

VIII. THE GREY-LEG GOOSE IN HUNGARY

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The Grey-leg Goose (*Anser anser*) has a discontinuous distribution in the Palearctic – according to its ecological requirements. It is missing from vast areas due to human activity or its population is decimated.

The Karpathian basin and in it Hungary is an important breeding area for the Grey-leg besides, one should not forget its meaning for migration though data are rather lacking here.

There are two main breeding grounds in the Karpathian basin – the Hortobágy and the lake Fertő or Neusiedler See. The facts show that even on the most stabile breeding grounds there are high – up to 100% – oscillations in population (Table 3). These oscillations result from re-grouping. In our opinion there is a dynamical exchange among breeding grounds in the Karpathian basin, there is no sign for isolation and thus the population is genetically unanimous.

In Hungary the Grey-leg was a frequent species up to the late last century. They frequented especially lake Fertő, the Ecsed swamps, Nagyberek and Sárrét.

In the reduction of the Grey-leg in Hungary the decisive role had the drainages, river-regulations and besides and later the intensification of the agriculture which changed not only the breeding grounds but even the feeding ones and last but not least the hunting.

During the XIXth century many breeding grounds ceased to exist e.g. Ecsed swamps. Habitats favourable ecologically and ethologically were running out the population was decimated.

There were but some more extensive near-natural habitats ensuring their survival. In this critical period a slow adaptation could have taken place which later enabled the population to increase, a process going on even today. This adaptation is felt best in a broadening ecological valency. The human activity meant not only destruction to the Grey-leg but also new possibilities. Especially the positive effects due to building of bigger reservoirs and fishponds are to be mentioned.

During the decades after the turn of the century the deep was reached, then came a long stagnation and later – as result of nature protection efforts – arrived the slow recovery. This is felt already in the fifties and became balanced and more determined in the sixties. The beginning of this period was marked by the existence of only four breeding grounds: lake Fertő, lake Velence, lake Kisbalaton and Hortobágy. In 1965 Sterbetz estimated that the Hungarian population is 250 pairs, the bulk of it is described – 140 pairs –

from the Hortobágy – halastó (fish-pond), Kunkápolnás swamp. These areas today belong to the Hortobágy National Park.

Present study is a summary of the data of the last decade as to breeding, migration, movements of the Grey-leg, in case of population change evaluation with regard to earlier information.

The Hortobágy area, investigated by the authors is considered most detailed but not omitting the characteristics of other important breeding grounds in the country – lake Fertő, Velence, Kiskun National Park, lake Kisbalaton.

For providing information we express our thanks to following colleges: *Bankovics Attila* (Ornith. I. OKTH), *Bécsy László* (Állatvilág zool. magazin), *Kárpáti László* (Sopron, Forestry Univ.), *Schmidt Egon* (Állatvilág), *dr. Sterbetz István* (OKTH Ornith. Inst.).

Breeding habitat characteristics in Hortobágy N. P.

The Hortobágy N. P. affords breeding possibilities for the biggest population in the country on its 70 000 ha area, taken into account also the attached reserves. The stable and temporary swamps, fish-ponds, arable land in the rand zone lying scattered in the vast puszta provide favourable conditions for the Grey-leg to breed.

The nests are found predominantly in old reed (*Phragmites communis*), reed-mace (*Typha angustifolia*, *T. latifolia*), rush (*Schoenoplectus tabernaemontani*). The distribution of nests according vegetation is shown in Table 1.

It settles predominantly in the rank zone, in clearings, near open water, avoiding dense uninterrupted vegetation.

Table VIII/1.

Distribution of Grey-leg Goose nests examined in Hortobágy N. P. according vegetation units

Vegetation	Nests	%
<i>Phragmites communis</i>	92	73.6
<i>Typha angustifolia</i> <i>et latifolia</i>	9	7.2
<i>Schoenoplectus</i> <i>tabernaemontani</i>	17	13.6
<i>Bolboschoenus</i> <i>maritimus</i>	4	3.2
<i>Glyceria maxima</i>	2	1.6
<i>Agrostis stolonifera</i> <i>Beckmannia eruciformis</i>	1	0.8

Table VIII/2.

