

Historical and recent distribution, population trends and protection strategies of Montagu's Harrier *Circus pygargus* in Hungary

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Zusammenfassung

Geschichtliche und jetzige Verbreitung, Populationstrends und Schutzstrategien der Wiesenweihe in Ungarn

In Ungarn war die Wiesenweihe ein regulärer aber sporadischer Brutvogel vom Ende des 19. Jahrhunderts an. Es gibt traditionelle Brutplätze wie den Hanság (Westungarn) und die Feuchtwiesen und Sümpfe des Kiskunság (Zentralungarn). Die Population wurde jedoch nie auf Landesbasis erhoben. So gibt es keine verlässlichen Daten über Größe, Trends und Brutverbreitung der Art. In den 30-er Jahren nistete der beträchtlichste Teil im Hanság mit 20-25 Paaren. Das Minimum der Population wurde vermutlich in den 70-ern erreicht durch Habitatzerstörung (ausgedehnte Feuchtgebiete wurden entwässert), Jagd und Gebrauch nichtabbaubarer Pestizide sowie durch Auslegen vergifteter Eier zur Eindämmung der Rabenvögel.

Seit den letzten 25 Jahren steigt jedoch die Zahl der Wiesenweihen wieder. Die gegenwärtige Gesamtpopulation wird auf 250-300 Paare geschätzt. Obwohl die einzelnen Brutpopulationen eng lokalisiert sind, dehnt sich das Verbreitungsgebiet kontinuierlich aus. Paare brüten über das ganze Land sowohl in traditionellen Biotopen wie Torfsümpfen, Sümpfen und Feuchtwiesen als auch in Grasländern und Getreidefeldern. Die Zunahme ist deutlich im Osten des Landes, wo die Art die Nistplatzstrategie geändert hat und nun auf agrarisch genutztem Land der Großen Ebene brütet. Der Wechsel vom optimalen zum Getreidebrutplatz verursacht beträchtlichen Niedergang im Bruterfolg, da die zweite Hälfte der elterlichen Zuwendung mit der Erntezeit zusammenfällt und einige Bruten durch die Mähmaschinen zerstört werden. Dank angewandter Schutzmaßnahmen – hauptsächlich in der Heves-Ebene – bringen die Brutpaare in agrarisch genutztem Land hier fast alle Jungen hoch.

1. Historical background*

First reports on the breeding of Montagu's Harrier in Hungary were published in the second half of the 19th century. These data were based on observations only, evidences as collected clutches/eggs or shot individuals were missing. According to LAKATOS (1876, 1878 and 1898) the Montagu's

Harrier was the rarest among the four Harrier species breeding in Hungary at that time. This species probably bred in greater number before the river regulation, e.g. in the region of Hanság, Lake Fertő and Lake Balaton (i.e. in West Hungary) and even in East Hungary in the

In this article I discuss the distribution of the species within the present borders of Hungary, even regarding the historical data related to the period before the Trianon Treaty, 1919.

floodplains of Tisza and Kőrös Rivers (LAKATOS 1878, 1898). He supposed that the reasons for the population decline were the river regulation and drainage measures. (The extension of flood-free areas as a result of river regulation was more than 20 000 km² regarding the territory of present Hungary, i.e. about 24 % of the present area of the country (IUCN 1995). The cut-off meanders dried out and huge, formerly valuable and useful wetlands were lost.) Beside the observational records the first Montagu's Harrier clutches were collected at the end of the 19th and at the beginning of the 20th century (SCHENK 1931) from the region of the Hanság and the middle of the country (Ürbő). There are some data on individuals shot during the breeding season (e.g. 28.04.1886. Fonyód, 09.05.1897. Hanság, 04 and 06.06.1897. Dunaharaszti: SCHENK 1931; moreover 15.05.1890. Fertőszéplak, FRIVALDSZKY 1891) which can indicate as well, that the species did breed in West Hungary at that time. However, from 1903 there were no publications neither on observations nor on collected clutches or individuals shot during the breeding season. After that gap of a quarter of a century the next data was published by RÉZ (1937) who found a clutch at Diósjenő in 1928. Two days later he shot a female bird on that area wearing an incubation patch. In the same year the species was observed at the Kis-Balaton during the breeding season and moreover an adult male was shot in the Hanság (SCHENK 1931). In 1929 SCHENK (1931) collected two clutches at Urbő and observed the species next year, too, but there was no breeding attempt.

