

# The Saker Falcon *Falco cherrug* in Mongolia

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## ABSTRACT

Mongolia is a stronghold for the Saker Falcon in Asia, but, as in many other countries, the species is increasingly pressured in Mongolia by the illegal taking of birds for falconry. In this study it is estimated that there is a total of 2,823 territorial pairs of Sakers of which 1993 pairs participate in breeding producing an estimated 6,382 young Sakers per year. The average density of Sakers in Mongolia was measured as 2.7 pairs per 1000 km<sup>2</sup>. 1998 saw the commencement of a joint research and monitoring programme for this species between the Environmental Protection Agency (EPA) of the Mongolian Ministry of Nature and the Environment and the National Avian Research Center (NARC). The programme is investigating the numbers and distribution of the Saker Falcon in Mongolia in order to conserve the species. The project also seeks to obtain data for other NARC projects in its Falcon Programme on falcon species used or affected by Arab Falconry. These include data on migration, behavioural and breeding data, dietary studies on the species, and the gathering of morphometric data and biomedical samples such as blood and feathers. This paper presents the results from the 1998 field season.

## INTRODUCTION.

Studies of Saker Falcons in Mongolia have traditionally been carried out by ornithologists during surveys of Mongolian fauna (Kurochkin & Mikhailov 1994, Ostapenko *et al.* 1977, Potapov 1986, Rogacheva *et al.* 1988, Smirenskiy *et al.* 1991, Tugarinov 1932, Zabelin 1993). A number of accounts of Saker distribution occur in classical books on Mongolian ornithology as well as in special papers on systematics (Dementiev 1970, Dementiev & Shagdarsuren 1964, Kozlova 1930, 1932, 1940, 1969, Shagdarsuren 1964, Sushkin 1915, Stepanyan *et al.* 1988). At this time, Mongolia was not actively involved in the international trade of live birds and visiting Mongolia was difficult. A pilot study of Saker population was carried out by Tsengeg and Ellis in 1997 (Tsengeg *pers. comm.*).

When the Republic of Mongolia started to open up, as it underwent a transition towards a market economy, the Saker became a focus for bird traders as well as conservationists. The Ministry of Nature and the Environment faced considerable difficulties working out conservation policies to protect and sustain Saker Falcon populations in Mongolia and to enforce Saker protection. The major difficulties faced were caused by a lack of funding for research and modern scientific methods. Estimates of the Saker population in Mongolia varied from 1500 to 20,000 individuals.

Such inconsistency in figures convinced the Ministry of Nature and the Environment to launch its own nation-wide research project aiming to reach an unbiased estimate of Saker population numbers and productivity. The project began in 1998 and was backed by all leading bird specialists in Mongolia.

## METHODS.

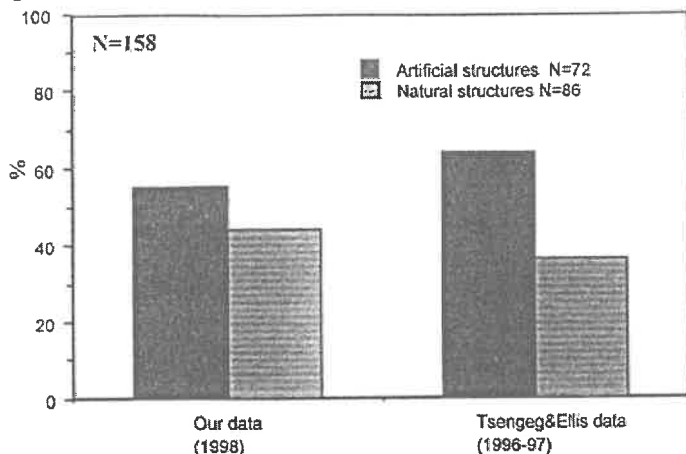
Two field teams established 5 control areas across Mongolia in May-June 1998. The teams surveyed the steppes from 4WD vehicles using various optical equipment, including gyroscopic binoculars which allowed observations from moving cars. Essentially surveys on foot were carried out in the terrain where access by car was difficult. All nest locations of territorial pairs as well as position of the control territories were mapped in the control territories using Garmin 45XL GPS receiver with subsequent processing with MacGPS Pro (James Associates, PO Box 60, Nederland, Co 80 466, USA). The nest sites were described according to the standard NARC guidelines (Fox *et al.* 1997) mentioning the position of the nest, nest substrate, building material, orientation of the nest. Brood size was determined in most cases.

