

New Developments on the Western Border of the Saker Falcon *Falco cherrug* range in Middle Europe

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ABSTRACT

The population of the Saker in the western part of the European range (Hungary, Slovakia, Czech Republic and Austria) has increased in the 1990s. The species has been breeding for the first time in the Czech-Poland border area (since 1990) as well as in Germany (1997) and since 1998 in Poland.

This marks a real extension. In the course of this process the Saker became progressively independent of the suslik (*Citellus citellus*), its former predominant prey, starting to breed outside the present and former suslik range. Here it preys mainly on birds, especially pigeons (*Columbidae*), becomes resident and is very flexible in its choice of breeding sites (cliffs, stick nests on trees and pylons etc.).

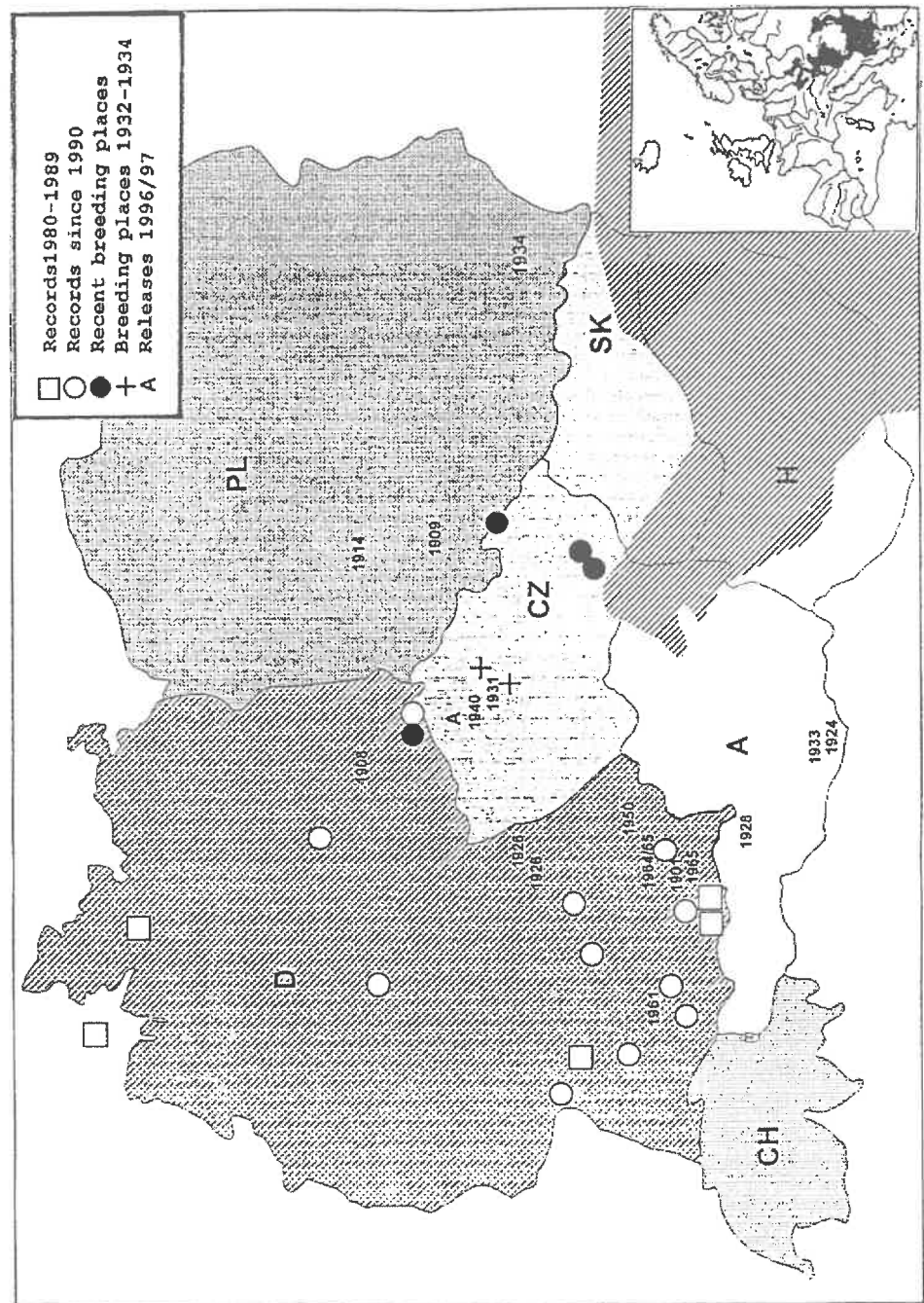
The new orientation in the feeding behaviour of the Saker is a result of ecological changes in Middle Europe, namely the conversion of agricultural landscape suitable for pigeons. The Saker exploits this food supply, which is not effectively available to Peregrines *F. peregrinus* and Goshawks *Accipiter gentilis*. Permanent colonisation by the Saker in Central Middle Europe seems possible.

