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– ITS STATUS AND FUTURE

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Initial attempts at reintroducing the Peregrine Falcon *Falco peregrinus* to the Pieniny National Park (Poland)

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Abstract. Work within a national programme for the reinstatement of the Peregrine Falcon *Falco peregrinus peregrinus* saw reintroduction attempts made in 1993 and 1994 in S Poland's Pieniny National Park. Use was made of an artificial nest resembling the rocky niches favoured by the species, but equipped with a feeding pipe and remotely-controlled cover via which the birds were released. Three males about 42 days old were provided by a German breeder, placed in the nest on June 16th 1993, and released 10 days later. Flying efficiency was seen to have improved within 2 weeks of release, and interest in delivered food had been lost completely by the 32nd day. Between March and June of 1994, two of the three reintroduced birds were noted in the release area, and even on the artificial nest from which two females were later released (after adaptation) on July 6th 1994. This release matched that of 1993 in achieving a successful first stage (to the time of independent hunting).

Key words: Peregrine Falcon *Falco peregrinus*, Pieniny Mountains, mountain avifauna, reintroduction, endangered species.

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INTRODUCTION

The disappearance of the Peregrine Falcon in Poland has affected both the lowland and the mountain regions and is considered due to the influence of pesticides of the DDT group (Tomiałojć 1990). Declines in the concentrations of the metabolites of chlorinated hydrocarbons have been noted in recent years (Witkowski 1989, Gerriets & Saar 1985) and have created more favourable circumstances for active work to renew populations of the most endangered species of raptor. The Peregrine Falcon is certainly to be included in this category (Głowaciński 1992), because the number of known nests in Poland has lately fluctuated between 0 and 5 (Mizera & Sielicki 1995, Tomiałojć 1990).

Work within the Programme for the reinstatement of the Peregrine Falcon saw pilot attempts made in 1993 and 1994 to establish the species in Pieniny National Park. The aim was to gain experience in the setting-up of a cliff-nesting population of the falcon in Poland's mountains.

MATERIAL AND METHODS

The reintroductions were made in the Valley of the Pieniński Potok in 1993 and 1994. The wooden hacking box was installed on a rocky crag of Czerwone Skałki, between the peaks of Sokolica (747 m a.s.l.) and Góra Zamkowa (779 m a.s.l.), and at an altitude of about 740 m a.s.l. The nest mimicked the natural rock ledges preferred by Peregrine Falcons nesting in the mountains. The dimensions were of 1.3 x 1 x 1 m, with a platform measuring 1.3 x 0.7 m and furnished with an opening front door flap of wire netting. Cut longitudinally along the sides and ceiling were apertures covered with fine netting. The roof was fitted with a pipe of 10 cm diameter, through which food was dropped into the nest. The nest was suspended at a distance of about 3 m from the edge of the crag with the aid of steel wires. The exit from the nest was on the south side. The nest was camouflaged and the floor covered with coarse gravel. The front door flap was furnished with a system of lines to make it possible to manoeuvre it remotely. The 1993 reintroduction in-

volved three male Peregrine Falcons of the nominate race which were obtained for the purpose from a German breeder free of charge (CITES No. 2710/93, 2711/93 and 2712/93). The birds represented the Nordrhein–Scottish breeding line and were fitted with breeding rings nos. II BW 003 182, 183 and 184, as well as with red ornithological rings. The birds were obtained at the age of 20–21 days and were kept in adaptation aviaries until they reached the optimum age for settlement (with fully-developed thermoregulation, and the skill to deal with food by themselves). From this point on their rearing was based on the methods worked out by Weaver & Cade (1983).

The reintroduction in 1994 made use of two females from the same source (CITES export no A 190/94, import no. 4072/65/94). The numbers of the breeding rings were BW KK 94 0008 and 0009. From the four falcons obtained, the two youngest (ages 45–48 days) were selected, because the others had passed the optimal age for resettlement (Saar et al. 1992). These birds were presented to the Kraków Agricultural University, along with a breeding pair constituting a gift from the city of Stuttgart, with a view to building up the breeding base for the purpose of future resettlement.

