

LIFE10 NAT/GR/000638

Safeguarding the Lesser White-fronted Goose

**Fennoscandian population in key wintering and staging sites
within the European flyway**



LWfG family © Attila Szilágyi/HNPD archives, March 2017

**Habitat restoration for the Lesser White-fronted
Goose in the Hortobágy National Park, Hungary**

Final Action Report

Hortobágy National Park Directorate

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INTRODUCTION

The Hortobágy-fishpond system is an important breeding area of numerous endangered bird species, and it is one of the most important staging sites of the migrating waterbirds in the Carpathian Basin. The Hortobágy National Park serves as the largest stop-over site of the Common Crane (*Grus grus*), with a peak number of 100,000-130,000 roosting birds. The Hortobágy-fishponds and especially the Kondás fishpond, host up to 70,000 Common Cranes (Végvári & Barta 2015, Végvári pers. comm.). The fishponds also serve as roosting and feeding sites for mixed goose flocks and mainly Greater White-fronted Goose (*Anser albifrons*), hereafter GWfG. Recent counts reveal that up to 30-40,000 GWfG use the area (Végvári et al. 2015). Besides the quantity of migrating birds, the diversity of the avifauna is also impressive: more than 300 species of birds were observed only on the Hortobágy-fishponds (Ecsedi 2004).

The habitat use of the Fennoscandian Lesser White-fronted Goose (*Anser erythropus*), hereafter LWfG population in the Hortobágy National Park concentrates to these fishponds, their adjacent grasslands and marshlands since the mid 1990's (Lengyel et al. 2009, Bogyó et al. 2014). Former observations show that the LWfG mainly use the Hortobágy-fishponds V, VI and Kondás-fishpond. In the recent years, overgrown vegetation (mainly common reed (*Phragmites australis*) and bulrush (*Typha sp.*)) resulted habitat degradation, mainly in Fishpond V. The open water surface of this fishpond almost disappeared by the 2000's and was targeted by the habitat restoration works summarized in this paper (Figure 1.).



Figure 1. Aerial photographs of the Hortobágy-fishpond no. V., where A refers the year 2005, while B refers the year 2013, after the vegetation management works were done. (fomi.hu/maps.google.com both accessed on 25/04/2017)

In the framework of the LIFE10 NAT/GR/000638 project, the Hortobágy National Park Directorate proceeded with habitat restoration and management actions in order to provide ideal habitat conditions for the Fennoscandian Lesser White-fronted Goose population during its stay in the Hortobágy National Park.

METHODS

I. Habitat restoration progress

The habitat restoration consisted of two major parts: (1) appropriate water management and (2) vegetation management.

1. Appropriate water management

1.1.1.

Appropriate water management begun in autumn 2011 in the Kondás-fishpond and Fishpond VI (Figure 2.), while following vegetation management actions (Autumn of 2012) suitable water management in the Fishpond V also took place.



Figure 2. General map of the Hortobágy-fishponds. (fomi.hu accessed on 25/04/2017/HNPD)

1.1.2.

The Hortobágy National Park Directorate (HNPD) discussed the water management proposals with the local Hortobágy Fish Farm Co. (the fishing company using the lakes for fishing) in order to avoid obtain consent. The water levels of the Kondás-fishpond, Fishponds V and VI (685 ha in total) were regulated during autumn and spring migration in order to provide optimal mosaic habitat conditions. The LWfG flocks traditionally use a habitat mosaic at Hortobágy that includes fishponds and regularly grazed short grasslands. The optimal water level during the LWfG migration is shallow in the largest lake (Kondás-fishpond) where LWfG can find safe feeding (fresh mud vegetation) and resting areas. Shallow water (0-

50cm), as well as the timing of the management imitates the water levels and dynamics of the former sodiac marshes and pans that existed in the area.

1.1.3.

Reduction of the water level begun by the end of the Summer, while the filling begun by the end of December, every year. At the same time, in Fishpond V and VI, traditionally higher water levels provided safe resting place for the geese. This fishponds (Kondás-fishpond and Fishponds V and VI) have a total water volume of 7.5 million m³, which is transferred here through two local water channels (Nyugati Main channel and Halastói channel) from the river Tisza. To regulate water levels in the fishponds, HNPD experts need to work together with local water service provider (Tiszamenti Regionális Vízművek Co.) to transfer this amount of water in time, water quality and quantity. This water management has an annual fee of ca. 63,500 EUR paid generally by the HNPD from the annual core budget.

1.1.4.

