

# Recent changes in numbers and distribution of the Taiga Bean Goose *Anser fabalis fabalis* in south Sweden during 1977–2005

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The data obtained from the regular goose counts in Sweden (starting 1977/78) have been used to analyse changes in numbers and distribution of staging Taiga Bean Geese in south Sweden during the autumn season. In October, the majority of all Taiga Bean Geese in Europe are found in south Sweden. Numbers increased to a peak of 80,000 in October 1989, but decreased later to between 40,000–60,000 birds during the most recent years. This means that the total population of the Taiga Bean Goose can be estimated to be in the order of about 70,000–90,000 individuals, compared to an estimated 90,000–110,000 at the peak in the 1980s. During the study period, marked changes in the distribution were noted, and new staging areas have reached international importance, whereas others are less used.

**Key words:** Taiga Bean Goose *Anser fabalis fabalis*, autumn censuses, winter census, distribution changes, population changes.

## 1. Introduction

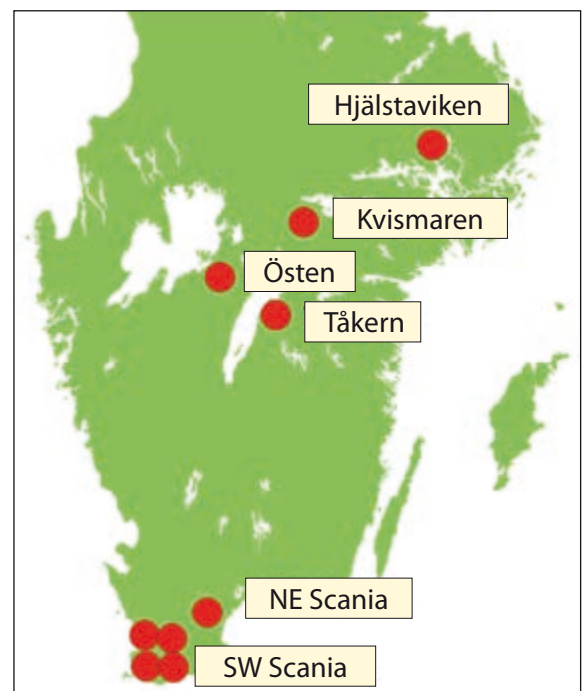
Two different taxa of Bean Goose occur in western Europe, the Taiga Bean Goose *Anser fabalis fabalis* and the Tundra Bean Goose *A. f. rossicus*. During a period in the autumn, the majority of all Taiga Bean Geese stay in Sweden, with a peak count of about 80,000 individuals in Sweden out of a total autumn population of about 110,000 (NILSSON *et al.* 1999; NILSSON 2000), with the remaining geese staging in northern Germany and Poland at this time of the year.

Since counts started in 1977/78, the staging Taiga Bean Goose population of south Sweden first showed an increase to a peak of about 80,000 birds in October, this increase being a continuation of an increase that started in the 1950s, when much smaller numbers of Taiga Bean Geese were counted in Sweden (MATHIASSEN 1963; NILSSON & PERSSON 1984). After the peak count in the autumn of 1989 numbers decreased.

Simultaneously with the changes in numbers of staging Bean Geese in Sweden, there has also been marked changes in the distribution pattern within the country and also in the migration pattern. Before the counts started, Scania, the southernmost province of Sweden (see Fig. 1), was still the most important staging area for Bean Geese in the country during early autumn, but this pattern changed and new sites have replaced this region as the most important for the population. In particular, a number of former spring staging sites gained importance as autumn staging sites (NILSSON 2000).

In this paper I will update earlier reviews (e.g. NILSSON 2000) of the results for Bean Goose from the Swedish goose counts in order to elucidate the changes that have taken place during the recent years. I will concentrate on the autumn and winter situation in south Sweden, whereas the changes in the spring staging habits of the

much smaller Scandinavian breeding segment of the Taiga Bean Goose population will be treated in another context (NILSSON *et al.* in prep.).



**Fig. 1:** Map of south Sweden with the geographical position of the most important autumn staging areas for geese. – Lage der wichtigsten Gänserastplätze während des Herbstzugs in Süd-Schweden.

## 2. Material and methods

Regular counts of staging and wintering geese started in Sweden during 1977/78, with the aim of covering all important sites for Bean Goose on a monthly basis from October to March (or April) each year. In 1984, the counting programme was extended with a September count of Greylag Geese *Anser anser*, which aimed at as full coverage as possible for all Greylag Goose staging areas. If present during these counts also Bean Geese were counted. After the first ten years the counting programme was reduced to three autumn counts (September, October and November) and the midwinter count undertaken simultaneously with the midwinter duck counts mid-January. The autumn counts aimed to get as full coverage as possible of all grey geese (*Anser* species). For more details on the counts and methods see NILSSON (2000).