The control areas are large enough to represent a significant proportion of the breeding population, and are located in places accessible in the future, to ensure repeatability of surveys. The area of the control plots totals 16,948 km<sup>2</sup>. This represents 1.1% of all Mongolian territory as estimated from the official figures (Sondom & Yanshin 1990), and 1.6% of all possible breeding habitat of Sakers in Mongolia (total area, less land higher than 3,000m, less flat sand deserts and densely forested areas estimated from Batjargal & Enkhbat 1998). In the future we plan to extend this control area to cover 2% of possible Saker breeding habitat in Mongolia.

## RESULTS AND DISCUSSION

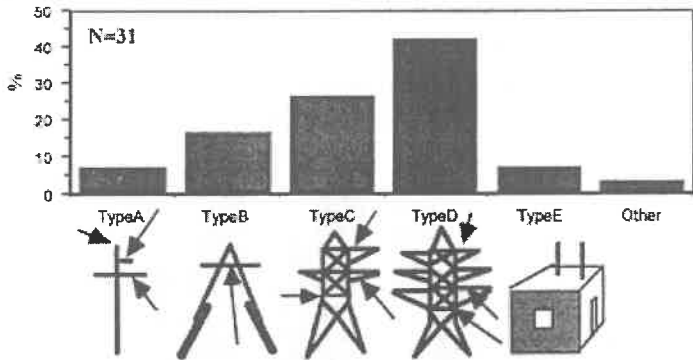
In Mongolia the Sakers were found breeding in mountain, open steppe, semi-desert and forest-steppe habitats. A remarkable distinction of breeding habitat of Mongolian Sakers is that the number of nests found on artificial nest substrates (electric poles, bridges, buildings) outnumber those nests located on natural substrates such as cliffs and rock ledges (Figure 1). Amongst artificial nests the falcons prefer poles of electric lines of various kinds (Figure 2).

**Figure 1. Proportion of nests located on artificial substrates vs. natural nest sites.**



Electric poles are not the only nest sites available for falcons in flat steppe areas. It is not unusual to see falcons nesting on abandoned wells, metal and wooden electric poles, even close to busy roads and railways on deserted concrete and log cabins. Peaceful attitudes of local people towards these falcons are based on Buddhist traditions which prohibit the killing or disturbance of birds. Moreover there is also an ancient belief that to kill a falcon means to kill a soul (Simakov 1998).

Figure 2. Types of artificial nest-sites.



Direct human persecution of falcons has not been recorded during field trips. Nevertheless, we have found human causes of mortality acting indirectly on both parents and chicks. This is the littering of the steppe with rope and string. Faced with a shortage of nesting material, birds pick up pieces of string and parts of horse harnesses and bring them to the nests. The string sometimes acts as a set of nooses, and birds become entangled and die. This year our field team saved one chick caught in this way. It had a badly wounded tarsus, and would not have survived without our visit. One adult bird was found dead at the nest caught by string used as building material for the nest.

Other causes of mortality include death by chilling, and significant differences in hatching dates which causes some chicks to lose out in competition for food amongst the broods (Figure 3). Overall mortality does not appear to be high - out of 172 hatched young 153 fledged or reached fledgling age. The average brood size in 1998 was  $3.2 \pm 0.99$ ,  $N=53$ . Brood size distribution is given in Figure 4.

Figure 3. Clutch/brood mortality causes

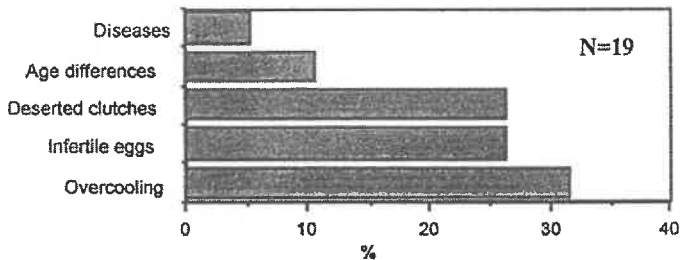
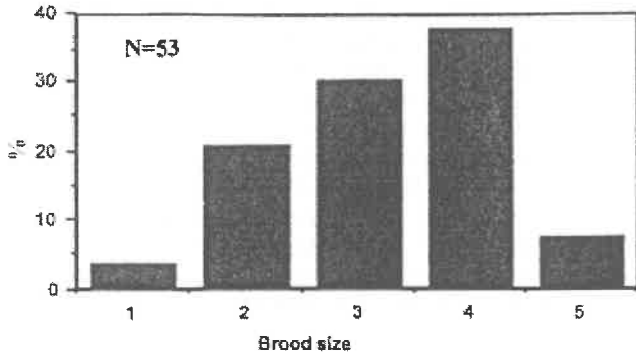
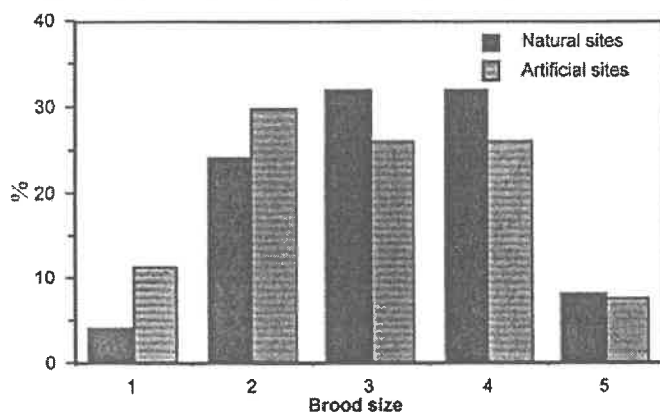


