

Monitoring of the Lesser White-fronted Goose in the Lake Tisza region, Hungary (2013-2016)

Hortobágy Environmental Association



(Photo: Sándor Borza)



Balmazújváros, 2016

1. Introduction

1.1 Introduction of the species

The Lesser White-fronted Goose (LWfG) (*Anser erythropus*) is a palearctic species breeding in the arctic tundra areas over the Arctic Circle. The species has three different breeding areas: (1) Northern Scandinavia, (2) Jamal and Tajmir peninsulas, (3) tundra areas of Eastern Siberia (Ecsedi et al. 2004). The global population of the species is an estimated 20 000-25 000 individuals, from which about 8000-10 000 individuals are breeding in the Western Palearctic (Bogyó et al. 2014). The LWfG is a vulnerable species with a declining population trend all over the world. The protection of the species has an international importance, because of the long distance migration route. The protection of the species is difficult, because the staging and wintering areas during migration are not well known (Bogyó et al. 2014).

1.2 International conventions, international and national legal status

- IUCN Red List: globally threatened, vulnerable(category) (BirdLife International 2012)
- Species of European Conservation Concern Category SPEC: SPEC1 (Tucker et al. 1994)
- Bird Directive of the European Union: (Directive 2009/147/EC - „Conservation of wild birds” Appendix I.) LWfG is a strictly protected species in Hungary, with a value of 1 000 000 HUF (Bogyó et al. 2014). The species is listed in the Standard Data Form of multiple Hungarian SPA's (www.termeszetvedelem.hu).

1.3 Current status of the Fennoscandian LWfG population

The LWfG population breeding in Scandinavia and the Kola peninsula is estimated at 20-25 breeding pairs (Bogyó et al. 2014). From the estimated 10 000 individuals in the early 20th century this population declined very rapidly until the recent years. In 1992 the estimated breeding population was 50 pairs. The last breeding of the wild population in Sweden was observed in 1991, while in 1995 in Finland. The last breeding area of the wild population exists in the northernmost region of Norway (Bogyó et al. 2014).

1.4 Current status of the LWfG in Hungary

The LWfG is a regular migratory species with low number of individuals in Hungary. During migration, the Fennoscandian population visits the most important Hungarian staging area, the Hortobágy region. On the other hand, individuals from the Western Main Population also regularly migrate through Hungary, mixed with Greater White-fronted Geese (*Anser albifrons*) (MME NB 2008).

During the autumn migration, the LWfG is the first migrating geese species arriving to Hungary. The individuals from the Fennoscandian population usually arrive at the second half of September to the well known sites of Hortobágy. The migration peak is around the 10th and 15th of October. The first individuals from the Western Main Population arrive in November (Kovács & Tar 2004). During mild winters, LWfG individuals are usually observed in mixed flocks with Greater White-fronted Geese. These birds are mainly originated – according to our current knowledge - from the Western Main Population. Most of the time single birds are observed, rarely pairs, more rarely families (MME NB 2008). The arrival of the individuals from the Western Main Population cannot be clearly separated from the possibly overwintering other individuals. The LWfG from the Western Main Population usually arrive with the big Siberian flocks of Greater White-fronted Geese and leave Hungary when those are leaving, usually in mid-March or at the end of March (Bogyó et al. 2014).

The individuals from the Fennoscandian population arrive around the 20th of March to Hortobágy, where they stay until mid-April. Sometimes few individuals stay until the end of April or at the beginning of May (Bogyó et al. 2014).

In the first half of the 20th century, the species was a frequent and common migrating goose in Hungary, but mainly due to the intensive hunting, the number of the staging birds started to decline (Sterbetz 1982). According to Sterbetz (1982) back then, the estimated rate of the LWfG was 5-10% compared to all geese shot in the area. During the 1930's thousands of LWfG used the Hortobágy as a staging area. The decline of the population size is originated from that period due to the intensive and growing hunting activity in the Hortobágy area and other Hungarian areas, as well as in South East Europe. We do not have reliable data from the period of the World War II, however the decline should be similar compared to the data from Scandinavia (Bogyó et al. 2014).

Some data from 1950 to 1974 mentioned in Hungarian references could not be accepted as valid, because of the excessive flock sizes (thousands). Reliable and systematic monitoring is carried out from about 1990 (Kovács & Tar 2004). From 1998 the flock sizes in the Hortobágy decreased to 30-54 individuals, showing a slight increase only recently (60-131 individuals) (Bogyó et al. 2014, www.piskulka.net).

1.5 Habitat, behavior

The LWfG is using alkalic steppe grassland habitats (*Festucion pseudovinae*) during their stay in the Carpathian basin. The strong connection between the species and this type of short-grassed steppe grassland explains the more frequent observations in Eastern Hungary, where this type of grassland is mainly presented (Sterbetz 1968, Sterbetz 1978). The LWfG is feeding in smaller areas, than other geese. The Fennoscandian population is moving in a single homogenous flock (Lengyel et al. 2012). According to Sterbetz (1978) in Hortobágy, Biharugra and Kardoskút areas they feed within a circle of 5-6 km, however in early Spring, or wet Autumn – if the young, fresh grass is more frequent – it is also happening that they feed on the shore of their sleeping areas (deeper water bodies). According to Kovács and Tar (2004) the LWfG in Hortobágy prefers the drained fishpond beds which are situated nearby to short-grazed, fresh alkalic grasslands and alkalic wetlands with „fresh green shorelines”. Based on recent studies, the LWfG is connected to natural habitats more strongly than other goose species (Valkó et al. 2014). However, specimens or small flocks of the Western Main Population mixed with the bigger flocks of the Greater White-fronted Geese are moving with those together to their feeding grounds. Because of this opportunistic habit, the LWfG specimens of the Western Main Population are mainly observed in agricultural fields in Hungary (MME NB 2008).

The LWfG is feeding mainly on the following three habitat types in Hungary:

1. Short-grazed alkalic steppe grassland habitats
2. Sleeping and resting places with drained wetland beds – fresh sprouts of pioneer vegetation
3. Agricultural fields – sown areas and stubble-mulched areas

Recent studies proved that LWfG feeds more likely on the short-grazed alkalic grasslands dominated by *Festuca pseudovina*, where they especially prefer the lower, (wet) alkalic surfaces („szikfok”) with young sprouts of different grasses (Ecsedi Zoltán, Oláh János, Szilágyi Attila, Tar János and Zalai Tamás, ex verb).

1.6 Main threats

1.6.1 Hunting

A significant reason for the population decline of the LWfG in Eurasia was the excessive

hunting activity in Eastern Europe and in the Carpathian Basin. This activity had a maximum in the 1920's and 1930's. Only in the Hortobágy region, hundreds of LWfG individuals were shot annually, first of all during Autumn (Kovács & Tar 2004). A similar intensity of hunting is estimated in the other areas of the Great Hungarian Plain (e.g. Kiskunság, South-Alföld and Délvidék areas). The recent hunting activity is not comparable to the former ones. The hunting threatens mainly the mixed flocks of the LWfG (mainly from the Western Main Population) and the Greater White-fronted Geese. It would be necessary to investigate all of the special hunting permissions out of the hunting season (requested because of geese damage issues) - before they are given – from a nature protection point of view. Authorities should prefer alarming the geese in spite of giving special hunting permits to prevent geese damage (Bogyó et al. 2014).