Since 2014, there is a fee takeover by the state offered to the fishpond managers (except the period from December to February), however until 2021 this seems to be terminated gradually year by year (Gov. Decree 115/2014). This means that this kind of management needs careful planning and strong support by the HNPD itself in the future.

2. Vegetation management

1.2.1.

The planning of the vegetation management started in 2011 with a stakeholder consultation (Hortobágy Fish Farm Co., local authorities & the HNPD), and permission given by the local nature conservation authority to proceed was granted in the 10th of January 2012.

1.2.2.

During the extreme cold (sometimes -15°C or even lower temperatures) winter of 2012, 40 ha of reed and bulrush were cut on the frozen surface of the Fishpond V, by Bob Nád Ltd. (Figure 3.)



Figure 3. Vegetation management in the Hortobágy-fishpond no. V. using a „Seiga harvester” © János Tar/HNPD archives, February 2012

1.2.3.

According to the initial management plan, the pond would be subsequently drained in order to provide machinery access for vegetation management. However, dense vegetation prohibited water drainage and as a result a 200 m drainage channel was restored by Skarabeus Ltd., using an excavator in order to allow drainage of the pond (April 2012), (Figure 4.).



Figure 4. Channel excavation. © Dávid Bogyó/HNPD archives, May 2012

1.2.4.

In August 2012, an external assistant (Tóth József) started to do the disk-harrowing of the remaining vegetation (old reed and bulrush) but after cutting 8 hectares it were clear that with

this method we cannot cut the remaining area: the machines sank and the engines burned down.

I.2.5.

Because of this reason, later in August we contracted with a new external assistant (Pumkin Ltd.; Figure 5.) with two caterpillars who was able to do the remaining job until the 26th of August (trampling the old reed and bulrush down). With this method we managed ca. 45 ha. Summarizing the total managed (through cutting and trampling in the winter and summer periods listed above) vegetation (mainly overlapping areas) ranks up to 50ha.

I.2.6.

Fishpond V was immediately flooded and filled to its maximum level in order to prevent any vegetation from re-emerging, since reed and bulrush in particular are not able to survive flooding. For reed and bulrush respectively, water level should be 20-30 cm higher than the remaining vegetation. The winter conditions that followed resulted in the freezing of Fishpond V, which further contributed to reed and bulrush destruction through destruction by ice sheets.



Figure 5. Cutting and trampling reed and bulrush with a caterpillar in the dry lakebed of the in the Hortobágy-fishpond no. V. © Dávid Bogyó/HNPD archives, August 2012

I.2.7.

Further vegetation management was conducted with the external assistance of Mádi László in the Kondás fishpond in January and February of 2014, where 11 ha of reed and bulrush were cut mainly along the fishpond shoreline in order to prevent it from entering the lake bed thus reducing the available open water surface and opened mud bank areas.

I.2.8.

Continued vegetation cutting after the breeding period was complete and an additional 2 ha of vegetation was removed from the Kondás island surface in 2014 and in 2016 by self-employed Takács János (Figure 6.) in order to provide a safe (from predators) and ideal (fresh mud-vegetation) staging site for the LWfG.



Figure 6. Habitat management on the Kondás island . V. © János Tar/HNPD archives, August 2014

Totally, 63 ha of vegetation were managed in the Hortobágy Fishponds.

II. Infrastructural management process

1. Rebuilding a hide

II.1.1.

Also in the framework of the LWfG LIFE+ project, HNPD built a hide on the shore of the Kondás fishpond by Gém és Társai LP. The Kondás lake itself is a huge lake (401.4 ha). Observation towers/hides are situated on the southern shores. On the eastern shore there was also one but during the years it was destroyed by wildfire events and wind. It was necessary to build one here again to get a better look on the geese flocks when they use the eastern and northern part of the lake. From other towers/hides these parts are very badly visible due to big distances.

II.1.2.

In March 2017, the hide was re-painted to preserve its condition against harsh weather circumstances (Figure 7.)





Figure 7. The newly re-built (2013) and re-painted (2017) hide at lake Kondás . © János Tar/HNPD archives, March 2017

2. Buying 4WD cars for monitoring

II.2.1.