Species nesting in colony with Grey-leg Goose

	Nests	
	central	rand
Purple Heron (<i>A. purpurea</i>)	1	6
Spoonbill (<i>P. leucordia</i>)	2	10
Great White Egret (<i>E. alba</i>)	1	1

It was found nesting frequently with other species. With regard to its early breeding this is, however, not a real proof for its social breeding tendency (see Table 2).

According to our observations – though there are no data from the ethologically critical period of colony forming – there is only insignificant inter-specific intolerance, the heterotypical colony-forming tendency of the Grey-leg is to be regarded neutral.

When regarding the colony-forming on the Hortobágy there are two phenomena worth to mention to be considered at any rate when organising active protection of this species.

1. Within traditional breeding grounds the use of ecologically different nesting places.
2. Use of temporary marshes when water-stand is low.

The first signs of the population increase were recorded on the fish-ponds. This was repeated in the Kunkápolnás swamps. The increase is perpetually becoming quick but at the same time an other phenomenon becomes apparent – the breeding population oscillates on both places.

The beginning of the oscillation is in terms of time identical – and may be to be explained – with settlement in new habitats. In the seventies the optimal breeding grounds were saturated and the Grey-leg appeared in temporary marshes and smaller reed-bulrush patches.

Table 3. informs on the present Grey-leg population according habitats.

Besides the breeding grounds indicated there are also other ones in temporary waters, smaller marshes.

With regard to these facts the population of the National Park may be estimated as 400 – 500 pairs.

The Grey-leg arrives home very early, frequently before other species and possibly these are of the local population.

Spring arrival – 1973. 02. 24.
 1974. 02. 01.
 1975. 02. 16.
 1976. 02. 22.
 1977. 02. 06.
 1978. 02. 12.
 1979. 02. 12.
 1980. 02. 05.
 1981. 02. 08.

Table VIII/3.

Present Grey-leg Goose population of Hortobágy
 1. *Fish-ponds*

	Minimum	Maximum
Hortobágyi halastó	40	80
Fényes tavak	6	12
Csécsmocsári tavak	6	15
Derzsi tavak	5	8
Elepi tavak	5	15
Kónyai tavak	8	15
Ohat-Gyökérkúti tavak	5	10
Kungyörgyi tavak	3	8
Borsósi tavak	8	12
Virágoskúti tavak	20	30
	109	205
	average 157	

2. *Stable swamps*

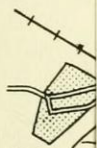
	Minimum	Maximum
Kunkápolnási mocsár	40	100
Jusztus-Feketerét	15	30
	55	130
	average 92.5	

3. *Temporary swamps*

	Minimum	Maximum
Nyári járás-Fecskerét	5	14
Angyalházi Nagyret	10	15
Csikósér—Nagyág-ér	3	5
Polturás lapos	1	6
Zámi mocsarak	8	15
Ágotai mocsarak	3	5
Kecsképusztai mocsarak	15	25
Boca lapos	8	10
Feketeér – Liba lapos	6	10
Szelencési vizek	2	8
Dankó mocsár	10	15
Máta-pusztai mocsarak	1	3
Kineses lapos	0	2
	72	133
	average 102.5	