1.6.2 Habitat transformation

The transformation of the original wetland habitats in the Carpathian Basin started in the 19th Century by the regulation and transformation of the big rivers because of flood prevention. These activities continued during the 20th Century with the large scale transformation and drainage of shallow lakes, ponds, pans and many other wetland types.

According to recent and former studies, the LWfG is strongly connected to the astatic wetland habitats and the adjacent alkalic steppe habitats during their stay in the Carpathian Basin (Sterbetz 1978, Sterbetz 1990). The wetland habitat transformations mentioned above affected mainly these habitat types (Kovács & Tar 2004). These kinds of astatic wetlands and adjacent alkalic steppes, which were presented all over the Great Hungarian Plain, were heavily grazed until the World War I. After this period, the grazing intensity declined and together with the wetland transformations the habitats slowly altered: the drier areas transformed to dry steppe areas, while the wetlands disappeared or transformed to more uniform marshes.

From the perspective of the LWfG it means, that the surface of the former (opened) wetland habitats decreased, while the height of the grasses in the drier grasslands grew, while the surface of the special lower alkalic surfaces („szikfok”) also decreased (Bogyó et al. 2014).

2. Materials & Methods

We carried out a survey for the wintering LWfG in the Lake Tisza region between 2013 and 2016. This monitoring was part of the „Safeguarding the LWfG Fennoscandian population in key wintering and staging sites within the European flyway” (LIFE10 NAT/GR/000638) LIFE+ project, which is coordinated by the Hortobágy National Park Directorate in Hungary. In 2013, the Hortobágy Environmental Association applied successfully to carry out this survey.

2.1 Study area

The study area consists of two parts: (1) Lake Tisza such as roosting place, and (2) the surrounding agricultural fields (mainly plows, grasslands) such as feeding place for the geese.

2.1.1 Lake Tisza

The Lake Tisza – or as it is officially called: Kiskörei water reservoir – is the second biggest lake of Hungary, with an artificial origin. It is located in western direction from the Hortobágy National Park (about 30 kilometres). The idea of the construction of the water reservoir went back in the 1960's. The primary aim of the construction was to prevent floods in the surrounding area during the control of the extra amount of water by regular floods. The secondary aim was to support the water supply of the adjacent agricultural fields, because the Közép-Tisza area is one of the driest regions of Hungary. The third aim was to create a hydroelectric power plant near to Kisköre on the Tisza river (www.hnp.hu).

The original area of the reservoir was a mosaic landscape with rich flora and fauna (floodplain forests, meadows and arable fields). These habitats were destroyed in order to fill up the bed of the water reservoir. The forests were cut and an artificial lakebed was created. The soil was transported to build the dams of the reservoir as well as to build the main road no. 33.

Nowadays stumps can be found as the signs of the former forests. These stumps make the shipping and sailing relatively dangerous. On the other hand, the stumps offer excellent places for waterbirds to rest or dry their feathers. After the lakebed was created, it was flooded first in 1973 and later in 1978 and the water-level was set to the recent level. The surface of the reservoir is 127 km² and its length is 27 km. The largest width of the reservoir is 6,6 km between the settlements of Poroszló and Tiszafüred, while the smallest width is measured between Tiszaderzs and Tiszánána (Dinnyéshát) (0,6 km). The average water-depth of the Lake Tisza is 1,3 m, however at particular areas it varies between 0,8 and 3 m. The water-level is influenced by the operation of Kisköre hydroelectric power plant, which has a major role in causing the difference between winter and summer water-levels. This seasonal difference can reach the level of 1.5 m. The Lake Tisza has 5 different bays which are clearly separated from each other (www.hnp.hu).

The area of the Lake Tisza is a property of The Hungarian State and managed by the Hortobágy National Park Directorate as a nature conservation management body. The main part of the area of the lake is divided into a Northern and a Southern protected area. The Northern protected area is about 3400 ha (Tiszafüred Ornithological Reserve), situated in the TiszaTiszavalki bay. This protected area was established in 1972 as a Nature Protection Area, while from 1993 it belongs to the Hortobágy National Park. The main role of this area is the protection of the breeding birds as well as the protection of some outstanding habitats (for example: Háromág, Hordód and Nagymorotva areas). The Southern protected area is about 3600 ha, situated in the Poroszlói and Sarudi bays. This area is the part of the Hortobágy National Park since 1996. The main role of this area is to protect some outstanding examples of the Tisza river's oxbows, such as the Csapói or the Óhalászi Holt-Tisza oxbows. These protected areas are strictly regulated by the nature protection and fishing authorities as well as by the water police. These protected areas are the parts of the Ramsar Site „Hortobágy” and they are also part of the UNESCO World Heritage Site (Hortobágy National Park, the „Puszták”) (www.hnp.hu).

2.1.2 Hevesi Fűves Puszták Landscape Protection Area

The Hevesi Fűves Puszták Landscape Protection Area is situated to the west from the Lake Tisza in the county of Heves. It is situated in 35 kilometres from the Hortobágy National Park. The land cover proportion of the typical habitats are: artificial/transformed habitats 70%, steppe grassland habitats with different levels of human alterations 30 %. This protected area is also a Natura 2000 site (SPA, code: HUBN10004) with the coverage of 77016 ha. The area is managed by the Bükk National Park Directorate. About 8200 ha is protected at national level (www.mme.hu).

The artificial/transformed habitats are represented by extensively used arable fields, poplar and black locust plantations, row of trees, alkaline steppe grasslands and marshes. From an agricultural perspective, the most important activities are the cultivation of different plant species and the grazing of cattle or sheep. The most important threats to natural habitats are the agricultural intensification, the land abandonment, the disturbance, the drought and the infrastructural development (www.mme.hu).

The main objective of nature protection in this area is to protect the favourable conservation status of the bird species listed in the Annex II of the Birds Directive. The most important priority species are: Imperial Eagle (*Aquila heliaca*), Great Bittern (*Botaurus stellaris*), Stone-Curlew (*Burhinus oedipnemus*), Montagu's Harrier (*Circus pygargus*), Roller (*Coracias garrulus*), Saker Falcon (*Falco cherrug*), Red-footed Falcon (*Falco tinnunculus*) (Standard Data Form). There are also geese

species listed here: LWfG (*Anser erythropus*), Greylag Geese (*Anser anser*), Bean Geese (*Anser fabalis*), Red-breasted Geese (*Branta ruficollis*) (SDF Data Form). According to the priorities of the Natura 2000 site a favourable ratio of different plant cultivations should be maintained in order to serve as a priority feeding habitat for migrating and wintering geese species.