## 3. Results

In general, peak Bean Goose counts in Sweden have occurred in October; only in three years out of 29 (1978, 2004 and 2005) the peak count was in November (Fig. 2). In many years, the November count was markedly lower than the October count due to the onset of frost in the parts of south Sweden north of Scania. In years with the first major

frost between the counts in October and November, there was a large exodus of Bean Geese from Sweden to northern Germany (and possibly Poland) between the counts.

When the counts started in the autumn of 1977, fewer than 50,000 Bean Geese were counted, whereas around 60,000 were counted in November 1978. Low counts were noted in 1980 and 1981, following a very cold winter (1979) with high mortality among the population (based on marked Bean Geese from Scania, NILSSON 1984). The cold weather probably also affected the condition and breeding performance of the survivors during the 1980 breeding season.

After an increase to a peak in the autumn counts in 1989, there was a decrease in the number of staging Bean Geese in Sweden in autumn, and less than 50,000 were counted during the autumns of 2000 and 2002. However, an unusually high count was noted in October 2001, with about 70,000 birds. In the most recent years, peak counts in the autumn have been in the order of 50,000–60,000 individuals.

January counts have been more variable (Fig. 3), with the peak count in some mild winters being as high as 35,000 individuals, whereas virtually no Bean Geese were left in the very cold winters of 1982 and 1987. The majority of Bean Geese left Sweden also in the cold winter of 1979, but the exodus was after the January count that year, neck-banding showing that a large proportion of the birds migrated to Germany and the Netherlands. In later years, low counts in Sweden (i.e. Scania) have been simultaneous with high counts in SE Denmark, and vice versa.

Since the start of the goose counts in Sweden there have been marked changes in the autumn distribution of Bean Geese in the country, as exemplified by the October counts in the three decades 1977–86, 1987–96 and 1997–2006 (Fig. 4). During 1977–86, there was a very clear and marked predominance for the southernmost part of south Sweden, even though Tåkern, Östen and Kvismaren (Fig. 1) were already established as autumn staging areas.

By 1987–1996, a shift in the distribution had occurred to areas further north in south Sweden. Moreover, Hjalstaviken (Fig. 1) was established as an autumn staging area. This predominance of the areas further north in south Sweden was even more marked by 1997–2006, with continued spread of staging Bean Geese to a number of sites in this region.

When the counts started in 1977, no less than 25,000 Bean Geese were counted in the southernmost province, Scania, the majority being recorded in the SW part of the province (Fig. 5). However, numbers in Scania during early autumn subsequently rapidly declined and numbers in October have remained low in SW Scania. The situation has been similar

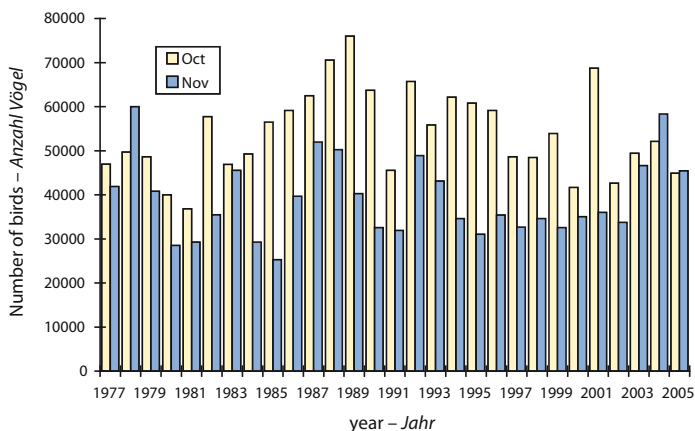


Fig. 2: October and November totals of Taiga Bean Geese in south Sweden 1977–2005. – Oktober- und November-Bestände der Taigasatgans im Süden Schwedens 1977–2005.

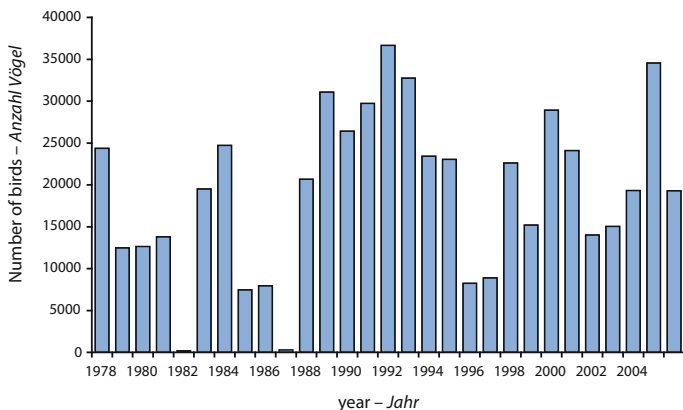


Fig. 3: Midwinter totals of Taiga Bean Geese in south Sweden 1978–2006. – Januar-Bestände der Taigasatgans im Mittwinter im Süden Schwedens 1978–2006.



