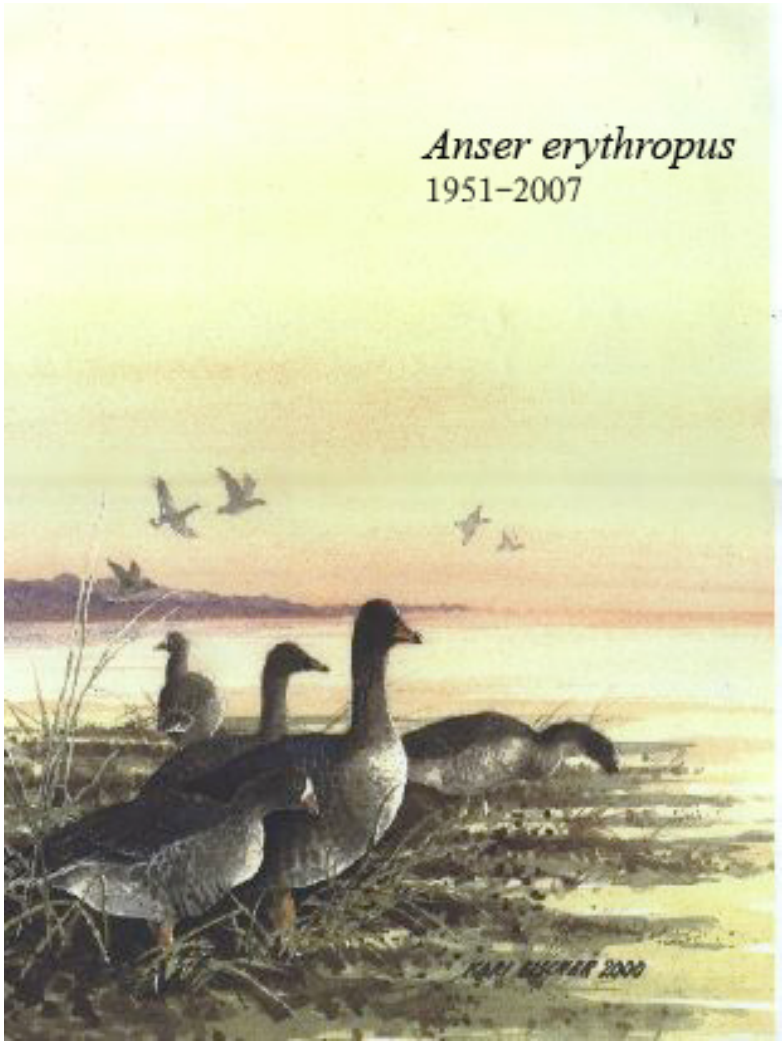


# LWfG-Bulletin

## 2007 - No. 3

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# Editorial

Antti Haapanen

One hundred years ago, the Lesser White fronted Goose (LWfG) was a common migratory species in Northern Europe. The classic studies state that about 10 000 birds were seen in Southern Finland during migration.

Soikkeli [1973] was the first to notice that the population trend was very negative. He collected his data on the Finnish western coast in Pori region 1950-1970. In the early period he saw flocks of several hundreds birds, in later years almost none. The same trend has continued. At present, these birds are seen only during spring migration in Oulu region, the Northern Baltic Sea coast. In recent years, less than ten LWfG individuals were observed each spring. The population decline has been 3-5 %/year and this has continued at least from 1930 until today; this trend clarifies the whole population collapse.

At the international and national Lammi LWfG meetings in Finland 2005, we all were unanimous that the hunting pressure has been and still is the main factor explaining the population decline. Possibly habitat deterioration in the wintering and resting sites may be of importance as well.

There is a very convincing parallel example on what may happen when hunting pressure is removed. In the late 1940´s, the Whooper Swan population in Finland was down at 10-15 pairs in spite of formal protection. Then the Whooper Swan was made a national symbol of in Finland and hunting ended. The population reacted immediately. During the following 40 years there has been a steady growth rate of 9 % in the North and 14 % in the South, and the population is still growing. Unfortunately, there was no nation wide census in Finland in recent years. Our Whooper Swans migrate mainly to Sweden and Denmark, nowadays also to North Germany and to Great Britain to some extent. All these countries are well organized as far as nature conservation and law enforcement are concerned.

We do not believe that Russia, Kazakhstan, Iraq and other neighbouring countries, including the Balkan states, is enjoying the same reputation. What has been the custom during centuries cannot be changed in a couple of years.

Recent observations of satellite tagged LWfG confirm our fears: there does not exist a direct migration route from Fennoscandia to the Evros delta (Greece), where "Fennoscandian" LWfG are observed in mid-winter. In autumn, the Norwegian geese make a big round to the East, sometimes even all the way to Taimyr, Siberia. Spring migration seems always to have been much more direct. This information is of importance, since the LWfG project run by WWF Finland still concentrates their conservation resources on birds believed to migrate to the southeast inside Europe.

The Lammi meeting asked the CMS Scientific Council for advice concerning the genetic suitability of captive stock for restocking in Scandinavia. Unfortunately, the question was accompanied by unbalanced hypotheses, later proven false. Today we know (more details can be found in this Bulletin):

- There exists no genetically isolated Fennoscandian population of LWfG.
- The migration route to west Europe is an old one. Still today, LWfG of Russian origin are observed in Germany on a regular basis. A western migration pattern of re-introduced LWfG is not artificial but the revival of an earlier behaviour. Most apparently the original LWfG using this western route were eliminated almost totally already long ago, when hunting was not regulated in the west. Those using more wilderness type habitats in the

East survived better at this first phase of eradication. Today again, mortality on eastern migration routes is much higher than on the western ones.
- The hunting pressure concerning the tiny Norwegian breeding population (5-10 breeding pairs) cannot be removed in a sufficiently short period of time to ensure its survival.
- The genetic basis of captive populations can be surveyed and is surveyed so that these can be used for restocking/reintroduction in Europe. Prof. Michael Wink's studies show that the captive populations represent as wide a genetic variation as wild populations do.
- Building up a new captive population from freshly caught birds is not only unnecessary but also damages the (Russian) donor population and takes much more time and resources that is feasible.

I certainly support all the efforts to preserve the remnants of the old Fennoscandian population but putting "all the eggs into one basket"; you can easily loose all of them. Therefore, all reintroduction programs on a sound basis should be welcomed and given due intellectual and economic support.

## This Bulletin

Two years ago, an exceptional blizzard hit the Lesser White-fronted Geese in Finland. Much of the constructions on the goose farm in Hämeenkoski were torn down by sudden heavy masses of snow and 50 of our invaluable birds were lost. Since then, the main task for the Friends of the Lesser White-fronted Goose was to repair the technical, economical and biological damage. Today we can say we did it. Since then we had no surplus energy to publish our Bulletin in English. One Finnish issue appeared in 2006 and two this year. The bulletin at hand is an updated combination of these three.

The first, and main theme in this bulletin is to describe the insight that has recently come from LWfG research. Gene tests have clarified the status of captive LWfG. Almost all are genetically clean and hybrids can be identified. Gene tests have also clarified the relation of the remaining Norwegian to the European Russian LWfG: There is no difference. Archive material has revealed that a migration route from Sweden to the Southwest still existed in the 1950:s and later: The migration pattern of the Swedish reintroduced population is natural. Also a migration route from Russia to Germany still exists today: Some 100 LWfG may use it. Further monitoring including satellite tagging has corroborated the hypothesis that the remaining Norwegian and European Russian LWfG migrate on very Eastern flyways and have high mortality already in Russia and Kazakhstan. Results of a decade of systematic observations in Kostanay region, Kazakhstan, on the only important staging site outside China, are published: The role of hunting in the overall down trend is clarified in detail: In spite of formal protection, 20-30% of the LWfG are shot already in October. Archive material in combination with improved computer programs makes it possible to estimate the expected effects of protection measures. Discarding current captive stock in favour of catching new birds in Russia turns out to be both risky and extremely slow and costly, not to speak of the damage to the threatened Russian donor population.

The second, also important theme is to describe some background and recent progress in protection of the LWfG. This includes information on public LWfG protection in Finland, including the juridical background: Continued passivity is illegal. The history of LWfG protection in Finland is described in detail: 90 percent of the remaining free-living birds were lost in two decades. Five conferences with relevance to LWfG protection have been held since 2004: We publish reports of all, including the full text of the important report of the 10th Annual Meeting of the Goose Specialist Group of Wetlands International, 26-31. January 2007, Xanten. For the first time, the relevant parts or the minutes of the National Finnish meeting in Lammi 2005 are available in English.

# Lesser White-fronted Geese

## English summary of "Pleisterplaatsen van Dwergganzen *Anser erythropus* in Nederland"

Kees Koffijberg, Fred Cottaar & Henk van der Jeugd

*This text is essentially the English summary to a detailed report: Koffijberg K., Cottaar F. & van der Jeugd H. 2005. Pleisterplaatsen van Dwergganzen Anser erythropus in Nederland. SOVON-informatierapport 2005/06. SOVON Vogelonderzoek Nederland, Beek-Ubbergen. (ISSN 1382-6271)* 

### History

Lesser White-fronted Geese are among the most rare and threatened goose species in the world. In the Netherlands, the species has been recorded since the 19th century. Between 1908-1968, 41 observations (of which 24 shot or catched) were recorded. Since 1969 the species has been observed annually and the Dutch rarities committee recorded 51 individuals between 1976 and 1989. They excluded birds from the Swedish re-introduction project, which were increasingly observed in the 1980s.

### Material and methods

This report reviews the status of Lesser-White fronted Goose in the Netherlands from 1989/90 onwards. Data were mainly retrieved from non-systematic observations, collected within a special project on rare non-breeding birds, which has been organised by SOVON from 1989 onwards. Furthermore, data from national midmonthly goose and swan counts, several websites and observations from local bird watchers were used. The database finally contained more than 2.500 observations of 15.000 individuals. After a filter on duplicate counts, these data were analyzed with the aim to assess population trends, distribution patterns and phenology as well as to established a list of frequently used staging sites. For these staging sites additional information was collected on site-specific behaviour of the geese and protective status. Besides, a database with sightings of individually marked birds was established, and origin and exchange of birds between the staging areas were analyzed.

Areas were classified as a 'frequently used staging site' when annual occurrence between 1995/96 - 2004/04 had been recorded and/or the average peak number between 2000/01 - 2004/05 was at least 5 individuals.

### Numbers of Lesser White-fronted Geese

The population of Lesser White-fronted Geese in the Netherlands increased from about 20 individuals around 1990 to about 120 from 2003/04 onwards. For the last five years, the average maximum number in the Netherlands was 106 individuals. The strongest increase occurred after 1995, coinciding with the successful establishment of the re-introduced population in Sweden . Birds usually arrive Mid-October and depart from Mid-March to Mid-May (Fig. 3). Recently, the first birds tend to arrive in September (Fig. 4). Observations during summer, which might indicate local breeders (of assumed feral origin) are scarce and were only done at sites where the birds do not winter. So far, one mixed breeding pair (with Graylag Goose) and two Lesser White-fronted Goose pairs have been recorded breeding.

## Sites

Core stopover sites and wintering areas are confined to 6 sites. These are from north to south: the Anjumerkolken area in NE-Friesland, Doniaburen/Ferwoude in W-Friesland, the Abtskolk & De Putten near Petten in Noord-Holland and the Oudeland van Strijen, Korendijksche Slikken and Polder Biert in the northern part of the Delta area in Zuid-Holland. Overall, 87% of all observations originate from these 6 sites. Average peak numbers range from 50 individuals near Anjum to 5 at Doniaburen/Ferwoude (Tab. 3). Outside these areas, Lesser White-fronted Geese are mainly observed in the western part of the country. Well-known sites to observe occasional small flocks are e.g. the northern Wadden Sea coast of Friesland and the Dollard area in Groningen. In the interior parts of the country, especially east of the line Groningen - Breda, observations are rare but sometimes do involve small flocks up to 7 individuals.


## Origin of Lesser White-fronted Geese

As can be assessed from information of sightings of colour-ringed birds, most Lesser White-fronted Geese in the Netherlands are of Swedish origin. From 1995/96 onwards, 77 out of the 92 re-introduced Swedish birds (84%) have been observed in the Netherlands. When an annual (calculated) mortality rate of 7% is taken into account, this proportion is even more than 90%. This confirms earlier statements by Von Essen and Andersson, which estimated up to 96% of their re-introduced Swedish birds staying in winter in the Netherlands. Recently, the maximum number of birds in the Netherlands seems to be slightly above the Swedish estimate for the re-introduced population. Although not all birds might be observed in Sweden (e.g. 16 out of 22 individuals which have not been seen in Sweden were recorded wintering in the Netherlands!), this might also point at birds from other populations. So far, SOVON-informatierapport 2005/06 two individuals from a Finnish re-introduction scheme have been recorded (January 2003 and December 2004). If other, perhaps even 'wild' birds from other populations are involved cannot be proved. Meanwhile, a large proportion of the Swedish re-introduced population does not have colour-rings (since they are offspring from originally re-introduced birds), making identification of origin troublesome. However, from observations before 1989 it is known that other birds than of the Swedish re-introduction scheme must have visited the Netherlands (based on the facts that observations were partly done before the start of this project and the rarities committee only considered unringed birds). Another indication for different origin might also be that unringed birds are frequently recorded among other goose species than Barnacle Goose (original 'foster-parents' of the re-introduced geese; Fig. 8) and that records of Swedish geese are entirely confined to the western part of the country.