INTRODUCTION

The Saker Falcon *Falco cherrug*, which was the banner-bird of Attila with the name *Turul*, ranges across Europe to nearly the same extent as did the Huns in their time. The westernmost breeding population was on the Hungarian plains together with adjoining parts of Romania, Yugoslavia (Serbia), Croatia, Austria (Wienerwald), Czech Republic (Bohemia) and Slovakia (Glutz *et al.* 1971, Cade 1982, Baumgart 1994).

Here the Saker is found in open, steppe-like habitats with low vegetation. During the breeding season the diet comprises mainly susliks. The range of the Saker in South-eastern Middle Europe was not long ago clearly correlated with that of the suslik. In the past no breeding of the Saker outside the suslik range was recorded. Past breeding records from Germany, for instance, are uncertain (Baumgart 1991).

Figure 1. Saker records in Central Middle Europe during the 20th century (according to August 1998). The small map shows the range of the suslik in Europe (according to Van der Brink 1972).



The range of the Saker decreased in the late 19th and early 20th centuries. The main reason was the destruction of steppes and dry grasslands or their cultivation leading to increase in vegetation cover. These habitat changes led to a reduction in susliks. The diet of Sakers in remaining mountain populations became more avian orientated. In the beginning partridges *Perdix perdix* were preyed upon, but with their disappearance the importance of pigeons grew. In some local Saker populations Lapwings *Vanellus vanellus*, Rooks *Corvus frugilegus*, Starlings *Sturnus vulgaris*, Thrushes *Turdus* etc. were an important food source (Frey & Senn 1980, Janossy 1983, Baumgart *et al.* 1993, Bagyura *et al.* 1994b). This situation is comparable with the one in Kazakstan. In this period the susliks decreased remarkably but in the newly cultivated areas the pigeons increased in such a way that they could substitute the appropriate positions in the Saker's prey composition (Korelow 1962).

Due to strong and effective conservation measures, as well as changes in diet, the Saker population in the western part of its European range has remarkably stabilised, especially in Hungary during the late 1980s and early 1990s (Bagyura *et al.* 1994a). The population estimate in this western region was 200-250 breeding pairs. But up until this time all breeding places were located in the range of actual or former suslik distribution.

EXTENSION OF SAKER BREEDING RANGE

A new situation occurred in 1990, when the species bred for the first time in the Czech-Poland-border area, outside the former range of suslik distribution. The diet of the 3 to 4 breeding pairs comprised almost exclusively feral Pigeons *Columba livia* and Wood Pigeons *C. palumbus*. The habitat comprises partly cultivated open fields with areas of higher vegetation cover. The falcons use nests in trees. Nothing is known about a former or recent suslik occurrence in this area (Kodelka & Petro 1994).

