Orn. Anz. 41: 167-174

Present status and conservation problems of Montagu's Harrier *Circus pygargus* in Southeast Poland

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Zusammenfassung

Status und Schutzprobleme der Wiesenweihe in Südostpolen

In Südostpolen nisteten in den 90er Jahren ungefähr 95-105 Paare der Wiesenweihe, etwa 8 % der Gesamtpopulation Polens. 25-30 Paare nisteten im Lublin Oberland, 45-51 in Polesie Lubelskie und 20-30 im Leczna-Wlodawa Seengebiet. Im Masoviateil Südostpolens und dem landwirtschaftlich genutzten Teil des Tarnogrod Plateaus, Pobuze, sind 2-3 Brutpaare bekannt. Die Kalksümpfe bei Chelm (51°08'N, 23°37'E) stellen den Verbreitungsschwerpunkt der Wiesenweihe in Südostpolen dar. 1985-88 gab es dort 32-42 Brutpaare. In den Folgejahren nahm diese Population stark auf 14-20 Paare ab.
Die hauptsächlichen Schutzprobleme liegen im radikalen Anwachsen der Fuchspopulation und der Rabenvögel, welches zu erhöhtem Prädationsdruck führte. Eine andere echte Bedrohung ist die Rezession auf dem Landwirtschaftssektor, die zum Verlust regelmäßig gemähter Wiesen und Weiden führte, die Nahrungshabitate für Wiesenweihen sind. Menschliche Infrastrukturen führten zur Fragmentierung des Jagdgebietes der Wiesenweihe.

Introduction

The interest in Montagu's Harrier *Circus pygargus* has been increasing recently in Europe. This species nests largely in habitats reclaimed as croplands in the western part of Europe, whereas in East Europe it nests mostly in natural habitats like vast marshes (KROGULEC 1997). In Poland, the number of Montagu's Harriers was only 350-400 pairs in the mid 80ies (TOMIALOJC 1990). Because of its number and numerous threats this species appeared in the first edition of the Polish Red Data Book of Animals (GLOWACINSKI 1992). Then the number of breeding pairs of Montagu's Harrier in Poland began to increase rapidly. Therefore the species was excluded from the second edition of this book (GLOWACINSKI 2001). This however does not exempt us from studying the population dynamics of the species and its breeding parameters. This is particularly so in Southeast Poland, where areas have been preserved in which the species finds natural habitats for breeding. The purpose of this paper is to present the status and protection problems of Montagu's Harrier in Southeast Poland, where the greater part of the population of the species nests in natural habitats.

Distribution of population and breeding habitats

In all, about 95-105 of Montagu's Harrier pairs nested in the area of SE Poland in the 90ies, which constituted 8 % of their total population of Poland. In the Lublin Upland, which makes up about 40 % of SE Poland, only 25-30 pairs nest. The area is of agricultural character. From this area reliable bits of information came about the first case of nesting of Montagu's Harrier in corn-fields in SE Poland in 1989. Because of scanty marshes in the Lublin Upland, Montagu's Harriers nest in neglected, waterlogged meadows in the valleys of the rivers Wieprz, Huczwa and Bug, where in their low parts approximately 15 breeding pairs were found in the early 90ies (GROMADZKI et al. 1995). A small number of pairs (4-5) nest in the neglected fish ponds (KITOWSKI et al. 2000).

45 to 51 breeding pairs nested in the area of Polesie Lubelskie, of which 20-21 pairs nested in corn-fields in areas of extensive monocultures of former government farms (Parczew Plain) (JASZCZ & WOJCIAK 1993, WOJCIECHOWSKI 1999) and others were confined to the wetlands of Leczna-Wlodawa Lake District and river valleys of Tysmienica and Bug (BUCZEK & JASZCZ 1998). Leczna-Wlodawa Lake District in Polesie Lubelskie is a pretty large area in which Montagu's Harrier occur. Due to abundant marsh and peat bogs in it, at least 16 breeding sites of this species with 37-46 pairs were known in the late 60ies (DYRCZ et al. 1973). The population was reduced by partial draining done later in this area. From 1990 nesting (4-5 pairs) of Montagu's Harrier has been observed in corn-fields in the Leczyna-Wlodawa Lake District. In all, 20-30 pairs of Montagu's Harrier nest in the area of Leczna-Wlodawa Lake District

In the Masovian part of SE Poland which makes up about 20 % of SE Poland, only 2-3 pairs nest in neglected meadows in valleys of the Wieprz river area (KROGULEC et al. 1998). A small number of breeding pairs (2-3) was discovered in the southern agricultural part of Tarnogrod Plateau, Pobuze.