Occasional observations in the eastern part of the country, e.g. in flocks of Greater White-fronted Geese or Tundra- and Taiga Bean Geese thus might point at birds of different origin.

### Status of sites

According to the criteria mentioned before, 6 areas could be distinguished as 'frequently used staging sites'. These areas are the same as stated above to receive most of the observed Lesser White-fronted Geese (Fig. 9). Two of these sites are within designated Special Protection Areas (SPA) of the Natura 2000 Network (Oudeland van Strijen and Korendijksche Slikken). Of the four other sites, only the night roosts are situated within SPA-boundaries (Lauwersmeer, IJsselmeer and Haringvliet). In the Anjumerkolken, Abtskolk & De Putten and Polder Biert, part of the area is managed as a nature reserve, whereas feeding sites in the Anjumerkolken and Doniaburen/Ferwoude are within special goose-reserves where farmers are granted to leave geese undisturbed (Tab. 8). Sightings of marked geese indicate that Anjumerkolken has an important stopover function for birds en route to their wintering areas in Noordand Zuid-Holland (Tab. 6, Fig. 7). Anjumerkolken does not only support the highest numbers (up to 80 individuals in 2003/04), it also reported 98 out of 164 known ringed individuals. Most birds arrive here in autumn and visit the area again during spring migration (Fig. 11). Doniaburen/Ferwoude seems to have a similar function, many birds seen at Anjum, Petten or Korendijksche Slikken have been reported from this site, although numbers observed here are usually small (up to 8 individuals). Birds from Petten are also regularly observed at the Korendijksche Slikken or Polder Biert. However, the rate of exchange between the three sites in Zuid-Holland is rather small, especially when considering the small distance (6-20 km) between these sites. There is one other site, not classified as a frequently used staging site, which receives many ringed birds. On the former salt marshes between Stad aan het Haringvliet and Den Bommel, along the Haringvliet area in Zuid-Holland, 40 different individuals have been read, although numbers never exceeded 6 birds at once and the site is not used annually. Most of these birds were also seen in Anjumerkolken, but less than 18% had been observed at the other three sites in Zuid-Holland, which are just opposite of the Haringvliet-estuary.

Chapter 5 gives a detailed description of the 6 staging areas. Frequently used feeding sites (where birds stay at least 70% of the time) and occasional feeding sites (used <30% of the time) are plotted on a map, along with information on e.g. night roosts and boundaries of SPAs. Table 7 gives an overview of the size and status of the staging sites

## LWfG in Kazakhstan 1997-2007

Sergey Yerokhov, Nikolai Berezovikov, (Institute of Zoology, Almaty, Kazakhstan) and Erkki Kellomäki

*Since our founding the Friends of the Lesser White-fronted Goose, participate in monitoring the LWfG in Kostanay area, North-Western Kazakhstan, where almost all LWfG outside China meet on autumn migration. The complete report, including results on the red-breasted goose, will be published in "Die Vogelwelt" 2008.*

### Kostanay region

Since the time of earliest ornithological surveys by the end of the XIX century, the Kostanay region in North Western Kazakhstan is known to be remarkable for its systems of lakes, supporting large numbers of migrating wild geese. The cultivation of the land since the 1950:s seems to have had some negative influence on the numbers of geese, but on the other hand today the huge wheat fields dominating the landscape offer plenty of food for the migrating

geese. On their stopover, they rest on the lakes, flying to forage in the fields twice a day, in the morning and in the evening.

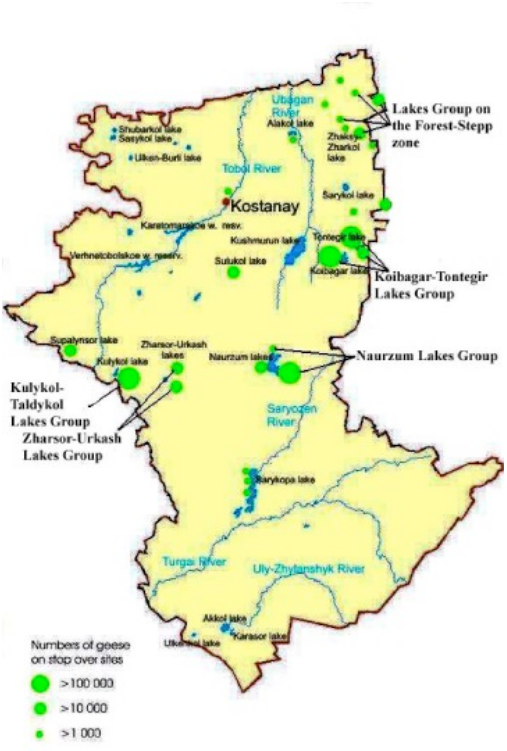



**Fig. 1. Key stopover sites for migrating geese in the Kostanay region**

## Our Project

Regular 3-4 week October observations began in1997. Up to 32 lakes were visited annually. First the work was part of EU - Life-Nature - 2000 project, and, since 2005 part of Kazakhstan structure of UNEP\GEF project for conservation of the Siberian Crane *(Grus leucogeranus)*. The government of Finland also gave financial support. In addition to Dr. Yerokhov, six other Friends of Lesser White Fronted Goose supported and directly participated in the monitoring field observations. Ornithologists of WWF Finland have given methodical help and support in the matter of popularization and boost of awareness about the LWfG among the Kazakhstan people.

**Siberian Crane (Grus leucogeranus) on lake Aksuat in Aug. 2006. Photo Evgeny Bragin**

## Environmental and weather conditions

The Kostanay region is the only site along the migration routes, where it is possible to count the West-Siberian LWfG. But even here it is not easy. The region encompasses more than 200 000 km2, we know of at lest 50 lakes favoured by the geese and Google Earth reveals hundreds of lakes, still not controlled. Most geese in the area belong to two abundant species *Anser albifrons* and *A. anser* (breeding and migrating) and to two rare species, *A. erythropus* and *Branta ruficollis*. Their numbers and proportions vary greatly between years, which makes it difficult to find possible long time trends. The annual differences are mainly a result of local environmental conditions, above all the great variations in wintry rain- and snowfall. (Summers in the steppe are dry.) Some lakes are too shallow or saline for water birds, while others may accommodate birds only in particular years. Many lakes critically depend in their refill on the spring floods. A typical example of such lakes is the famous Kulykol, where also some of the LWfG breeding in Norway have been observed. Lake Kulykol is filled from the stocked snow in the lake hollow during the winter. Due to its depth, lake Kulykol does not dry out completely but for most lakes, the amount of winter precipitation may be regarded crucial. As a rule, favorable conditions for various geese remain 2-3 years after a water refill. At the lakes under our surveillance such conditions were met in 1997-1998 and in 2005 while the minimal water level occurred in 2004 and 2006.

Some of the lake systems, though, are supported with a stable incoming flow (Koibagar, Tontegir, Batpakkol, Zhaksy-Zharkol, Kulagol - Naurzum's Lakes Group and some others.)

**The famous lake Kulykol looked almost dry, but the reeds offered protection for ten thousands of water birds. Photo Erkki Kellomäki**

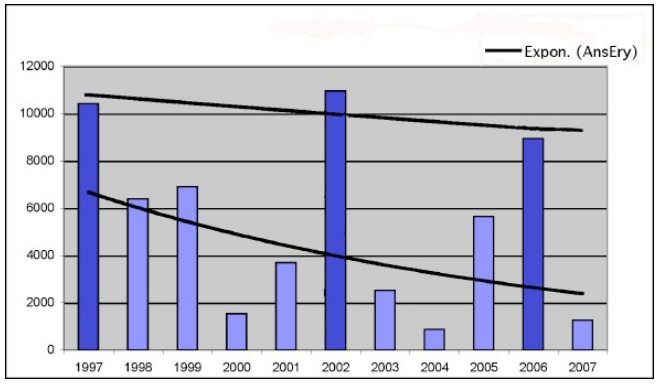
Winter in Kostanay region is cold, and the geese must continue their migration when the lakes freeze. In the first observation year, 1997 more than one million geese were resting on the lakes, whereas in 2004 not many more than 50 000 were present. In 1997-2006 a total of 57 891 individuals of Lesser White-fronted Goose were registered. This corresponds to 2,07% of all geese in the counts (2 795 924). The highest numbers were taken in 2002 and 1997 (10 951 and 10 413 respectively). In 2006 they were numerous also (8 994) and the minimum was registered in 2004 (879).

**Lesser White-fronted and Red-breasted Geese at lake Tyntygyr. Photo Erkki Kellomäki**

## The Lesser White-fronted Geese

Data from Kostanay region confirm (but also to a great extent are the origin of) the general belief that up to 75% of the entire "western" half population fly through Kostanay region. At least this seems to be the case in "wet" years like 1997-1998, and 2005. In the medium water year 2002, there was a significant maximum not only for the LWfG but also for migrating Graylag Geese *(A. anser*). The abundance of LWfG (and Red-Breasted Goose) in the very dry year 2006 is surprising. Probably, alternative places were not available in the draught. Also, exceptional conditions in the breeding grounds in Russia may have influenced the migration.

Are the LWfG increasing or decreasing in numbers? Two factors seem to provide evidence for stability or even a minor growth trend, two others speak for a negative trend. The high numbers of juveniles in the LWfG flocks speaks for good breeding results, and year-by-year the observed flocks are larger. On the other hand, the count of total numbers (see the table) speaks for a downward trend even faster than the very long time Russian average, which is generally set at 2 %.




**An exponential fit reveals a downward trend of 10% for all and 2% for maximum years**

## Ways of hunting

Northern Kazakhstan always was a place of goose hunting by the local people. Today, autumn hunting on geese also attracts, lots of hunters from Russia. Enterprises have also been arranging so-called "commercial" hunting on geese for foreigners. In the course of monitoring, we have as a by-product gathered information about contemporary ways of hunting geese.

The most common way of hunting the geese is shooting them at the site of their feeding in the harvested fields. Local huntsmen usually put up decoys and disguised by camouflage nets, waylay the in flying geese. Another hunting variety is done in twilight during the morning or evening commuting of geese. Huntsmen in camouflage outfit arrange themselves in line

across the field and shoot at the geese when they fly over. Indiscriminate hunters even patrol by car in the morning or in the evening, shooting by the side of their vehicles. The most negative impact on the goose flocks is when the outings are made using motorboats. After the geese returned for the night, they are approached by poachers in boats, and shot at blindly. Such hunting produces a lot of wounded game and most harmful disintegration of flocks.

The original motivation for hunting, as a means of sustenance, is becoming obsolete. Young hunters often are indifferent to the plight of waterfowl species and the idea of sustainable use of wildlife resources. These men have no heart in the principle of discreet hunting. To reform this mentality and to inculcate civilized hunting ways in the thinking of people is the most actual and difficult task of all sorts of conservation agencies.

## How many LWfG are killed?

Over-hunting during migration and wintering is commonly believed to be the reason for the Lesser White-fronted doing badly. In Kazakhstan geese stay for about one month each autumn. How many Lessers are shot already at this first main stopover? Fifty years ago, an average hunter took some total of 10-20 geese of all species each year, and there were some 1000 hunters, making up the total yearly yield up to 20 000 taken. In recent year, 5-6 thousand Kostanay region residents are registered in active goose hunting, and some 1000 more hunters came from outside. Because almost all hunters come from far, they generally cannot afford hunting for equally many days as the locals. We have interviewed hunters and checked their hunting bags on a regular basis. A typical morning's result is 1-3 birds. Over his 2-3 days, a huntsman will take 10 GG and WFG. In our data (60 hunters) the LWfG form 5,1% among 195 shot geese, and more than 8% of all "White-fronts". An earlier study in the 1960:s gives similar numbers. So 5000 hunters taking 6 geese and wounding 4 gives 50 000 killed geese. If 5% of these are LWfG the annual hunting toll on them is 2500 in Kostanay alone. That is 1/4 of all "western" LWfG killed already at their first stop.