A real sensation was the first breeding of Sakers in Sächische Schweiz (Germany) in 1997 (Augst 1997). The breeding place is only a little more than 50 km north of the former northernmost breeding place in Duba (Bohemia), but also clearly located outside the former suslik range. The Sakers breed here on majestic cliffs sympatrically with some Peregrine pairs. They prey nearly exclusively on birds of different species with clear dominance of feral pigeons (up to now no Wood Pigeons). In 1997 and 1998 the Sakers bred unsuccessfully. In the first year the three chicks were robbed by Eagle Owls *Bubo bubo*. In 1998 there were disturbances around the time of hatching, possibly caused by problems in food supply.

According to Trommer (in Augst 1998) the Saker already breeds in Poland. In May (1998) three nestlings were found in a former Buzzard *Buteo buteo* nest approximately 8km north of the breeding sites in the Czech Republic.

The number of Saker records in Middle Europe during the last two decades, however, increased steadily (Augst 1998). The source of the falcons in Germany probably came from lost captive birds (for falconry or breeding). A young bird, however, found in Schleswig-Holstein in 1983 was banded in Hungary. Also the localisation of records in the region of the upper Danube and North German plains in the course of the river Elbe gave evidence for a natural origin of these birds. Here the last recorded Sakers of natural origin surely came from the breeding population in Bohemia in the years around the turn of the century.

DISCUSSION

What are the causes for this development? A warming up of climate is not very plausible as a promoting factor. The Saker has very high resistance to cold, and starts to breed in Inner Asia at temperatures of minus 20°C (Baumgart 1978). Clear changes in behaviour, feeding or breeding biology are not detectable. But what made Middle Europe so attractive for the Saker in last few decades?

In my opinion the main cause of this process is the transformation of the Middle Europe agricultural landscape. In farming more and more industrial methods of cultivation and harvest are

introduced, wide areas under crops have become common. Grassland species such as partridges, larks (*Alaudidae*) or bustards (*Otididae*) as well as hares (*Lepus*) and susliks disastrously decreased. The resources on these wide plains became exploitable only for species living and flying in from outside. The main representatives are pigeons (instead of partridges), starlings (instead of larks) and maybe even geese and cranes (for bustards). Because pigeons are the most characteristic and noticeable representatives of this process, it can be described in its essence as the conversion of the Middle European agricultural landscape in a way suitable for pigeons.

Pigeons benefit not only from their excellent flying abilities. Up to now they do not have any real predators in this sector. In open landscapes they mostly fly too low for the Peregrine and the plains are often too wide for effective attacks by Goshawks. They can be caught only by an enduring pursuit hunter able to fly very fast near to the ground with good acceleration and manoeuvrability (Baumgart 1996).

Hierofalcons, especially the Saker and Lanner, are suitable for this type of predation in Middle Europe. The Saker, however, has the advantage because its breeding range already reaches this area. Because the falcon now preys primarily on birds in level flight, the height of vegetation cover is no longer a critical factor, as it was when searching for susliks.

Although the Saker, Peregrine and even Goshawk all rely on pigeons, they hunt them differently and do not directly compete with each other even if they breed sympatrically. The change from mammalian to avian prey might also lead to pesticide problems for the Saker.

Long-term breeding of Sakers in Central Middle Europe seems possible with this new prey base. The Saker's high variability in selection of breeding sites is an additional advantage. Maybe the bird-hunting Sakers will show (or have already shown) some slight biometrical differentiations compared with the mammal-hunting Sakers (Pererva & Grazhdankin 1994), directed towards a slightly changed performance profile.

The Sakers of South-east Europe, depending on seasonal food supply in susliks, were previously highly migratory. The remaining population is now more resident with a continuous food supply. Especially immature birds now appear to move in a north-west direction. This could promote the formation of a Middle European breeding population. This change in migratorial behaviour may also be the result of intensified trapping of Sakers in the Middle East (Bär 1997) leading to a near extinction of the migratory part of the population. It needs to be clarified whether this new orientation in migration behaviour is natural or due to human interference.

The extension of the Saker breeding area to Central Middle Europe raises questions concerning the complex understanding of changes to their environment. Transformations in the agricultural landscape may bring not only losses but also new prospects.

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