

The Northern Goshawk: Friend or Foe?



by Paul Toyne

Abstract

Goshawks were reintroduced into Britain in the 1960s and 70s and are now firmly established as resident breeding birds. They are considered controversial raptors in some quarters, but where sheep farming or forestry are the main forms of land use, they can justifiably be considered the farmer's and forester's friends, preying as they do, almost exclusively on rabbits, grey squirrels, pigeons and corvids.

The Northern Goshawk (*Accipiter gentilis*), hereafter referred to as the Goshawk, disappeared from Britain in the late nineteenth century due to habitat loss and persecution (Marquiss and Newton 1982). During the 1960s and 1970s large numbers of Goshawks were imported by falconers (Kenward et al. 1981). Some of these hawks were deliberately liberated whilst others were accidentally released, thereby re-introducing Goshawks to Britain (Kenward et al. 1981, Marquiss and Newton 1982). Since then Goshawks have made a spectacular return to Britain. However, news of the hawks re-establishment has been met with different responses; birdwatchers and raptor enthusiasts are delighted, but others, notably game rearing landowners and pigeon fanciers, are less than happy. Goshawks can be a problem to foresters, particularly if they are found nesting in trees due to be felled. So, just how much of a problem are Goshawks?

Goshawk diet

One area of controversy is diet. In Britain the feeding habits of Goshawks are not well documented, and data collected were mostly from the breeding season. The first analysis of their diet was carried by Marquiss and Newton (1982): they summarized prey from 30 nesting territories in the years 1974-1980, some 848 prey items being recorded between March and August in those years. The data were separated by elevation. On ground lower than 250 m, the principle prey were Red Squirrel (*Sciurus vulgaris*), Rabbit (*Oryctolagus cuniculus*) and Woodpigeon (*Columba palumbus*). Above 250 m Red Grouse (*Lagopus lagopus*) were the major food. However, much of these data were collected from territo-

ries close to grouse moorland or Pheasant (*Phasianus colchicus*) farms.

In 1991 I started studying Goshawk diet in an area of Wales virtually free from grouse and Pheasant rearing. In the study area sheep farming and forestry were the main land uses. The study collected prey items found around nesting territories between March and September in 1991-1993. The methods employed are described elsewhere (Toyne 1994).

Breeding season diet of Goshawk in Wales consisted of birds (87%) and mammals (13%). Ten species, namely: Woodpigeon, Feral Pigeon (*Columba livia*), Carrion Crow (*Corvus corone*), Rook (*Corvus frugilegus*), Magpie (*Pica pica*), Jay (*Garrulus glandarius*), Mistle Thrush (*Turdus viscivorus*), Song Thrush (*Turdus philomelos*), Blackbird (*Turdus merula*), Grey Squirrel (*Sciurus carolinensis*) and Rabbit accounted for 90 % and 94 % in terms of biomass of Goshawk diet (Figure 1).

Goshawk prey items did not include gamebirds (Table 1). This was expected as there were few gamebirds in the area. Goshawks took racing pigeons. Over half of the Feral Pigeons (n=118) killed were racing pigeons. However, I may have underrecorded this number because the sterna of Feral and racing pigeons are identical, and only when identification marks (ring or stamped feathers) were found could I be sure of what type of pigeon it was.

Goshawks also receive publicity because of their possible impact on scarce bird species such as Merlin. However, such impacts can only be



A female Goshawk plucking a Woodpigeon

R. Blewitt

quantified if there is information on the prey species population dynamics over a long period. For most species this data does not exist. In Goshawks' diet birds of prey, including owls, comprised 1.6 % or 1.8 % in terms of biomass. Most of this consisted of Tawny Owls and Kestrels (Table 2). A study to quantify Goshawks' impacts on these local populations would be worthwhile. Of the other raptors taken, all six Goshawks were nestlings or recently fledged juveniles, and the Buzzards were all adults. Goshawks' diet included one Merlin and a few Sparrowhawks (Table 2).