There are reasons to believe that "fowling bags" with 5% LWfG are representative. During 10 years, the average of the yearly LWfG-percentages of living LWfG is 3,6%. It could be a statistical coincidence that there was a higher percentage of LWfG among the shot than the living, but there is more in it. Generally shooting is targeted on Graylag and (greater) White-fronted Geese, but when hunters spray the on-coming flocks with shots, the LWfG will be killed unintentionally. According to our systematic observations, the LWfG are the first in the morning to fly from the resting places to the fields, so they are the first to appear at the shooting places. No wonder, they are overrepresented in the "fowler's bag". So the introduction of the ban on LWfG hunting demonstrates lack in efficiency, and the LWfG remains a liable target to deliberate or incidental shots.

## Conservation of geese and their habitats

Drawing on the data, recommendations for improving conservation of the LWfG in Kazakhstan were worked out. Among recently realized state decisions there are hunting restrictions, the inclusion of the LWfG into the List of especially protected birds of Kazakhstan in 2002, and the entering of the republic of Kazakhstan into full partnership both of the Ramsar and the Bonn Conventions. The regional government of Kostanay region has established a set of rather effective wildlife protection regulations. All hunting on the lakes and on the shoreline, generally within a zone 500 m wide is forbidden. For the lakes with largest waterfowl concentrations (Kulykol, Koibagar) the "no disturbance zone" was broadened to 2 km. The fines go as high as 45 $ for each shot GLG or WFG and 800 $ for each LWfG. The fine for a RBG can be1600 $. Goose habitats in Kostanay region are, in principle, given an adequate conservation attention. As mentioned above, implementing these rules on practice is another question.

## Recent Fennoscandian LWfG observations.

Lauri Kahanpää

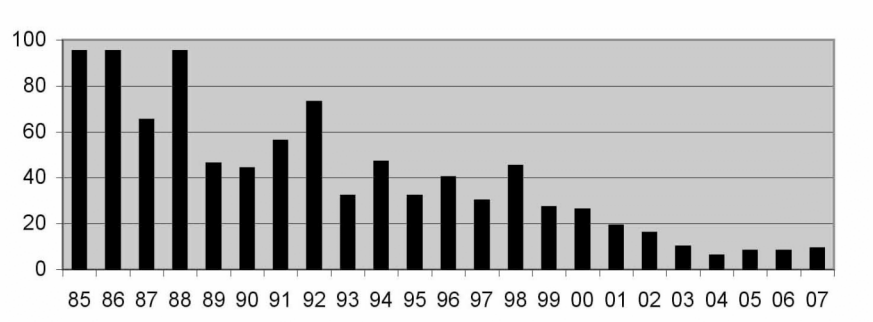



**Fig. 1. Spring migration in Finland 1985-2006**

Since 1985, spring migration of the LWfG is carefully monitored at the only remaining Finnish staging site near Oulu. Detailed information of the whole spring migration, all the way from Greece to Norway, is available at http://www.piskulka.net. The Finnish results in 2006 and 2007 show no improvement to 2003-2005, no more than ten LWfG stop in Finland during spring migration - in particular the classic sites in Hailuoto are now permanently abandoned. Some single birds were seen elsewhere in the country. These may have captive origin. Since our birds are colour ringed, the observed LWfG are no survivors from the 2005 catastrophe at the Hämeenkoski breeding site.

In summer 2007, BirdLife Finland conducted a thorough survey of 12 IBA sites (8900 sqkm) in Finnish Lapland. In their press release we find the following information: One thousand km were surveyed by BirdLife on192 routes, and other organizations surveyed 48 more routes, mostly in the wetlands and arctic mountains of Northern Lapland. These observations gave the best data ever on the avifauna of the area. In spite of this, no indication of an LWfG was found.

In fact there is no reason to believe that the Swedish and Norwegian populations are genetically isolated; in 2004 ten LWfG were seen in the northernmost part of Sweden, flying north. But let us hope, that not many Swedish LWfG join the doomed Norwegian population and loose their potential for surviving. Adapting the Eastern migration route is the only imminent threat to the LWfG in Europe.

## Lesser White-fronted Geese in Finland 1900-2007

Lauri Kahanpää

*This review of a century of decline of the Lesser White-fronted Goose in Finland and neighboring areas is given, including an annotated survey of protection efforts is a strongly abridged version of an article accepted for publication in the RGG journal Casarca. The list of references is found at http://www.piskulkaconf.tk/.*

The disappearance of a species is much more difficult to observe than the appearance of a new one. This explains, why the crisis of the LWfG was not paid attention to until1 1973 when Martti Soikkeli wrote: "... The Scandinavian population migrates, contrary to other goose species of northwestern Europe, to the south or southeast and probably winters in southeastern Europe and the Near East. In the first decades of this century *A. erythropus* migrated along the west coast of Finland in spring and also in autumn, but in the 1950's it was only occasionally observed in autumn migration. During the 1960's the species also appeared in spring in ever

smaller numbers....." In May 1928, Ivar Hortling had observed more than 1800 LWfG at Ytterö - a remarkable number as he was watching only 3 to 4 hours daily. Here are Soikkeli's observations:

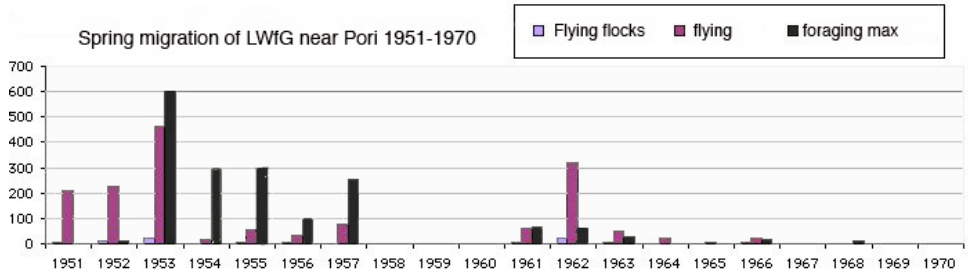



**Fig.1. Spring migration of LWfG near Pori, Finland 1951-1970**

Volunteer ornithologists watch migration more intensively in spring. But autumn is hunting time, so there exist bag estimates. The literature mentions an autumn migration comparable to spring migration. In1927, the Lesser White-fronted Goose was by far the most numerous autumn goose in Pori but in the whole 1950:s only nine individuals were observed in autumn. Farther North, near Oulu, numbers like 10 000 in spring were mentioned in 1920 and autumn numbers were even higher.

Today, the last resort of spring migrating Lesser White-fronted Geese in Finland is Oulu, where an extremely flat coast rising up from the sea by one centimeter each year, creates unique meadows. Here we have accurate numbers since 1985. The decline from 100 to 10 in two decades corresponds to an annual loss of 11 %. That is faster than in Estonia and Norway, where the downtrend is about 5%/year. In autumn, the last flock was seen 1993. This is no surprise, since the only remaining Lesser White-fronted Geese in Norway belong to those that begin their autumn migration by flying East over the White Sea and may continue all the way to Taimyr before turning South towards the lakes in Kazakhstan.

In the 1920:s Merikallio estimated the population of LWfG at 3 000-5 000 breeding pairs. By the time, where Soikkeli's observations in Pori end, the corresponding estimate was 100 pairs, and now there are 10 in Norway plus a reintroduced population in Sweden, where the restocking program was initiated in 1984 when original birds were still breeding. During two decades (1979-1998) 312 Lesser White-fronted Geese were released together with barnacle goose *(B. leucopsis)* foster parents migrating Southwest. Today, Sweden has a naturally growing population of some 100 Lesser White-fronted Geese migrating southwest. In Norway, spring totals are close to 40 birds with a negative trend. The breeding pair estimate (10) is discussed in section "Research" below. On the Kola Peninsula in Russia, the Lesser White-fronted Goose is insufficiently monitored. Indirect observations support the belief that they are fewer than in Norway. European Russia supports a few hundred individuals.

## Conservation efforts

Many protection measures were tried out in Finland, but none of them has had any effect - at least not yet. The Lesser White-fronted Goose is classified as extremely threatened. The following section contains a list of Finnish protection measures.

### Hunting restrictions

- Complete hunting ban for the species
- 2330 hectares of protected and specially managed areas (6 former staging areas near Oulu)

These restrictions are ineffective today, since spring hunting of geese is prohibited in Finland anyway, and there are no Lesser White-fronted Geese in autumn.

**Research**

- Occurrence and ecology of the Lesser White-fronted Goose are studied intensively
- Satellite telemetry was used to clarify the migration pattern.
- The genetics of LWfG of different origin was compared

All this research has increased our knowledge and understanding. Now we have almost complete data of migration in Finland, including habitat preferences etc. Comparing their dark belly-patches identifies individual birds. This has lead to some new insight. Of 12 individuals documented on their spring migration 2003 in Estonia or Finland, all except one pair were later seen in Valdak, the regular spring observation site in Norway (Luukkonen et al 2005). So essentially all Lesser White-fronted Geese on this migration route are seen at Valdak. We can conclude that almost all Norwegian LWfG are seen in Valdak in spring. Their number is counted. Therefore we know that the total number of the Norwegian LWfG is 40 individuals in spring. This is in harmony with observed broods. From the same data, we can also conclude that almost none of the geese possibly breeding on Kola fly over Estonia or Finland, since no more than two of the observed 12 landed outside Norway. If any Lesser White-fronted Geese breed in Kola, they use some other migration route.

Satellite telemetry has given us knowledge about the autumn route via the East down to Kazakhstan, where most Lesser White-fronted Geese outside China meet. Of eight tagged Norwegian and Russian (Ural) geese only one made it home from wintering (in Iraq!), the rest were probably shot. There are also some ring observations concerning "our" birds, one was ring marked in Norway and later controlled in Kazakhstan, and another was marked on the Yamal peninsula and seen in Norway. Some Norwegian LWfG might fly to Hungary without visiting Central Asia. Optimists hope that a migration route via European Russia can be made safe for these birds before extinction.

Should individual fragments of the patchy breeding range, like the Scandinavian fragment, be treated as independent protection units? The geese meet on their common wintering grounds and this leads to a steady exchange of individuals between the breeding areas - confirmed by gene tests. Gene tests are also used when deciding which individuals among the captive geese are best suited as parent birds for goslings to be released in restocking programs.

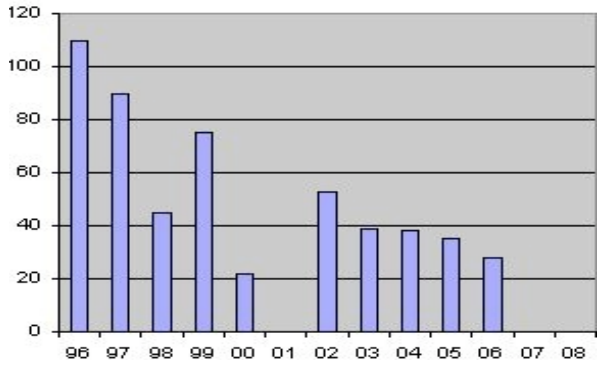
**Public awareness**

- Much information was spread to raise public awareness.
- A special effort was the media coverage of satellite-tagged birds.
- Another special case is TV-films on breeding and restocking programs.

The Lesser White-fronted Goose receives some public attention. Nature conservation oriented magazines and the daily press are willing to publish articles on them. Media coverage is enhanced during intensive protection efforts like the satellite markings, breeding in captivity and restocking. The search word "kiljuhanhi" (*A. erythropus*) gave 13.000 hits in November 2006. Among the meaningful ones, there are the web sites by both WWF Finland and the Friends of the Lesser White-fronted Goose. Both contain a wealth of information in Finnish, English and Swedish. In spite of all his, the campaigns have been of little benefit to the geese. Organized ornithologists, 9000 in Finland, have received a lot of information. But almost none of the about 200 000 waterfowl hunters will be able to tell different *Anser* species apart in the field - a formidable task under hunting conditions. About 10 000 gray geese - *A. anser* and *A. fabalis* - are shot in Finland annually.

**Finnish efforts abroad**

- Finnish Lesser White-fronted Goose research is internationally acknowledged in scientific and conservational journals and conferences.
- Finns have organized and participated in observation expeditions to Estonia, Hungary, Kazakhstan, the Netherlands, Norway, Russia and other countries.
- Finnish organizations give financial support to goose research and protection in foreign countries like Estonia, Iran, Kazakhstan and Russia.
- Finnish organizations sponsor satellite tracking of Lesser White-fronted Geese in Russia.
- Finns have given both financial and know how support to setting up action plans for the protection of the Lesser White-fronted Goose in Caspian sea countries.
- Finland is cooperating in the project "Conservation of the Lesser White-fronted Goose on European migration route" aiming at setting up a Lesser White-fronted Goose protection plan for the European Union.
- Finns participate in an international project testing the suitability of ultra-light aircraft as foster parents for geese. The results will be used when planning for a full size restocking program.




**Spring observations in Hortobagy, Hungary: 12% annual loss.**

Finnish protection activities abroad have mainly been beneficial or at least harmless. Some new insight into migration and mortality is gained, and the formal protection status is improved. A large protection area was founded in Kazakhstan, and during 2003 and 2004 spring hunting was prohibited in the entire Kostanay region in Kazakhstan. But no protection measure has had any effect on the ongoing decrease of the numbers of lesser white fronted geese. Internationally, there is only one notable exception: the successful Swedish restocking program.

