11 o'clock. In addition, protective hunting is allowed to protect crops in three counties in southern and central Sweden.

In a situation where legal harvest of birds might not be the key driving factor or root cause of the population decline, the harvest levels needs to be adapted to the current population status in order to prevent further decline of the population.

In the discussions the fact that we do not know the relative importance of root causes were raised, as well as the fact that we might miss some important causes for the decline. Also the possibilities of Adaptive Harvest Management to be applied were questioned due to all the uncertainties.

However, due to all the uncertainties, knowledge gaps and missing pieces, the Adaptive Management, with the structured and transparent decision making including an iterative process of learning is, in the long run, the most socially sustainable and appropriate approach to manage the uncertainties and knowledge gaps we have and develop our understanding of the dynamics of Taiga Bean Geese.

The organizational structures of Adaptive Harvest Management can be based on existing national organizations (ministries, wildilife agencies etc.) that can form an international working group. For national level decision making, a national working group shall be formed as appropriate, following and applying the examples of the Svalbard Pink-footed Geese International Management Plan.

The workshop recommendations

All countries along the Flyway shall carry their responsibility on this shared recourse. In current circumstances harvest levels of Taiga Bean Goose should be reduced while allowing some limited opportunities for hunters to have them engaged in this process. To achieve this multiple approaches shall be considered, for example in Finland and Sweden:

- In Finland restrictions of Taiga Bean Goose will be continued by limiting the season length while developing optional ways to restrict harvest levels such as harvest bag quotas and by creating a definition for the 'traditional' hunting on the breeding areas.
- In Sweden the Swedish Association for Hunting and Wildlife Management shall work to:
    - increase awareness among hunters about the decline in Taiga Bean goose population and the process with ISSAP
    - reduce the harvest levels by recommending the hunters to focus on other geese and to avoid harvesting Taiga Bean Goose as precautionary action prior to the implementation of the ISSAP, and
    - promote the development of protective hunting in a direction where it will have less effect on the Taiga Bean Goose.

It is important to assess the true harvest bag on Taiga Bean Goose in different countries in order to have better understanding of the current harvest levels in comparison to the population size.

Following issues were also raised to be considered as future action

- Possible mistrust amongst hunters between the countries in terms of the sustainable use of shared populations along the Flyway shall be discussed for example in the forum of Nordic Hunters's Co-operation to build trust amongst hunters, as this is essential in order to succeed with the long term management efforts.

- Awareness raising amongst hunters and the bird watching community to report rings of harvested birds and neck band sightings are of high importance for example for studies on survival rates. Issue shall be raised and communicated.
    - Finland: Finnish Wildlife Agency
    - Sweden: Hunters organizations

- The distribution of Taiga Bean Goose in Sweden during the autumn and spring is probably changing more rapidly than the use of wintering grounds. It would be useful to also monitor this change, as damages to crops may occur in new counties and new hunter groups may want to start harvesting the population. If so, limiting hunting to the two southernmost counties may no longer be the best way to restrict the Swedish bag.

Protective hunting – timing and effects on Taiga Bean Geese?

It was presented and discussed that in Sweden in terms of overall goose damages for agriculture the Taiga Bean Goose is not a major issue, and therefore it shall be considered to continue guiding the protective hunting actions away from Taiga Bean Goose and to focus on geese species responsible for the occurring damage.

The workshop recommendations

- The harvest levels of Taiga Bean Goose taken on the protective hunting in the period of January 1st – March 31st shall be assessed through mandatory reporting.
- Managing for agricultural damages through 'geese fields' and other adaptive management of land use shall be conducted.
- Possible misuse of protective shooting shall be recognized. Guidelines and recommendations for protective hunting to avoid misuse shall be developed.