4. *Running waters, channels*

A HC
Nyár



A HORTOBÁGYI NEMZETI PARK

Nyárilúd fészkelőhelyek a HNP területén

0 1 2 3 4 5 km

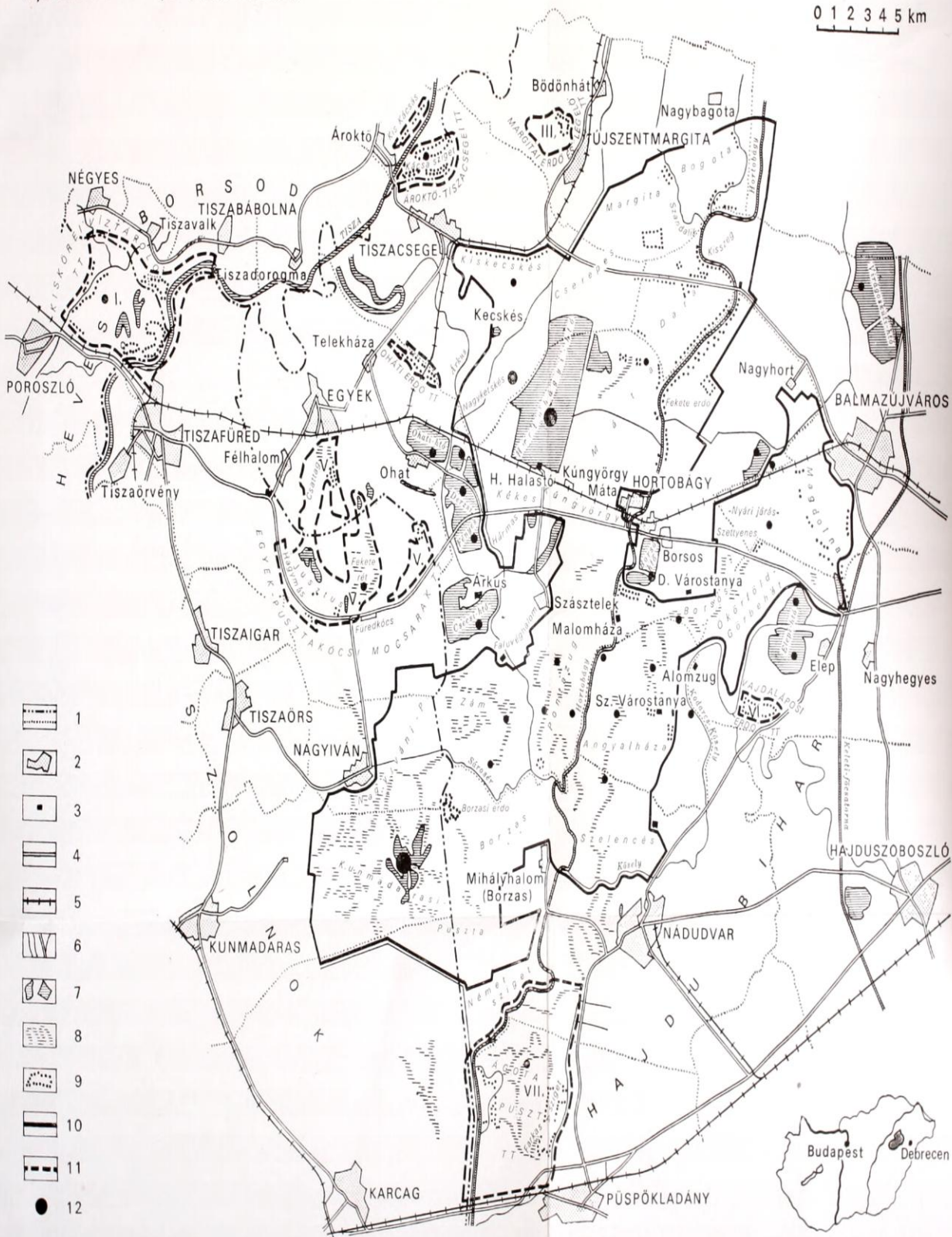


Figure VIII/1: Grey-lag Goose breeding grounds in Hortobágy N. P. Explanation: 1. County, village boundary, 2. Settlement, 3. Roadside inn, 4. Road, 5. Railway, 6. Running water or channel, 7. Lake, fish-pond, 8. Swamp and reed, 9. Wood, 10. National Park boundary, 11. Reserve (Nature Conservation Territory) boundary, 12. Breeding ground of Greylag Goose

Table VIII/3.