## Restocking/reintroduction

- In the years 1989-1997 a total of 143 Lesser White-fronted Geese, 123 of which were small goslings, were released without foster parents in Finnish Lapland.
- Today there are about 100 Lesser White-fronted Geese in captivity in Finland.
- A new reintroduction program was begun in 2004. The successful Swedish scheme is used. Goslings are imprinted on barnacle goose *(Branta leucopsis)* foster parents who guide them via Sweden to the Netherlands.

None of the birds released in 1989-1997 were later observed breeding. When it became apparent that this restocking system had failed, the Finnish program was not corrected but abandoned by the financiers. This was motivated by suspect differences between the captive birds and the original Scandinavian Lesser White-fronted Geese. No attempt was made to improve the captive stock by importing fresh birds or selecting among the available captive population. As a result of this passivity, the only Lesser White-fronted Geese breeding in

Finland today are the captive ones. Also, spring observations now number less 20 per cent of what they were in the 1980:s, when restocking was considered urgent - and initiated.

Since privatization, the Friends of the Lesser White-fronted Goose continue the breeding and reintroduction program. Special attention is paid to selecting suitable goslings. According to Finnish law only geese satisfying strict genetic purity criteria may be released. The use of foster parents as guides is the only known effective method to avoid that the geese are shot during migration. A first test release of one foster family in 2004 led to success: one of the juvenile Lesser White-fronted Geese was later photographed and identified by its leg color rings in the Netherlands.

**Organizations and funding:**

In Finland, research on the Lesser White-fronted Goose is sponsored by the government and mainly coordinated by the national WWF. The Friends of the Lesser White-fronted Goose is a non governmental organization (NGO) specialized on the protection of this species sponsoring not only captive breeding and restocking but also protection abroad. In Northern Finland both the Natural Heritage Services (Metsähallitus) and the local environmental centers organize the search for Lesser White-fronted Geese. BirdLife Finland has thousands of members, many of who are capable to identify the various goose species. These volunteers form the basis for an overall observation coverage of Finland.

**The future**

During more than a hundred years, the number of Lesser White-fronted Geese has almost uniformly decreased by 90 per cent in two decades. Less than one individual can be expected to migrate through Finland in 2025, if current trends prevail. So something must be changed. Any population will decline if mortality plus emigration exceed reproduction plus immigration. The breeding success of the Norwegian geese is normal - no improvement is possible. The Norwegians do not welcome immigration in the form of restocking in Norway. There only way out is to decrease mortality. But there are obstacles. The steady decrease is continuing since more than a century unaffected by phenomena like the rise and fall of the Soviet Union. Controlling hunting on the long and annually varying migration routes is very difficult - in practice nothing else but wishful thinking. (Cf. the paper on Kazakhstan in this Bulletin) Of three Lesser White-fronted Geese that were satellite monitored in 2004 two were seemingly shot early and the surviving one flew to Iraq - a dangerous journey. What definitively makes hunting restrictions ineffective is the fact that it is impossible for hunters in the field to distinguish the lesser from the greater white-fronted goose *(Anser albifrons),* the most hunted Eurasian goose species.

To stop the steady decline of the total world population of the LWfG is hopeless. But this need not lead to extinction of the species in the Wild. Restocking will continue, both in Finland and in Sweden, and if things go right, the released population will not only guarantee further existence for the species but will also fill at least some of the breeding habitat left empty by the geese never returning from the East. If restocking is done in time, the Swedish population can also be "contaminated" by genes from something like the "original Scandinavian population", in this way rescuing their conceivable special genetic features as well.

# Conservation

## 10th Annual Meeting of the Goose Specialist Group of Wetlands International, 26-31. January 2007, Xanten.

*In contrast to Wetlands' previous GOOSE meeting in Sopron (details below) this time the Lesser White-fronted Goose group organized a Workshop. Important new insight was reached. The group follows the rule of not publishing anything unless complete consensus is reached. This gives extra weight to the final document, compiled by Gerard Boere. We publish it as it stands. More details on the talks are found on the web site http://www.piskulkaconf.tk/.*

## Lesser White-fronted Goose Workshop, 29th January, 20.00 - 23.00 hrs. Report

Gerard Boere

*Participants: Pentti Alho; Åke Andersson; Tatiana Ardamatskaya; Per Bernhardtson; Sergey Dereliev; Craig Ely; Thomas Gehle; Cy Griffin; Antti Haapanen; Thomas Heinicke; Toon Helmink; Niklas Holmqvist; Lauri Kahanpää; Igor Kostin; Yevgenya Lanovenko; Oleg Mineev; Johan Mooij; Vladimir Morozov; Szabolcs Nagy; Gerard Ouweneel; Axel Paulsch; Lavinia Raducescu; Antonina Rudenko; Paul Schnitzler; Wolfgang Scholze; Markus Schwarz; Ulf Skyllberg; Maire Toming; Didier Vangeluwe; Rainer Warthold; Michael Wink; Sergey Yerokhov;*

**1)** Gerard Boere welcomed the 32 participants and gave a short introduction into the workshop's background with special emphasis at the different positions concerning re-introduction measures. He emphasized that the workshop is for information exchange only and has no decisive status. Nonetheless it is important to update each other on recent findings and developments. The new draft International Action Plan on the LWfG is still under elaboration. By the end of 2006 ORNIS-Committee has decided to await new results especially on the key issue "LWfG-genetics" that shall be presented and discussed at this workshop. Unfortunately, the members from WWF Finland and Birdlife Norway are absent.

A report on presentations and conclusions of this workshop shall be taken and forwarded to AEWA and other bodies engaged in finalizing the new International Action Plan. This will be done under the responsibility of the chair of the workshop; a list of participants in the workshop is included in this report.

**2)** Åke Andersson reported briefly about the unchanged endangered status of the LWfG and the working group's tasks: the need to protect the remaining wild populations as a first priority and be prepared for other actions if the need arises.

**3)** Michael Wink gave his report (see attached document) on the results of the recent genetic analyses he carried out with a total of 270 LWfG samples (249 LWfG individuals) from breeding stocks in Germany, Sweden and Finland and wild LWfG from European Russia. The combination of the three different analysis methods used, enables identification of individuals with traces of introgression and assessment of genetic diversity of the various captive stocks in comparison with the wild birds. The breeding stocks especially in Germany, but in Sweden

and Finland as well, reveal unexpectedly high genetic diversity, almost identical to the wild Russian LWfG. Dr. Wink's conclusion is that the current captive stocks are considered to be suitable for reintroduction after exclusion of hybrids which have been determined with the methods described in his report.

**4)** Johan Mooij gave reports (see attached documents) on newly discovered LWfG-records in a) Germany (Mooij & Heinicke) and b) Sweden (Mooij & Kampe-Persson, historical data).

There are much more records than previously known. These many records seem to support the existence and important role of former and still existing western LWfG-flyways to and through Germany, one of them leading from the former northern Swedish breeding grounds southwards to east Germany and further to Southern Europe. This means in Johan Mooij Report LWfG Workshop; GOOSE 2007 (Xanten, Germany) 2 opinion (and those of other people) that Lambart von Essen with the Swedish reintroduction project did not create a completely new flyway but restored to a very large extend a former one. The same applies in his opinion to the future international reintroduction project Operation Fjällgas/Operation Lesser Whitefront/Aktion Zwerggans.

**5)** Lauri Kahanpää presented his mathematical population models (see attached document) about effects of protection measures for LWfG in Europe and European Russia, wild and stocked birds. The models are available at http://www.piskulkaconf.tk for everybody's use.

**6)** Szabolcs Nagy gave a review (see attached document; not yet available, will be circulated afterwards) on the process of elaboration of the new AEWA LWfG International Action Plan and its contents. The current draft is based on the recommendations of the CMS Scientific Council given in 2005.

**7) Discussion.**

The discussion focussed for most of the time on genetic issues and on the interpretation of the new findings on old LWfG observations/records in Sweden and Germany and whether or not that constitutes evidence for old flyways.

**a) LWfG genetics**

In addition to Michael Wink's new results on the genetics of captive stocks, Sergey Dereliev reported information on new results of Minna Ruokonen on genetic relationships between the original Fennoscandian and the Western Eurasian birds: 50 % of the males of the extant Fennoscandian wild population have genotype similar to wild west Russian birds.

As a conclusion it could be stated that the original Fennoscandian population does not need to be regarded as a special conservation unit. European Russian origin of a bird is no obstacle for using it in a reintroduction or restocking program in Europe. This may apply also for captive stocks with the same genetic composition as the European Russian LWfG.

It would have been favourable if Michael Wink could have integrated samples from the original Fennoscandian LWfG into his analyses. Unfortunately, it was mentioned that Minna Ruokonen was not willing to provide them for such an analysis. Sergey Dereliev, AEWA Secretariat, is asked by the workshop participants to once more ask Minna Ruokonen about this.

Gerard Boere, once more, underlined the value of looking into the history of the distribution of LWfG and Arctic Anatidae in general and referred to the classic publication by Daan

Ploeger (Ardea 1968) on the geographical differentiation of Arctic Anatidae during the last ice-ages. This and other data clearly shows that many species with now broken distributions originally had a continuous breeding range or went through a narrow genetic pathway. This has consequences for the interpretation of present genetic information in relation to the present distribution of many Arctic breeding species..

Vladimir Morozov pointed out that possible genetic differences between the original Fennoscandian birds and Russian birds are reasonable, as the Fennoscandian birds are existing on the edge of the species range. Knowledge on the wild Russian populations and their genetics is still poor and should be increased. The workshop participants supported Vladimir Morozov's wish for increased study activities in that area. Report LWfG Workshop; GOOSE 2007 (Xanten, Germany) 3

The phenomenon of a common mtDNA haplotype, in this case shared by LWfG and GWfG-individuals, is also known from other closely related goose species, i.e. Ross' and Lesser Snow Goose as was the substance of a comment by Craig Ely, Alaska Science Center. It is the result of common ancestors about 10-20.000 years ago and should not be misinterpreted as a recent hybridisation. This is an important remark and may shed some more light on the discussions and the "pollution" of LWfG in Western Europe, with GWF genes.

The new genetic information given by Michael Wink will be used to build up a genetically "clean" breeding population in captivity. The breeders will remove hybrids according to Michael Wink's results. Close cooperation between the breeding stations in Germany, Sweden and Finland, whose birds have completely been analyzed, is planned. A pedigree book on the individuals in these breeding stocks shall be started. Michael Wink is ready to give advise for the breeders on exchange of individual birds in order to optimize genetic variability within the stocks.

Michael Wink's analysis presents information, which may play an important role in the future conservation work. These results have yet not been submitted to a peer-reviewed journal for publishing.

**b) LWfG flyways:**

The meeting concluded that information with regard to the westernmost part of Europe is probably insufficient to really prove the existence of a former flyway and advised that more historical data from Belgium, Netherlands, France and Spain should be searched for and, if available collected in order to strengthen the conclusions on historical LWfG flyways especially for west/southwest of Germany and western parts of Germany. Historical data from Sweden and eastern Germany are already comprehensive and reliable.

Concerning actual flyways, Thomas Heinicke (Dachverband Deutscher Avifaunisten) pointed out that there are regular observations of LWfG groups with more than 10 individuals in Germany, especially in Eastern regions, which are not taken into account within the actual Action Plan draft. In the last 10 years, a strong increase of LWFG observations in Eastern Germany was detected, due to highly increased observing intensity. There are two regions in Eastern Germany, where substantial numbers were reported:

- Lake Galenbeck, lake Putzar (state Mecklenburg-Vorpommern): a flock of eleven birds in September 1995 (together with a satellite-transmittered Norwegian bird; another transmittered bird was lost there in the same period); 5 birds in September 1996, a flock of 15 birds in October 2003.
- Oderbruch with Altfriedland fish ponds, Lower Odra valley + surroundings (state Brandenburg): during last years 5-20 observations annually, with 1 to 5 birds regularly

reported; in September 2006 a flock of 13 birds (with young) at Altfriedland fishponds, in October 1986 a flock of 10 birds at lake Felchowsee.

There are further regions in Eastern Germany, where LWFG are seen quite frequently:

- Middle and Lower Havel area, Spreewald area, lake Rangsdorf/Nuthe-Nieplitz lowlands (all in state Brandenburg)
- Northwestern Saxony (Torgau fishpond, areas N + S of Leipzig)
- Lake Neolithteich (state Sachsen-Anhalt); in November 1999, a flock of 28 birds was reported by Leo v.d.Bergh.

It has to be noted, that in late December 1996 a satellite-transmittered Norwegian bird was detected and later on lost in the region of Halle-Leipzig.

