Chancellor, R. D. & B.-U. Meyburg eds. 2004
Raptors Worldwide
WWGBP/MME

Protection of Montagu's Harrier *Circus pygargus* on the Heves-Borsod Plain with special attention to nesting on agricultural habitats

Imre Fatér, László Tóth and Enikő Tamás

ABSTRACT

Due to land development the natural nesting habitats of Montagu's Harriers, such as wetlands and swamps, have decreased drastically in the last century in Hungary. Because of the deterioration of these habitats a new nesting strategy developed. Cereal fields, especially winter wheat, became frequent nesting sites of the birds that could no longer find natural habitats. Nest site choice differs year by year, so the number of threatened pairs also varies.

In the early days of the breeding season almost complete protection and shade is provided by the cereals, but in the nrstling period these nests become endangered – in most cases harvesting machines kill the young that are still unable to fly. With identification of such nests before the harvest starts, and fencing round them to provide a relatively small protection zone the fledging of the young can be assured.

In the Heves-Borsod plain between 1995 and 2002 we intensively studied the nesting habits of Montagu's Harriers and carried out protection measures to save endangered nests. In these seven years we discovered 48 nests, 69% of which were in cereal fields and 31% in natural habitats. Out of 33 nests found in cereal fields 71 young fledged (67%) thanks to protection. Out of 15 nests in natural habitats 11 young fledged (47%) without intervention.

Considerable monitoring activity took place in Jász-Nagykun-Szolnok and Komárom-Esztergom counties as well.

INTRODUCTION

Montagu's Harrier *Circus pygargus* has been a regular but scattered breeder in Hungary since the end of the 19th century. The population probably

decreased to its minimum in the 1960-70s due to the destruction of natural habitats (drainage of swamps), the use of poisoned eggs and the persecution of raptors. In this period the Hungarian population was estimated at 20–25 pairs (Glutz 1971). In the last 25 years numbers have been increasing, thanks to protection, the banning of poisoned eggs and changes in hunting attitudes.

The species breeds all over the country, but it is not evenly distributed. Birds use traditional habitats such as swamps, marshes, wet meadows, but also cereal fields. Though the breeding population is rather concentrated in a certain area, its range is continually expanding. Today the population is estimated at 200–230 pairs (Toth 2002).

STUDY AREA

The study area includes the Heves plain, the Heves floodplain and the Borsod Plain. These areas are mainly flat and almost completely form part of the Great Hungarian Plain. A warm and dry climate, extreme temperature changes and high number sunshine figures are characteristic of the area, as well as a low annual precipitation average.

Most of the region is on elevated alluvial floodplain with medium waterlevels covered by loessy silt where, depending on the water table. different types of salty soils have developed. On most of the area agricultural usage is substabtial, but in some places natron steppes and pastures can still be found. In the southern part lowland floodplains protected from floods are typical, with meadow soils. Higher elevations are used as ploughlands, while the areas with higher groundwater levels are meadows or pastures.

The natural vegetation is characterised by different kinds of grass communities. The largest part is covered by natron steppe and natron swampy meadows, forming a complex with other saline communities.

METHODS

The basis of nest locating is field observation, especially the data in May. According to our observations the males of Montagu's Harrier keep a large hunting territory, often flying 8-10km from the centre of their territory or from the nest in search of prey. During our field excursions, based on repeated observations and knowledge of traditional nesting places, we are able to define the territories. Following the direction of a bird carrying prey can provide additional information in defining the territory. Observation of the spectacular courtship flight provides a fairly precise indication of a nest. After this, based on observation of the breeding pair passing prey to each other, as well as the bringing of nest material or landing with prey, we determined the exact location of nests. Approaching a nest is only safe in the period before harvesting, when young are already well developed.

After negotiations with the land users, before the harvest begins, the nests are visited, in order to designate the protection zone and to place a fence around the nest. The best way to do this is to direct somebody towards the nest by hand signalling or mobile phone. If the female is on the nest, she flies off the nest before the observer gets there, usually when he is 5-6 metres away. It is then easy to find the nest. This needs to be fenced with a thick net around a