From the early thirties of the twentieth century more and more evidence was published about the nesting of Montagu's Harrier, mainly from the north-western part of the country. Thus three broods – a total of 12 young – were transported from

Moson county to the Budapest Zoo in 1930 (SCHENK 1931). That year a male was shot on 03.06 in the same region (KIRÁLY 1934a). Further observations during the following years: 1932 – fledged young with the parents at Barcs, 1933 – five young sent to the Budapest Zoo from Ócsa (SCHENK 1931). In 1933 one brood was found in the western basin of the Hanság, however the breeding population was estimated at four pairs (KIRÁLY 1934b). Next year he found three clutches within 200 m from each other on the same area and later he was informed about a fourth brood with three well-feathered young (KIRÁLY 1934a).

Owing to STUDINKA's (1942) excellent study on the breeding biology of the Montagu's Harrier we know that the most important breeding habitat for the species was the region of Hanság, first of all in the surroundings of Lébény during the 1930s. At that time he estimated the breeding population at least at 20-25 pairs. That region is a traditional breeding area of Montagu's Harrier. Presumably they started to breed in greater number during the 1880s after the peat mining activities when in the middle of the Hanság the peat was dug out from an area of ca. 5000 hectares in parallel strips. These 0.5 m deep pits silted up with ground water, and marsh vegetation could flourish. At that time one side of the strips was surrounded by Alder groves, the other by extended grasslands. During spring the strips dried out sufficiently to allow the harriers to nest in the sedge. In 1931 and 1932, the first two years of his study STUDINKA found 5-5 Montagu's Harrier nests, while in 1933 he found 24 nests, because he spent six weeks on the area and moreover, they did not shoot birds during spring contrary to the previous year practice, when 15 birds were shot (STUDINKA 1942). Hunting was carried out to decrease the damages caused by harriers in the small game populations. However, 21 birds were

shot later in the season that year, and other 17 during the next year, as well (VASVÁRI 1934).

During the next years the pits were gradually afforested causing a considerable population decline due to the unfavourable changes of the habitat. Thus in 1941 the extension of the originally 5000 hectare area decreased to 600 ha and as a consequence the population of Montagu's Harrier consisted of less than 10 pairs (STUDINKA 1942). Ten years later, based on his censuses made during the years of 1949 and 1950, PÁTKAI (1954) estimated the population size at 5-6 pairs but according to STUDINKA (1957) the breeding population was about 10-15 pairs during the first half of the 1950s. 25 years later at the end of May HORVÁTH walked all over the Hanság. At that time the whole area was already afforested. He found only one breeding pair of Montagu's Harrier in the north-western part of the region (HORVÁTH 1983), however, it is sure, that he underestimated the population, because the local ranger of the

protected area knew 8-10 breeding pairs per year between 1975 and 1980 (Tibor FÜLÖP, pers. comm.).

Data on nesting of the species regarding other regions of the country are sporadic. There are some publications on isolated breeding areas of the Montagu's Harrier from the second half of the 1940s. In 1947 KEVE and PÁTKAI found a non-complete clutch in the Kis-Balaton (KEVE 1950). This was the first evidence for the breeding of the species from that region. During the next years the species bred regularly in the Kis-Balaton in presumably increasing numbers. Thus STUDINKA estimated the breeding population there at six pairs in 1954, TEFFEL at four pairs in 1969 (KEVE 1976). Data connected to the Kiskunság region, i.e. the peatbogs at Ócsa, a traditional breeding area of the species, arose from the beginning of the 1950s. Montagu's Harrier was a regular breeder at that region, and its population size was estimated at 3-4 pairs during the early fifties (SOMFAI and SZIJJ 1955).

2. Population trends

As we could see above, Montagu's Harrier was a regular but sporadic breeder in Hungary from the end of the 19th century. There are some traditional breeding areas such as the Hanság and the wet meadows of the Kiskunság. However, the population was never monitored at country level, thus we have no reliable data neither on the size of the breeding population nor on the breeding range of the species. In the literature there are some estimates regarding the total population size, but their reliability is questionable because of the lack of national censuses. Thus at the end of the 1960s the Hungarian population of Montagu's Harrier was estimated at 20-25 pairs (GLUTZ et al. 1971). In the year of 1975

BÉCSY and KEVE (1977) estimated the population size at 10-15 pairs. Almost 20 years later BANKOVICS's estimation (in CLEMENS 1993) was 150 pairs, while according to GORMAN (1996) the Hungarian population consisted of 200-250 pairs during the mid 1990s. The latest estimation on breeding numbers was published in 1998 with 100-200 pairs (MAGYAR et al. 1998).

It is almost sure that there did not take place such great fluctuations in numbers of the species. We know that numbers are on the increase at least during the last 25 years. Although breeding populations are rather localised, the range of the species extends continuously. Pairs breed across the country both in traditional habitats such

as peatbogs, marshes and wet meadows as well as in grasslands and cereal croplands.