2.2 Survey method

The field survey was carried out in seven geese migration periods (4 Spring and 3 Autumn periods) from 2013 to 2016. The seasons were: (1) synchronized count started after the arrival of the great geese flocks (around the 1st of November – *Autumn season*) and lasted to the freezing of the Lake Tisza, (2) *Spring season* started after the melting of the water in the reservoir and lasted to the disappearance of the great geese flocks in the area (around the end of March).

In the monitoring area we searched for the arriving geese flocks, counted the geese at species level and specified the possible threats. We focused on the species level determination and counting of the strictly protected geese species, especially the LWfG. The monitoring was carried out using telescopes (to avoid disturbance) in the Lake Tisza lakebed and the surrounding arable fields and grasslands. The monitoring was synchronized with the daily routine of the geese: in the morning and afternoon we searched for them in the feeding grounds, while during midday we searched for them in the reservoir.

We also carried out monitoring activity in March, April, September and October to find any overlap with the activity of the Fennoscandian population in the Lake Tisza region.

The number of the field surveys were 42 occasions in the monitoring period. We drove about 55-60 kilometres occasionally in the monitoring area, which followed the daily habits of the geese in the different habitats. In the monitoring period we had more than 2300 kilometres driving in the study area.

3. Results

3.1 Threats

We identified the following threats to staging/wintering geese flocks in the study area. We also provide an estimated priority level for all the threats identified.

3.1.1 Hunting activity

Importance: High

The decree no. 79/2004. (V.4.) by the Ministry of Agriculture and Rural development prescribes the restrictions (seasons, areas) of the geese hunting :

„Paragraph 27/A (2) The hunting season of the Bean Goose and the Greater White-fronted Goose in the counties of Hajdú-Bihar, Békés and Csongrád, as well as in a certain part of Jász-Nagykun-Szolnok county (east from the Tisza river) starts on the 1st of December and lasts until the 31st of January.”

Consequently, geese hunting at the western border of the Lake Tisza starts from the 1st of October (regular hunting season at other sites in Hungary). During our survey we regularly observed hunting activity in the study area. The highest number of hunting activity was observed at Poroszló and Sarud (2-3 times in the Autumn), while a lower number was observed (1-2 times) around Tiszanána. These were mainly single hunters or groups of 2-3 men. Bigger groups were observed only once.

Besides the lethal effect of regular (or with a purpose of geese damage prevention) hunting the other significant problem is the disturbance caused by hunters at the feeding grounds.

3.1.2 Fishing activity

Importance: Low

Fishing activity can be significant even before the lower winter water-level is set. Sometimes anglers are present in November and also in the beginning of December at the Lake Tisza. The presence of the anglers and their movements (by boat) are disturbing the geese flocks arriving for midday or evening rest. A few times we observed disturbance caused by anglers in the Sarud-bay, while once in the Poroszló and Tiszavalk bays.

3.1.3 Disturbance by White-tailed Eagle (*Haliaeetus albicilla*)

Importance: Low

White-tailed Eagle is a regular nesting species in the Lake Tisza area, represented by a small number of nests each year. During Autumn higher number of wintering individuals arrive to the area. A few times we observed White-tailed Eagles disturbing resting goose individuals mainly at midday or evening. It was also observed occasionally, that young Eagles disturbed geese at the feeding sites.

3.2 Dynamics of the goose population/migration in the study area

3.2.1 Spring, 2013

The official start of our monitoring activity was the start of the Spring (geese migration) season. Before that, in January we observed higher number of geese in the area, and also 4 individuals of LWfG were observed during a regular goose counting day. After this period, the number of geese fell in the Lake Tisza region and decreased until the end of the season. LWfG was not observed later in the study area.

3.2.2 Autumn season, 2013

Because of the very mild, unusual weather conditions, the number of the geese was very low in the region during the first half of Autumn. The abundance started to increase very slowly and only after mid November. At the end of November, the number of the Greater-white Fronted Geese started to increase very rapidly, reaching a peak in the middle of December. After the first days of freezing, all the geese left the study area and the region, too.

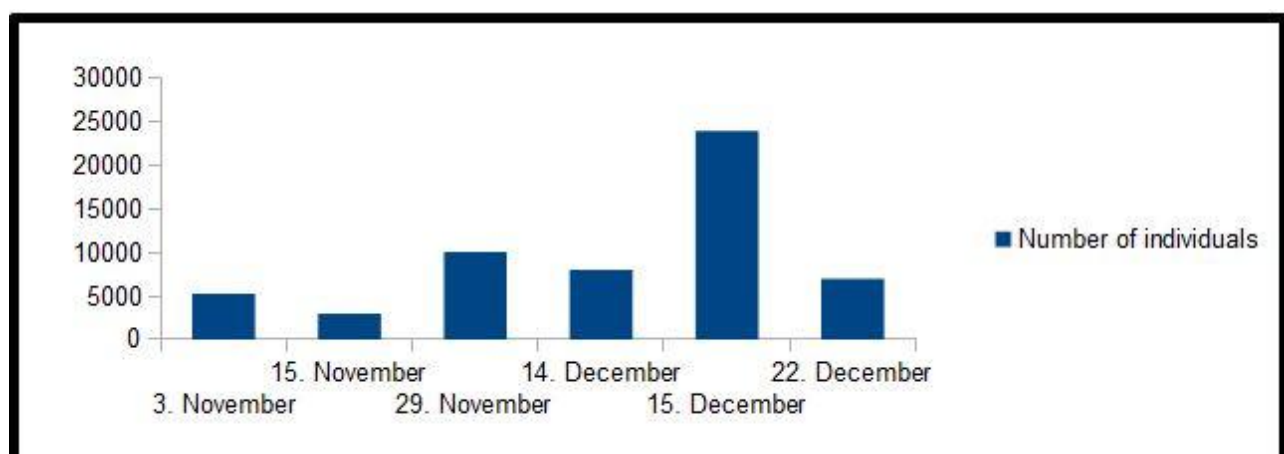


Figure 1. The total number of geese in the study area during the Autumn of 2013

3.2.3 Spring season, 2014

Synchronized counts lasted from the beginning of January until the middle of March. The total number of all goose in the study area was significantly lower than in Autumn. Bigger flocks of geese were observed only in the beginning of February and March. The dominant species was the Greylag Goose almost all along the season. They were present mainly in the Lake Tisza and were not observed in the arable fields and grasslands around the reservoir. The geese used mainly the TiszaTiszavalki and Sarud bays where we observed them during arrival for midday and evening resting.