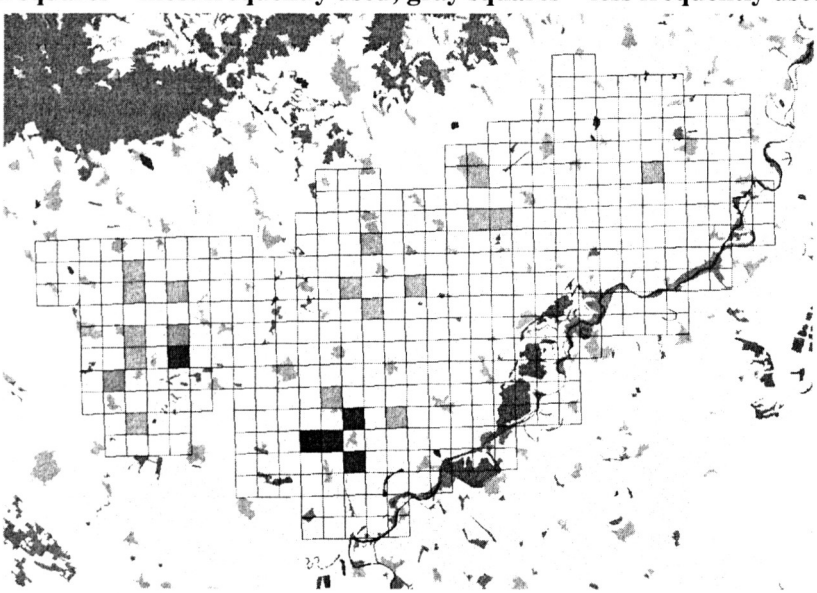
diameter of 4-5 metres. This has two reasons. The net prevents larger nestlings from straying very far from the nest and predators from reaching the young. After fencing has been completed, the female usually returns to the nest within 1-2 hours, and continues feeding the young. The fledglings can escape from the fenced nest when they grow big enough to fly.

In addition, we designate a 100m wide protection zone around the nest, in which the crop is left standing during the harvest. This causes no significant economic loss, so the land users are willing to co-operate without any form of financial compensation.

RESULTS

On the Heves-Borsod plain between 1995 and 2002 we discovered and investigated 48 nests. We found there were traditions in nesting habits. Breeding pairs used the same cereal field for several years, or chose a new nest site very near to their previous year's nest. The location of the discovered nests can be seen on the UTM map below.

Figure 1. Map showing location of Montagu's Harrier nests in the study area. Black squares = most frequently used; gray squares = less frequently used.

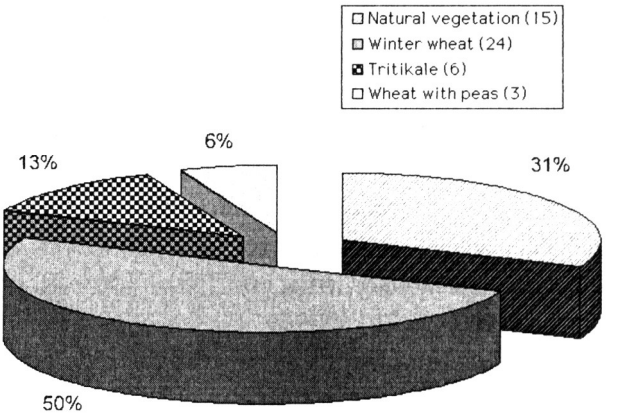


According to our experience 69% of the nests we found were in cereal fields, and only 31% were located in swampy meadows that can be considered as natural habitats. Among cereals, the majority of nests were in winter cereals, especially if we also consider wheat with peas as winter cereals.

In Hungary the breeding season of Montagu's Harriers begins with the laying of eggs in the first week of May. The young hatch at the end of May or beginning of June and they fledge in July. The harvesting of winter wheat in the study area begins in the first week of July and ends approximately in mid-July or even early August. If we compare the harvesting dates with the fledging dat4es of the young, we can see that with nest sites in cereal crops most

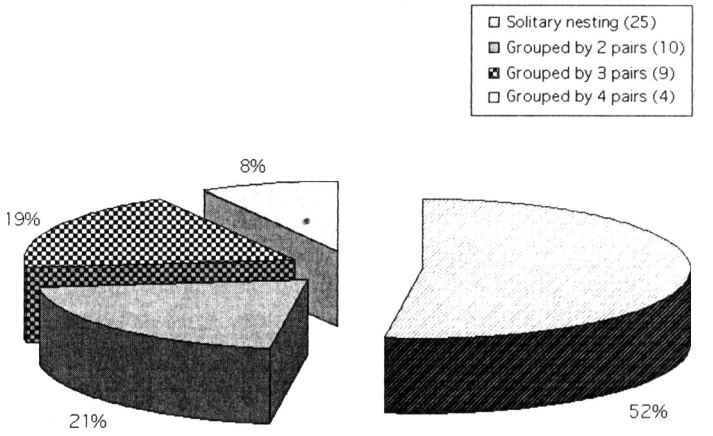
breeding attempts would be unsuccessful without active protection measures.

Figure 2. Nesting habitats of Montagu's Herrier on the Heves-Borsod Plain, 1995-2002, N=48.



We have observed a kind of colonial behaviour in 48 % of the nests: in five cases two pairs, in three cases three pairs and in one case four pairs formed loose colonies by breeding together. We suppose that the reason for this is that they can keep marauding predators or crows clear of the nests more successfully if they are close to each other. Despite this, solitary nesting was recorded in the remaining 52 % of cases.