One 4WD car was planned originally, but we managed to buy 2 Suzuki Jimny 4WD cars from the budget of this action by the end of 2012 to help our rangers monitoring the habitat restorations (Figure 8.). It was used by the LIFE+ project team members János Tar (license plate number - MFE-201) and Attila Szilágyi (license plate number - MFE – 196)



Figure 8. The two Suzuki Jimny 4WD cars used by the LIFE+ project team members, . © Dávid Bogyó/HNPD archives, August 2012

RESULTS AND DISCUSSION

Regular monitoring in the Hortobágy National Park showed that since 2011 and following the initiation of the restoration and management actions, the Fennoscandian LWfG population as well as the Western main LWfG population used the restored areas and the adjoining grasslands very frequently during their autumn and spring migration. In these protected areas the LWfG can find optimal and safe (limited disturbance, no hunting or illegal killing of waterbirds) conditions for feeding and resting, while monitoring is facilitated by the new infrastructure built (hide).

The most significant change in habitat conditions is considered the management of Fishpond V (124.6 ha). Before the vegetation and water management, only 15-20 ha of open water surface remained within the lakebed. The dense reed and bulrush vegetation, covering this lake was not suitable for any migrating waterbird including geese species. Following the winter of 2012/2013 a growing open water surface was made available, measuring as around 70 ha recently (Figure 9.). The changes resulted in a rising trend in the numbers of migrating and nesting waterbirds. First Eurasian Coots (*Fulica atra*), *Anas* and *Aythya* species started to use the new open water surface. The first flocks of geese were observed in 2013, mainly GWfG (flocks over 300 individuals) and Greylag Geese (*Anser anser*) (flocks over 350 individuals with juveniles). The first LWfG – a single adult individual - in the Fishpond V

was observed in 2014 (the first observation since 2003), while additional observations of 1-2 individuals were made in 2015, 2016 and in 2017 (www.piskulka.net accessed on 25/04/2017, HNPd database). During migration, the number of goose flocks reached a maximum of 5,600 individuals in Fishpond V in 2017. Besides LWfG, GWfG, Greylag Geese and Red-breasted geese (*Branta rufficollis*) also used Fishpond V as a resting site. Additionally, formerly disappeared colonies of the rare Whiskered Tern (*Chlidonias hybrida*) and Black-necked Grebe (*Podiceps nigricollis*) were also observed, together with nesting Ferruginous Duck (*Aythya nyroca*).



Figure 9. The open water surface on Fishpond V, according to the portals own area measure tool, on the latest aerial photo (2015), on the Portal of Agricultural Parcel Identifying System (<https://www.mepar.hu/mepar/>). © mepar.hu

The appropriate water management in the Kondás fishpond (401.4 ha) also resulted in optimal conditions during migration: mud banks offered freshly grown vegetation for the LWfG and other geese, while mud islands within the huge undisturbed fishpond offered an optimal resting place. The Fennoscandian LWfG used this fishpond as a feeding and resting site in every migration season of the project. The peak number of the LWfG was reached in March 2017, when 134 LWfG were observed in a single flock (www.piskulka.net accessed on 25/04/2017, HNPd database). On 21st March, 2016 we observed LWfG feeding and resting on the managed Kondás (Figure 10., www.piskulka.net accessed on 25/04/2017, HNPd database).



Figure 10. LWfG at the Kondás-island, Hortobágy National Park, Kondás-fishpond, Hungary, © János Tar/HNPD archives, March 2016

In Fishpond VI a high water level was maintained almost throughout the whole project period (2011-2017). The only exception for lower water levels was for rarely occurring fishing activities, that took place outside of the LWfG migration periods. Water management offered suitable resting place at this traditional LWfG site and prevented the overgrowth of the vegetation in the fishpond lakebed. Regular monitoring confirmed that LWfG used the open water area of the Fishpond VI in 2013 and 2015, when 3-12 LWfG were observed.

Summarizing the actions carried out in the framework of the LIFE+ project it can be concluded that a safe and favourable staging sites were provided for the LWfG at the Hortobágy National Park. The continuation of the appropriate water management described here is considered essential, together with periodical minor vegetation management actions. HNPD will be responsible for these actions, as it is described in the Hungarian NAP produced during the same LIFE+ project (Bogyó et al., 2014). This type of habitat management is not only beneficial for the Fennoscandian LWfG population, but also for the Western Main LWfG population, from which individuals are observed more frequently in the recent years.

Best practices learnt about successfully removing overgrown vegetation from fishponds:

- The biggest problems are the slit and organic matter
- Budget should be slightly overestimated
- Dense vegetation could cause serious damage in tools and machines
- To a successful drowning, for reed and bulrush respectively, water level should be 20-30 cm higher than the remaining vegetation

- For water management planning you should involve local fishery professionals, stakeholders, authorities all along from the beginning
- Get all the required permissions for protected areas during the preliminary phase

LITERATURE

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