Present Grey-leg Goose popula

1. Field work

4. Running waters, channels

	Minimum	Maximum
Hortobágy folyó	2	5
Kadares – Kösely	8	15
	10	20
	average 15	

5. Reservoirs

	Minimum	Maximum
Tiszafüredi Madárrezervátum (Tisza II)	3	8
reserve Tisza II. not protected	30	50
	33	58
	average 45.5	

6. Inundation areas, oxbows

	Minimum	Maximum
Nagy Kácsás	2	10

After arrival the pairs occupy their breeding grounds at once. Bigger flocks are seen only exceptionally – as on 1981. February 28th on the Fish-pond 500.

The pair-bond exists probably even during migration. During early breeding period the geese are very active, display-flying near the future nest. The flocking tendency disappears. The activity of pairs decreases quickly during nest-building and especially during egg-laying. At this time – with some delay in contrast to breeding ones – the immatures display territorial activity. It declines also in them gradually and the immatures displaying territorial and even partially mating behaviour, form flocks. These flocks arrive together to feeding grounds, but separate from the breeding pairs.

The Grey-leg clutch was formed of 4–6 eggs similar to literature data. The families have mostly 3–4, infrequently 5, rarely less than 3 young. In one case a pair having 11 young was observed, but in other ones only two young hatched.

In the Grey-leg the territorial activity is not strong which may have connection to its high sociability in other life-cycles. Aggressivity is shown most frequently when occupying nesting-place or in case of too near neigh-

hours. Agressivity becomes more frequent on the feeding grounds, but this is reduced—especially when in formation—to some ritualised movements, ensuring ranking and occupation of feeding grounds.

It was observed that foot-paths led from some nests to the nearest feeding grounds.

During breeding and rearing—on undisturbed areas—they do not fly much, except the early and late hours. On these occasions it is possible that the male joins the female. Between the nest and the feeding grounds they prefer to travel on foot or swimming. The male has predominantly guarding duty, but leaves frequently its duty for longer periods.

For the birds nesting in natural surroundings the feeding grounds are the meadow zones of the swamps and the nearby natron puszta. The swamp breeders feed on leaves of aquatic plants of the clearings (*Stratiotes aloides*) too.

In undisturbed feeding areas the geese may be seen during all the day, but first of all during the time mentioned. It was observed that until spring when the cottages were not yet populated or there were no animals the geese fed in the open far from the swamps even right at the cottages. After repopulation they changed feeding grounds and even feeding time preferring from then on the early and late hours.

The fish-pond nesters arrive to feeding grounds—fish-pond dams—rather at dark, even at midnight. The flying young attend the dams nondeterred during daytime, but the moulting adults hide in the reed.

When the young hatch the families prefer the nearest feeding grounds. As the young grow they increase the action area, but never exceeds 400–500 ms. They leave protected reed-bulrush rands only as far as 50–100 ms. If they feel danger they disappear into the thicket, the minimum escape distance in the open means at best 300–400 ms. If they are surprised in the open, the adults—sometimes even the young—lay on the earth with neck stretched—as a breeding female on the nest in case of danger.

If the young are now approached the adults may escape feigning injury (ambivalent behaviour in conflict) or circle overhead, or fly into the reed calling the young. In a case the majority of adults took to flight and only some remained to lead the assembled young into the reed.

As the young grow the nest-centralised territories are abandoned and the geese gather near the best feeding areas. The socialibility increases as the young begin to fly and then together with the immatures the flocks gather remaining until mid-autumn. The two main gathering places of the Grey-leg are the big fish-pond (Halastó) and the Kunkápolnás marshes. Already late July or in August flocks by hundreds or 1–2 thousand gather here. They flight between the daytime feeding places and the sleeping waters becomes regular (Table 4).

