

Studying Merlins *Falco columbaris* in Angus - 1983-95.

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The elusiveness of the Merlin *Falco columbarius* locally had been intriguing me for sometime when a chance meeting in an Angus glen in 1982 with merlin enthusiast Logan Steele, then working in Grampian, provided me with the impetus to get a study underway.

Progress was slow at first with three sites located in 1983 and a further three in 1984. It was not until 1987 that the study really took off with ten pairs located from fourteen nest areas. Numbers rose steadily for several years reaching fifteen or so pairs from twenty-eight breeding sites. The situation has remained at this level, more or less, for several years now. Being small and unobtrusive one or two more pairs could be tucked away in unexplored corners, giving a total of around fifteen to twenty pairs for Angus.

Two other factors come into the equation when estimating the number of pairs. The first being bigamy, where adjacent nests may be occupied by females sharing one male. Secondly alternative sites may occasionally be occupied by additional pairs in 'good' merlin years.

To date 229 merlin pulli have been ringed in Angus and Dundee districts from which there have been eight recoveries. Three were of pulli which died between ringing and fledging, either of disease or starvation. Two were of first year birds which died within eight kilometres of their natal areas. One of these birds was found dead in a crow-trap. The remaining three recoveries were of adults found dead, two in Grampian and one in Dumfries. The suspected cause of death in one case was that the bird had been killed by a Hen Harrier *Circus cyaneus*.

The Montrose Basin would appear to be most attractive to young merlins, in particular birds from Grampian as several first winter birds from that area have been recovered there (pers. comm. G. Rebecca). Presumably these young merlins are attracted there by the large flocks of migrant waders, many of which will also be first winter birds and these may be easier to predate than the adult waders.

However, male merlin ringed in Orkney has also been recovered from Montrose Basin. Apparently it is unusual for adult Orkney merlins to travel this distance but more likely for first year birds (pers. comm. E. Meek). The indications are that it is first winter birds that are attracted to the Basin but care must be taken with interpreting the above evidence as it is more likely to be inexperienced juveniles which are recovered and this possible bias should be noted.

It would be useful to catch the adults, especially in the nest areas. The best way to do this is by trapping at the nest but this is a very time consuming activity. However, several females have been caught in this way within Angus since 1988 by Graham Rebecca from Grampian. Five birds were trapped at two sites. Two of these females had been ringed as pulli in Grampian and another one was caught as a breeding adult in 1991 and retrapped in the same nest site area in 1992. The other two females caught were both attempting to breed at yet another nest site, but in different years. This valuable information is what might be expected and goes some way to describing the breeding biology of merlins.

In addition to the above I have found two dead females. One, found in 1991, was near its nest and probably killed by a Stoat *Mustela erminea stabilis*. The previous year the eggs at this site were predated by a stoat, though the pair did go on to successfully raise five young to fledging. At another site in 1994 a dead female was recovered below an active nest. This bird

had been ringed as a pullus in Perthshire in 1988 and had died as a result of a fight with another female merlin.

Though there have been few recoveries of merlins ringed in Angus or, merlins ringed elsewhere and recovered in Angus, there is nevertheless a good indication from the evidence that we do have that female merlins, at least, move between Grampian and Angus and Perthshire and Angus.

Although most Angus merlins are ground nesting there have been several instances of tree nesting over the years. In the west of Perthshire merlins are regular tree nesters 1 and tree nesting is common in Wales 2 and North East England 3. Generally merlins in Britain nest on the ground where the ground vegetation cover is good. Where heather moor gives way to sheep walk or has been replaced by forestry plantation this raptor will nest in trees, usually in old crow *Corvus* spp. nests.

Breeding success is influenced by a number of factors of which availability of prey is an important one. The main prey species of the merlin is the Meadow Pipit *Anthus pratensis*, followed by the Wheatear *Oenanthe oenanthe*. However, Starling *Sturnus vulgaris*, Chaffinch *Fringilla coelebs* and Skylark *Alauda arvensis* also figure prominently and a further twenty bird species have been recorded amongst prey items recovered at merlin sites in Angus. The Northern Eggar *Lasiocampa arborea* and Emperor Moth *Saturnia pavonia*, as well as beetle species, also occur as merlin prey 4. However, there is no evidence of mammals or small reptiles being taken as prey in Angus.

Although moorland bird species predominate in the prey of the merlin there is a wide selection of woodland birds, as well as farmland and riverine bird species. A varied habitat is an important factor therefore in merlin breeding success, and this is especially so when the weather is poor.

Ground nesting birds are obviously vulnerable to non-avian predators such as foxes *Vulpes vulpes crucigera* and stoats but in Angus merlins do not appear to have suffered more than light predation by these animals over the years. Certainly there is evidence of predation by stoats of a clutch in 1990 and a clutch and female at the nest in 1991. Also, a keeper told me of a brood predated by a stoat on his beat. However, this is not heavy when compared with the predation by foxes that breeding merlins suffered on the North Yorkshire moors in 1991 when several broods were taken 5.

Avian predators do not appear to be a particular problem and merlins that I have observed have always managed to drive off potential avian predators, including crows *Corvus corone* spp., Ravens *Corvus corax*, Short-eared Owls *Asio flammea*, Sparrowhawks *Accipiter nisus*, Buzzards *Buteo buteo*, Peregrine Falcon *Falco peregrinus* and Golden Eagle *Aquila chrysaetos*. Other observers have recorded different outcomes, with Short-eared Owls 6 and Golden Eagle (pers.comm. G.Rebecca) killing merlins.

In all my observation to date merlins, using their greater agility, were able to harass the larger birds to such an extent that they retreated. I once saw a male merlin knock a Short-eared owl out of the air into the heather where it stayed for several minutes. On another occasion Graham Rebecca and I watched a pair of merlins make repeated attacks on a Golden eagle carrying prey and forced it to make a detour of several kilometres to return to its nest.

In 1990 I feared that the results of a particularly productive season were masking a gradual decline in the Angus merlin population but now I am not so sure about this decline. For the first time a National Merlin Survey (1993 / 1994) has produced a base-line with which to compare future outcomes and to this end I look forward to the next ten years of monitoring merlins in Angus.

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