During the last 10 years, more than 300 observations of LWFG were reported in Eastern Germany, with most observations during autumn migration (late September, October), few

Report LWfG Workshop; GOOSE 2007 (Xanten, Germany) 4 observations in winter months and a small spring migration peak (February to April). The phenology of LWFG in Eastern Germany is comparable with those LWFG, observed in Hungary.

**c) New International LWfG Action Plan draft:**

Neither the new information on genetic composition of the original Fennoscandian LWfG given by Sergey Dereliev nor Michael Wink's new genetic results had been available to IUCN and CMS bodies, the Scientific Council in particular, when they made their recommendations for the new International LWfG Action Plan. The workshop participants wish AEWA and other decision making bodies to incorporate these new results, as appropriate, into the new plan. The genetic issue is regarded to be solved to a very large extend. Remains to formulate recommendations on these new findings.

The likely evidence, as provided by Johan Mooij in his paper on historical data from Germany and Sweden, for the historical flyway of LWfG between Northern Sweden and eastern Germany in particular and than further south, could be as well incorporated in the new International Action Plan.

The same with the present regular observations of LWfG groups in Germany, especially in Eastern parts, which are so far neglected in the existing Action Plan draft. Most important regions for LWFG in Eastern Germany should be included in the Action plan, as not all sites are currently protected and in most areas, goose hunting is still allowed.

A High Court decision in the Netherlands on the reintroduced LWfG in Sweden and wintering in the Netherlands forced the Dutch Government to study the distribution of the species and the need to establish reserves. A Regional Court decision in Finland on released LWfG from the Finnish breeding stock took away the charges that a few introduced LWfG can be considered as a way to establish a population of alien species; which is illegal in Finland (and in many other countries). These Court decisions, although different in scope, may also lead to further amendments for the new Action Plan.

The workshop participants agreed that the chair of the meeting, taking responsibility for the final wording, would submit the report of the meeting, with summaries of the presentations, to the AEWA Secretariat for further distribution.

# Calculating the future of the LWfG

Lauri Kahanpää

*This is the summary of a presentation given at the GOOSE 2007 conference in Xanten. For the complete paper, see die Vogelwelt 2008. For references, see* http://www.piskulkaconf.tk.

## Introduction

Reintroduction of a lost species always is a tricky business, so also in the case of the LWfG in Finland. Before beginning such a decades long project, it is wise to spend some thought on questions like is it necessary at all, and how it should be carried out. What is likely to happen, if all available goslings are freed in Nature? Would it be wiser to keep some - or all of them on the farm for reproduction until there are really many ready for a quick reintroduction with dozens or hundreds of birds? Os is there an optimal strategy in between? Which method is least risky? Should we use captive birds freshly caught in Russia? What is the final goal? When should the project end? Decisions must build on correct inference from true facts. Some basic facts concerning the LWfG are easily listed:

1. For a century, the LWfG population is shrinking. The LWfG is already threatened world wide and almost extinct in Europe.
2. The only viable (increasing or stable) sub-population in nature is the one reintroduced in Sweden.
3. The Swedish free population is mixed with the remainders of the original local sub-subpopulation.
4. The Swedish captive population is mixed with the remainders of the original local sub-subpopulation.
5. No free-living Swedish LWfG are gene tested.
6. Most captive LWfG are gene tested.
7. A majority of tested captive LWfG is known to be free of any signs of hybridization and most of these birds are kept in zoos/farms with no suspect birds present. These birds are also healthy and in all respects for suitable for reintroduction.
8. WWW Finland's attempt of reintroduction without using foster parents failed.
9. Russian authorities are willing to grant export of a few dozen wild LWfG. No wild LWfG are currently available elsewhere.
10. The Eastern part (about 16500) of the World's LWfG population winters on lake Dongting in China. No other wintering site is known.
11. The Western part of the World LWfG population (about 10 000) gathers in Kazakhstan in autumn.
12. The LWfG is a monotypic species. (No subspecies exist).

For wise decisions, correct predictions of the effects of possible actions are very helpful. To make accurate predictions, the current situation including its rate of change must be described quantitatively, in the best case including the probabilities for different scenarios. Today, a wealth of biological information is available, on the basis of which such numbers can be presented. Now we can calculate how many LWfG will be in each sub-subpopulation after three, ten or twenty years if current trends prevail. More interesting, we have made predictions depending on protection measures. As an example: How will the Russian LWfG react, if 15 eggs are taken annually for building up a captive population? How many LWfG will breed in Finland in 2030, if ten are released annually in 2008-2018? How much should the survival rate of migrating (adult or juvenile) LWfG be improved in order to stabilize the Norwegian population? How many % of the European LWfG will be of Norwegian, current Swedish (reintroduced) or captive origin in 2020?

Building upon this, it is possible to select an optimal mix of protection activities, which the reader is encouraged to do her/himself using (and criticizing, where appropriate) our computer model. The Excel sheet "Effects.xls" at http://www.piskulkaconf.tk has a user's guide, "Background_Effects.html"with a full description of the scientific background data.

## Principles

The numerical future of a set of animals - this could be the LWfG in some particular zoo or in Norway - depends only on five parameters: their current number, annual births, deaths, immigration and emigration. As a first approximation, births are proportional to the total number. Random variations in the breeding results more or less level out in the long run (In the case of the LWfG this statement was verified both mathematically and empirically), but for small populations like the ones at hand, the age distribution of the individuals should be taken into account: LWfG don't breed before their 3:th calendar year, and breeding results become better by time.

## Data

The following table contains the basic data used as default parameter values for six theoretical LWfG "populations". The breeding index is the juv/ad ratio of the whole population immediately after breeding.

| | Norway | Russia | Sweden | Finland | Captive/Swe | Captive/Fin |
|---|---|---|---|---|---|---|
| Mortality 1. y (%) | 78 | 76 | 25 | 25 | 20 | 20 |
| Mortality 2. y (%) | 16 | 13 | 20 | 20 | 12 | 12 |
| Mortality ad. (%) | 16 | 13 | 10 | 10 | 10 | 10 |
| Breeding index | 0,5 | 0,5 | 0,3 | 0,3 | 0,35 | 0,35 |

**Table. 1: Biological parameters**

The six populations are an abstraction of the real situation, of course. In particular, the two captive populations are just models for different possible management policies. The parameters in the table correspond to best available information based on observations. Exact information on this background is available in the background document mentioned above. Here we just mention the main sources: WWF, IUCN, Wetlands International, BirdLife, RGG; http://www.piskulkaconf.tk/. Of course, there are no observations of the Finnish population since it does not exist yet. Therefore, Swedish parameters have been applied for Finland also.

## Calculations and output

Numerically, a breeding and restocking/reintroduction program is nothing but (artificial) emigration/immigration between the populations - captive and natural. To make a prediction, one has to plan for each year how many goslings will be transported from each population to some other population. You can easily feed in your favorite plan into the Excel-program to test what the effect on the future of the LWfG in Europe would be. The results are shown as charts representing the number of LWfG in each of the six theoretical populations as well as the numbers of released goslings etc. Some sample results are drawn here on paper. To find the effects of changing the preset biological parameters (This is called elasticity analysis), one can simply go and change them in the program and see what happens. This way you can convince yourself among other things of the important fact whether a reduction of the adult mortality of the Norwegian population from current 17% to 12% (a reduction of 30%!) would stabilize the population. You can also simply try out, how high the breeding index on a farm must be, if 20 goslings should be available for reintroduction, beginning in 2020

## Choosing a strategy

The following diagrams demonstrate some aspects of what effect a few sample strategies will have in 20 years,

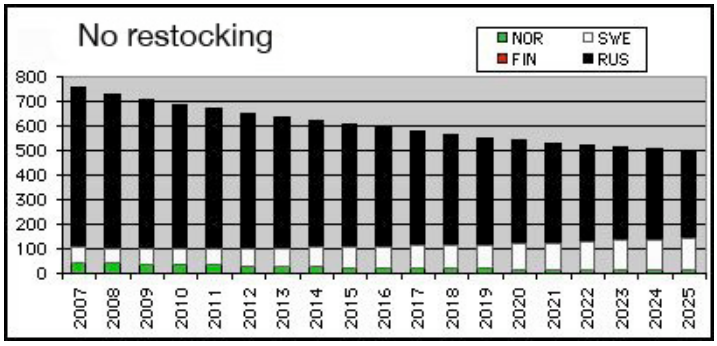



**Fig. 1: Without restocking or catching, the LWfG will slowly go extinct in Norway; the European Russian population will shrink from 600 to 300. The Swedish reintroduced population will increase in size, but not yet enough to compensate for the cumulative losses in Russia. (By 2025, more goslings will hatch in Sweden than in Russia.)**

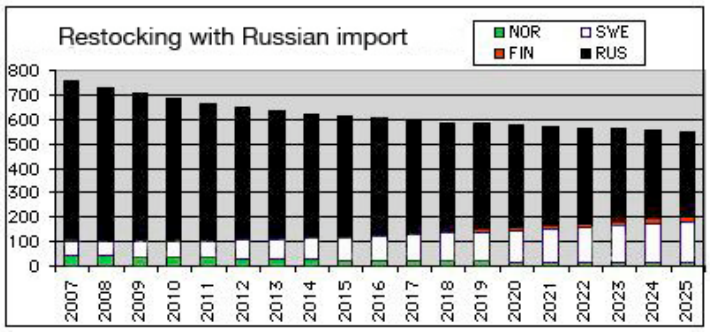



**Fig. 2: The Swedish goal of 200 pairs will not be reached unless current captive stock is used for restocking. Importing totally 30 birds from Russia is - by far - not enough. Similar results hold for a 100 pairs goal for Finland.**

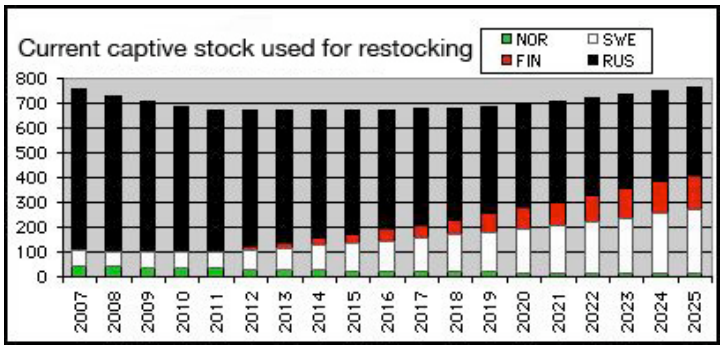



**Fig. 3: A full scale restocking program is sufficient for reaching the goals. This means using all available, suitable parent birds for the program and believing that the Swedish population will continuously increase at the present rate.**

Nobody knows how to rescue the Russian LWfG population. Re-guiding them to the West is of partial help only, since they necessarily fly over dangerous Eastern areas anyway. In the Fig. 3 scenario, at least a sound population will come about in Scandinavia and the total number of LWfG in Europe, including European Russia, will increase.

# The Lesser White-fronted Goose Conferences 31 Mar - 2 Apr 2005 in Finland

Lauri Kahanpää

*In March 2004, Wetlands International's Goose Specialist Group had their annual meeting in Odessa, Ukraine. At the meeting, the LWfG Group was re-established. To promote the solution of the imminent problems in LWfG protection, the Group decided to arrange a one species Conference in spring 2005. The Friends of the Lesser White-fronted Goose wished all Conference members welcome in Finland. Simultaneously, the African - Eurasian Waterbird Agreement Secretariat (AEWA) was organizing their workshop in order to start setting up an international action plan for the protection of the LWfG. Also the Finnish Ministry of the Environment was planning a meeting for a national plan. The international meetings were combined and held 31 Mar - 2 Apr 2005 in Helsinki Zoo and the biological station of Helsinki University in Lammi. More than 60 specialists participated. The national meeting was held immediately afterwards. We publish abstracts of some of the presentations at the international workshop and an English translation of the relevant parts of the minutes of the national meeting. (A very interesting document!) Original, detailed minutes of both meetings - the latter in Finnish - are avaialble at http://www.piskulkaconf.tk/*

## The International Workshop. Some highlights

*Antti Haapanen's talk was already published in the Bulletin 2005_1. All talks on genetics as well as Sergey Yerokhov's Kazakhstan report are already obsolete. For the readers of the Bulletin, we point out some of the other highlights:*

***Status and conservation Lesser White-fronted Goose in Russia and Central Asia.*** (Evgeniy Syroechovski jr.)

The development of a national strategy for Russia has started. Field surveys in Putorana Plateau, Kalmykiya, Azerbaijan, Chukotka and Vorkuta. Successful satellite tracking showing the route to a wintering place in Iraq, but the picture is going to be complicated. Started collaboration with hunting organization and fundraising with companies. Going to start new satellite tracking in this year in Putorana Plateau with transmitters of neck-collar type. Strong hunting pressure (also in spring) along Ob River. Found some locations of wintering geese (mostly GWfG) in Turkmenistan close to the border with Afghanistan. Satellite tracking reconfirmed the importance of the Samur River delta for LWfG. There are also new data from Azerbaijan. Knowledge is still missing on main wintering ground for the western population. It is still not known where 80% of the breeding birds are and also most of stopover sites for the eastern populations. Main threats at wintering and stopover areas are still assumed, but no exact mechanisms are known. Next priorities and plans for Russia:

1. Improvement of knowledge through field surveys, satellite tracking, genetic studies;
2. Creation of network of protected areas in key stopover sites;
3. Creation of GIS database on distribution of LWfG;
4. Co-operation with hunters to decrease hunting pressure; creation of national strategy with AEWA and collaboration with RBCU.

