

Captive breeding and re-introduction of red kites to Hampshire, England

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Introduction

The red kite (*Milvus milvus*) in the United Kingdom is a species of national conservation concern. It is listed as Lower Risk (Near Threatened) by the IUCN (2005). Once numerous and widespread, during the late 19th century the red kite was exterminated in England and Scotland, primarily due to human persecution (Lovegrove, 1990). A relict population survived in Wales. Following an improved public perception of the species and a major reduction in persecution, a red kite re-introduction program began in the United Kingdom in 1989. Kites translocated from nests in continental Europe and reared in aviaries were released to sites in northern Scotland and southern England (Carter, 2001). Additional release sites were established in other locations between 1995 - 2003. Despite the success of the national reintroduction program, red kites remained rare in northwest Hampshire in southern England, where the species is listed as 'regionally important'. Between July 2003 and 2005, we released 12 red kites into the wild. The initial release birds were captive bred. Subsequent releases consisted of captive stock birds and one rehabilitated wild bird.

Goals

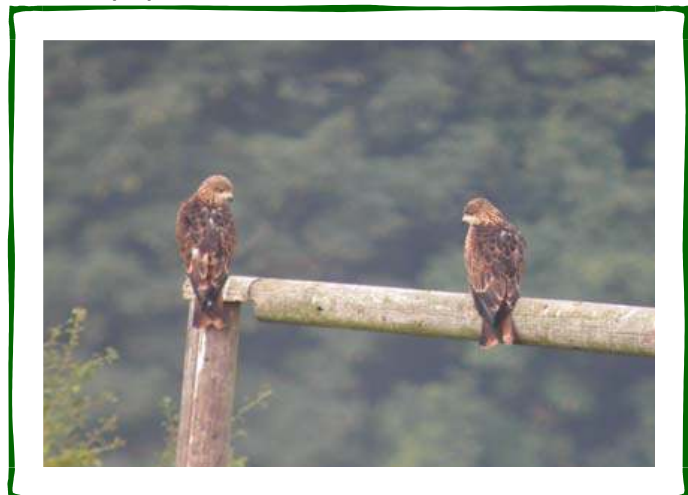
- Goal 1: Captive breeding of red kites.
- Goal 2: Release of at least 10 individuals.
- Goal 3: Establishment of a local red kite population.

Success Indicators

- Indicator 1: Successful captive breeding.
- Indicator 2: Survival of release birds.
- Indicator 3: Breeding of released individuals.

Project Summary

Feasibility: Obtaining suitable stock for breeding was time consuming and took place between 1996 and 2001. Planning and preparation for the release stages included close work with



Young red kites (*Milvus milvus*)
post-release

local farmers and landowners to outline the project, develop links and ensure community involvement and support. Significant efforts were made to assess the risks of secondary poisoning exposure and the likelihood of persecution. The habitat requirement often cited for red kites is a mixture of forest patches to breed and open areas to search for food (Seoane *et al.*, 2003). This corresponded with our release site, which comprised woodlands and open habitats mixed with large hedges surrounding arable or grass fields.

Implementation: Breeding kites were kept in large semi-seclusion aviaries with nest site choices of basket, platform and open box. Fertile eggs were incubated by broody hens and transferred to incubators for hatching. The chicks were reared by surrogate parents (European buzzards *Buteo buteo*) until their removal prior to release. Following health checks and screening for disease and parasites, four young captive-bred kites were transferred to artificial nest sites ('hack sites') in pairs at a pre-fledging age of 41 to 45 days. The kites were fitted with leg rings and radio tags attached by backpack. Food was supplied to the nest site remotely and consisted of local carrion types. The kites were monitored during all daylight hours for eight months. Food provision to the hack site gradually decreased as the kites had access to a nearby (~200 m) feeding station. During the second release, eight mature kites were released including one wild rehabilitated kite. The rehabilitated kite had suffered from a blood disorder, and upon recovery exhibited leucism (partial loss of pigment in plumage and pigmented eyes). Pre-release preparations were the same as for the young kites, except radio tags were tail-mounted. For three weeks before release, the mature kites lived in a large aviary with a view across the surrounding area and a nearby feeding station. At release a section of the aviary was removed and the mature kites were tracked daily for five months. Food was provided at the feeding station.

Post-release monitoring: The young kites had all left their hack site after eight days. Initial movements were short (~50 m). The hack site trees were part of large hedgerows, which enabled the kites to make short gliding flights and land a short distance away. Roosting positions were in or within 10 m of the hack site. In this early fledging period the limited flight skills of the young kites often forced them to land on almost any available perch, and after 18 and 17 days post - fledging two of the young kites died from electrocution on a powerline. After 141 days a third young kite was found near the release site. A veterinary examination revealed severe head trauma, possibly due to an encounter with another raptor. The final young kite encountered no obvious difficulties and apart from excursions of up to 27 km during the first year of release, remains local to the release area and has made a breeding attempt with a wild kite in 2008. Conversely, within a week of release, all the mature kites were accomplished fliers and they possessed superior skill and coordination. Two had left the release area after only two days. The remaining mature kites had dispersed by day 56 and during monitoring gradually increased the distances they moved away from the release site (up to 12.5 km). There were no observed fatalities of mature kites resulting from the use of pylons.

Despite careful post-release monitoring and supplementary feeding, the rehabilitated leucistic kite died ten days post-release. This may have been due to leucistic birds being rare and possibly at a disadvantage to conspecifics resulting from their conspicuous plumage and presumed optic deficiencies. All kites avoided the centre of woodlands and utilized woodland edges or large hedgerows. There were no other observed fatalities during the period of post-release monitoring, indicating a confirmed mortality rate during the observation period of 12.5% for the group of mature kites, 75% for the young kites and 33% for the combined release.



● – Red kite release site

Results so far indicate a successful release. Recorded sightings include regular feeding in the wild and courtship behavior of four release birds during 2006. This program has assisted the establishment of a small population of red kites in the target area. Additional (wild) birds have been attracted to the region and red kites are seen virtually every day in 2008. Early in the 2008 breeding season there are three known nest sites within 5 km of the release site. There are no plans to continue the release program. With established kites in the area, and a species that is increasing nationally, the prospects for red kites in northwest Hampshire remain positive.

Major difficulties faced

- Increased risk of mortality during post-release fledging period.
- Inter-specific aggression.
- Mortality from electrical distribution lines.

Major lessons learned

- Release of fully-fledged birds likely to be more successful than releasing juveniles in artificial nests.
- Behavioral variation between individuals (and how this might lead to different responses to the post-release environment) must be taken into account when dealing with small release populations.
- Continuing post-release support (feeding) after the period of post-release dependence can be important for attracting con-specifics to a release area.

Success of project

Highly Successful	Successful	Partially Successful	Failure
	√		

Reasons for success/failure:

- Successful captive breeding.
- Observed pair formation between release birds and wild birds.
- First breeding attempt by release birds (2008).
- Increased occurrence of target species in release area.
- Confirmation of optimum release technique for the species.

References

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- Seoane, J. Vinuela, J. Diaz-Delgado, R. Bustamante, J. (2003). The effects of land use and climate on red kite distribution in the Iberian peninsula. *Biological Conservation* 111: 401 - 414.