Current population size can be estimated at 250-300 pairs.

3. Recent population size and range

3.1 The Transdanubian region (West Hungary)

This region includes the traditional breeding habitats such as the Hanság. The second considerable decline of the Montagu's Harrier population in the Hanság has started at the end of the 1970s (FÜLÖP 1978). The several thousands of cattle introduced to the region at that time resulted in habitat destruction. However, changes in the population size do not show a clear trend. The number of pairs decreased to 5-6 till the end of the eighties, when a recovery to 14-15 breeding pairs took place in 1989 (T. FÜLÖP, pers. comm.). Greater part of the population nested in the peatbog vegetation, while three pairs bred in cereal fields. Similarly to the 1930s when the density of harriers was high, two smaller colonies were established within one hectare with two and three pairs, respectively (T. FÜLÖP, pers. comm.). Since then their numbers have decreased continuously. Nowadays only 2-3 pairs can be found on the eastern part of the Hanság (T. FÜLÖP, pers. comm.). Reasons of the catastrophic decline are not known.

Previously the Kis-Balaton was a characteristic breeding area of the Montagu's Harrier. During the last decade their numbers varied between 2-5 pairs in the region. The species occupies for breeding both the autumn cereal and the drying wet meadows.

The third traditional area in the Transdanubia is the Sárrét. The breeding population is estimated at 3-5 pairs and a further 2-3 pairs may be added regarding the

suitable neighbouring areas. The species nests mainly in grasslands.

Breeding attempts of the species were observed in the Marcal basin, too. In 2001 two pairs laid a clutch in a 500-600 hectare large area of reeds with willow bushes. Both broods were unsuccessful. Due to the last two years of drought mowing started on the area even in May and presumably broods were destroyed.

On the northern part of the region in Komárom-Esztergom county 6 pairs were observed in 2001. The breeding population varies between 6-10 pairs.

The species breeds sporadically and irregularly in 1-3 pairs throughout the region in suitable habitat in the Balaton Upland, the southern part of Lake Balaton and Lake Velencei and to the south of Pécs.

3.2 The Great Plain

Kiskunság

Nowadays, Montagu's Harrier breeds in highest numbers in the traditional wetland areas between the Danube and the Tisza. The prime habitat runs from North to South between Ócsa and Hajós. The total extension of the area is about 6000 hectares. Harriers nest mainly in willow swamps, sedges or wet meadows. The size of the breeding population is estimated at 70-100 pairs. We have some details regarding the northern part of the region among Dabas-Kunpeszér-Kunadacs-Kunbaracs-Tatárszentgyörgy. The breeding population has been varying between 18-22 pairs since 1996 (András MÁTÉ, pers. comm.). Fluctuation in numbers depends on the weather

conditions, namely years with more precipitation provide better nesting conditions for harriers. Besides the dominant nesting habitat i.e. wet meadows, harriers breed in the surrounding agricultural lands, in alfalfa or cereal crops, in a smaller number regarding the whole area.

Tápió and Jászság regions

In 2001 during the population survey of the whole area 13 Montagu's Harrier breeding pairs were found. Main habitats are the wet meadows and the grasslands, while only three pairs bred in cereal crops. The population breeding in traditional habitats is stable regarding the last decade. There is no need for nest protection in that habitat because the areas are undisturbed.

Heves Plain

This region is a new breeding area of the Montagu's Harrier. The majority of the species breeds in cereal crops. First observations were made by Tibor BALÁZS from 1980, who made considerable efforts to save the threatened broods from harvesting activities. During the 1980s the breeding population varied between 1-5 pairs (AMBRUS 1993, T. BALÁZS, pers. comm.). Since then the population has increased slowly up to 8-12 pairs (I. FÁTÉR, pers. comm.). The main breeding area is situated around Pély and Vesznek. At that region 2-3 pairs form a semi-colony in high density years. In 2001 five out of the eleven nests were bordered with plastic fens. Young fledged successfully in about 20-50 % from broods without nest protection, while regarding the protected nests almost all young fledged. Thus protective measures are essential in that region. The majority of the nests were built in cereal crops, however in some areas wet meadows were utilised as well by the species.