***Update on the work done on the Fennoscandian population.*** (Ingar Jostein Øien)

Main work within Fennoscandia is still annual monitoring before breeding and of breeding success at Valdak, catch some birds for colour ringing and observed along the European

migration route where established monitoring takes place. Planned further satellite tracking focusing at breeding sites, at the moment mainly unknown the breeding population is between 20-30 pairs (this figure refers to adult and sub-adult birds [i.e. 3rd cy] appearing in pairs). At Valdak 40-45 birds were observed in spring. Significant drop from 60-70 to 40-45 happened around 2000. Since then the population size has been more or less stable.

***Projects to reduce the impact of hunting*** (Ivan Rusev)

High mortality due to hunting is the most important reason for the decline of the LWfG populations. LWfG often occurs in mixed flocks with the heavily hunted WfG. There is a need to let the hunters know about LWfG, the differences between two species WfG and LWfG, the problems in the conservation of the species, and how to avoid killing LWFG. Campaigns in Finland and in the Eastern Europe (stickers, posters). The largest single campaign was the poster and sticker campaign in Kazakhstan, Bulgaria, Romania, Hungary, Azerbaijan, Russia and Ukraine, run by the Norwegian Ornithological Society and the Bulgarian Society for the Protection of Birds. 200-300 LWfG are shot in Ukraine every winter. Hunting inspection suffers from lack of resources. The new president of Ukraine has promised to close all hunting in 10 years. Until then: collaboration with hunters.

## The National Finnish Meeting. Excerpts from the minutes

*Chair Jorma Pessa. Secretary Petteri Tolvanen. Highlights selected by Lauri Kahanpää*

The Chairman listed the aims of this meeting:

- To decide on how to set up the Finnish national action plan; initial argumentation and process.
- To survey Finnish views keeping in mind the international Conference
- **Not** to talk about the contents of the plan in detail.

**Discussion on the current situation**

- *Juha Markkola:* The situation for the Scandinavian population is critical; estimated extinction in 20 years.
- *Jorma Pessa:* The threats are outside Finland
- *Timo Asanti:* Intensive reindeer holding poses threats in the breeding grounds also.
- *Jorma Pessa:* Question Are there enough SPA:s in Finland?
- *Timo Asanti:* Also control is important. In Lapland there seems to be none at all.
- *Juha Markkola:* Only about half of the important staging areas around Oulu are protected; his is a bad influence for other countries.
- *Lauri Kahanpää:* Could the birds be attracted to the protected areas?
- *Jorma Pessa:* They are large enough for any conceivable number of LWfG.
- *Martti Soikkeli:* Near Pori the former meadows grow bushes. In reality, the LWfG used to prefer agricultural fields. I have never seen any LWfG on the currently protected areas.
- *Juha Markkola:* Near Oulu the meadows were the original staging grounds. Using fields is a recent feature.

**Discussion on Reintroduction**

- *Jorma Pessa:* The International meeting discussed the possibility of catching birds to found a new captive population. Also, the nomination an independent group of specialists was suggested.

- *Martti Soikkeli:* Hundreds of species have been reintroduced from with captive populations. Captivity as such does not harm that much! The Swedish reintroduced population is phenotypically just like the wild. Nobody has even tried to estimate the relevance of the genetic findings.
- *Juha Markkola:* There are even morphological differences between captive and wild birds. (5%: in bill length) Current captive birds are hybrids, hence illegal to set free. Cleaning the populations impossible. Admitting facts is an absolute condition for cooperation.
- *Jorma Pessa:* Do you accept catching wild birds?
- *Juha Markkola:* On the condition that the old stock is destroyed at the same time.
- *Lauri Kahanpää:* On the condition that the effects on the natural donor population are taken into account properly.
- *SYKE / Timo Asanti, YM / Matti Osara, Petteri Tolvanen, WWF / Jari Luukkonen:* agree with Markkola. WWF Finland sees this as low priority - concentrates resources on protecting the natural populations. This kind of gene bank is a good thing but very expensive. (Tolvanen)
- *BirdLife / Teemu Lehtiniemi:* When should the remaining Fennoscandian birds be caught? A difficult question! Wait a few years and decide on a number of individuals, maybe?
- *Minna Ruokonen:* The LWfG is mature in its 3:rd calendar year. Such a species needs a founder population of some 100-150 individuals for sufficient diversity in the future captive population.
- *Timo Asanti:* the government must pay this.
- *Minna Ruokonen*: Should Russian birds be taken, if we know in advance that Norwegian LWfG are not available?
- *Jari Luukkonen:* Should the Swedish project serve as a model?
- *Jorma Pessa:* Surprisingly, SPA:s have been founded in the Netherlands for the Swedish reintroduced population.
- *Lauri Kahanpää:* The Friends have the capacity to breed two isolated, separate flocks.

**Presentation on priorities of LWfG protection in Finland**

Matti Osara / Ministry of the Environment

- The international meeting gives a good basis for decisions
- Common goals should be fixed
- Breeding and staging areas are well protected in Finland and in good condition. Continued care is promised by the Ministry
- Research is also important and must be financed on a regular basis.
- In genetics, a lot remains to be done. In the future it may be possible to select/manipulate suitable birds among the current captive population for reintroduction.
- There is breeding know how in Finland. Its future must be secured
- International co-operation is essential.
- The EU is joining AEWA. The timing suits us well. Simultaneously setting up an international and national plan works well.
- This meeting is encouraging; consensus will certainly be reached!

**Discussion on priorities**

- *Jorma Pessa:* How about founding a new captive population?
- *Matti Osara:* We support this on Markkola boundary conditions.
- Petteri Tolvanen: Reintroduction with current stock?
- *Matti Osara:* No.
- *Teemu Lehtiniemi:* Russian import?
- *Matti Osara:* Preferably Fennoskandian, in practice probably only Russian available.

**Discussion on initiating the national Action Plan**

- *Matti Osara:* The starting point is to follow the international guidelines.
- *Petteri Tolvanen:* There is a LIFE_Nature project including this planning. Deadline 2008. Main partners WWF Finland and BirdLife Finland together with governmental authorities. The Ministry of the Environment will ratify the plan formally.
- *Matti Osara:* OK
- The task force compiling the national action plan should encompass various governmental authorities, WWF, BirdLife and The friends of the LWfG

**Discussion on the Hämeenkoski breeding station**

- *Martti Soikkeli:* Pentti Alho will retire soon. He has the know how of breeding LWfG. To ensure continuity, he should have an assistant/trainee/successor, who must be finances somehow.
- *Timo Asanti:* A good suggestion!
- *Matti Osara:* Helsinki Zoo is primarily responsible for this kind of activity.
- *Jorma Pessa:* Conclusion: Training a new breeder will be planned starting from the assumption that the Ministry participates in the payment.
- *Lauri Kahanpää:* The Zoo should take the initiative.

## 3rd International Symposium on Waterfowl of Northern Eurasia, Saint-Petersburg, 6-10 Oct 2005

Lauri Kahanpää

*The third International Symposium on Waterfowl of Northern Eurasia was the largest in the series with almost 200 scientists participating from Australia, Azerbaijan, Bulgaria, Canada, China, Denmark, Finland, France, Germany, India, Japan, Kirgizstan, Latvia, Lithuania, Mexico, the Netherlands, Sweden, Turkmenistan, UK, Ukraine, USA and Uzbekistan.*

The Conference was very well organized - in particular there was marvelous simultaneous translation, so both Russian and English speaking guests could follow every talk. Our best thanks are due to all organizers, personified in particular in Jevgeni Syroechkovski jr. and Alexandr Kondratiev.

Beside biology, the main subjects of the conference were international cooperation in the protection of migration birds and sustainable hunting.

### The LWfG

Vladimir Morozov this time gave just a short update of the situation, mentioning the fate of three satellite tagged birds from the Polar Urals: One of them had made it to Iraq and back whereas two others disappeared already in autumn. According to Morozov, the European Russian flyways are much too poorly known for compiling a successful protection plan.

Morozov has taken a few LWfG eggs from the Ural tundras. The hatched goslings were in Moscow zoo awaiting permission for transport to Sweden. No big numbers will be caught, anyhow.

My own talk was on the history of the LWfG in Finland. It will be published in the Casarca. A short version is in this Bulletin.

### Other talks

Most material of the Symposium is available on a CD. The Abstracts are available on CD and the proceedings will appear in the Casarca journal. Three talks were of special interest to me:

E.A. Kretchmar and A. Makarov from St Petersburg gave a talk on reflections of the sounds that geese make when flying. It is possible that these could be used for navigation in darkness or fog.

Cambridge electronics engineer V. Afanasyev presented an electronic foot-ring exactly recording the time of daylight. At later recovery, the data gives total information of pits position every day. It has been tested on albatrosses.

The last subject was Avian Flu. Killing migrant birds seems to be no good way of preventing a pandemic.

## Wetlands International's GOOSE 2005 in Sopron, Hungary

Lauri Kahanpää

Wetlands International's Goose Specialist Group had their 9th annual meeting in Sopron, Hungary on 5-9 Nov 2005.

Since the St Peterburg Conference was too close, too few participants arrived at the Sopron meeting and no LWfG workshop was organized in the absence of the East Europeans. The organizers should have deserved more participants: everything was beautifully arranged.

A remarkable highlight of the Conference was Sergey Dereliev's (AEWA) insight that the LWfG Action Plan must be accepted by all to have any impact, since it is no more than a recommendation. The Friends of the LWfG follow with interest, whether it is possible to create such a document.

# The Lesser White-fronted Goose and Public Nature Conservation in Finland.

Seppo Vuolanto

*Public nature conservation is based on the current legislation, it benefits state budget funding, and the authorities carry it out. This case is dealing with the protection of the Lesser White-fronted Goose and the attitude of the conservation authorities.*

EU legislation lays down stipulations to all member states. Lesser White-fronted Goose (LWfG) belongs to the species listed in Appendix I of the Birds Directive, for which Special Protection Areas (SPA) must be founded. SPAs belong to the Natura 2000 network. In Finland SPAs for Lesser White-fronted Geese were designated on the west coast. Since the species seems to have been extinct as a breeding species in Finland and the migration through the country has nearly come to an end, the Natura network in practice has very little effect as a protection measure for staging areas. More important could be the EU LIFE/Nature co-funding for certain threatened bird species. Indeed, the Commission has financed two separate Lesser White-fronted Goose projects run by WWF Finland.

## The first Project 1997-1999

The writer acted as a national expert in EU Commission Brussels, and had a task of keeping follow-up of this project. The interesting results clearly demonstrated that Lesser White-fronted Geese migrated through Finland and bred in northern Norway. In late summer and early autumn this minute population migrated east and further south on the Asian side of the Ural Mountains. It became clear that the main threat for the survival was hunting within different parts of the former Soviet Union. The project wrote excellent reports about its expeditions to the East, and a vivid and realistic picture of the observations and other information regarding the geese was drawn.

It became evident for the Commission, that rescuing the LWfG from extinction critically depended on escaping the mortality caused by hunting. The LWfG population migrating through EU territory in spring was already far below the extinction risk level and could vanish any time. The reintroduced LWfG population in Sweden was growing very slowly although it was not subject to a similar hunting pressure. It was hardly realistic to imagine that hunting culture would soon change completely in the former Soviet republics. Protection areas could of course be grounded - but mostly in order to get benefit from international research and conservation funds. On the contrary, there were new several threats in sight. Spring hunting was increasing in the form or organised hunting tourism, and the expedition could verify victim Lesser White-fronted Geese during spring hunting period. Another important factor is the utmost difficulty of telling LWfG from the greater White-fronted Goose, which is being legally hunted.

After having got the above results, the Commission anticipated further actions to preserve LWfG within the EU territory. Strengthening of the Swedish reintroduced population, which already had appeared a success story, would possibly be the most effective measure. A national court judgement even obliged the Netherlands to establish SPAs for this population in their wintering grounds. But Sweden interrupted its reintroduction program, as this LIFE project reported genes of White-fronted Geese to be included in the gene pole of captive LWfG. According to the report, this finding was due to a crossbreeding between the two species in captivity.

Simultaneously, a new German project appeared on the scene. It applied for EU support for a plan to release LWfG in northern Sweden and to guide them to winter in Germany out of the reach of hunters.