**Fig. 4:** Distribution of Taiga Bean Geese in south Sweden during three different time periods (maximum October counts). – *Verteilung der Taigasaatgans im Süden Schwedens in drei unterschiedlichen Zeiträumen (Oktober-Maxima).*



**Fig. 5:** October totals of Taiga Bean Goose in some important staging areas (Fig. 1) in south Sweden 1977–2005. – *Oktober-Bestände der Taigasaatgans in einigen wichtigen Rastgebieten (Fig. 1) im Süden Schwedens 1977–2005.*

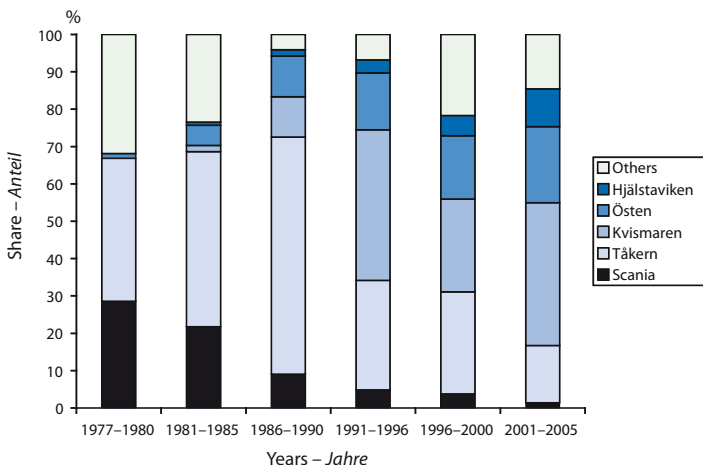
in the NE part of Scania, although there was a high count there in 1999.

The only staging area outside Scania supporting large numbers in October 1977 was Lake Tåkern (Fig. 5). Numbers there were a little below 20,000. Of the other three main staging areas (of later years), Bean Geese had started to use Östen to some extent, whereas none were found at Kvismaren and Hjälstaviken in 1977, although both areas (and Östen) were used for spring staging.

Bean Goose numbers at Tåkern continued to increase, and reached a peak of about 50,000 in 1988. However, numbers then decreased markedly and in October 1991 less than 20,000 were counted. At the same time, Kvismaren and Östen were established as major autumn staging areas, showing marked increases when numbers decreased at Tåkern. Hjälstaviken, the most northerly of these autumn staging areas, on the other hand showed a more gradual increase in the number of staging Bean Geese, though numbers there still appear to be increasing.

In addition to these key staging areas, a number of other sites have also been used regularly by smaller numbers of Bean Geese (Fig. 4). Thus, in 1977–1980 Scania and Tåkern accounted for about 70% of the Bean Geese, whereas about 30% were found on these smaller sites (Fig. 6). The importance of these sites (mainly situated in the province of Småland) decreased over the years and in 1986–1990, these sites accounted for only a few per cent of the counted Bean Geese in October. Later the category “others” in Fig. 6 has increased in importance again, but now other small sites have been established as staging areas (Fig. 4).

To summarize these changes in the distribution of staging Taiga Bean Geese in Sweden, during the years 1977–1990 about 70% were counted in the two areas Scania and Tåkern, with an increasing proportion at Tåkern (Fig. 6). Thereafter, the importance of these two areas decreased, and by 2001–2005 less than 20% of the Bean Geese in Sweden were found there.



**Fig. 6:** The mean distribution of staging Taiga Bean Geese in October at the key staging areas in south Sweden, 1977–2005. – Die durchschnittliche Verteilung der rastenden Taigasaatgänse im Oktober auf die wichtigsten Rastplätze (Fig. 1) im Süden Schwedens 1977–2005.

#### 4. Discussion

NILSSON (2000) summarized the status of Taiga Bean Goose in Sweden as follows – there was an increase in staging numbers from around 20,000 in 1960 to 30,000–40,000 in the early 1970s, 50,000–60,000 in 1977–80, and reaching a peak of 80,000 in 1989, followed by a decrease in later years. The autumn population is now in the order of 40,000–60,000 in most years (excluding the exceptional count of 70,000 in October 2001).

Unfortunately, detailed annual information is lacking from northern Germany and Poland except for the most recent years (T. HEINICKE pers. comm.). The available data do however indicate that the total population of Taiga Bean Geese in Europe has decreased since the peak estimate of 90,000–110,000 individuals in the late 1980s to a population that might be less than 90,000 (NILSSON *et al.* 1999; DELANY & SCOTT 2006).