Figure 4. Brood size distribution



There was no significant difference between brood sizes of pairs breeding on artificial and natural sites ( $F=0.968254$ ,  $P=0.5311$ ) (Figure 5).

**Figure 5. Brood sizes of pairs breeding at artificial (electric poles, etc.) and natural (cliffs) sites.**



The average density of breeding Sakers in Mongolia, measured in the control areas, is 2.7 pairs per 1000 km<sup>2</sup>. Projecting this density on the 1,540,681.8 km<sup>2</sup> Mongolian territory, remembering that 96,500 km<sup>2</sup> of the country is covered by thick forests, and a further 4% lies above 3,000m where Sakers do not breed, we reach a projected total Mongolian population of 2,823 territorial pairs of Sakers. Galushin (1971) reported a density a much lower for Sakers in the forest zone in the Rysan District, Oka Nature Reserve - 1 pair per 1000 km<sup>2</sup>. Some other papers give unrealistically high breeding density: as high as 5-44 pairs per 1000 km<sup>2</sup> for Uzbekistan (Abdulnazarov 1990); 26-105 pairs per 1000 km<sup>2</sup> for Tula region (Likhachev 1957); 13-23 pairs per 1000 km for Tuva (Baranov 1989); and 20-30 pairs per 1000 km<sup>2</sup> in Khakassia (Prokofiev & Kustov 1988). In all these cases the sampled population was limited to a few pairs of birds and the total area of the control territory was not given. It appears that the density mentioned in the cited papers corresponds to some places which represent breeding clusters of the falcons, and does not give representative data for estimation of real density for large territories. The estimated breeding density in Uzbekistan recalculated from the data of Abunazarov (1990) is 0.26 pairs per 1000 km<sup>2</sup>, i.e. about 10 times lower than in Mongolia.

With the average brood size of 3.2, and providing that the percentage of pairs participating in breeding is 70.6% as measured in the control territories, the Mongolian population of Saker Falcons produce 6382 young Sakers per year. The brood size in Mongolian Sakers was close to that reported for Kopet-Dag, Turkmenia (Polozov 1983) and for Baikal Region (Ryabtsev 1997).

## CONSERVATION AND PROTECTION STATUS.

This figures of both numbers, breeding participation and breeding rate, has given a solid ground to restart discussions on the protection status of Sakers in Mongolia. Currently absent from the Mongolian Red Data Book, the Saker is still on Appendix II of CITES. Mongolia became a signatory to CITES in 1996. The decision to delist Sakers was based on the basis of one unverified estimation which estimated the numbers of Sakers in Mongolia as high as 20,000 individuals. Although there are no immediate threats to the Saker population, the Ministry of Nature and the Environment of Mongolia is concerned with the increasing number of illegal smuggling attempts. In 1997 a total of 43 Saker Falcons were confiscated by Customs and released back to the wild.

A restricted number of Saker Falcons are legally exported each year under license. In 1994, 80 falcons were exported; in 1995 a further 80, in 1996, 20 falcons, and in 1997 150 falcons were exported, mainly to Saudi Arabia and Kuwait.

Mongolian Sakers are protected in a wide network of strict Nature Reserves covering approximately 20% of Mongolian territory. In addition, the hunting, trapping and taking from the wild of all Mongolian birds of prey is prohibited. Currently the Ministry is planning to expand the current research and work out new policies more adjusted to the wildlife needs of Sakers.

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