Harvest reporting and hunting bag statistics

The hunting bag statistics in Finland are not considered to give a realistic figure of the actual Bean Goose harvest, but it is considered to give reasonable trend of the harvest levels. In Sweden the hunting bag statistics are considered to have reasonable quality and to represent the trend of the harvest over time, however these figures does not include birds taken during the protective hunting carried out to prevent crop damage. For this reason, this presently unknown fraction of the total bag of protective hunting needs to be traced. The hunting bags needs to be able to differentiate between the numbers of Tundra and Taiga Bean Geese shot annually in national levels

The workshop recommendations

To have more reliable harvest bag statistics reporting of all harvested Taiga Bean Goose within the Central Management unit for 2014 and 2015 shall be required. Reporting shall include:

- total numbers of birds including information of when, where, how, and with what efforts the birds were taken
- separation of subspecies through picture collection or collection of wings and heads for DNA analysis and aging
- an assessment of the harvest which takes place on the estates selling organized bean goose hunts in Sweden.

A broader picture of total goose harvest would give valuable information of the big picture of the current goose hunting situation and thus provide tools for possible management actions that would guide hunting pressure away from Taiga Bean Goose. Considerations of including all geese to total goose harvest reporting, with special emphasis on Taiga Bean Goose, are encouraged.

Discussions within the Drafting Team on December 4th 2013

Coordinated mid-winter counts to estimate population sizes (starting in January 2014),

The current Mid-January counts are based on national waterbird monitoring programmes which do not necessarily focus on geese. In Germany, for example, the Bean Goose counts are based on the great voluntary efforts of Thomas Heinicke on biannual basis.

For more reliable total population estimates we need to have integrated and coordinated monitoring already in Mid-January 2014 as possible, while we recognize that the time is short to raise additional funding for improved monitoring. The emphasis for monitoring to cover total population estimate will be set for Mid-January 2015. The forthcoming monitoring shall be integrated to the International Waterbird Census as appropriate.

For a better understanding of the total population size of Taiga Bean Goose the monitoring shall be organized annually for two years. After that the need for annual monitoring shall be assessed in respect to available resources and consider whether biannual counts would be good enough for the purposes of Adaptive Harvest Management.

For management purposes of the Management Units, Central MU as an example, annual data of the population status could be received on annual basis from on-going autumn and winter monitoring programs in Sweden and Denmark.

Further work for assessing population and size of breeding population on a smaller scale in Finland and Sweden could be done through monitoring the key pre breeding staging sites close to breeding mires. This work is on-going in Sweden, and it shall be coordinated with existing Finnish birdwatchers counts and developed further as seen appropriate and practical.

<u>The drafting team outcomes</u>

- Focus of Mid-January monitoring shall be in good coverage and in the separation of subspecies
- Based on the plan drafted by Adriaan de Jong and Thomas Heinicke for long term monitoring we will need (Annex 2 ,page 9 of this document):
    - An education program (subspecies, coverage, new volunteers,)
    - Compensation for volunteer counters (mileage, at least)
    - Funding for one year work is approximately 13 000 €
- Monitoring of the total population size is the shared interest of all range states. One way to go forward is to provide collective funding for the population monitoring in wintering areas. In Mid-January, all geese are concentrated at relatively small areas which are relatively easily accessible for the monitoring purposes. Therefore Mid-January counts are the most cost effective way to assess the total population size.
    - Collective funding to support the monitoring would ensure some level of action on a long term, and this would support the possible funding applications to be prepared to increase the resources. .

Productivity

The possibilities to estimate the annual reproduction of the Taiga Bean Goose was discussed and following approaches were considered to be worth of further exploration to find the most practical and cost effective approach.

<u>The drafting team outcomes</u>

- An assessment should be made of whether the long term data set of the annual Finnish Wildlife Triangle Grouse monitoring program could be used as useful index of Taiga Bean Goose brood production. This idea is based on the fact that young Taiga Bean Goose goslings are using to a high extent the same habitat as grouse broods, and the coverage of the monitoring is relatively good in the breeding regions of Taiga Bean Goose. For this assessment needs to:
    - Find out, if there is any useful data or knowledge from Finland about annual variation of Taiga Bean Goose brood production to be compared with grouse monitoring data (Väyrynen, Paasivaara)
        - bad year – many birds on moult migration
        - good year – many birds at breeding areas
    - Check for correlation between grouse data and juveniles % in Swedish goose counts.

