

Part 5

Biology and Conservation of the large Falcons in the subgenus *Hierofalco*



Aplomado Falcon *Falco femoralis*

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Methods and Results of Saker Falcon *Falco cherrug* Management and Conservation in Hungary

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ABSTRACT

Following the Second World War increasingly few pairs of Saker Falcon bred in Hungary. All known nests were annually robbed illegally by falconers - often from other countries. Cliff-nesting pairs suffered in particular.

By the beginning of the 1970s a maximum of only 25 pairs were attempting to breed. In 1974 the Hungarian Ornithological Society initiated a conservation project, subsequently receiving support from the WWF. Thanks to the measures taken, the population was stabilised and, by the mid-1980s, had begun to increase. These measures included wardening of nests, construction of artificial nests and the protection and reintroduction in breeding areas of ground-squirrels.

In recent years nest-boxes have been installed on low-voltage electricity pylons and the illegal trade in falcons has been suppressed. By 1992 there were 90 known pairs, whilst the total population stands at around 150 pairs.

INTRODUCTION

Following World War II the Saker Falcon population in Hungary steadily declined and reached its lowest level during the 1970s. This decline was very largely due to nest-robbers from Western Europe. The cliff-nesting Sakers had regularly failed to rear young; there were even some pairs which had had no breeding success for ten successive years. Nests were frequently disturbed by rock climbers and tourists and occasionally even destroyed. We do not know whether poisoning by pesticides also had a negative influence on Saker Falcons and their breeding success, as has been proved with other species. The Saker's feeding habits, chiefly Susliks (ground-squirrels) and pigeons, the majority of which are domestic pigeons, seem to show that the negative factors known to affect the Peregrine left our Saker Falcons unharmed.

The Hungarian Ornithological and Nature Conservation Society (HONS), formerly the Hungarian Ornithological Society, was founded in 1974. One of its priorities from the beginning was to organise the protection of birds of prey threatened with extirpation.

METHODS

An important part of the Hungarian population of Saker Falcons breeds in the hills and mountains (between 300 and 1,000m a.s.l.). The majority of these nest on cliffs, either in small cavities or in old nests of Ravens.

Only a minority occupy tree nests, even at times using old nests of Ravens and of other raptors. At the start of our protection programme, when we still did not have enough experienced collaborators to help with nest wardening, we made many attempts to divert the birds away from known cliff sites by artificial means (e.g. blocking up the cavity, removing the nest, etc.). This was hardly ever successful, since with these birds tree-nesters will switch to a cliff - and vice versa - if there is a change of partners.

In protecting the Saker Falcon population in Hungary, priority has been given to the organisation of nest wardening, in order to thwart robbers. Up to the mid-1980s this was successfully achieved with the active participation of *ca.* 300 members of the Society. On the other hand, the condition of certain cliff nests was also often unsatisfactory; for instance they were liable to flooding, etc. To begin with we blocked up such nests as well, but later on tried to repair them. At the same time it was also necessary to re-establish the population of Susliks, by now largely extirpated.

Parallel with the growth in the population, there was also an increased number of pairs breeding in the lowlands. These would take over the disused nests of Buzzards, various herons, Crows, Cormorants, etc. Since these nests were for the most part in a very parlous condition, they would frequently disintegrate, with the resulting loss of the eggs or chicks. To avoid this we accordingly began to erect artificial nests.

Particularly dangerous for the birds which settle on them are the country-wide chains of high tension pylons, on which many perish by electrocution. Initially this was no major threat to the rare Saker Falcon, but with the increase in the population more birds have been killed. So this was now the second priority in our programme. Crows were taking to building their nests more and more frequently on the electricity pylons, raising a further danger for the Saker Falcons, since these nests were insecure and only occasionally was it possible for the falcons to achieve breeding success in them. In order to solve this latest problem we turned to the setting up of nest boxes.

RESULTS

1. Nest wardening

To the best of our knowledge, there are to-day in Hungary 14 groups of cliffs, quarries, etc. where the Saker Falcon has bred more or less successfully. Since most of these sites are widely known among the public, breeding success can be ensured only by wardening of the nests. In this work we have above all involved young people who, after the end of their studies, can take an active and successful part in our protection work, e.g. foresters, gamekeepers, etc.