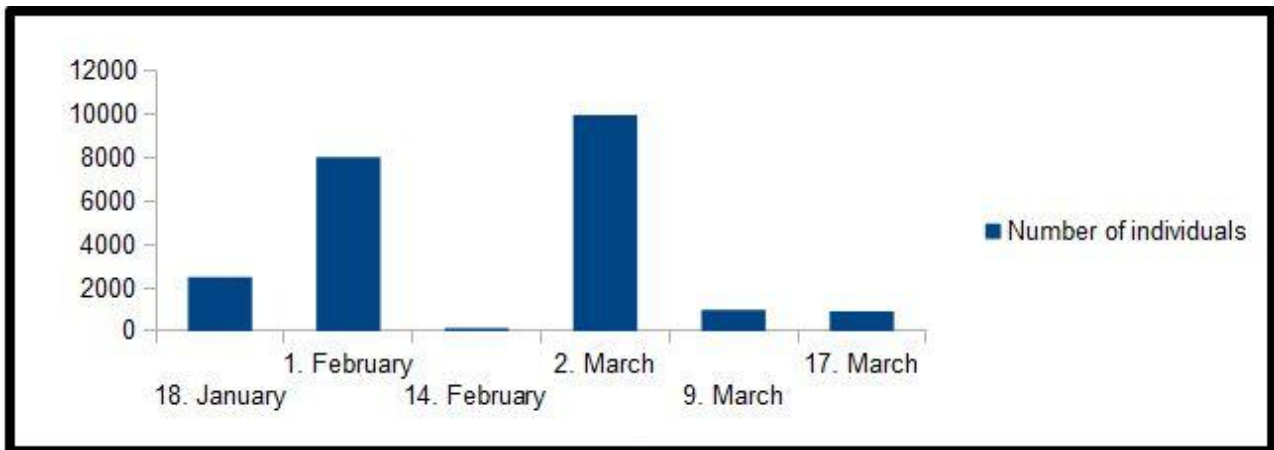


Figure 2. The total number of geese in the study area during the Spring of 2014

3.2.4 Autumn, 2014

We started the monitoring by the start of November. Because of the much more cooler weather huge goose flocks explosively arrived to the Carpathian basin and to the Lake Tisza area, too. The highest number of total individuals (ca. 25 000) feeding and resting in the area was observed in November. This was also the season with the highest number of geese in total. However, there was a strong fluctuation comparing the number of geese at different days of the monitoring. From the beginning of December, because of the milder weather, the total number of geese was ca 10-15 000 individuals, while it started to decrease with the first real frosty days.

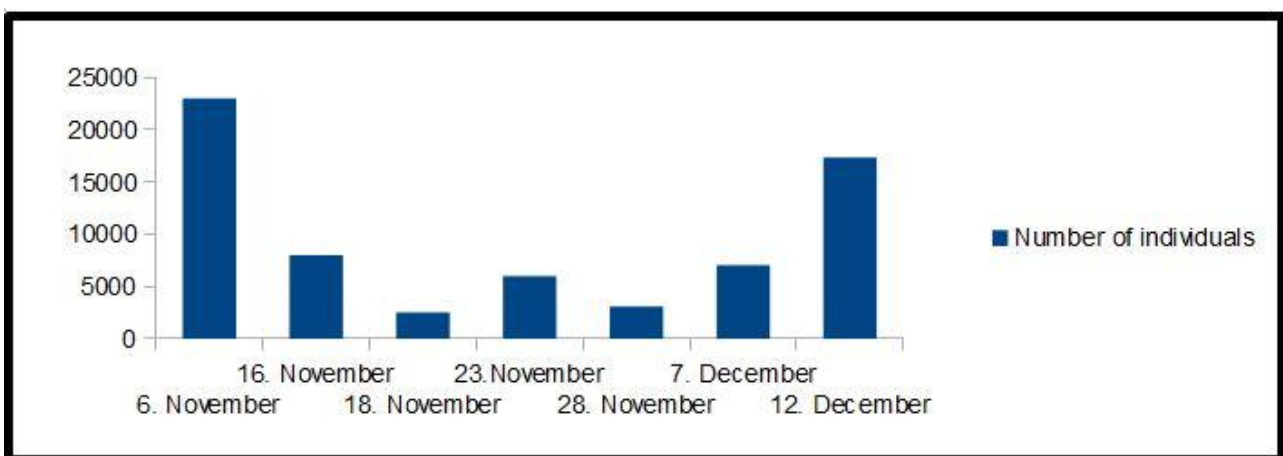


Figure 3. The total number of geese in the study area during the Autumn of 2014

3.2.5 Spring, 2015

The synchronized counts were carried out continuously from the beginning of January to the end of March. We observed geese mainly at the Lake Tisza, while they were not so frequently observed at the feeding sites. Bigger flocks of Greater White-fronted Geese were only observed during the first cold days of the year. This can be explained by some major ice free zones at the big water surface of the Lake Tisza. By the second half of January, together with milder weather, the geese left the area. During the counts at the 19th of January and the 2nd of February only Greylag Geese were observed in the study area. From the middle of February until the beginning of March we observed again an increasing number of geese at the Lake Tisza area.

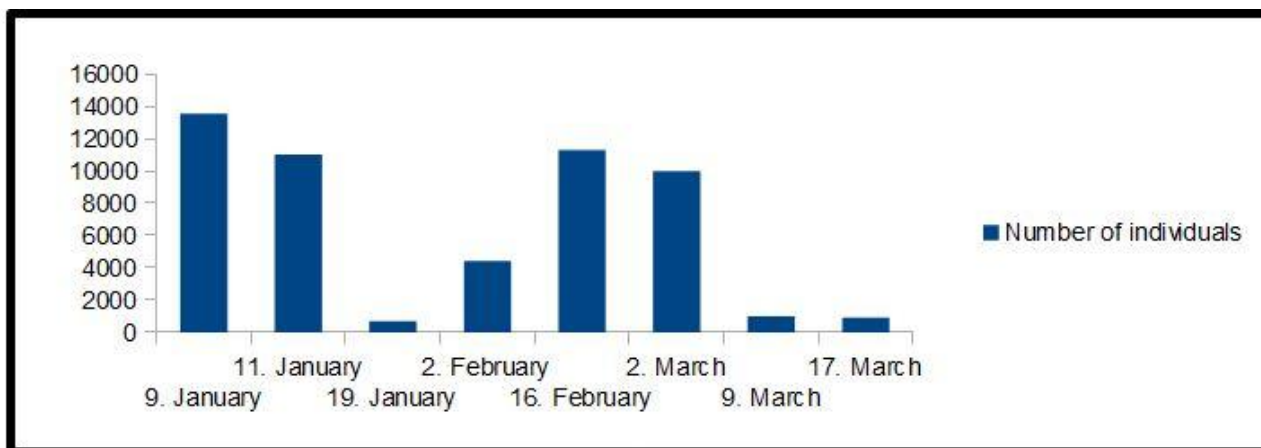


Figure 4. The total number of geese in the study area during the Spring of 2015

3.2.6 Autumn, 2015

We started the synchronized counts in October when the record number of Fennoscandian LWfG flock left the Hortobágy-fishponds and adjacent areas, in order to find them in this area. We have not found this particular flock in the Lake Tisza area. Later, the total number of geese was lower than in the previous years of our study. The first bigger Greater White-fronted Goose flocks only arrived by the middle of November, but in a very small number (few hundred individuals) compared to Greylag Geese. From the middle of November, there was a stronger influx of geese into the region (few thousand individuals), but it was also lower compared to the similar periods of the previous years. In December, only some tens of individuals of Greater White-fronted Goose remained in the study area. The reason of this phenomenon can be explained by the very mild Autumn and Winter weather and the wet Autumn, which provided ideal feeding conditions in the grassland areas (compared to the arable fields in this area). During December, the weather conditions (regular fog) were quite unfavourable for the observations.