Hortobágy

First record of the Montagu's Harrier during the breeding season came from 1977 (KOVÁCS 1984). The first observation on breeding was made in 1981, when two nests were registered on the western side of the national park (KOVÁCS 1996). After a few years of interruption the next breeding was noted in 1985: two pairs bred near Nagyiván (KOVÁCS 1996). Since then the species is a regular breeder of the region in gradually increasing numbers. Thus it appeared in 10 pairs in the southern steppe areas in 1992 (KOVÁCS 1993). In 1994-1995 the size of the breeding population was doubled reaching 19-20 pairs. At that time the species has already populated all the southern steppes (KOVÁCS 1996). The increasing rate is rather high, the population was estimated at 28-30 pairs in 1997 (KOVÁCS in HADARICS 2002). In 2001 the species bred in the same number. That year 11 pairs bred at the *Zám puszta* (steppe) in an area of about 1000 hectares (G. KOVÁCS, pers. comm.). Characteristic nesting habitats are the wet meadows, alkali flats and sometimes grasslands. Nesting of the species in cereal crops is rare in the region.

Békés county and the Körös Rivers

Main breeding areas of the region are situated in the surroundings of Dévaványa. First observations were made on 1-2 pairs at the end of 1980s (SZÉLL 1999). The population increased slowly, current population can be estimated at 6-8 pairs. Regarding other areas of the region, such as the floodplain of Körös Rivers the species breeds there regularly in stable but smaller numbers. The extension of the total area of the floodplain (between dikes) is about 10 000 hectares, the number of Montagu's Harrier pairs is ca. 8-10. The species occupies every suitable habitat (wetlands and

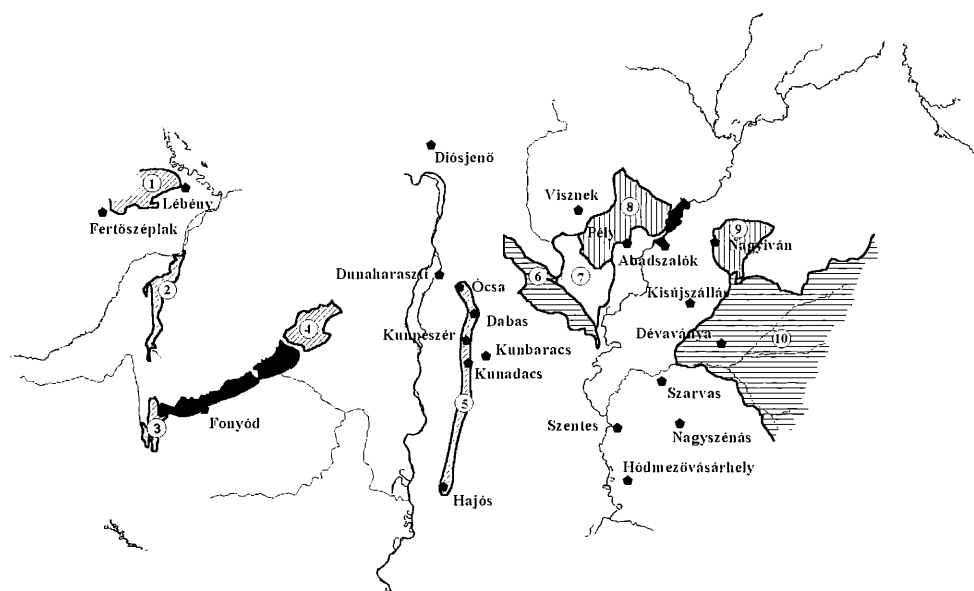


Fig. 1. Historical and recent breeding areas of the Montagu's Harrier in Hungary: 1. Hanság, 2. Marcal-basin, 3. Kis-Balaton, 4. Sárrét, 5. Main traditional breeding areas in the Kiskunság, 6. Tápió region, 7. Jászság region, 8. Heves Plain, 9. Hortobágy, 10. Region of Körös Rivers. – *Abb. 1: Historische und jetzige Brutgebiete der Wiesenweihe in Ungarn.*

grasslands), but the range is quite dispersed within the region (which extension exceeds 150 000 ha), there can be great distances among breeding pairs. Thus 1-2

pairs can be found regularly in the surroundings of Hódmezővásárhely, Nagyszénás, Szentés, Szarvas. The total number of the region is estimated at 25-30 pairs.

4. Threats

During the past century the most important threatening factor for the Montagu's Harrier was habitat destruction. Landscape change due to human activities such as river regulation and drainage of wetlands, which was often called "land reclamation" destroyed many prime breeding habitats for Montagu's Harrier causing a significant decline in its population (However, in the Hanság, the only great population extension of the species was initiated by another human intervention: the peat utilisation.).

In the past other main factors were the shooting and the use of persistent pesticides as well as the use of poisoned eggs to decrease the number of Corvids. Since the end of the 1970s these latter ones have no effect on the Montagu's Harrier population, owing to the strengthened legal regulations. Recently the main problem is the transformation of grasslands into agricultural lands and moreover the intensification of agriculture.