THE COURSE OF THE RESETTLEMENT

The three male falcons were placed in the hack box on 16 June, 1993. The front door flap was closed to ensure that the birds did not leave the nest prematurely, and also to protect them from possible attack by predators. 24-hour watches over the nest began from that time onwards, and observations were made from a concealed watchpoint. Food was supplied twice a day through the pipe. In the morning, this took the form of two defrosted one-day-old chicks (about 60 g) per bird. Given in the afternoon, in contrast, were gutted and partially-plucked halves of domestic pigeons. Like the chicks, the pigeons were defrosted and allowed to warm to room temperature before being supplied. One half-pigeon (about 120 g) was given to each falcon. A willingness to accept the food provided was noted, along with an absence of conflicts over food between the birds. Feeding occupied the birds for about 40 minutes daily. To eliminate the possibility of dependence on man, every effort was made to minimize direct contacts with birds during the time of feeding. However, after seeing or hearing a person approaching with food, the falcons did call in a characteristic way, and adopted a "begging" position. The birds devoted a considerable amount of time (about three hours a day) to the observation of the surroundings. A similar period was given over to frequent training of the breast muscles through intensive exercising of the wings with many repetitions lasting 3–6 minutes or so.

The opening of the front door flap occurred on 28 June, 1993 after feeding, and the flight from the nest occurred after an interval of between 10 seconds and eight minutes. In the first phase, the falcons went to between 100 and 300 m of the nest, alighting in nearby trees or on nearby rocks. Only one of the three birds made vocalizations, while the other two remained silent. An unexpected deterioration in the weather occurred at around 17.00 on the day of release. Heavy rain fell and there was a strong wind. The falcons returned to the artificial nest, and made use of the food provided, on the day after release (29 June), at times between 11.00 and 17.00.

Food was provided twice the next day, but from 1 July the frequency of feeding was reduced to once a day, in the afternoon. Food at this point was placed not only in the nest, but also on nearby rocks. The falcons were observed subsequently for many hours and the first higher-altitude flights were noted between 5–7 July, 1993. The birds mastered the technique of soaring on thermals and diving at considerable speed, and they also made their first attempts to chase birds (a Fieldfare *Turdus pilaris* and a Song Thrush *Turdus philomelos*). 8 July, 1993 saw the three falcons in active flight despite unfavourable weather (strong wind and passing rain). Attacks on other birds of prey (Common Buzzard *Buteo buteo*, Kestrel *Falco tinnunculus*) and Ravens *Corvus corax* were observed many times between 9–15 July. In the course of these attacks, the falcons were effective in expelling the birds from the area of the nest. The afternoon hours (of favourable weather) saw the falcons catch insects (probably mayflies *Ephemeroptera*) rising into the air. "Joint" pursuit of insects, by the introduced falcons and a Hobby *Falco subbuteo*, was also observed. Pursuits of birds also became more frequent in this period, with the targets being Jays *Garrulus glandarius*, Stock Doves *Columba*

oenas and House Martins *Delichon urbica*. The area penetrated by the falcons in the period extended to about 350 ha.

The first signs of a lack of interest in the food provided were noted on 16 July. Only one of the three falcons took food from the artificial nest, and there was a clear extension of the area penetrated by the birds, with observations being made at distances of up to five km from the nest. Feeding stopped on 18 July, on account of the lack of interest shown. Proficient, independent falcons were observed daily in the reintroduction area between 19–29 July, and birds then appeared sporadically every few days between 30 July and 20 August. Falcons were seen for the last time on 22 August, 1993 and the stage of realization of intentions was reached.

Reconnaissance work in the area in 1994, prior to further reintroductions, resulted in several sightings of flying Peregrine Falcons between 20 March and 16 April. Two were seen sitting on the hack box on 25 March, and a long flight in the valley of the Pieniński Potok was observed on 16 June.

6 July saw two female falcons introduced to the hack box built the previous year. This was followed by a period (to 15 July), during which there was constant observation and regular feeding analogous to those of the previous year. The door flap of the cage was opened on 16 July, allowing the birds to live independently, and flights of the released falcons were observed daily from 17 July to 6 August. Feeding once a day (in the afternoon) continued until 14 July, when a lack of interest in the food was noted. The presence of two Peregrine Falcons was detected in different parts of the Pieniny National Park.

DISCUSSION AND CONCLUSIONS

The undertaking presented in this paper is part of work going on in parallel to re-establish different breeding populations of the Peregrine Falcon in Poland. Work of a similar nature is continuing successfully in other countries (Saar et al. 1992), and it would seem that the Polish programme for the reinstatement of the species might also be extended to create city-dwelling, urbanized populations of the species.

The system of "hacking" on the basis of an artificial nest is of practical value where there is no natural breeding population of the species in question and where it is impossibe to apply the highly effective method of "fostering", in which the eggs or nestlings of birds are adopted by pairs breeding naturally (Saar et al. 1992). Modelled on the natural rock ledges and crevices preferred by falcons nesting in mountains (Kleinstäuber 1990), the hack box ensures the safety of young birds until they fly from the nest, and also allows them the view of the surroundings which is essential if they are to gain an imprinted picture of the nest and thus return there easily when driven by the instinct to feed (Saar et al. 1992). In natural conditions, the birds would be fed by their parents in the vicinity of the nest. The age at which it was possible to free the birds from the artificial nest, along with the period of feeding, overlapped with those recorded in the natural breeding of the species (Ratcliffe 1980).