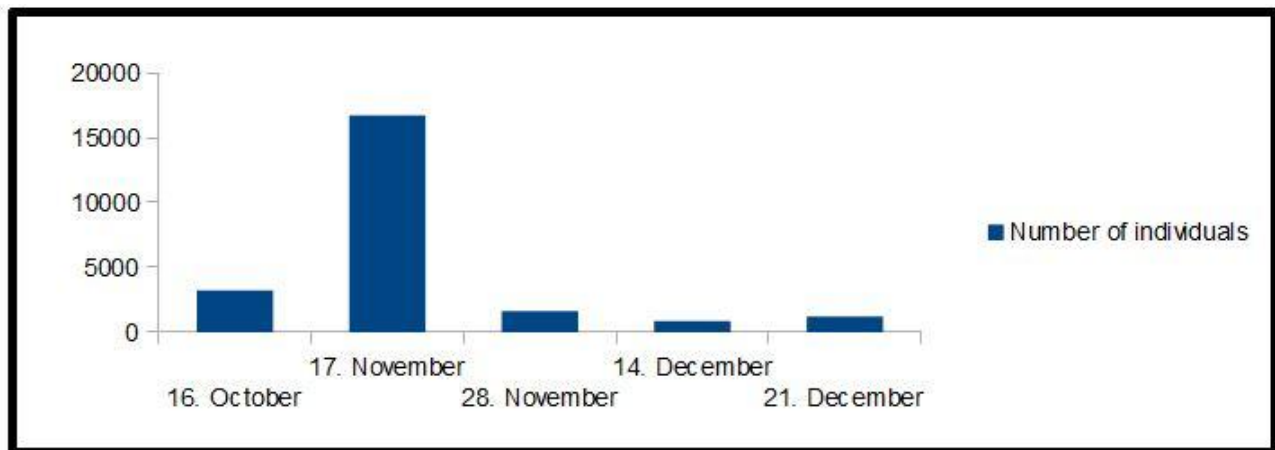


Figure 5. The total number of geese in the study area during the Autumn of 2015

3.2.7 Spring, 2016

Synchronized counts started by the beginning of the year and were carried out until the end of March. During April we also searched for geese at the feeding grounds and at the Lake Tisza. During January and February the weather was really mild like Spring. Bigger flocks of Greater White-fronted Geese were observed only at the end of February and in the middle of March in the study area. The peak number of total goose individuals was observed at the end of February (ca. 4000 individuals). This number is significantly lower compared to the similar periods of the previous years. From the middle of March, the number of Greater White-fronted Geese started to decrease rapidly and we observed only Greylag Geese during the April.

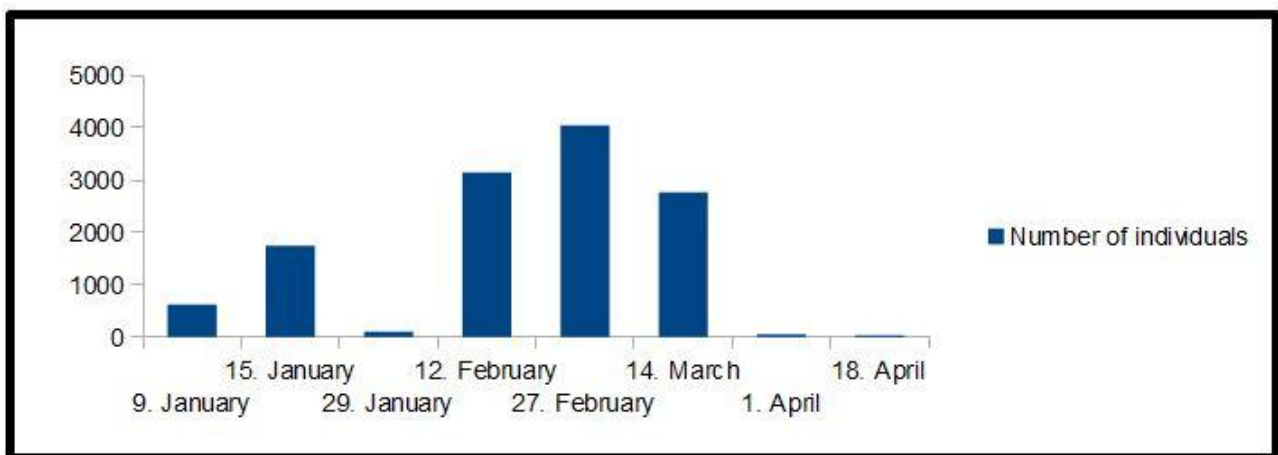


Figure 6. The total number of geese in the study area during the Spring of 2016

3.3 The presence of different goose species in the study area

3.3.1 Greater White-fronted Goose (*Anser albifrons*)

A frequent species during Autumn and Spring migration, also wintering in higher numbers during mild winters. The Lake Tisza is a well known resting place of the species during midday and evening/night. The huge grasslands and arable fields around the reservoir offer suitable, open feeding habitat for the species. The species arrives usually during November with thousands of individuals. The peak number of the Greater White-fronted Goose individuals is usually in

November and by the beginning of December, sometimes with a total number of 20 000– 25 000 individuals. The bigger flocks usually leave the area by the first frosty days during December. The presence of the species in January strongly depends on the weather conditions. If the weather is mild in this period, usually thousands of the species arrive to the area. From the middle of February until the beginning of March we observed increasing number of individuals during most of the seasons. However, from the beginning of March the number of the Greater White-fronted Goose individuals rapidly decreased, which usually resulted only a few hundreds of birds in mid March. It is important to note, that the strictly protected goose species (LWfG, Red-breasted Goose) occurred only mixed together in bigger flocks of Greater White-fronted Goose.

Feeding flocks of the species were observed mainly (80%) on different croplands. The Greater White-fronted Goose flocks mainly fed on the following crop species (the order of the crops represents the frequency of the observations - from the highest preference to the lowest one): winter wheat/barley, stubble mulched fields of sunflower/corn, rape. Greater White-fronted geese flocks feeding on grasslands were not observed often (20%).

3.3.2 Greylag Goose (*Anser anser*)

Beside the Greater White-fronted Goose, the second most common migratory and wintering goose species in the Lake Tisza area. We observed the flocks of the species mainly at the water surface of the reservoir itself. Sometimes we observed flocks of thousands of individuals (mainly in November and March) in the Tiszavalki and Poroszló bays. This bigger flocks (hundreds-thousands of individuals) are usually homogeneous, they rarely occur together with Greater White-fronted Geese. The Greylag Geese usually leave the area later than the Greater White-fronted Geese. In February the number of individuals usually decreases and only the breeding pairs stay in the area.