The biggest flocks are generally seen in the dry, emptied fish-ponds. If on the fish-ponds over 1000 were observed they gathered in the dry ones. This is an ideal resting place for them as a starting point to the feeding grounds, the puszta. At this time the action area increases. It is remarkable that, although there are many similar feeding grounds, they prefer certain areas since decades. This phenomenon as a result of learning may be important when considering protection.

During spring and especially autumn they are observed frequently in

Table VIII/4.

Gathering data from Hortobágy

	Area	Numbers
<i>1974</i>		
26. 07.	Hortobágy – Halastó	179
05. 08.	Hortobágy – Halastó	300
15. 08.	Hortobágy – Halastó	300
<i>1975</i>		
04. 07.	Hortobágy – Halastó	150
13. 07.	Hortobágy – Halastó	236
16. 07.	Hortobágy – Halastó	700
17. 07.	Hortobágy – Halastó	783
05. 09.	Kecskés	727
09. 09.	Pentezug	160
10. 09.	Zám	110
14. 09.	Hortobágy – Halastó	907
<i>1976</i>		
29. 08.	Hortobágy – Halastó	470
04. 09.	Nagyiván	150
06. 09.	Kecskés	120
15. 09.	Nagyiván	113
09. 10.	Darvas	300
10. 10.	Hortobágy – Halastó	850
14. 10.	Nagyiván	800
16. 10.	Hortobágy – Halastó	850
17. 10.	Kunmadaras	300
09. 11.	Nagyiván	1300
12. 11.	Nagyiván	1500
18. 11.	Zám	400
23. 11.	Kunmadaras	500
25. 11.	Darvas	221
<i>1977</i>		
10. 07.	Hortobágy – Halastó	750
23. 07.	Csécsi tó	260
25. 07.	Hortobágy – Halastó	850
12. 08.	Cserepes	240
24. 08.	Nagyiván	500
26. 08.	Hortobágy – Halastó	600
07. 09.	Darvas	800
17. 09.	Halastó	1300
06. 10.	Kis-Kecskés	250
08. 10.	Nagyiván	500
14. 10.	Darvas	600
15. 10.	Halastó	400
05. 11.	Kecskés	300

Table VIII/4.

	Area	Numbers
<i>1978</i>		
01. 07.	Csécsi tó	150
20. 08.	Nagyiván	300
12. 10.	Csécsi tó	400
<i>1979</i>		
03. 08.	Hortobágy – Halastó	kb. 5500
18. 08.	Hortobágy – Halastó	500
30. 08.	Hortobágy – Halastó	1200
05. 09.	Hortobágy – Halastó	1000
16. 09.	Nagyiván	200
18. 11.	Feketerét	120
23. 11.	Darvas	400
<i>1980</i>		
16. 09.	Hortobágy – Halastó	220
28. 09.	Hortobágy – Halastó	360
17. 11.	Hortobágy – Halastó	kb. 3000

mixed groups with other geese, frequently in smaller units inside the big flocks. Data on the migration of other more northerly populations are very vague thus there is no possibility to evaluate the habitats of the country in this respect. For all that has to be mentioned that there are reports of big migrating flocks from areas where its breeding is unclear or rare (Tata). The flocks observed, however, do not exceed the population of breeding areas and so it is difficult to tell – without ringing – where they belong.

Winter data

In winter they appear on the Hortobágy temporarily or during thaw or milder periods of 1–2 weeks in White-fronted Goose (*Anser albifrons*) flocks.

Kunmadaras puszta	1976. 12. 18.	7
Darvas (lake)	1977. 12. 09.	7
Csukás	1979. 12. 08.	69
Kunmadaras puszta	1980. 12. 31.	2

Other breeding grounds in Tiszántúl (east of r. Tisza). There are breeding data from other areas of Tiszántúl. It is a pity that many territories are not known and thus there is no possibility to make a real picture. South of the Hortobágy in C. Bihar it breeds scarcely or by occasion (Derecske, Konyár, Esztár, Pocsaj, Bojt).