During the first years, it sometimes happened that, due to inexperience, we guarded a nest only during the daytime, to find that the chicks had been stolen during the night. More thorough wardening during the past six years has made it impossible for any nest to be robbed. Thanks to this, not only the fledged young but also the adult breeding pairs have significantly benefited.

Since the Saker Falcon frequently has to face various negative factors during the breeding season, e.g. flooding of the nest cavity, predation by Pine Martens, Goshawks, etc. wardening can also go far towards preventing such disasters. By spotting such accidents immediately, we can take preventive measures and ensure the successful fledging of the young to a far greater degree than with nests that are not warded. For example, during 1986-87 an average of 2.75 young were fledged from warded nests, in contrast to not more than 1.66 from nests only routinely monitored. The success of wardening is borne out by the fact that during 1986-87 it was possible to ensure breeding success for 12 pairs which had consistently failed during the preceding years. During this one year more young were fledged from regularly guarded nests than were fledged for the whole country between 1960 and 1970. It is unquestionably thanks to this activity that the Hungarian Saker population is now steadily on the increase.

1960-70	20-25 pairs
1978	44 pairs + 6-8 possible
1989	65 pairs
1991	ca. 100 pairs

To-day our population has passed the point where it was still necessary to locate every nest and control it by wardening. Among the nests still controlled by us during the past two years, the birds have been even more successful. During 1990 84 young flew from 35 wardened, i.e. controlled, broods, and this figure increased during 1991 to 93 young from 28 nests.

2. Creation of nest sites

During the 1970s the Saker population in Hungary bred mainly on cliffs. In spite of constant failure, several pairs remained firmly attached to their nest hole.

To begin with, we tried to block up these holes in order to compel the birds to choose new nest sites. Later on, when we could organise wardening, we constructed new cliff nest sites ourselves. It often happened that the holes preferred by the Sakers got flooded by rainwater, which washed out the sandy floor, leading in turn to cracked or otherwise damaged eggs. Eggs also got swept out of the holes by heavy rain. Our intervention in these cases was also effective.

3. Erection of artificial nests

With the increase in the population, more and more pairs are breeding in the lowlands, where the tree nests they occupy are often unsuitable, which leads in turn to failure. The falcons prefer nests with decayed interiors, and this means that such nests are in very poor condition; thus they often collapse just when the young falcons are well developed and they fall to their death.

When a pair's territory can be considered quite suitable from other points of view, we can increase productivity by erecting artificial nests. In our experience the falcons readily select one of these nests, which are filled with rotting material. We construct large and very solidly built nests, made to last for a number of years. Generally the material we fill them with is taken from other, disused nests in the vicinity, whereby our birds are doubly encouraged to adopt them.

During the past ten years we have had a number of old nests blown down by gales with the young lying dead below. In one case, for instance, an old Raven's nest containing five young Sakers collapsed, killing three of them. The two survivors were rescued by our members, who took them home and fed them. On learning of this three days later we immediately erected an artificial nest for them, in which they were duly reared by their parents.

To date we have erected over 100 artificial nests, 42 in 1989-91 alone. Most of these are well adapted to Saker Falcons.

During 1990-91 an average of 30 pairs bred in our artificial nests. In all, it can definitely be concluded that breeding success is dependent above all on the size and condition of the nest.

4. Establishment of Suslik colonies.

According to the literature the Suslik *Citellus citellus* is the Saker Falcon's principal source of food. Researches carried out over the past five years in Hungary have added a large question mark to this assertion, but we can at least confirm that it is certainly the Saker's favourite prey. For the safeguarding of individual pairs the safeguarding of the Suslik colony in their hunting territory is accordingly essential. On the initiative of the HONS the Suslik, formerly regarded as a pest, has now been placed under protection. Understandably, legal protection does not go nearly far enough. In the mountain region, in the wooded and intensively exploited areas and adjacent meadowland, many Suslik colonies have been either extirpated or else severely depleted. The Suslik cannot recolonise these isolated areas on its own, so we have resorted to artificial means. During the first years of our attempts we released young Susliks which had been trapped elsewhere, but within a few days they were all taken by Sakers and Imperial Eagles since they were unable to dig burrows for themselves. From 1986 on, we took to trapping females in spring, before the birth of their young. At this time the females rapidly excavate burrows in which to conceal their young; this ensures their increase and gives them protection through the winter. The success of this method is dependent

on the ability to introduce as many female Susliks as possible.