3.3.3 Bean goose (*Anser fabalis*)

During our counts the species was observed only occasionally, represented by single individuals or small flocks. They show up mainly with Greater White-fronted Geese, rarely together with Greylag Geese.

Observations during our study period:

- 29. November 2013. Sarud, Sarudi bay, 1 individual
- 25. December 2013. Poroszló, Ürgés-hát, 2 individuals
- 14. February 2014. Poroszló, Tiszavalki bay, 5 individuals
- 16 November 2014. Poroszló, Tiszavalki bay, 6 individuals
- 11 January 2015. Tiszanána, Ugari-földek, 1 individual

3.3.4 Red-breasted Goose (*Branta ruficollis*)

Sporadic migrant and wintering species in Hungary. During our counts – beside s the LWfG – we also focused on the Red-breasted Geese too. The species was observed mainly during Autumn seasons, together with Greater White-fronted Geese. A great influx of the species was observed during the Autumn of 2014 in the Carpathian basin, even a level of thousand individuals was reached. This time we also observed higher number of Red-breasted Geese individuals in the study area.

Observations during our study period:

- 29. November 2013. Sarud, Sarudi bay, 16 individuals
- 14. December 2013. Tiszanána, Ürgés-hát, 41 individuals
- 15. December 15. Poroszló, Ürgés-hát, 15 individuals; Sarud, 9 individuals; Tiszanána, Ürgés hát, 1

individual

22. December 2013. Poroszló, 7 individuals

23. December 2013. Sarud, Falualja 1 individual (Balla D., Zalai T.)

2. March 2014. Poroszló, Tiszavalki bay, 2 individuals

16. November 2014. Poroszló, Sóházi-canal, 6 individuals

7. December 2014. 7. Tiszanána, Daruhát-oldali Alsó-földek 59 individuals

12. December 2014. Sarud, Sarudi bay, 6 individuals

9 January 2015. Tiszanána, Pap-föld, 11 individuals, Sarud, Nánai-úti dűlő, 19 individuals, Sarud, Sarudi bay, 5 individuals

11 January 2015. Tiszanána, Ugari-földek, 1 individual; Poroszló, Kis-állás, 12 individuals

2. March 2015. Poroszló, Tiszavalki bay, 2 individuals

3.3.5 Barnacle Goose (*Branta leucopsis*)

Sporadic migratory species in Hungary. We observed single individuals in the study area occasionally: 23. December 2013. Sarud, Falualja, 1 individual

28. October 2014.. Sarud, Sarudi bay, 1 individual

9. January 2015. Sarud, Nánai-dűlő, 1 individual + a Barnacle Geese X Greater White-fronted Geese hybrid

3.3.6 Brant Goose (*Branta bernicla*)

Sporadic migratory species in Hungary and in the Carpathian basin. Similarly to the Barnacle Goose, it is usually observed together with Greater White-fronted Geese in mixed flocks. We observed the species only once: at the 17. March of 2014 a pair was observed at the Tiszavalki bay.

3.4 Lesser White-fronted Goose (*Anser erythropus*) in the study area

3.4.1 LWfG observations during our study period in the study area

14. December 2013. Tiszanána – Dinnyés-hát (47°32'14.2", 20°33'10.3"): 1 LWfG (juvenile), 41 Red-breasted Geese, 8000 Greater White-fronted Geese

6. November 2014. Poroszló – Tiszavalki bay (47°39'11.21", 20°41'24.13"): 2 LWfG (adult + juvenilis), 23000 Greater White-fronted Geese, 6 Bean Geese

23. November 2014. Sarud – Sarudi bay (47°34'27.4" 20°37'14.2"): 1 adult LWfG, 6000 Greater White-fronted Geese

7. December 2014. Tiszanána – Dinnyés-hát (47°32'15.2", 20°33'05.8"): 2 adult LWfG, 59 Red-breasted Geese, 7000 Greater White-fronted Geese

9. January 2015. Tiszanána – Pap-föld (47°34'27.4", 20°30'58.0"): 3 LWfG (adult pair + a single adult), 11 Red-breasted Geese, 4000 Greater White-fronted Geese

9. January 2015. Sarud – Nánai-úti-dűlő (47°34'46.5", 20°32'12.5"): 7 LWfG (2 adult and 2 immatur/2cy individuals = a family + an adult pair and a single adult), 19 Red-breasted Geese, 1 Barnacle Geese, 1 Barnacle Geese X Greater White-fronted Geese hybrid, 8000 Greater White-fronted Geese

3.4.2 LWfG observations during our study period close to the study area

15. December 2013. Borsodivánka (47°41'47.2", 20°38'48.9"): 2 LWfG (adult pair), 8 Red-breasted Geese, 9000 Greater White-fronted Geese

18. November 2014. Abádszalók – Kardos-dűlő (47°30'07.6", 20°37'20.4"): 2 LWfG (adult pair), 4 Red-breasted Geese, 1500 Greater White-fronted Geese

3.4.3 LWfG observations during our study period in the study area by other ornithologists

31. October 2013. Poroszló, Kis-Bodzás 1 adult LWfG - Pánya Csaba (www.birding.hu)

23. December 2013. Sarud – Falualja: 3 LWfG (adults), 1 Red-breasted Geese, 1 Barnacle Geese, 8000 Greater White-fronted Geese - Balla Dániel, Zalai Tamás

3.4.4. LWfG observations before our study period in the study area

23. November 2005. Abádszalók, Abádszalóki bay 1 adult LWfG - Borbáth Péter (www.birding.hu)

16. November 2006. Poroszló, Tiszavalki bay 7 LWfG (3 adult, 1 immatur, 3 juvenile) - Zalai Tamás, Gál Lajos (www.birding.hu)

24. November 2006 Sarud, Nagy-Állás 1 adult LWfG - Zalai Tamás, Borbáth Péter (www.birding.hu)

24. November 2006. Sarud, Kutyás 3 adult LWfG - Zalai Tamás (www.birding.hu)

1. December 2006. Sarud, Falualja 1 adult LWfG - Zalai Tamás (www.birding.hu)

15. December 2006. Poroszló, Kóta-dűlő 1 adult LWfG - Zalai Tamás (www.birding.hu)

9. January 2007. Sarud, Panyita 1 adult LWfG - Zalai Tamás (www.birding.hu)

2. February 2007. Sarud, Török-föld 1 adult LWfG - Borbáth Péter (www.birding.hu)

26. February 2007. Sarud, Daruhát-felső 1 adult LWfG, Panyita 1 adult LWfG - Zalai Tamás (www.birding.hu)

28. February 2007. Sarud, Daruhát-alsó 1 adult LWfG - Zalai Tamás (www.birding.hu)

22-24. November 2008. Abádszalók, Abádszalóki bay 5 adult, 1 juvenile LWfG, one of the adults carried a metal ring - Monoki Ákos, Kiss Ádám, később Zalai Tamás (www.birding.hu)

