

Recent History of Eurasian Marsh Harriers (*Circus aeruginosus*) in The Tay Reedbeds

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Eurasian Marsh Harriers *Circus aeruginosus* have summered in the Tay Reedbeds from at least 1984, although it seems quite likely that they were present prior to this. The first recorded nesting attempt was in 1988 when a pair built a nest at Site H. This attempt failed and, in 1989, a nest was constructed at the same site, but failed at the egg stage. There was also a nesting attempt at another site (Site A) in this year which also failed.

In 1990, a pair returned to Site A. The eggs hatched successfully and the female was seen taking food to the nest. The male disappeared, however, on the same day as a pair of Common Buzzards *Buteo buteo*, which were nesting in the adjacent woods. We suspect that these birds were shot. Despite numerous visits following the disappearance of the male, no further nesting activity was observed until mid July, when two newly fledged young were observed at Site A. A single chick had also fledged from a previously unknown nest at a nearby site (Site B), on the south bank of the river. From 1990 there have been successful nests every year. Since 1991 chicks have been ringed and wing tagged with a single coloured tag.

There have been a total of 10 nesting areas used, including Site J (which is outwith the Tay Reedbed) where two birds, that had been tagged as nestlings in the Tay Reedbeds, fledged two chicks in 1995. These are the only tagged birds which have returned to breed in their natal area. Two yellow tagged siblings (hatched in 1993) attempted to breed at a site on the Forth Estuary. Unfortunately, they failed. Another sibling from this nest, (a female) nested at Site J in 1995, and has returned to nest on the Tay every year since. Unusually, the male that this female successfully paired with in 1995 (a light blue tagged male), was a second-year bird that had fledged in 1994.

It is not known where all of the tagged birds from the Tay have bred, although there have been sporadic reports of our birds breeding on the Wash, particularly in 1995 when three birds that had been marked in 1994, were reported to be breeding in arable fields. Given that the yellow tagged female has retained the tag for almost seven years and the success of the same tags on Hen Harriers *Circus cyaneus* and Red Kites *Milvus milvus*, it is unlikely that the birds have been able to remove the tags (which was a problem encountered when Golden Eagles *Aquila chrysaetos* were marked in the same way).

Sightings of Tagged Birds

There have been annual reports of our tagged birds from many parts of Britain, despite the fact that the tagging of this species in Scotland has not been publicised until recently. Birds have been located as far north as the Moray Firth and as far west as Dumfriesshire. There have been more sightings of tagged birds at Loch of Kinnordy, an RSPB reserve in Angus, than at any other site. In November 1997, there was a sighting of a tagged bird in the Gambia, which had been marked as a chick the previous year. There has been only one recovery of a tagged bird, this was in Yorkshire in September 1999 when a juvenile of that year was found injured. Unfortunately the bird had to be destroyed and, while the cause of death was not certain, the bird appeared to have been shot.

Other Breeding Sites in Scotland

Although birds have summered at many sites in Scotland over the last 20 years, there has been little evidence of successful breeding outwith the Tay area. One pair did fledge young successfully at a site in Perthshire (in the early 1990's),

and young also fledged from a nest in Ayrshire and from a nest on an RSPB reserve in Highland. It is typical of the species that the existence of the nest was unknown until the fledged young were seen. They can be very secretive birds and it is possible that there have been successful nests which have never been located, or that nests have been located and the details kept secret. It seems to be no coincidence that the sites from which the largest number of summering birds are reported, are nature reserves, where there are people capable of identifying this species.

Eurasian Marsh Harriers continue to summer at a number of sites both close to the Tay and further afield in Scotland. Over the past five years single birds have been recorded summering at two sites in Fife, including Site J, where a sub-adult male was nest building in 1999. He failed to attract a female and the nest was abandoned. Birds regularly summered at Montrose Basin in the early 1990's, but there have been few reports since then. The Loch of Strathbeg has recorded summering birds for a number of years and seems likely to have a successful breeding pair at some time in the future.

Site Fidelity

Due to changes in plumage following each bird's moult, it is not possible to identify individuals in subsequent years. It had been anticipated that the presence of tagged birds returning to breed would enable the identification of individuals, but this has not been possible due to the lack of tagged birds returning to the Tay. The yellow tagged female nested in her first known breeding season at Site J in 1995, she nested at Site D in 1996 and 1997, then moved to Site H in 1998, 1999 and 2000. It is not known why this bird has changed her nesting site, but in many years there are more females present than adult males, and it is possible that the presence of an adult male holding territory, may be the main reason for a female choosing a particular site. If this is the case, it would explain why successful nesting sites are abandoned in favour of new sites. A bird fledged at Site J in 1995 was observed on the Tay in July 1996. This bird had not been present during the breeding season and it is not known if it

had attempted breeding elsewhere in Scotland.