Between 1986 and 1991 we trapped altogether 1,989 Susliks in other parts of Hungary and released them in the mountain areas of Börzsöny and the Bükk, where Saker Falcons and Imperial Eagles like to breed. We have in this way met with considerable success, as four self-sustaining colonies have now been re-established, and these areas appear to have retained their full complement of Saker Falcons and Imperial Eagles.

5. Prevention of electrocution

The pylons erected for high-tension cables in Hungary were so designed that the raptors alighting on them were frequently the victims of electrocution.

With the collaboration of "electricity experts" we have devised a plastic insulator which can be incorporated in the structure and prevent electrocution. To illustrate the size of this problem, during one inspection of a 7km stretch of 20 kv high-tension cables in the lowlands we found seven dead Sakers and 40 dead Kestrels.

Raptor mortality is caused above all by the high-tension pylons in the lowlands, on which the birds like to perch. With the co-operation of our friends from the electricity board, nearly all of these have now been fitted with the aforesaid insulator, following which there have been no more cases of death by electrocution. This has also helped to preserve a large number of Storks, Kestrels and Rollers. In one case regarding a particularly critical 1km stretch where many dead birds were regularly found, we managed to get the whole structure dismantled.

6. Protection of pylon-nesting Saker Falcons

During recent years an increasing number of Hooded Crows have been making their nests on pylons. They build these on the metal cross-beams, but as a rule they only last for one breeding season. This leads to failure for the Sakers that occupy them in the following years.

Apart from this, such nest sites are ideal, guaranteeing inaccessibility both for human and animal predators. The pylons are 43m high and carry a voltage of 10,000 kv.

In 1991 we erected 10 nest boxes on these pylons, three of which were already adopted by Sakers in 1992. In this year we also had to retrieve one rotting nest containing six eggs before it collapsed. A screw had already broken one egg. We packed the nest in a nest box, in which the falcon soon settled back on her eggs. The creation of nest sites on pylons can only be done in close co-operation with sympathetic experts, and has resulted in some notable successes in recent years.

This method has given us high hopes for the future, since it makes it possible to establish pairs of Saker Falcons in areas where they have not bred for many years past or which previously provided no such opportunity, e.g. wide tracts of cultivated and arable land without trees.

7. Threats from animal predators

A. Goshawk

During 1986 on two occasions a Goshawk was observed taking young Sakers from the nest. In one case it returned within two days and took a second chick. We had to transfer the third chick to another nest in order to save it from the same fate. In 1989 we had a case of a young, ringed Saker with severe clawmarks, probably caused by attack from a Goshawk.

B. Marten

We have also recorded one case of a young bird killed by a Marten. In another case the falcon was seen to grab a Marten as it approached the nest, and drop it 10-15m away; the Marten was unhurt by its fall. In a further instance we believe a Marten to have been responsible for egg-stealing. On one occasion we managed to drive a Marten away from the vicinity of a nest, and we have other instances when a Marten was almost certainly responsible for the death of young falcons.

C. Ticks

In cliff nests we have found young birds infested with ticks on five occasions, in one case

causing the death of the chicks. We observed that the young thus infested leave the nest prematurely and perish. We have sprayed such nests with an insecticide which causes no harm to the birds.

CONCLUSIONS

1. The decline of the Saker Falcon in Hungary has been halted. For many years the population was drained by "exports" to falconers in Western Europe. Round-the-clock nest wardening has finally brought this human form of predation to an end.