The most important role in the occurrence of Montagu's Harrier in SE Poland is played by the area of Dubienka Lowland, and particularly the complex of calcareous marshes near Chelm (51°08'N, 23°37'E). This complex includes 3 reserves: "Bagno Serebryskie", "Roskosz", "Brzezno" (total 1049 ha) where 30-40 % of the population of SE Poland breeds (Table 1). In 1985-1988 there were 32-42 nesting pairs in semicolonies in the marshes overgrown with Saw Sedge *Cladium mariscus*. In the "Bagno Ser-

Tab. 1: Known breeding sites of Montagu's Harrier *Circus pygargus* with highest densities in SE Poland in the late 90ies. – *Bekannte Brutplätze der Wiesenweihe mit höchsten Dichten im Südostpolen der späten 90er Jahre.*

Name	Dominant plant	Protection status	Human impact	Number of breeding pairs
"Bagno Serebryskie"	*Cladium mariscus*	Reserve	high	4-6
"Brzezno"	*Cladium mariscus*	Reserve	high	4-5
"Rozkosz"	*Cladium mariscus*	Reserve	moderate	6-10
"Bagno Bubnow"	*Cladium mariscus*	Reserve in Poleski National Park	low	5-8
Total				19-29

ebryskie" reserve their density – 10 pairs/100 ha – was highest in Europe (KROGULEC & LEROUX 1994). In the following years their population unfortunately decreased rapidly, the result of which were 14-20 pairs in the mentioned 3 peatlands, which constituted only 48 % of their population in the second half of the 80ies (KROGULEC 1992, KROGULEC & LEROUX 1994, I. KITOWSKI unpubl. data).

Conservations problems and challenges of the future

Due to badly conducted methods of combating rabies at the beginning of the 90ies and the breaking down of the hide market in Poland a radical increase in the population of foxes *Vulpes vulpes* has followed since the mid 90ies. This resulted by the end of the 90ies in an almost threefold increase of the fox population in the whole country, which was calculated from the number shot by members of the Polish Hunting Association (PHA). The spring density in Poland (including the southeastern part) was estimated ranging from 1-20 indiv./10 km^2 (BRESINSKI & PANEK 2000). An increase of the fox population was also observed in SE Poland, though it is not as distinct as in the western part of Poland (BRESINSKI & PANEK 2000, unpubl. data regional branches of PHA in Zamosc, Chelm and Lublin). The results of studies on the population dynamics of Montagu's Harrier (KROGULEC et al. 2000) and those of other studies on the behaviour of Montagu's Harrier during breeding (KITOWSKI 1994, KITOWSKI 1998) allow us to connect the decrease in number of Montagu's Harrier in the calcareous marshes near Chelm with the increasing number of foxes. In that area, foxes caused also a decrease in the number of other ground nesting avian species such as waders: Lapwings *Vanellus vanellus*, Black-tailed Godwit *Limosa limosa*, Redshank *Tringa totanus* and Marsh Harrier *Circus aeruginosus* (BUCZEK & BUCZEK 1993, KITOWSKI 2000b, KROGULEC et al. 2000).

Since 1975 all birds of prey are protected by law in Poland. Montagu's Harrier has also benefitted, by this regulation, which resulted in an increase in their number in many areas of Poland (TOMIALOJC 1990). However, the number of species of raptors predating on nestlings and fledgings of Montagu's Harrier such as Marsh Harrier, Goshawks *Accipiter gentilis*, Lesser Spotted Eagles *Aquila pomarina* and Buzzard *Buteo buteo* also increased. Significant data concerning this problem are provided by observation from calcareous marshes near Chelm (BUCZEK 1994, KITOWSKI 1998).

Large area of peatlands which are the main breeding habitats of Montagu's Harrier in the SE Poland are subject to reservation protection (Table 1). Unfortunately, the legislative regulations totally forbid interference in processes taking place in the protected areas. Due to that the marshy areas have become refuges for the above mentioned avian and mammalian predators. Legislative regulations in Poland forbid extermination of corvids, too, which has resulted in dynamic development of the population of Ravens *Corvus corax*, Hooded Crow *Corvus corone cornix* and Magpies *Pica pica*. This concerns also predators in the area of calcareous marshes near Chelm (Table 2). In the past, the natural plant succession was limited by frequent fires caused by local farmers. Now, NGO members every year cut bushes of willows *Salix* sp. and birch *Betula* sp. in autumn or winter (BUCZEK & BUCZEK 1996).