## The Second Project 2005-2009

The new LIFE-project concentrates on finding out the staging areas of the Norwegian population along the traditional spring migration route through Europe. Possible protection and management of the staging areas is a part of the project, as well. The preliminary results of this project reveal more details to the results of the previous project both regarding the routes and the threats.

At the same time the Commission wished to receive other good applications for enhancing more complete protection of LWfG on the EU territory. Unfortunately there were none, since Sweden did not prepare to continue the reintroduction program yet, and the German project was not eligible for financing, as the Finnish competent authority, Ministry of the Environment did not want to give its approval in autumn 2004. Both cases had the same problem: to ensure a pure gene pole for the captive geese. It was supposed to be laborious and expensive. Knowing EU Commission's priorities to save LWfG from extinction from the EU territory, the writer, now as a civil servant and the national focal point of EU LIFE/Nature projects of the Ministry of the Environment, suggested the approval of the competent authority for the German project. To ensure the genetic purity I suggested, one condition to be added: the gene pole of the birds would be guaranteed before any restocking activities.

## A species of special protection measures in Finland

According to the Finnish nature conservation legislation, LWfG has been nominated as a species of special protection measures, as the threat of vanishing is very evident in Finland. Despite extensive searches by the first project, it was not possible to detect breeding geese in Finnish Lapland. On the basis of par. 47 of the Nature Conservation Act, the Ministry of the Environment has to make an action plan for such a species. Consequently, an action plan is necessary - one should have been started immediately after the report of the first project.

Starting 1983, WWF Finland has a voluntary LWfG working group supported by the Ministry of the Environment. It even runs a reintroduction program for some years. The juvenile LWfG released in Lapland did not survive, as they were released before fledging and mostly without parent birds. WWF Finland interrupted restocking in 1999. After that, another conservation authority, the Regional Environment Centre of Häme has taken some responsibility for saving the captive LWfG from extinction and financed the LWfG farm of Hämeenkoski (region Häme). However, this authority has no support from the Ministry of neither the Environment nor a legal action plan.

While financing this second LIFE project, Ministry of the Environment insists WWF Finland to figure out an action plan for LWfG. AEWA too, launched preparations for the international action plan April 2005 in an international seminar in Lammi, Finland. Since it is important for a national action plan to follow an international one, the Finnish action plan cannot be immediately carried out. If the scientific community will accept the new results regarding the gene pole of the captive LWfG stock, which have been presented in Xanten, it will be easy to combine the efforts to save the Norwegian population and restock a new population into Finnish Lapland. The public profit responsibility of the used funds will not be ensured until the LWfG has been returned into Finnish nature.

## International agreements guiding the protection of the LWfG

Antti Haapanen

Finland has joined several international agreements obliging Finland to protect biological diversity, in particular threatened migratory birds. Among these agreements I like to mention the following, the complete text of which is easily found in the Internet.

- The Convention on the Conservation of European Wildlife and Natural Habitats, known as the Bern agreement.
- The Convention on Biological Diversity.
- The Convention of the Conservation of Migratory Species of Wild Animals known as the Bonn agreement
- The African-Eurasian Water bird Agreement, AEWA. This is a detailed agreement under the general framework of the Bonn agreement.

As a member of the European Union, Finland also has accepted to fulfill the obligations expressed in the Union's Nature and Bird Directives. The common feature of all these agreements is, that they oblige Finland to maintain a positive conservation status for natural species. The wording may vary slightly.

The obligation expressed in these agreements is also expressed in Finnish national legislation, in particular in the Finnish law on Nature Conservation (Suomen luonnonsuojelulaki). In 5 §:n 3 of this law the concept of a positive conservation status is defined explicitly. By this definition, the status is positive, when a species can maintain a viable population in is natural habitat in the long run. By 5 §n 1 of the same law, if a species does not have a positive conservation status, efforts must be made to reach a positive status.

Our international obligations make it very clear that the government must actively protect threatened migratory birds. The African-Eurasian Water bird Agreement (Section III) obliges all partners - meaning the countries who have ratified the agreement - to jointly develop actions enhancing this protection. The Convention on Biological Diversity (in section 9) makes it mandatory to maintain captive populations of species immediately threatened or already extinct in the wild. The Lesser White-fronted Goose is exactly a species of this kind.

In Finland, the Ministry of the Environment is responsible for these obligations, both national and international. Unfortunately, the Ministry seems not to have done anything significant in order to support the (re-) establishing of a viable LWfG population in Finland - neither in the wild nor in captivity, although the need for such actions has been pointed out several times.

The Friends of the Lesser White fronted Goose watch the situation closely. We have repeatedly directed the attention of the Ministry to the urgent needs of the species. The present conservation status of the Lesser White fronted Goose needs immediate action, not just monitoring and studies. The current draft for Finland's future so-called "Action plan for the protection of the Lesser White fronted Goose" makes it evident that no action is planned. This is tragic, since active protection measures become more and more costly and hazardous each year that is lost in waiting.

The Friends of the Lesser White fronted Goose continue to maintain and to enhance our readiness to enter in an active reintroduction process. It is absurd and illegal that this obligation of the government is completely left to be fulfilled by a private association, our co operators and financial sponsors.

## Justice in Muonio

Matti Forstén

On September 9:th 2005, the Regional Court "Lapin käräjäoikeus" in Muonio, Finland, made a decision on the legal status of the current reintroduction program, in particular on releasing LWfG from the Finnish breeding stock into nature in Finland. The decision took away the charges against Pentti Alho that the introduced LWfG can be considered as a way to establish a population of alien species or subspecies; which is illegal in Finland (and in many other countries).

The Ministry of the Environment on whose request the issue was taken up by the court did not appeal against the decision in a higher court but accepted it and also paid the costs of the trial. Therefore, the decision is final and confirms the interpretation that breeding LWfG for restocking and releasing them into nature is legal as long as sufficient precautions against foreign species introgression are taken.

Informally, all court members also welcomed continued activity for reintroducing the LWfG in Finland. The Friends of the LWfG expect the Ministry to act coherently.

## Breeding LWfG in Finland

Pentti Alho

*Breeding LWfG in Finland has a long and colorful history. Today, the future looks bright but one should not underestimate the problems. We describe our experience and plan for the future.*

### This has happened until now:

On the initiative of WWF Finland, breeding Lesser White-fronted Geese was begun in 1986 on the island Hailuoto and three years later on our farm in Hämeenkoski, today housing about one third of the world's captive LWfG. Constantly on-going construction work has fundamentally improved all farm facilities during our 20 operation years. Now there are separate breeding compartments for each pair and two winter halls for two independent flocks.

In 1998, while searching for differences in mitochondrial DNA in Lesser White-fronted Geese from different localities, Jaakko Lumme and Minna Ruokonen studied birds from Hailuoto. They discovered some haplotypes similar to those of the White-fronted Goose (*A. albifrons)*, and unfortunately misinterpreted this as hybridization between the two species. This gave WWF Finland the perfect excuse to interrupt their reintroduction program, which had already failed, because no Swedish style foster parent system was used. So WWF simply abandoned Finland's only breeding LWfG population with no attempt to test or replace the birds in Hämeenkoski. Finland would have lost both our only breeding LWfG population and the farm facilities if private persons had not interfered when public conservation gave up. Our birds were not gene tested by Ruokonen, but an independent inspection was arranged. The test report contained a recommendation to use some birds for restocking and keep the others alive as well. Later, in 2007 Michael Wink corrected the interpretation made by Ruokonen and Lumme. The suspect mitochondria were not the result of hybridization but of common origin of the two species. The recommendation to keep all LWfG alive in spite of the costs had turned out to be very wise.

Both theory and experience have taught us that reintroduction of the LWfG must build on the foster parent method. Since privatization of the breeding project, this is taken into account and test releases of both species have been made. Satellite tagging is used in trying to find out the exact migration routes of foster parent Barnacle Geese released in the north part of our country. Actually LWfG goslings are too valuable to be used in tests but we have released a few anyway. Encouragingly, one of them was observed in the Netherlands, just like planned.

In general, captivity is where LWfG multiply fastest. But there are risks. A serious one became reality in the late evening of Nov. 30:th 2005, when extreme weather caused a collapse of the main cages and more than 50 LWfG (40% of the population; more than six year's yield) were lost (Report in this Bulletin).

## The next steps:

According to the reintroduction guidelines which the IUCN has published in order to facilitate this sort of difficult projects (See http://www.iucn.org/themes/ssc/pubs/policy/reinte.htm ) best available, preferably original genetic material should be used. The captive population consists of birds caught in Russia and recent research confirms their great similarity with what remains of the original European LWfG. There also exists a plan to import some 30 LWfG from Russia for breeding. These are much too few to become a sound founder population. By Minna Ruokonen at least 150 would be needed to secure sufficient genetic diversity. Beginning with 30 individuals, it has been calculated to take 20 years to build up a new captive population of current size. (See the paper in this Bulletin.)

There are two fundamental reasons why to breed threatened animals in captivity. For the first, we must have an ultimate reserve where the species can survive in the case that the wild population dies out completely. Today birds in commercial zoos form the reserve for many species; Helsinki Zoo has five LWfG. The second reason is restocking or reintroduction in nature. For such purposes large facilities like our LWfG breeding site in Hämeenkoski are necessary. From the breeding results and mortality of both captive and free birds one can calculate the minimum size of the initial captive population which is needed to be able to set free 20 individuals annually during 10 years, say, and how many would live in freedom as a result. Afterwards, a viable population should remain in captivity as well. Fig. 1 displays the result of one such calculation.

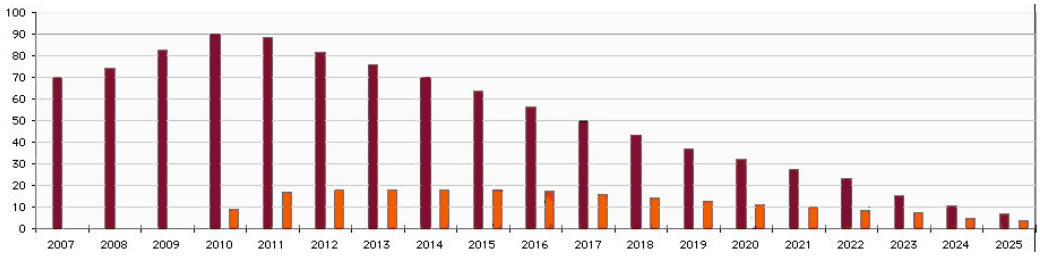



**Fig. 1. One recommended scenario for the breeding station**

The high, dark pillars represent the number of captive birds if we begin with 70 this year. The lower pillars represent released goslings, setting as strategy to release 18 annually beginning with 9 in 2010. The chart makes it clear that the captive donor population is too small to sustain the release of so many goslings. Already 2017 less than 18 goslings would hatch, and according to the strategy all would be released. Releasing all goslings would stop renewal of the captive flock. Finally, less than 10 parent geese would be left. We can ask the question, would such a project be sufficient for creating a free living population of 250 individuals in Finland? Fig. 2. gives the answer, if conditions are similar in Sweden and Finland.

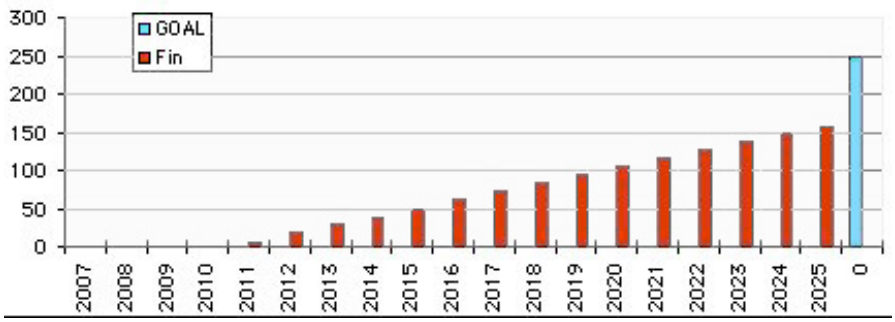



**Fig. 2. The same scenario for the free-living LWfG in Finland.**

The goal of the Friends of the LWfG is 250 free living individuals counted in spring. Only 60 % of this would be reached. Of course, changes in the breeding and release system might make things go better, but there is no reason to believe in substantial improvements. The only realistic way is to begin with a larger founder population: 117 in 2007 would be enough to reach the goal. We do have the capacity to keep such a flock alive and productive. But there is nowhere we could buy enough goslings to start with. In the coming years most available LWfG goslings in the World will be needed for the Swedish project. After the test flights with LWFG following ultra light planes are done and the Swedish project enters the evaluation phase, we will hopefully have a chance to purchase Swedish or German surplus goslings. That is not until 2012! Massive import from Russia is unthinkable, since it would damage the donor population.