Disturbance

Eurasian Marsh Harriers are fairly tolerant of disturbance when the female is incubating eggs and when there are young in the nest, but they are extremely vulnerable to human disturbance during the critical nest building period, normally around 10 days (John Dey pers comm.). Generally, there has been very low levels of disturbance on the Tay as public access is difficult in many areas. A contract fieldworker employed by RSPB/SNH in 1994 recorded only 21 cases of public use of the site in a 10 week period during the breeding season, most of which were dog walkers. One nesting area in which the birds are more likely to have been disturbed is Site A, where there is an embankment that the public can walk along, only 100 metres from one of the nest sites. Although males, particularly, have been observed "alarming" at the presence of walkers on a number of occasions, there is no evidence that any nest has ever been adversely affected. (Females rarely alarm unless persons approach the nest directly.)

In 1999 and 2000 the nest at Site G was constructed and the clutch laid during the period when reeds were being harvested during April, despite the harvesting machine cutting reeds to within 100 metres of the nest site. Mist netting sessions for Bearded Tits *Panurus biarmicus* within 150 metres of the nest also appear to have no effect on the nesting female even though the male is frequently in the area.

It is possible that the presence of people in the vicinity of a nest for prolonged periods could have a detrimental effect on a pair of harriers (e.g. picnickers), as would the continual presence of large numbers of people over a period of time (e.g. increased numbers of dog walkers or bird-watchers). Should this be the case then it is entirely possible that a pair would move to another nest site as there are a number of apparently suitable sites vacant in any year. Birds of the Western Palearctic (BWP) states that "females are capable of relaying up to 5 eggs", so any pair forced

to abandon a nest due to disturbance might successfully relay a clutch elsewhere, unless they were forced to abandon the nest close to hatching time. Should this be the case, then I feel it is unlikely that a further breeding attempt would be possible due to shortage of time and the moult strategy of the species. Females generally begin primary moult shortly after incubation begins and the males begin moult when the young are close to fledging, at which point the female is gradually taking over the role as the main prey provider. While it is possible that the birds could arrest their moult, I feel that this would greatly detract from the chances of them laying successfully. In 1998 a nest was destroyed at Seaside during the first week of May, (the second half of the incubation period). This was suspected to have been caused by reedbed management taking place outwith the permitted period. The female abandoned the site, but the male was able to fledge young from a second nest located approximately 250 metres away.

Where birds were prevented from nesting in a particular area due to human disturbance, it is very likely that they would be able to simply move to another site. Pairs are able to nest within close proximity to each other without any major problems. In 2001, two pairs at Kingston constructed their nests within 100 metres of each other, despite the fact that there were ample areas of uncut reed suitable for nest construction nearby. This has resulted in the males displaying more than usual, but so far has not had any other noticeable effect. In the same year, for example, there were six nesting areas within the Tay Reedbeds which did not have any nesting pairs. All but one of these sites had been successful in the past. There are 10 previously used nesting sites, many of which have successfully reared young.

John Dey was of the opinion that up to 12 nests could easily be accommodated in the Tay Reedbeds. While I broadly agree with this estimate, I feel that it is possible that the Tay could accommodate 12 nesting males, but, with some of the males almost certain to be polygamous, more than 12 nests could easily be accommodated.

Foraging Range

Males nesting in the western areas of the reedbed regularly hunt both north and south of the river, while the males nesting in the eastern sections of the reedbeds appear to hunt only northwards. Females generally hunt to the north of the river and have rarely been observed hunting to the south. I believe that the width of the estuary (which is over 4 kilometres wide at the eastern end) is sufficient to discourage the males (which are smaller than the females) from hunting southwards, and the fact that the river is only 1-2 kilometres wide at the western end, allows the birds to hunt over both banks. Males have been observed hunting up to 9 kilometres from the nest in both a northerly and southerly direction, particularly when the female is incubating. As the chicks grow larger, the number of prey items required each day increases to approximately five per chick (BWP). It then becomes impractical for the male to forage in these outlying areas. The gaps between food visits can be as little as 15-20 minutes, which suggests that they tend to hunt closer to the nest site.

Much of the habitat in the Carse of Gowrie is arable ground with some improved grassland. Most of the hedgerows have been removed and the numbers of breeding species are low (as is the density of breeding pairs). In the early 1980's moderate to low numbers of waders, particularly Northern Lapwing *Vanellus vanellus*, held territory in the area, but these have virtually disappeared, and the value of the habitat for harriers seems to have decreased. Grey Partridge *Perdix perdix* were formerly a common species here, but are now rarely seen. Common Sky Lark *Alauda arvensis* are probably the most numerous breeding passerine, but the breeding population is not large. The species is in decline nationally and appears to be reducing locally. The ground to the north of the A90 is of more value to hunting harriers as there is more grassland and scrub. The hills to the north retain a remnant population of Barn Owls *Tyto alba* which prefer unimproved grassland, which is also of value to the harriers. The reedbeds themselves provide a large proportion of the prey, and adults often hunt along the outer edge, which is a preferred feeding habitat for Water Rail *Rallus aquaticus* broods.