Another real threat to Montagu's Harri-

er is starting to develop at present because of strongly marked recession of agriculture. Since the early 90ies, a progressive decrease in farm animal production has been observed, in particular with a very serious decrease in the number of cows, sheep and horses (ANONYMUS 2001, GLEBOCKI 2000). Highly developed animal raising in SE Poland favoured maintenance of intensively used large areas of pastures and meadows which are foraging areas decisively preferred by Montagu's Harrier in SE Poland (KITOWSKI 2000a, KITOWSKI & WOJTAK in press). Unfortunately, such intensive animal raising has become unprofitable because since the late 80ies the government of Poland has stopped subsidising all branches of the agriculture sector. As a result many pastures and regularly mowed meadows are being overgrown with thistles *Cirsium* sp., nettles *Urtica* sp. and reedbed *Phragmites australis* or other dense vegetation hindering Montagu's Harrier from foraging. Neglecting of meadows by abandoning their mowing in the river valleys has contributed to the appearance of new habitats for Montagu's Harrier in Poland (Table 3). Due to the increase of the area of these habitats, they can support the Marsh Harrier population in south-east Poland (BUCZEK & JASZCZ 1998, KITOWSKI 2000b).

Tab. 2: Breeding failure of Montagu's Harrier *Circus pygargus* during incubation and nesting period on calcareous marshes near Chelm (SE Poland). – *Brutausfall bei Wiesenweihen der Kalksümpfe nahe Chelm (Südostpolen).*

Period	1985-1988		1996-2000	
Factors	N	%	N	%
Mammal* and avian** predation	27	19.3	27	31.3
Human	–	–	4	4.7
Unknown	20	14.3	6	7.0
Total number of failed nests	47	33.6	37	43.0
Total number of known nests	140	100	86	100

* regular predation: *Vulpes vulpes, Nyctereutes procyonides*
regular predation: *Pica pica, Corvus corone cornix, Accipiter gentilis, Circus aeruginosus* incidental predation: *Aquila pomarina, Buteo buteo*

Tab. 3: Number of known pairs of Montagu's Harrier *Circus pygargus* in different habitats of SE Poland in the two last decades. – *Anzahl Wiesenweihenpaare in unterschiedlichen Biotopen Südostpolens der letzten beiden Dekaden.*

Habitats	1980-1990	1991-2000
Saw Sedge *Cladium mariscus* covered marshes	42-52	24-26
Sedge *Carex* sp. and willow *Salix* sp. covered marshes	20	20
Neglected meadows in river valleys	3-4	23-28
Neglected fishponds	2-3	4-5
Willow *Salix* sp. islands on river	2-3	–
Corn fields	1-2	24-26
Total	70-84	95-105

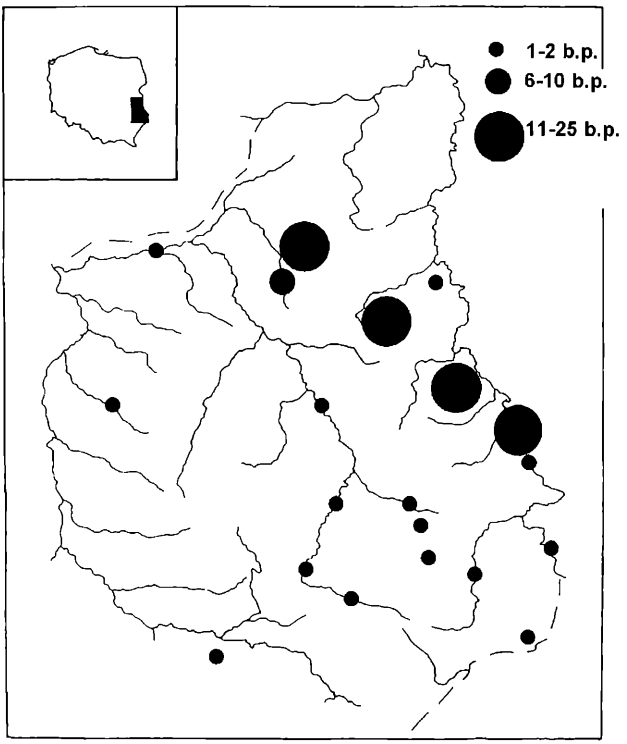

Fig. 1: Number of known pairs of Montagu's Harrier *Circus pygargus* in SE Poland (b.p. = breeding pairs). – *Abb. 1: Zahl bekannter Wiesenweihenpaare in Südostpolen.*