Breeding LWfG must and will go on in Hämeenkoski. For best results and continuity, not only new birds but also new staff is needed. To share risks, re-activating the old breeding station on Hailuoto or building a completely new one should be considered in addition. All this costs money and time. Importing LWfG eggs from Germany now would be wise, since it could shorten the duration of the Finnish reintroduction project by a decade or more.

## Give them NOKIA telephones

Lauri Kahanpää

*Satellite monitoring of one free flying goose costs more than 1000 ¤ each year. For birds flying over the ocean or over large deserts, there probably is no choice, but most birds - including our geese, spend most of their time in areas where there are people also - in particular people carrying mobile phones. So why not give the geese telephones, call them and find out where they are.*

In spite of all the progress in camera technology reading color rings and neckbands must be done at close range and only when there is somebody around who is interested in reading and reporting. Electronic tagging is a way out. There are a few different methods. A local bird could be tagged with a simple transmitter whose signal a hand-held direction antenna could hear. For migrating birds like geese the idea must be modified: Classical ARGOS- type satellites calculate the position of a transmitter from the Doppler effect when flying over. Today, the transmitters are equipped with GPS-devices, and can tell the satellites exactly where they are. Unfortunately the satellite service costs money - a lot.

But hey, there exists earth bound electronic positioning: each cellular phone is positioned all the time: that's why it is called cellular! So why not replace the satellite transmitter by a standard GSM-transmitter costing just a few euros. Or buy a second hand phone for one single

euro, save energy by programming it to call the base station only once a day, then rip off the keyboard, microphone, screen, ... yes, everything except the battery and the transmitter. Calls are free, if nobody answers! Hurrah!

Well, this splendid idea - born at a meeting with Friends - is not novel; somebody else has invented the wheel before us. ;-( or, ... , maybe ... :-) ! There might exist ready packaged devices on the Market. After all, the modification of telephones would have been an awkward job anyway. So, Google!

Yes, the positioning telephones exist. Sure they do. I have called a dozen manufacturers and users. Patients of the Alzheimer clinic already carry transmitters in their pockets, and moose hunters find their dog in the dark forest, since the dog has both GPS and GSM baked in his neckband. "Just call your dog and pick his position up from the map that appears on your mobile phone screen." Unfortunately the dog's transmitter is too heavy for a goose, and the battery too short lived. So forget the market and call the biologists! Science rules!

Africa - that's where Wildlife is monitored. And yes, in Kenya the system is used - for elephants. The ready-made necklace must weigh a ton or something... Until today I have not found a GSM transmitter weighing less than 100 g. And an LWfG can carry no more than 30g. What a pity. Help me, NOKIA!

Back to the Google hit list. I almost missed this: Professor Douglas Robinson at Oregon State University seems to have had a similar problem. He'd like to monitor birds the size of an American robin, migrating all the way to the Amazonas, or who knows where. On his home page I read: "*I saw that there was this big unsolved mystery in biology of where birds go, where they spend their lives. I realized what we needed was a continental network of antennas. That's what we have with the cellular network.*" OSU: s electronics specialist Dr. Huaping Liu has already designed what Robinson needs: a transmitter weighing no more than 0.07 ounces -two grams. Now they should be testing the device. Later it will be mass-produced in thousands. It can be hidden among the feathers or fastened on a leg sock. So could we go shopping in Oregon? Yes, we could, but we won't. Blaah! The phones they use in the USA are no GSM: s. They have a different mobile phone system. The systems are not compatible.

**I call you or you call me? Who? Me?**

Back to the old continent. – Africa! Did they use any lightweight device after all? A Cheetah's GPS-necklace is about three millimeters thin.... It's time to call professor van Hoven in Pretoria!

# The Friends of the Lesser White-fronted Goose

## We survived the Blizzard

Lauri Kahanpää and Jyrki Patomäki

*In spring 2005, by the time of the LWfG Conferences in Lammi, breeding LWfG in nearby Hämeenkoski was going well: Our decade-long construction work had reached its final phase, and the number of the LWfG had reached an all time high of 133 individuals. We thought we could now focus on taking care of the birds and preparing for re-introduction proper. But things did not go that way. Not at all.*

By the end of November, the sun sets around 15.30. Normally, there would be fine weather with a few degrees below zero C, or it could be cloudy with some light snowfall, or perhaps a whole day's fog and drizzling rain. Nov 30 2005 was not normal in Hämeenkoski. A thunderstorm struck the area, and lasted for five hours. The rain came down in the form of wet snow, and in half an hour falling trees and the electric blocked the road to the farm and phone lines were broken. Much worse, the snow masses fastened on the roof construction over the main cage, where the LWfG flock was spending the long night. For hours, Pentti Alho shook the nets to free them from the weight but no human could prevent the inevitable: at eleven o clock in the night the construction collapsed and the 1500 m^2 roof net was torn into pieces. By then, one Friend, Jussi Vilén had made it through the snow to the farm, and could help Pentti to rescue the geese. Some of them were caught under the falling nets and were now drowning in the snow. Others were standing in the open with only the storm and darkness preventing them from flying away. Before dawn Pentti and Jussi managed to cut a large hole into the net, which separates the catastrophe area from Breeding Compartment Area B, which still was relatively intact. Soon some LWfG went in – and others followed. Pentti and Jussi

collected survivors under the broken constructions. Some geese were found in a winter hall – alive. All our three winter halls were intact.

The day after the catastrophe, a neighbour caught one LWfG. Another goose returned spontaneously to the flock. The rest were never seen although all are colour ringed. (Actually one goose miraculously returned one month later – walking, not able to fly)

The Friend's Board estimated the damage to more than 10 000 € in material plus 1000 volunteer construction work hours. What hurt us most was the set-back of 6-10 years in LWfG breeding. Giving up was an option, but the decision was made to continue as long as there is hope.

**Fig.1. The winter pool inside the damaged area**

Just clearing the rubbish took our team two weekends. Reconstructing buildings in mid winter was difficult. We had to dig in the frozen earth, shovel away lots of snow every weekend before continuing last Sunday's job, melt frozen piping etc. Following the advise of Helsinki Zoo, the main textile roof net (price 8 000 €) was replaced by a metal net, and we divided the main cage into compartments which could be reconstructed one by one.

**Fig. 2. Swimming water after another cold night**

In March we reached the first milestone: 30 % of the roof was up, and at last the geese had access to their pool again: In the mean time Pentti had daily brought them fresh swimming water in buckets: the next day it was dirty and frozen. At last the two halves of the survivor flock were united again, just in time before breeding season. Many geese had lost their partner, most of the surviving were young birds. Few pairs remained. At least those were united again. Not many goslings would hatch 2006. They would not even compensate for the mortality after the catastrophe. The need to import more is evident.

**Fig.3. -4. New walls 200 m and new roofs over 2000 $m^2$.**

After a moderately successful breeding period, construction continued in August, and during the following autumn and winter we built up the whole system again, reinforcing the roof constructions with a kilometer of metal wires. 2007 all breeding compartments were in use again, and production was reaching a normal level.

**Fig 5. The AVANT 220 installing piping and electricity for Hall 3**

When the worst damage war repaired, the entire maintenance job that had been postponed to the years after reconstruction had to be done - 20 m^3 dirty sand had to be replaced etc. Pentti Alho is still daily taking care of Finland's LWfG – without being paid for the job. Volunteers continue to help him, and recently the farm received an advanced technology AVANT 220 mini-loader, which has proven very useful both in the daily feeding and cleaning as in various construction and maintenance work. Now doors have to be broadened for the machine, and a garage is under construction. Today we can say, we managed to do it: Finland's LWfG survived – again!

## Plans and possibilities for the Friends

Antti Haapanen, Lauri Kahanpää and Erkki Kellomäki

**Reducing mortality of *A. erythropus*.** To the remaining wild *A. erythropus* population in Scandinavia and European Russia, the main threat is excess hunting along their migratory routes and in wintering areas. An effective control of hunting along the migration routes scattered all over Russia and other parts of the former Soviet Union would be desirable but is essentially impossible to achieve in a foreseeable future. This was already emphasized by the Russian hunter's organizations at their 2003 joint meeting with the Goose, Swan, and Duck Study Group of Northern Eurasia (RGG) in Olonets, Russia. Also S. Yerokhov's paper on Kazakhstan (this Bulletin) draws a very similar picture. The Friends of the Lesser White-fronted Goose will do all we can to promote setting up and implementing protection plans in Kazakhstan, Uzbekistan, Turkmenistan, Iran and Azerbaijan. Fortunately, many of our members speak Russian and some of us are citizens of these countries. But according to recent tagging results the main wintering areas may lie in Iraq and only one of us is fluent in Arabic.

The few European LWfG may face an unexpected threat in the future as the Netherlands are re-opening goose hunting and Sweden and Finland also are extending legal goose hunting. No localities where *A. erythropus* are observed should be opened for hunting!

**Re-introduction of *A. erythropus* in Finland.** Choosing the old, safe western migration route and wintering area for the reintroduced *A. erythropus* will essentially inhibit hunting losses of these birds and their offspring. No other way to achieve this is known. Two methods should be practiced: **The Barnacle Goose method** (already successful in Sweden), where *A. erythropus* goslings are released in the breeding area with migrating *B. leucopsis* foster parents who will guide them to the Netherlands. **The micro light aircraft method** (already tested in Sweden), where *A. erythropus* from breeding centers are imprinted on micro light aircraft. Guided by these they migrate along the Baltic coast to the lower Rhine, Germany, for wintering. Guiding geese with micro light aircraft from Lapland to Germany will also rise public interest, because inhabited areas have to be crossed. This offers a good opportunity to inform the public about the threats facing arctic geese.

**Research.** Observations of all Lesser White-fronted Geese, both natural and re-introduced, are necessary for optimizing protection. Continued intensive monitoring in the breeding areas both in Norway and in Sweden is fortunately taken care of by other organizations. The Friends of the Lesser White-fronted Goose will further promote and participate in research concerning the geese breeding in Siberia as well as further clarifying their migration pattern. Half of the global *A. erythropus* population migrates from the Siberian tundra through the Caspian Sea countries and probably winters scattered to various sites in the Middle East. Electronic tagging can help clarifying the complicated migration patterns and reasons for mortality. When full scale reintroduction is resumed, it will be necessary to follow the new birds. As a wide range of unoccupied potential breeding areas exist in Northern Fennoscandia, electronic tagging provides the only possibility to do this effectively, in particular in spring, when the birds return.

## Frequently Asked Questions

**Couldn't we just remove the threats?**

- No changes in hunting along migration routes in Russia can be expected in an overseeable future. Protecting the species is impossible, since LWfG are look-alikes of the Greater White-fronted Goose. Protecting wintering places is impossible for the same reason - also yearly variations in humidity force the geese to vary wintering lakes, so there seemingly exists no particular LWfG-place to protect.

**Why are the Greater White-fronts doing better?**

- Most of them winter in Western Europe.

**Why the hurry?**

- The optimal time to start restocking passed already. Prolonging the interruption will lead to a higher risk of losing one or both of the Scandinavian populations. Both are small, and (in contrast to birds of prey) geese are flock birds, having surplus mortality when their number goes down. (A similar effect as with the Passenger Pigeon!)
- The limit amount of recoverable "wild" genes decreases year by year.
- The captive stock produces surprisingly few offspring, so any reintroduction process will necessarily be extended over a decade, at least. And each year has its risks for the captive population as well, as is demonstrated by the catastrophe that hit Hämeenkoski in 2005 when half of the breeding pairs were lost through bad weather in a matter of a few hours.

**Why don't we restock with original birds?**

- We use best available birds, tested for similarity with those in Norway, where no birds are available for catching any more (or yet? Should all be caught?). In Russia up to 30 LWfG will be caught for inclusion in the captive population.
- Also, increased genetic variability is beneficial for the birds. Variability is the material for evolution.
- Starting breeding from scratch would take too long time to produce the goslings needed. (See the paper on calculations.)
- In contrast to other recent reintroductions, here the birds are gene tested and approved for suitability.

**Is it ethical to manipulate the natural behaviour of free-living birds?**

- Yes, since similar changes are happen naturally all the time. But in the case of the LWfG we need not even worry: recent studies have revealed that the South-Western migration route is not new at all. We are choosing for the reintroduced birds the better natural traditional route which was currently almost - but not completely - forgotten by the geese. The unethical manipulation was done long ago by over hunting on the Western route. Now we repair the damage.

**Why care for Europe? Are there not enough LWfG in Siberia?**

- We care for both, but every country should primarily take care of their own biodiversity. Also, the methods used will not work well in farther East, where flying over dangerous territory is inevitable. (We also love to see them here!)

**Will we follow the IUCN recommendations?**

- Yes.

**Do we compete with other projects for the money?**

- No. The Friends of the Lesser White-fronted Geese always prefer cooperation to rivalry.

**How can you support the Projects**

- Depends on Your skills and home area. Volunteers are welcome - material support also!

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