The first report regarding threats for the

species was published by KIRÁLY (1934a). He assumed that in the western basin of the Hanság several Montagu's Harrier broods failed because grasslands with sparsely grown reeds – where the harriers bred – used to be mowed. First data on the species breeding in cereal fields and on the connected conservation problems were published by ENDES. In 1979 he observed a pair nesting in cereal at Abádszalók and another one near Kisújszállás in 1980 (ENDES 1981). Harvesting activities coincided with the parental care period, how-

ever, he succeeded to save the chicks owing to a protective zone left around the nests in both years. This problem could have arisen earlier as well because the species previously bred through several years in a considerably disturbed, c. 2 hectare reed-sedge vegetation where reed mowing was done even in May (ENDES 1981).

Similar problems have arisen in other regions of the country from the 1980s when the tendency for the species occupying agricultural fields strengthened considerably.

5. Protection strategies

First protection measures were carried out by STUDINKA during the early 1930s in the Hanság. At that time shooting birds of prey including harriers was a common practice because these birds were considered to be harmful on the small game populations especially near pheasantries. This was the case in the Hanság as well. To save as many birds as possible from shooting STUDINKA collected a total of 83 young harriers (6, 17 and 60 in 1931, '32 and '33, respectively) and after hand-raising he ringed and released them at the end of the breeding season (STUDINKA 1942). Later the landowner wanted to kill off the species from his area based on similar reasons mentioned above. STUDINKA and his colleagues applied another method to save at least one part of the Montagu's Harrier population. They caught and collected the fledged young birds, put them into a big cage and moved by coach to another region far enough from the fledging area, where the birds were released.

Recently the main threatening factor is connected with the change of nesting strategies of the species. Namely, more and more Montagu's Harriers occupy agricultural lands for breeding during the last 25

years. Because the species completes the clutch in May and raises the chicks in June–July, the second half of parental care coincides with the harvesting period when several broods are destroyed by mowing machinery. Usually these lands are situated outside protected areas. Thus applying conservation measures could be difficult.

The above problem was especially due to the Heves Plain since the early 1980s. The region is characterised by huge private agricultural lands where Montagu's Harrier breeds in increasing numbers. A volunteer, Tibor BALÁZS started to save the threatened nests in 1980. Between 1980 and 1988 he found a total of 25 Montagu's Harrier broods in the surroundings of the village of Hevesvezekény. He had to collect the nestlings from 13 out of the 25 broods due to the harvesting activities (T. BALÁZS, pers. comm.). The chicks were hand-raised and released. Five broods fledged before harvesting, young successfully fledged from another five broods owing to the *in situ* protection, while two broods were destroyed during mowing (T. BALÁZS, pers. comm.).

From the middle of 1990s the *in situ* nest protection was the main method in saving

the Montagu's Harrier broods (TÓTH and FATÉR 1997). In 1996-97 nine nests were bordered with plastic fen. The diameter of the bordered area was about 3-4 m. They have been applying the method without

paying compensation to the landowners. The loss in yield was not significant (the diameter of protective zone is 8-10 m) so they could agree with the farmers owing to previous discussion.

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Abstract

Montagu's Harrier was a regular but sporadic breeder in Hungary from the end of the 19th century. There are some traditional breeding areas such as the Hanság (West Hungary) and the wet meadows and swamps of the Kiskunság (the centre of the country). However, the population was never monitored in country level, thus we have no reliable data neither on the size and trends of the breeding populations nor on the breeding range of the species. During the 1930s the most considerable population bred in the Hanság where breeding of 20-25 pairs was registered. Presumably the population decreased to a minimum in the 1970s due to habitat destruction (extended wetlands were drained), hunting and the use of persistent pesticides as well as the use of poisoned eggs to decrease the number of Corvids. However, the numbers of Montagu's Harrier are on the increase at least during the last 25 years. Current

population can be estimated at 250-300 pairs. Although breeding populations are rather localised the range of the species extends continuously. Pairs breed all over the country both in traditional habitats such as peatbogs, marshes and wet meadows as well as in grasslands and in cereal crop lands. The population increase is characteristic in the eastern part of the country as the species has changed its nesting strategy and now occupies agricultural lands of the Great Plain for breeding. Shifting breeding area from the optimal habitat to cereal crop lands causes a considerable decline in reproductive output, because the second half of parental care coincides with the harvesting period when several broods are destroyed by mowing machinery. Owing to applied conservation measures – mainly on the Heves Plain – pairs breeding in agricultural lands are able to fledge almost all young.

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