A slow but conspicuous accumulation process of arable land is observed in SE Poland. It takes also place around large areas of peat-bogs in Polesie National Park and the calcareous marshes near Chelm. This process results in the formation of monocultures with simultaneous disappearance of small elements of landscape (single willow trees, shrubs, ditches, small water bodies and others), which reduces habitats for the large prey spectrum for Montagu's Harrier. Large arable areas are sown with cereals harvested with combine harvesters and in some fields effective foraging of Montagu's Harrier is eliminated. Fields of rape and high-growing cereals (in contrast to short oats) are rarely used by Montagu's Harrier for foraging (KITOWSKI 2000a, KITOWSKI & WOJTAK in press). It is connected with the use of hearing by *Circus* species for hunting (CLARK & STANLEY 1976, RICE 1982).

As a matter of fact, the marshes, where the breeding populations of Montagu's Harrier find their refuges, are not endangered by drying at present as happened in the 60ies and 70ies (DYRCZ et al. 1973). However, a new alarming factor is the occurrence of human infrastructure processes on the most important breeding sites of Montagu's Harrier, i.e. the building of roads and residential areas. Most dangerous for them seems to be the planned circular road of the city Chelm, which is to run 500 m. near the "Bagno Serebryskie" reserve.

Human infrastructure leads to fragmentation of the hunting area of Montagu's

Harriers (WOJTAK & KITOWSKI 2001). The only positive thing in this complex of problems is limiting train service for economical reasons on railway which runs across the "Bagno Serebryskie" reserve. The steam-engines used on this railway line caused many fires in the reserve in 80ies and early 90ies. Now the only problem is the electrocution of birds (including Marsh and Montagu's Harriers) caused by telephone lines running parallel to the railway line. A similar situation is found along the electric railway line and the road from the town of Chelm to the Polish-Ukrainian border, which crosses "ecological corridors" between the reserves "Brzezno" and "Rozkosz"

Although a considerable part (ca. 30 %) of Montagu's Harrier population of south-east Poland nests in crop fields, fortunately (Table 3) this does not cause important protection problems, because most fledglings leave their nests before the harvest time.

In the light of the above information the most important factor in the protection of the Montagu's Harrier population in SE Poland is the preservation of large marshes. It should also be noted that conservation of natural habitats of Montagu's Harrier is of importance because these are breeding places of rare species. This concerns particularly the globally threatened Aquatic Warbler *Acrocephalus paludicola* and the Corncrake *Crex crex* (HILTON-TAYLOR 2000). The areas of land discussed have also provided refuge for many rare, almost extinct species of plants in Poland and Europe (BUCZEK & BUCZEK 1996, KUCHARCZYK 2000).

Increasing ecological awareness of the local people as indicated by the decreasing number of deliberately caused fires and by the disappearance of poaching, as well as NGO's active work predicts hopefully the conservation of Montagu's Harrier in natural habitats of SE Poland in future.

Abstract

About 95-105 pairs of Montagu's Harrier *Circus pygargus* nested in the area of SE Poland in the 90ies, which constituted approximately 8 % of their total population in Poland. 25-30 pairs nested in the Lublin Upland, 45-51 breeding pairs in the area of Polesie Lubelskie and 20-30 breeding pairs in the Leczna-Wlodawa Lake District. In the Masovian part of SE Poland and the southern agricultural part of the region (Tarnogrod Plateau, Pobuze) 2-3 breeding pairs are known. The complex of calcareous marshes near Chelm (51°08'N, 23°37'E) played the pivotal role in the occurrence of Montagu's Harrier in SE Poland. In 1985-1988 there were 32-42 nesting pairs. In the following years this population decreased rapidly to a remaining 14-20 pairs.

The main conservation problems are created by a radical increase in the population of foxes *Vulpes vulpes* and some corvids which resulted in increased cases of predation. Another real threat is the recession in the agriculture sector leading to loss of regularly mowed meadows and pastures which are foraging areas of Montagu's Harriers. Human infrastructure led to fragmentation of the hunting area of Harriers.

Key words: Montagu's Harriers, breeding habitat, south-east Poland

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