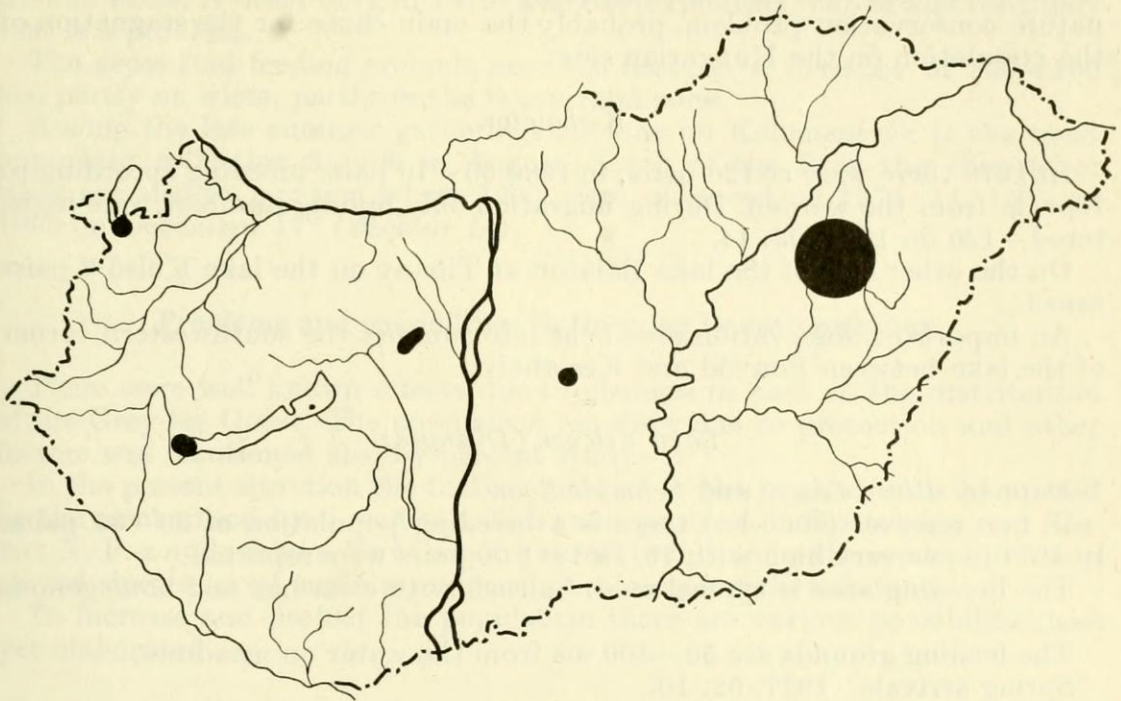


Figure VIII/2: Important breeding grounds in Hungary

Regular breeding was stated only between Hosszúpályi and Konyár on the Nagyfehértó and between Konyár and Esztár in the reeds. The population is roughly 5–6 pairs, during migration and gathering 60–70 were observed only.

It is a regular breeder on the fish-ponds at Biharugra visiting it during migration in bigger flocks – 280 on 1972. Nov. 17th.

At Kardoskút Co. Békés it is a regular migrant sometimes in bigger flocks – 150 on 1970. Oct. 18th (*Sterbetz*).

Important breeding grounds in Hungary

Lake Fertő

According *Kárpáti László* the breeding population of the lake is around 500 pairs, but of it only 50 breeds on the Hungarian side.

Its typical habitat is the closed or partly interrupted reed. It occurs not so frequently in reedbulrush associations.

On occasions nests on *Ondatra cibetica* cones are built. The feeding grounds of the families are on meadows (*Agrostidetum*) near the channel dams and *Carietum distantis* association in the rand zones.

In contrast to Hortobágy it occurs the whole year round even in winter on

the lake Fertő. There is an other difference namely in spring big flocks occur, especially on the Austrian side, exceeding even thousand.

The prolonged reed-harvest, extending into the breeding season is a serious nature conservation problem, probably the main cause for the stagnation of the population on the Hungarian side.