The choice of the Pieniny National Park as a place for the pilot reintroduction of the Peregrine Falcon to the mountains would seem to have been optimal from the point of view of both its legal status and natural characteristics. In addition, the construction of the artificial reservoir along the Dunajec would seem to have been particularly favourable for the reinstated population of Peregrine Falcons, since it allowed a considerable widening of the available food base by way of the presence of the birds linked with the aquatic environment which represent such an important component of the diet of the species (Brüll 1977).

Modelled on German experiences gained in resettling the species in mountains there (Saar et al. 1992), the method applied gained full confirmation in Polish conditions. It allowed the young falcons to be brought through the most difficult period of their lives up to the time of independence. In consequence, it may be said that the knowledge gained in the course of pilot reintroduction work in the Pieniny National Park in 1993 and 1994 may serve in further work to return to a more natural state, those areas of the Polish mountains impoverished by man.

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STRESZCZENIE

[Pierwsze doświadczenia w restytucji sokoła wędrownego w Pienińskim Parku Narodowym]

W ramach realizacji ogólnopolskiego programu restytucji sokoła wędrownego *Falco p. peregrinus* przeprowadzono w latach 1993–94 pierwsze, pilotażowe akcje zasiedlenia Pienińskiego Parku Narodowego. Realizatorzy tej części programu – Katedra Zoologii i Ekologii AR w Krakowie, Wydział Ochrony Środowiska Urzędu Wojewódzkiego w Krakowie, Dyrekcja Pienińskiego Parku Narodowego oraz Zarząd Wojewódzki Polskiego Związku Łowieckiego w Krakowie postawili sobie za cel odtworzenie frakcji populacji sokoła wędrownego zakładającej gniazda na skałach. Wybór Pienin na miejsce pierwszych reintrodukcji podyktowany był optymalnymi warunkami przyrodniczo-prawnymi tego obszaru. Objęty jest on ochroną jako park narodowy zarówno po stronie polskiej jak i słowackiej i obejmuje powierzchnię ok. 5 tys. ha. Obecność urwisk i przepaści, a także licznych półek skalnych, na których gnieżdżą się: bocian czarny *Ciconia nigra*, kruk *Corvus corax*, stwarza warunki dla bytowania sokoła wędrownego. Ponadto budowany sztuczny zbiornik na Dunajcu, kontrowersyjny z innego punktu widzenia, wydaje się być korzystny dla tworzonej populacji sokołów. Stanowić będzie znaczne rozszerzenie bazy pokarmowej poprzez obecność ptaków wodnych będących ważnym elementem diety sokoła.

Zasiedlenie oparto o system gniazda adaptacyjnego – będącego imitacją naturalnej wnęki skalnej – ulubionego miejsca gnieżdżenia się sokołów w skalistych górach.

Sztuczne gniazdo umieszczono na urwisku skalnym w Dolinie Pienińskiego Potoku. Zaopatrzono go w system zdalnego otwierania klapy dla uwolnienia ptaków oraz rurę do podawania pokarmu.

16 czerwca 1993 roku w gnieździe umieszczono 3 samce będące darami od hodowcy z Niemiec, Kurta Kiliana. Ptaki – zaopatrzone w obrączki ornitologiczne w kolorze czerwonym – włożono do gniazda, gdy miały po ok. 42 dni. Po 10 dniach pobytu w gnieździe adaptacyjnym (w tym czasie pełniono całodobowe dyżury przy gnieździe) sokoły uwolniono. Obserwowano postępy w osiąganiu sprawności lotniczej w ciągu ok. 2 tygodni, a po 32 dniach od uwolnienia, gdy obserwowane ptaki nie pobierały wykładanego pokarmu, akcję uznano za zakończoną.

W 1994 roku w kwietniu i maju obserwowano 2 z trzech reintrodukowanych sokołów w rejonie ich uwolnienia, a nawet siedzące przy gnieździe adaptacyjnym.

6 VII 1994 powtórzono reintrodukcję w tym samym miejscu, z użyciem tego samego gniazda, w czasie której uwolniono 2 samice. Podobnie jak w roku 1993 wstępna faza akcji (do rozpoczęcia samodzielnego polowania) powiodła się w pełni.

Zamierzeniem docelowym w Pieninach jest prowadzenie akcji reintrodukcji przez 5 lat, lub do momentu stwierdzenia naturalnego lęgu sokoła wędrownego w tym rejonie, a następnie śledzenie losów populacji lęgowej.