2. Pairs can be coerced into adopting safer nest sites, both in the mountains and the lowlands, by the construction of artificial nests. This method also opens up new territories. Such nests have also been adopted by Sea Eagle, Imperial Eagle, Lesser Spotted Eagle, Honey Buzzard, Goshawk, Buzzard, Red-footed Falcon and Kestrel.

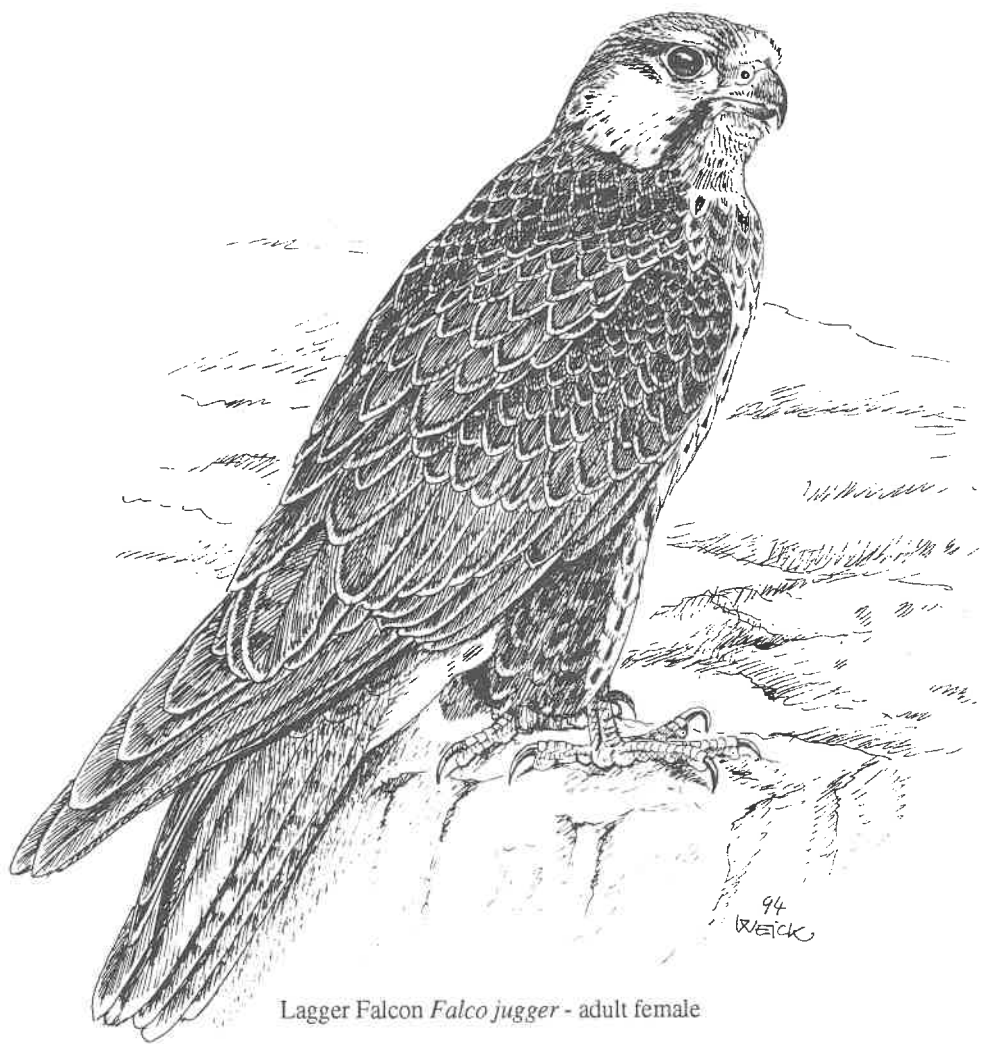
3. By halting the decline of the Suslik colonies and establishing fresh ones it has been possible to create new territories.

4. By insulation of electricity pylons we have been able to eliminate one of the major causes of mortality.

5. Through nest boxes erected on these pylons it has been possible to establish new breeding areas.

6. Between 1975 and 1991 we have succeeded in increasing the population of Saker Falcons fourfold.

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Lagger Falcon *Falco jugger* - adult female