Kisbalaton

In 1979 there were ca 120 pairs, in 1980 60–70 pairs breeding according to reports from the warden. During migration only middle numbers were registered—120 on 1981. 03. 14.

On the other side of the lake Balaton at Tihany on the lake Külső 3 pairs breed.

An important observation area is at late summer the southwestern corner of the lake between Fonyód and Keszthely.

Lake Velence (Dinnyés)

Data by *Bécsy László* and *Schmidt Egon*.

In two reserves (1000 ha) there is a breeding population of 30–35 pairs. In 1977 it was very high with 70. In 1981 90 pairs were reported.

The breeding area is typical reed, bulrush with clearings and homogenous reed.

The feeding grounds are 50–100 ms from the water on meadows.

Spring arrivals 1977. 02. 10.

1979. 02. 17.

1981. 02. 03.

The clutches consist of 3–4 eggs resp. young, but there are many with only two young. In 1981 relatively more—5—6—families were found with 4—5 young.

There are disturbances due to human activity, especially helicopters low overhead frightening breeding birds even off nest.

There are few data as to autumn-summer gatherings and no data for winter, but 200 were seen on 1980. 11. 16.

Kiskun National Park

Data by *Bankovics Attila*.

The most important breeding area here is the Kisrét near Szabadszállás, but there are some in Zabszék, Pipásrét, Kelemenszék near Fülöpszállás lake Kondor at Fülöpháza and lake Kolon at Izsák.

It may breed on lake Péteri in the future.

The breeding population in mentioned localities was between 1978–81 as follows:

	1978	1979	1980	1981
Kisrét	30	15	18	15
Zabszék	6	10	10	10
Pipásrét	—	5	5	8
Kelemenszék	—	—	8	4
Kondor lake	2	2	2	2
Kolon lake	10	5	5	5

Among mentioned breeding grounds those nesting on Kisrét inhabit extended reed (*Phragmitetum*). The waterstand is more stable than in other Kiskun lakes, it dried only in 1979. The overexploiting, cut of the reed-harvest is a problem.

The geese find feeding grounds near the nests in a distance of 200–400 ms, partly on islets, partly in the lake's rand zone.

Among the late summer gatherings the one on Kelemenszék is the most important collecting 3–400 in August. South of the Park the Pusztaszer lakes are also to mention where 1200 were observed on 1975. 11. 15th and 1000 on December 17th (*Molnár L.*).

Problems and possibilities in Grey-leg Goose protection

There were well known effects due to changes in past on the distribution of the Grey-leg Goose. The population recovery due to protection and other factors was mentioned also by present study.

In the present situation the further increase of the population is hampered by the mechanised total reed-cut. This same problem in Hortobágy and Kiskun N. P.-s and on lake Fertő require careful solution as the reed-production played since ancient times a role in maintaining certain habitats.

To increase and protect the population there are various possibilities not yet elaborated.

Ecology

1. Maintain, conserve present breeding grounds, regulation of reed-harvest.
2. Conservation of feeding grounds.
3. Reconstruction of abandoned ancient breeding grounds.

It is favourable to concentrate these reconstructions in areas with strong populations.

Ethology

1. Full undisturbance especially at onset of breeding and during incubation.
2. Full undisturbance of feeding and gathering grounds.

Protection practice

In southern Hortobágy N. P. (Kunkápolnás swamps) there are experiments going on since four years to increase the population of the Grey-leg Goose with artificial nest-bases. The base is formed from reed-bounds and situated in reed (*Phragmites*), thin-leaved reedmace (*Typha angustifolia*) and bulrush (*Bolboschoenetes maritimus*). The last two habitats are infrequently occupied by the geese, but in reed the occupancy reached 90%.

This protection possibility has an especially good effect in intensive reed-management if there are some remaining reed-patches along channels, etc.

During the study we received many valuable data from veterinary *dr. Radó András* and herdsmen knowing the area exceptionally—we are thankful to all of them.

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