Prey

The majority of prey items provided by the male tend to be relatively small, with wader chicks and small reedbed passerines such as Common Reed Bunting *Emberiza schoeniclus* and Sedge Warbler *Acrocephalus schoenobaenus* regularly taken. Females are capable of catching larger prey items and have been observed catching Brown Rats *Rattus norvegicus*, and returning to the nest with young Rabbits *Oryctolagus cuniculus*. Some males appear to specialise in catching rats and have been observed regularly hunting at the numerous agricultural dumps along the north bank. One of these males disappeared in 1994, along with his mate, after rat poison was placed on a nearby dump. (It is believed that the birds were poisoned, but accidentally rather than deliberately). The remains of large Carrion Crow *Corvus corone* and Woodpigeon *Columba palumbus* chicks have also been observed in nests, as have game bird chicks. A male was seen in 1994 taking Bearded Tit chicks from a nest and returned to the nest until, presumably, all the chicks had been removed. In June, when most pairs have chicks to feed, juvenile Common Starlings *Sturnus vulgaris* feature quite prominently in the diet, as large numbers move into the Carse of Gowrie. These flocks roost in the Tay Reedbeds and both males and females regularly hunt over the areas where the flocks roost.

Much of the prey is acquired from the reedbeds themselves, with species typical of that habitat being taken regularly. It is unusual to find any remains of small passerines at the nest as they appear to be eaten whole. Adults have plucking posts or sites within the reeds where they pluck prey, and examinations of these sites plus prey remains found at nests, and general observations over the past 15 years have indicated that the following prey species have been taken.

Confirmed Prey Items

Common Reed Bunting - important
Sedge Warbler - important
Common Starling - important
Common Sky Lark - important
Northern Lapwing (pulli) - important
Common Redshank *Tringa totanus* (pulli) - important
Eurasian Oystercatcher *Haematopus ostralegus* (pulli) - important
Duck species *Anatidae sp.* (pulli) - important
Common Pheasant *Phasianus colchicus* (pulli) - important
Grey Partridge (pulli) - important
Brown Rat - important
Carrion Crow (pulli) - regularly
Carrion - regularly taken by adults, important for fledged young.
Bearded Tit - unknown
Winter Wren *Troglodytes troglodytes* - unknown
Blue tit *Parus caeruleus* - unknown
Common Linnet *Carduelis flavirostris* - unknown
Eurasian Teal *Anas crecca* - unknown
Water Rail - unknown
Common Coot *Fulica atra* - unknown
Common Wood Pigeon - occasionally
Rabbit - occasionally

Collection of Data

Data has been collected on the Eurasian Marsh Harriers on the Tay since 1984 by a variety of observers, and the birds have been watched for many hundreds of hours during this period. It would not have been possible to compile this report without the assistance of these volunteers, and we particularly acknowledge the support of the following. Harry Bell, Les Hatton, Shirley Millar, Keith Brockie, Derek Whitton, Derek Robertson, Mark Andrews (1994), Trevor Smith (1995) and the numerous members of the Tay Ringing Group, who have assisted in finding nests. We would also like to thank all those other persons who have been kind enough to pass on casual observations both locally and nationally.

Table 1. List of Nesting Sites and Years Used

Site Name	No. of Nest Sites	Years Used
Site A	4	1990,1991,1992, 1993, 1994, 1995,1998, 1999
Site B	1	1990
Site C	2	1997,1998,2000
Site D	2	1993,1994,1995, 1996,
Site E	1	1998,1999
Site F	1	1991,1992,1993, 1994, 1995
Site G	2	1996,1997,1998, 1999, 2000
Site H	2	1988,1989,1996, 1997, 1998, 1999,2000
Site I	1	1994
Site J	1	1995

Table 2. Number of Adults

Year	Males	Females	Nests
1988	1	1	1
1989	2	2	2
1990	1	2	2
1991	2	3	3
1992	2	2	2
1993	3	3	3
1994	4	4	4
1995	4	4	4
1996	3	4	4
1997	3	3	3
1998	3	3	3
1999	4	5	4
2000	4	6	5

Table 3. Number of Nests and Young Fledged

Year	No. of Nests	No. Failed	No. Successful Nests	Total Fledged	Young per Successful Nest
1988	1	1	0	0	0
1989	2	2	0	0	0
1990	2	0	2	3	1.5
1991	3	1	2	6	3.0
1992	2	1	1	5	5.0
1993	3	2	1	5	5.0
1994	4	1	3	11	3.67
1995	4	2	2	9	4.5
1996	4	2	2	6	3.0
1997	3	0	3	6	2.0
1998	4	0	4	10	2.5
1999	4	2	2	8	4.0
2000	5	1	4	12	3.0
Totals	36	11	26	81	3.12 average

Table 4. Tagging Information

Year	Colour	Wing	Number Tagged	Number Fledged
1988	none			
1989	none			0
1990	none			3
1991	Orange	Left	6	6
1992	Pink	Left	5	5
1993	Yellow	Left	5	5
1994	Light blue	Left	11	11
1995	Dark blueYellow	LeftRight	42	72
1996	Light green	Left	6	6
1997	Red	Left	6	6
1998	Pink	Right	7	10
1999	Pink/blue	Right	6	8
2000	Light blue	Right	12	12
Total			70	81