27. December 2008. Poroszló, Felső-járás 2 adult LWfG - Zalai Tamás (www.birding.hu)

2. January 2009. Poroszló, Vénasszony-dűlő 1 adult LWfG, Újlőrincfalva, Grádicson 2 adult LWfG - Borbáth Péter (www.birding.hu)

7. January 2009. Sarud, Szerűk-lapos 3 adult LWfG - Borbáth Péter, Zalai Tamás (www.birding.hu)

2. February 2009. Poroszló, Szobor-dűlő 2 adult LWfG - Borbáth Péter (www.birding.hu)

15. February 2009. Poroszló, Tiszavalki bay 2 adult LWfG (pair) - Zalai Tamás (www.birding.hu)

17. March 2009. Sarud, Falualja 1 adult LWfG - Zalai Tamás (www.birding.hu)

21. January 2012. Abádszalók, Abádszalóki bay1 adult LWfG - Bodzás János (www.birding.hu)

5. January 2013. Sarud, Falualja 1 adult LWfG, Poroszló, Homok-dűlő 3 LWfG (2 adult, 1 immature) – Borza Sándor, Katona József, Kiss Ádám, Zalai Tamás

4. Discussion

4.1 Geese staging/wintering areas in the study area

According to our counts and to the size of the goose flocks in the study area it seems to be obvious that the Lake Tisza area and the neighbouring Hevesi-sík area are of the most important geese staging, feeding (and breeding) habitats in the Great Hungarian Plain. The nature conservation importance of these areas from the perspective of geese protection is unquestionable. During the peak of the migration tens of thousands of geese visit these areas (mainly Greater White-fronted Geese (*Anser albifrons*)). Our observations revealed, that the presence of the Greater White-fronted Goose flocks is usually not permanent but the number of individuals changes rapidly time by time. Our experiences showed, that after the November influx of goose flocks they left the area, which is similar phenomenon to the population changes of Greater White-fronted Goose during Spring. The reasons of this trends are mainly natural processes, but also human disturbance. After the water freezes in the Lake Tisza, geese normally disappear from the area. On the other hand, they also move very rapidly in a regional level, mainly to the Hortobágy and Nagykunság areas. In the Western part of the study area the hunting season of the Greater White-fronted Goose and the Greylag Goose starts by the 1st of October, which means that arriving geese can face a major disturbance. This effect is also linked to the rapid geese movement in the area.

4.2 The role of the Lake Tisza region as a staging and/or wintering area of the LWfG

During the monitoring work we wanted to answer two main questions in the Lake Tisza area and the surrounding feeding habitats:

- a) What is the role of the study area in the migration of the Fennoscandian LWfG population?

This population of the species was frequently staging from the first half of the 20th Century in Eastern Hungary, representing about the 10% of the migrating goose flocks in early Autumn (Sterbetz 1968). We have no reliably (literature) data about how the LWfG were present in the former habitats before the relatively new reservoir was built. We focused on the goose migration during the stay of the Fennoscandian population in the Hortobágy area. We also carried out monitoring activity outside the normal geese migration period (November-March) in the area: we made coordinated counts during the September-October and the March-April periods, too. This monitoring did not provide detection of the Fennoscandian LWfG population in the study area. We can conclude, that the Fennoscandian population visits only the well known Hortobágy sites recently, where undisturbed natural conditions and favourable feeding habitats are available. The

feeding habitats in the study area, even if they are situated very close to Hortobágy, have a different structure comparing to habitats at Hortobágy and they are more disturbed, too.

b) What is the role of the study area in the migration of the Western Main LWfG population?

During our monitoring in the study area we observed LWfG 6 times, altogether 16 individuals. The majority of these birds were found in the Autumn migration season (4 occasions, 9 individuals), but once we also observed 10 individuals during Spring. We did not observe colour ringed or satellite-transmitter equipped individuals in the study area. Summarizing our own data we can conclude, that LWfG mainly occur in November-December and January in the area, which has an overlap with the stay of the LWfG from the Western Main Population in the Carpathian basin. The data collected before and our study also shows that LWfG were present mainly from November to February in the area. The presence of the Western Main population individuals is also supported by the fact, that all LWfG observations were made in flocks of thousands (sometimes tens of thousands) of Greater White-fronted Geese.

This report has been prepared in the framework of the LIFE+ project “Safeguarding the Lesser White-fronted Goose Fennoscandian population at key wintering and staging sites within the European flyway”, project code LIFE10 NAT/GR/000638 that is co-financed by the European Commission and the Norwegian Environment Agency.

Literature

Bogyó D., Ecsedi Z., Tar J., Zalai T. (2014): Kis lilik (*Anser erythropus*) – A kis lilik (*Anser erythropus*) magyarországi fajmegőrzési terve. Calandrella 17: 1-92 pp.

Dr. Kovács G., Tar J. (2004): Kis lilik (*Anser erythropus*). In: Ecsedi Z. (ed.): A Hortobágy madárvilága. Mezőgazda Kiadó, Budapest, 588 pp.

MME NB (2008): Magyarország madarainak névjegyzéke. Nomenclator avium Hungariae. Magyar Madártani és Természetvédelmi Egyesület, Budapest, 278 pp.

Sterbetz I. (1968): Der Zug des Zwerggans auf der ungarischen Puszta. Ardea 56: 3-4., pp. 259-266.

Sterbetz I. (1978): The feeding ecology of *Anser albifrons*, *A. erythropus*, and *A. fabalis* in Hungary. IWRB Bulletin 45., pp.9-16.

Sterbetz I. (1982): Migration of *Anser erythropus* and *Branta ruficollis* in Hungary 1971-1980. pp. 107-114

Tucker G. M., Heath M. F., Tomialojc L. & Grimmett R. F. A. (1994): Birds in Europe: Their conservation status. BirdLife International, 600 pp.

Valkó O., Török P., Horváth R., Kelemen A., Tóthmérész B. (2014) Diet analysis of the LWfG in selected sites of the Hortobágy National Park (Hungary) for the identification of habitat requirements. Final research report, University of Debrecen, Hungary, 25 pp.