- It shall be considered to set up a special monitoring program for Juvenile % to be carried out in September-November in key areas to assess the Juvenile % of different Management units while separating subspecies. This type of monitoring will need detailed planning, education and coordination to create well working system providing reliable estimates.

- It shall be considered to collect information from a special census of mires to provide an index of the local annual production: this could involve assessing the brood production based on monitoring of the pre-breeding staging areas for local breeding population, and the monitor the success of those birds later in the same summer.

- It shall be assessed whether useful indexes of the juvenile % can be obtained through extensive monitoring of neck-banded birds

- It shall be assessed whether the Juvenile % can be derived as an informative index of indicating changes in the brood production from harvested birds through improved harvest reporting.

Marking to monitor annual survival – coordinated effort

Marking of birds is essential for the effective monitoring of annual survival, but the limiting factor is our abilities to catch these birds in high numbers in a cost effective way. The capture of birds is currently the bottleneck for large scale marking using leg and neck bands and satellite/GPS-GSM tags.

<u>The drafting team outcomes</u>

- For survival estimates, we need to know few representative spots for each MU where we can catch and band birds cost effectively for a long time survival estimate monitoring. Study on long survival rates will need a commitment and financing for at least 3-5 year annual catching efforts for adequate time series.
    - We shall consult Svalbard Pink-footed Geese International Working group for advice for how many birds needs to be banded for reasonable data.

- No bird is released without leg- and neckbands and adequate measurements and samples taken for the needs of the research. Also x-raying for the crippling rate should be carried out when possible.

- Neck-banding schemes need more international coordination. There is need for more than current levels of caught/marked birds. Marking on staging, breeding and moulting areas will establish relationships between geographical areas and target the monitoring within each of the Management Units.
    - We shall find more areas for banding Taiga Bean Goose in Finland, further north and south. Co-operation with Russia to extend such activities into Karelia is encouraged.

- In Sweden and Denmark significant flocks of Taiga Bean Goose has no neck bands, thus they probably originate somewhere in Russia. If it is proved reasonable to integrate a survival study, we can try to find out where precisely those unmarked geese wintering in Sweden and Denmark are breeding (Karelia/Kola peninsula or West Siberia). For this purpose we need to catch and mark (band, satellite, GPS-GSM) birds in wintering areas to find where they are migrating.

ANNEX 2: International monitoring program for the Central management unit of the Taiga Bean Goose Phase 2 (2014 – 2016)

Adriaan De Jong, Thomas Heinicke

Background

The Taiga Bean Goose Single Species Action Plan demands flyway-level counts and demographic data (reproduction and survival rates). On the Kristianstad Taiga Bean Goose AEWA meeting (5th of December 2013), the acute need for an integrated international monitoring program was agreed upon. The meeting decided to plan for a three year program (Phase 2) in order to provide a set of base-line data, and, after a thorough evaluation, to propose a long-term monitoring program (Phase 3).
Currently (Phase 1), most, but not all, flyway states have goose monitoring programs, but the data from those are not compiled into an overall count. Demographic data are scattered and collected within research programs with sort-term funding.
The proposed base-line dataset will be achieved by widening and refining the current goose count scheme, and by the addition demographic data, mainly reproduction rate estimates.

Method

Population estimates[1)]

January counts
The main sources of population size data are the mid-January counts in Sweden, Denmark, Germany and NW Poland, with supplementary data from Norway and the Netherlands (the latter mainly during harsh winters).
Currently, The Swedish and Danish January counts are sufficiently good in terms of coverage, but are partly problematic due to insufficiency or lack of subspecies separation. The Norwegian and Dutch data are available, but need to be collected/compiled in the international framework. The German and Polish counts need to be complemented in a way Thomas Heinicke has done before. For full yearly coverage of these two countries, additional resources need to be made available.

Counting technique
Geese are counted during daytime foraging on agricultural fields, preferably combined with morning roost-flight counts[2)].