During the three decades of regular goose counting in Sweden, marked changes in the distribution of Bean Geese staging in the country in the autumn have been noted. Considering the main migration movements of the Bean Geese during the autumn, the changes in autumn staging pattern is an illustration of “short-stopping”, i.e. the geese are using staging areas further to the north. According to the result of neck-banding studies (NILSSON 1984; NILSSON & PIKOLA 1991), the geese coming from Finland enter Sweden in the province of Uppland (the northernmost part of the map in Fig. 4) and then move south through the country. The “new” autumn staging sites were formerly much used by geese as spring staging sites so the geese have not changed to new unused sites but only changed their habits and used the former spring staging areas also in autumn. Thus the changes in staging numbers cannot be accounted for by a change of the geese to use staging areas not covered by the observers.

This short-stopping of Bean Geese on autumn migration within Sweden has parallels in other goose species in Europe, e.g. the Greylag Goose, which has changed its migration patterns markedly during the period we have been neck-banding them (since 1984; NILSSON 2006). The reasons for the short-stopping of Bean Geese have not been established, but it may be related to changes in the agriculture (NILSSON 2000). Since the 1970s, the acreage of autumn-sown cereals has increased markedly, especially in the more northerly areas. As the geese are long-lived, and use traditional sites, differences in hunting can be important. There is an open-season in Scania, but not in the other areas. Moreover, the change can of course be an effect of milder weather in the autumn. Normally the geese have moved to Scania with the first frost in the other areas.

Throughout the entire study period of 30 years, during January most Swedish Bean Geese have been present in Scania, apart from a few smaller flocks found further north in exceptionally mild winters. How-

ever, even during January, there have been some changes in the distribution. During the first years (late 1970s and early 1980s) the geese migrated to the Netherlands and Germany from Scania during cold periods with snow, but in the more

recent harder winters they have not moved further than to SE Denmark. In the exceptionally mild January of 2007, large numbers of geese were found further north in Sweden, but these data have not yet been analysed fully.

## 5. Zusammenfassung

**Nilsson, L. 2008: Neuerliche Änderungen in Anzahl und Verbreitung der Taigasaatgans *Anser fabalis fabalis* in Südschweden in den Jahren 1977–2005. Vogelwelt 129: 263–267.**

Für diese Arbeit wurden die seit 1977/78 im Rahmen der regelmäßigen schwedischen Gänsezählungen gesammelten Herbst- und Winterdaten der Taigasaatgans analysiert, um Veränderungen der Rastbestände und deren Verbreitung im Süden Schwedens zu untersuchen. Im Oktober hält sich die Mehrheit der europäischen Population der Taigasaatgans in Südschweden auf. Die Bestände nahmen bis zu einem Maximum von 80.000 Vögeln im Oktober 1989 zu und anschlie-

ßend auf 40.000–60.000 in den letzten Jahren ab. Aufgrund der vorliegenden Daten kann die gegenwärtige Gesamtpopulation der Taigasaatgans auf 70.000–90.000 Vögel geschätzt werden, verglichen mit maximal 90.000–110.000 Individuen in den 1980er Jahren. Während des Untersuchungszeitraums wurden deutliche Änderungen in der räumlichen Verteilung festgestellt. Neue Rastgebiete erreichten eine internationale Bedeutung, während andere weniger genutzt wurden.

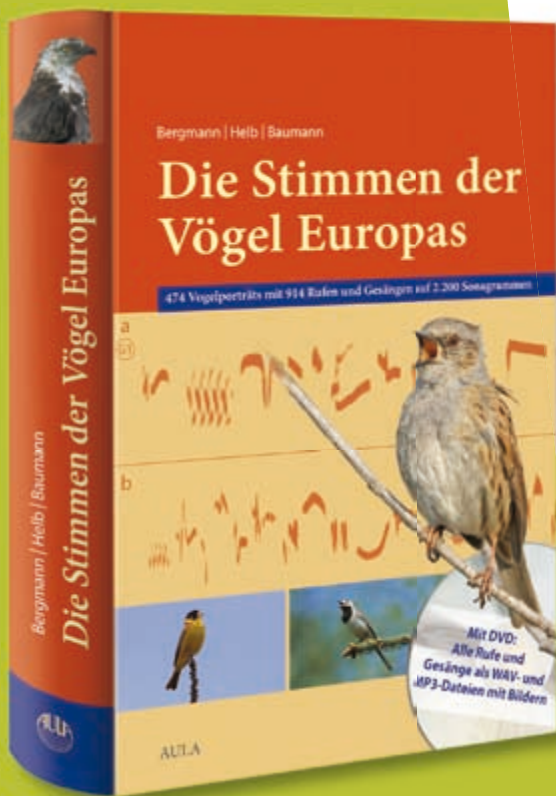
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