THE RED KITE (Milvus milvus) AND ITS REINTRODUCTION IN THE UK.

The red kite is a very distinctive bird due to its striking colour and forked tail. They are predominantly chestnut red with white patches on the underside of the wings and a pale grey head. They have a wing span of almost 2 meters but a relatively small body weight of 2-3 pounds. As a result they are an incredibly agile bird and possess the ability to glide for many hours hardly beating their wings. The red kite is however a relatively weak bird for its size and relies upon more powerful birds to open larger carcasses such as sheep. The red kite is predominantly a scavenger but will however take a wide variety of prey including earthworms, small mammals, amphibians and birds.

Once a common site over towns and cities in the UK, a series of government acts in the 16th century declared the bird was vermin and the decision was taken to kill the red kite throughout Wales and England. This persecution continued and by the 18th century red kites had bread for the last time in England.

In an attempt to restore the red kite to England and Scotland the English National Trust and RSPB (The Royal Society for the Protection of Birds) began a reintroduction program in 1989. Over a 5 year period 93 young kites were released at sites in southern and northern England. These birds were taken as nestlings of 4-6 weeks old mainly from north-eastern Spain where the kite is still common.

"Recent and ongoing re-establishment programs have resulted in new populations in southern England and northern Scotland" (Evans et al 1997,1999)

Whilst the reintroduction programmers have been largely successful and resulted in the establishment of self-sustaining populations in both areas, the red kite still remains under threat. The main threats include shooting, electrocution from overhead power lines and collision with vehicles when feeding on road kills. By far the largest threat however comes from lead and illegal poisoning. Carcasses shot with lead ammunition, and baits laced with poison left out in the open in an attempt to kill crows and foxes. As a result I decided to review the following

article.

'Lead contamination and associated disease in captive and reintroduced red kites Milvis milvus in England' (D.J.Pain, I.Carter, A.W.Sainsbury, R.F.Shore, P.Eden, M.A.Taggart, S.Constantinos, L.A.Walker, A.A.Meharg, A.Raab)

As previously mentioned a red kite reintroduction program has been underway in the UK since 1989. As scavengers, red kites may consume unretrieved game carcasses, and ingest shot or lead fragments in their preys flesh. The exposure to lead in captive and wild red kites was evaluated using a variety of techniques, and it was concluded that the primary source of lead to which red kites are exposed is lead ammunition.

The poisoning and death resulting from the ingestion of lead ammunition is well established in both water and terrestrial birds. Raptors such as the red kite have been found to ingest lead ammunition when feeding on dead or injured game species. Whilst statutory bans in Great Britain prevent the use of lead ammunition for hunting over wetlands and certain water bird species, it remains in use for hunting terrestrial species thus continuing to endanger terrestrial birds such as the red kite

Whilst the reintroduction programs mentioned above have proved an overall success it was found that the young kites held in captivity before release were fed a variety of prey, many of which had been shot. Following release the birds were found to feed mainly on rabbits and pheasants, many of which would have been scavenged and likely to include game that were shot and not retrieved.

The overall risk to reintroduced red kites in the UK from lead exposure was assessed by examining both the level of exposure to lead from shot or bullets and the actual level of lead absorption. Once lead ammunition or fragments have been ingested it is rapidly dissolved in the acidic conditions of the birds' stomach. Several days can pass between ingestion and regurgitation and a significant amount of lead can be dissolved and absorbed.

The following methods were used in an attempt to determine whether lead ammunition could pose a risk to red kites both in captivity prior to release and in the wild.

Analysis of blood lead in captive red kites prior to release.

Examination of red kite pellets

Examination of rabbit corpses

Collection of carcasses of released red kites and analysis of tissue lead concentrations.

Blood samples were taken from captive red kites during routine pre-release

health examinations. It was found that approximately two-thirds of the kites had background blood lead concentrations prior to release Regurgitated pellets from red kites were collected and examined. The pellets were radiographed and 16 pellets from a sample of 264 were dissected. 13 shot like spheres were found, eleven of these spheres contained greater than 60% lead and were thus confirmed to be lead shot. Several rabbit carcasses were examined and radiodense fragments were identified and found to be widely dispersed in the thorax and abdomen. A significant diagnosis was established for 21 of the 87 red kites that died in the wild. The results showed that 8 kites died from deliberate poisoning, 4 from rodenticide poisoning and 1 from lead poisoning.

Whilst the carcasses fed to captive red kites were examined for gunshot, the tightness of a shot pattern can depend upon the distance of the target, and shot may be scattered throughout the body. Both lead bullets and lead shot can undergo some disintegration as they pass through the tissue. This can explain why traces were found widely dispersed in rabbit carcasses and why they may have been missed during inspection before they were fed to the captive kites.

The results of this study show clearly that red kites in England are exposed to lead from shot and in the diet. However this is not surprising when one considers that UK kites roost in areas where game birds are frequently shot. From the results of this study one can conclude red kites used for the reintroduction program in England were exposed to lead both in captivity, prior to release and in the wild following release. Food items given in captivity and taken in the wild, as well as the presence of lead shot in regurgitated pellets indicate that lead shot and other lead containing ammunition is likely to have been the source of this lead.

Whilst a significant threat, lead poisoning alone is not likely to threaten the overall conservation status of this magnificent bird in England. Or indeed future red kite reintroductions. As a result the reintroduction and conservation program since 1989 has been a great success, and one that I have been fortunate enough to witness personally living next to one such conservation site in the south of England

"The red kite reintroduction program has been a great success in England" (Carter and Grice 2002)

However this study has shown lead poisoning to be responsible for unnecessary deaths of red kites. Eliminating the feeding of captive kites with prey shot using lead ammunition and the use of less harmful ammunition in general would therefore be a significant step in the right direction. It is also important to mention that red kites are not the only bird affected by lead poisoning. Other species of high conservation concern including the white-tailed eagle are also at risk. In order to eliminate the risk of lead poisoning to such species, new laws must be introduced banning the use of lead ammunition when hunting.

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BIBLIOGRAPHY

Lead contamination and associated disease in captive and reintroduced red kites *Milvis milvus* in England. Science of the total environment 376 (2007) 116-127. (D.J.Pain, I.Carter, A.W.Sainsbury, R.F.Shore, P.Eden, M.A.Taggart, S.Constantinos, L.A.Walker, A.A.Meharg, A.Raab)

MtDNA ginetic diversity and population history of a dwindling raptorial bird, the red kite (*Milvus milvus*). S. Roques, Juan j. Negro

http://www.gigrin.co.uk/redkite.html