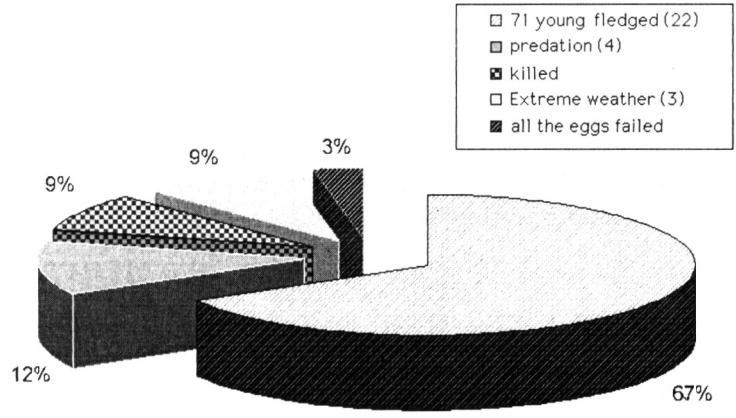
Figure 3. Proportion of pairs involved in solitary or grouped nesting on the Heves-Borsod Plain, 1995-2002. N=48.



Out of the 33 nests found in cereal fields, 22 cases were successful, altogether producing 71 young fledged. At all of these successful nests active protection measures were taken. In these cases only three young died and one disappeared, so the success of our protective intervention can was obvious. Predation was recorded at four nests, still with eggs. These nests were not yet fenced, so we were unable to save them. Three nests were destroyed by the harvesting combines, because we were unable to find them in time. Three nests

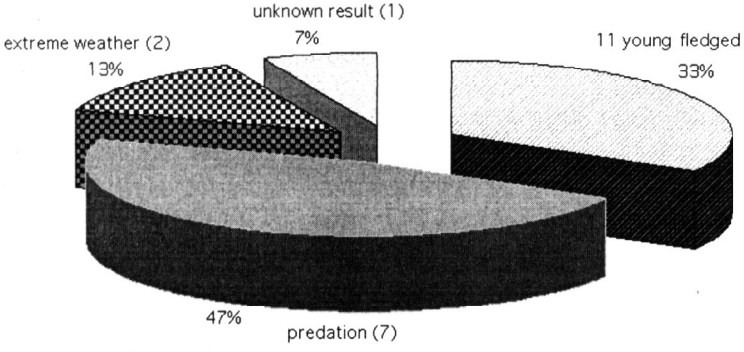
were destroyed by extreme weather conditions, due to flooding and high precipitation. In one case all the eggs proved to be infertile.

Figure 4. Breeding results if Montagu's Harrier nests in cereal fields,1995-2002. N=33.



In the study period we found 15 nests in natural vegetation, out of which altogether 11 young fledged. Out of these 15 nests none was fenced, and maybe this was the reason for seven of them to become victims of predation, still with eggs in them. Flooding and heavy rainfall destroyed two of these nests. In one case breeding success is unknown.

Figure 5. Breeding results of Montagu's Harrier nests in natural vegetation, 1995=2002. N=15.



CONSERVATION

During our protection activities, it became clear that without intervention only 15-20 % of Montagu's Harriers' nests located in agricultural areas can be successful. Success without active prevention is possible only if a pair begins nesting relatively early and the harvest is late.

Nests in agricultural land can be found fairly easily by observing the behaviour of the breeding pairs. With the designation of protection zones and fencing of the nests, fledging of young can be almost ensured, so that breeding

success exceeds that of pairs nesting in natural habitats.

The application of protection zones causes no significant decrease in the income of land users. The negotiation with land users has been successful in every case. Based on our experiences we recommend application of this method in other regions too, since it is relatively cheap and very effective in its results.

ACKNOWLEDGEMENTS

We would like to thank all of the conservationists and land users who facilitated the survey and protection activity. We express our special thanks to the volunteer birdwatchers working in the area, who participated in our efforts, and to NAGY Károly for editing the UTM map.

REFERENCES

GLUTZ, U.N., K.M. BAUER & E. BEZZEL 1971. *Handbuch der Vogel Mitteleuropas 4.* Akademische Verlaggesellschaft. Frankfurt am Main. p. 387.

TOTH, L. 2002. Historical and recent distribution, population trends and protection strategies of Montagu's Harrier (*Cirus pygargus*) in Hungary (unpublished).

Imre Fatér and László Toth
MME/Birdlife Hungary,
Költö út. 21,
H-1121 Budapest,
Hungary

Enikö Tamás,
Bükk National Park Directorate,
Sânc út 6,
H-3300 Eger,
Hungary