<http://www.birding.hu/>

<http://www.mme.hu/hevesi-sik>

<http://www.hnp.hu/hu/szervezeti-egység/turizmus/vizisetany/oldal/a-tisza-to-tortenete>

<http://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=HUBN10004>

<http://www.termeszetvedelem.hu/termeszetvedelmi-celkituzesek-prioritasok-natura-2000-teruleteken>

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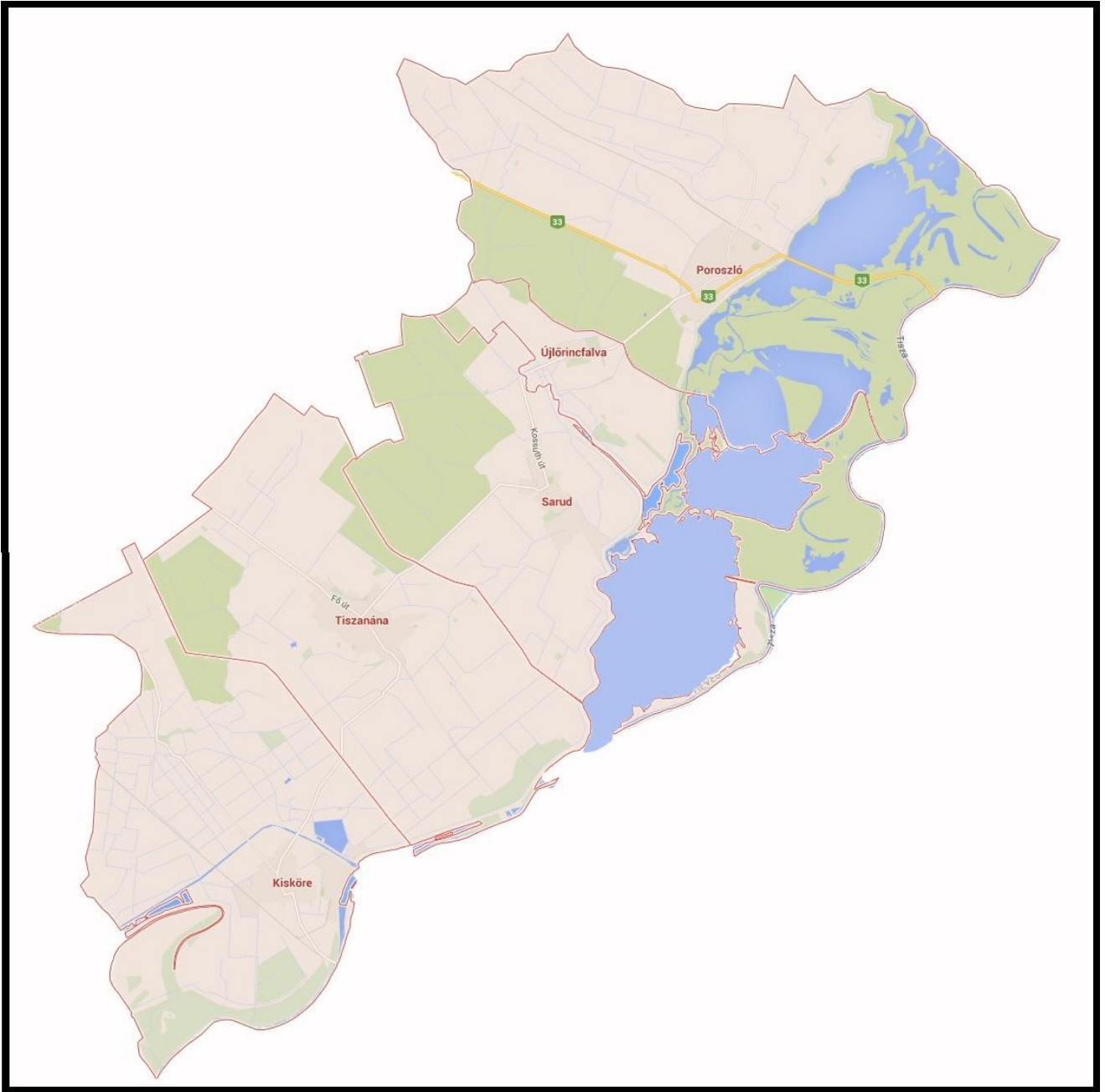
Appendix



Flock of Greater White-fronted Goose in the Tisza Lake region



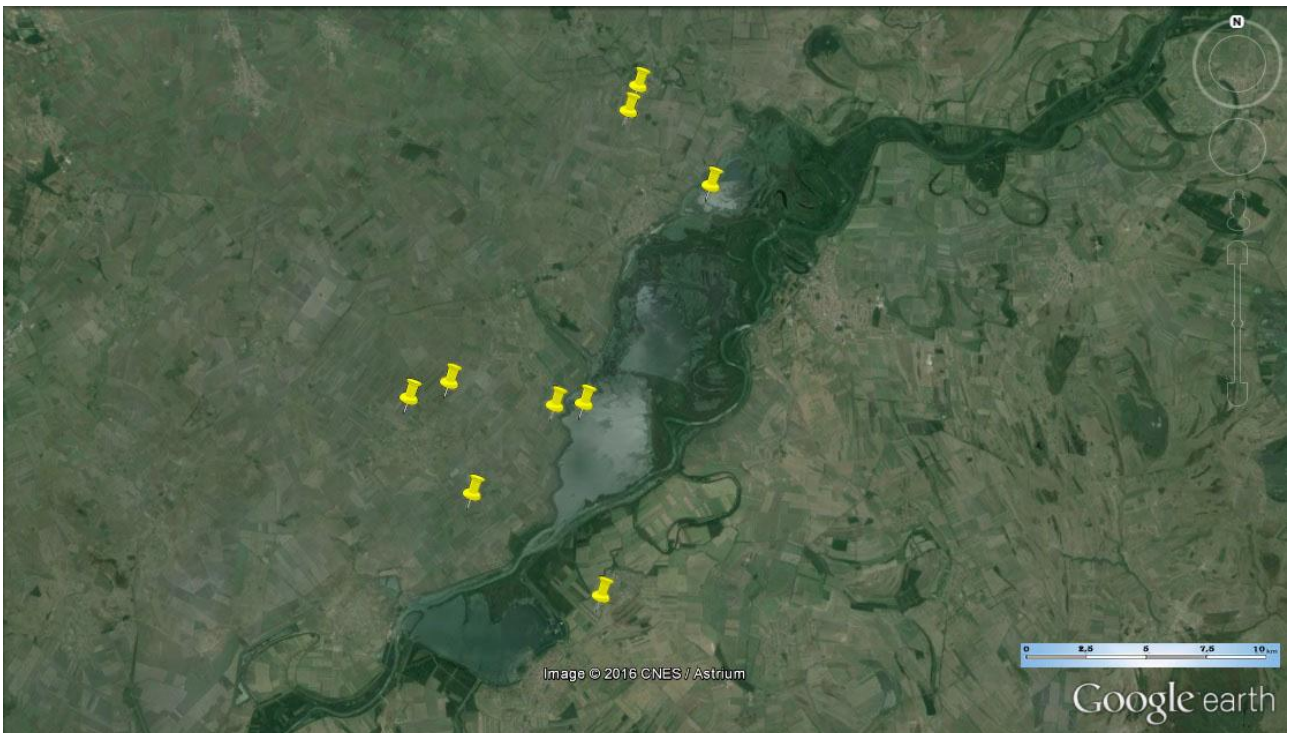
Lake Tisza



Study area



Aerial photo of Tisza Lake region



LWfG observations in the Tisza Lake region 2013-2016