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1) Important complicating factor
Potentially, Taiga Bean Geese from the West-Siberian management unit occur mixed in into the Central management unit's staging and wintering sites. These birds cannot be separated by observational means. Instead, this phenomenon needs to be addressed by a special study based on transmitter marking and/or feather sampling for stable isotope analysis.

2) Combined waterfowl counts?
The January goose counts are part of the international waterfowl count. Given the new requirements for Taiga Bean Goose population estimates, the quality of the data from the combined counting effort should be scrutinized. In the future, dedicated taiga Bean Goose counts may be needed. Sorting out Tundra Bean Geese

Currently, most local goose counters do not separate between Taiga and Tundra Bean Geese. If they do, the reliability of the separation is usually insufficient. Due to an ongoing education scheme, the situation is improving, but while this program continues, the contribution of expert(s) is essential. These subspecies counts need to include a substantial sample of the total number of birds in the Bean Goose counts.

Coordination and compilation
The national counting efforts need to be coordinated and the results compiled by an international coordinator, mandated by AEWA. Thomas Heinicke and Adriaan de Jong could share this task.

Reproduction rate estimates

Currently, local goose observers document neither the occurrence rates of juveniles (juvenile percentages in flocks) nor family flock sizes. Within the Swedish Bean Goose research initiative, Thomas Heinicke has made -regular counts of juvenile percentages and family flock sizes during autumn (September to November; the adequate time period) since 2009 in Sweden. Consequently, broad scale reproduction rate data are lacking. In order to resolve this lack of information, (a) Thomas Heinicke must be given resources to widen his reproduction study throughout the autumn staging range of Taiga Bean Geese, and (b) a team of local ornithologists (from the whole autumn staging range) should be recruited and trained for this task. Both missions can be organized by the Swedish University of Agricultural Sciences in Umeå, Sweden (Adriaan de Jong).

Adult survival estimates

An analysis of current and former adult survival based on neckband mark-recapture data was decided upon during the Tuusula workshop. This task will be completed by Thomas Heinicke.
For the study of future trends in adult survival, neckbanding of Taiga Bean Geese and efficient neckband reading schemes must continue. Current and future neckbanding programs would benefit largely from explicit (non-financial) support from the AEWA process. Similar to the reproduction data collection scheme, neckband reading during Phase 2 should rely partly on further dedicated searches by Thomas Heinicke (the 21st century neckband dataset consists of his readings to a very large extend!) and partly by further motivation/training of local goose observers. Again, both missions can be organized by the Swedish University of Agricultural Sciences in Umeå, Sweden (Adriaan de Jong).

Budget for 2014 – 2016 (including January 2017)

	2014 (€)	2015 (€)	2016 (€)
January counts			
Sweden[1)]	0	0	0
Denmark[1)]	0	0	0
Germany	Min 4000	4000	4000
Poland	1000	1000	1000
Coordination/compilation	350	250	250
Separation of subspecies (winter)			
2 trips to Denmark/season	900	900	900
2 trips to Sweden/season	1200	1200	1200
Course for local goose counters (2 per year)[2)]	1000	1000	0
Reproduction estimates (autumn)			
2 trips to Sweden/season (better 3 trips in Sep, Oct and Nov due to different juv percentages)	1800	1800	1800
1 trip to Denmark/season	900	900	900
Recruitment/training of international team[3)]	1500	1000	0
Adult survival estimates			
Active search program[4)]	0	0	0
Neckband reading promotion campaign	300	300	300
Total:	12950	12350	10350

[1)] Counts in Sweden and Denmark are covered by national programs.
[2)] Three training workshops have been successfully conducted in Sweden 2012-2013.
[3)] Concept similar to the rossicus/fabalis workshops, but targeting another group of ornithologists, not the traditional (old) goose counters.
[4)] Active searching for neckbands is included in the fieldwork for subspecies separation and reproduction estimates.

Future development (to be planned for during Phase 2)

- Raise awareness and prepare the actual search for additional staging sites to match potential shifts in wintering range and to cover current "white-spots".
- Recruitment and training of new goose counters to compensate for future losses of current (often old) goose counters.