There was some inter-specific competition between Sparrowhawk and Goshawk but within the study area, Sparrowhawks have not declined. Within one large commercial plantation (3,500 ha) between 6-8 Sparrowhawks' nests were found each year whilst surveying for Goshawk nests. The plantation also supported a fluctuating breeding population of Goshawk (10-11 pairs). Sparrowhawk territories were re-occupied each year except when Goshawks had secured nesting territories close by (less than 300 m). As a consequence, most Sparrowhawks simply moved further away to nest. It was also no-

ticeable that Sparrowhawks shifted nesting habitat from more open woodland, which Goshawks used, to denser stands of trees unsuitable for Goshawks (Toyne 1994).

In my study area, Goshawk predation on Carrion Crow and Grey Squirrel suggested that they should be regarded as a friend to both farmer and forester. The situation is different in other areas of Britain. One study of breeding season diet in the northern England and southern Scotland revealed that Goshawks took gamebirds (8.4 %; Table 1). But they took far more of both pigeons and corvids (Table 1). Both studies suggest that Goshawk diet varies depending on the local availability of suitable prey. For example, in the Borders both Pheasant and Red Grouse are abundant and feature in Goshawk diet, whilst they were rare and not recorded for the Welsh study (Table 1). Whereas medium-sized mammals (Rabbits and Hares) found in both study areas, were recorded in similar proportions in Goshawk diet (Table 1). Elsewhere in Britain, particularly in the lowlands where Pheasant rearing is more common, there may be a conflict of interests between game rearers and conservationists.

Therefore, studies are needed to quantify Goshawk predation on gamebirds and, if economically substantial, ways of alleviating such predation need to be investigated (Petty in press a).

In my study, Goshawks were shown to predate forest pests such as Rabbit and Grey Squirrel (Figure 1). Comparatively large numbers of Grey Squirrels were found in the diet of Goshawks which nested close to broadleaved stands such as Beech or Oak, compared to the diet of Goshawks nesting in large blocks of conifers. In areas where Goshawks took many pests they were perceived to be beneficial to forest management.

Goshawk nesting habitat management

Goshawks are listed on Schedule 1 of the Wildlife and Countryside Act 1981 and it is illegal to kill, injure or remove them from the wild. Likewise, taking, damaging or destroying nests or eggs is also illegal. An occupied nest site from the start of nest building until the young have dispersed is also protected. Due to this level of protection there is a need to manage Goshawk nest sites. Such management is eased by Goshawks' habit of usually nesting year after year

in the same sites. Such sites can be occupied for more than ten years.

In commercial forests, Goshawks tend to nest in end of rotation trees which will soon be felled. But provided at least 6 ha of the nesting stand is left with windfirm edges and there is suitable adjacent foraging habitat, the territory can be retained beyond the normal felling age for Goshawks continued use (Toyne 1994). This type of nesting habitat management has been successful in a number of Forest Enterprise districts, particularly in my study area where some of the original Goshawk nest retentions are over 10 years old and still occupied. This district now has a core of long-term retentions. Such retentions alleviate the problems of relocating pairs after nesting areas have been felled. When nesting areas have to be felled, it should be done outside of the breeding season. Further guidance on managing Goshawk nesting areas is given by Petty (1989 and in press b).

Studies on Goshawk's nesting habitat requirements and management of their nesting habitat (Toyne 1994, Petty in press b) suggest that Goshawks can be managed. However, forestry plans need to have some flexibility to allow for changes.



Grey Squirrel remains.

The tough skins have been peeled back banana-style by a Goshawk.

E.P. Toyne

such as re-scheduling of felling programmes due to the discovery of nesting Goshawks.

Regardless of whether Goshawks are regarded as a friend or foe, they will continue to expand their range in Britain and it will be up to raptor ecologists and land resource managers to lessen any perceived negative effects this recolonization might bring.

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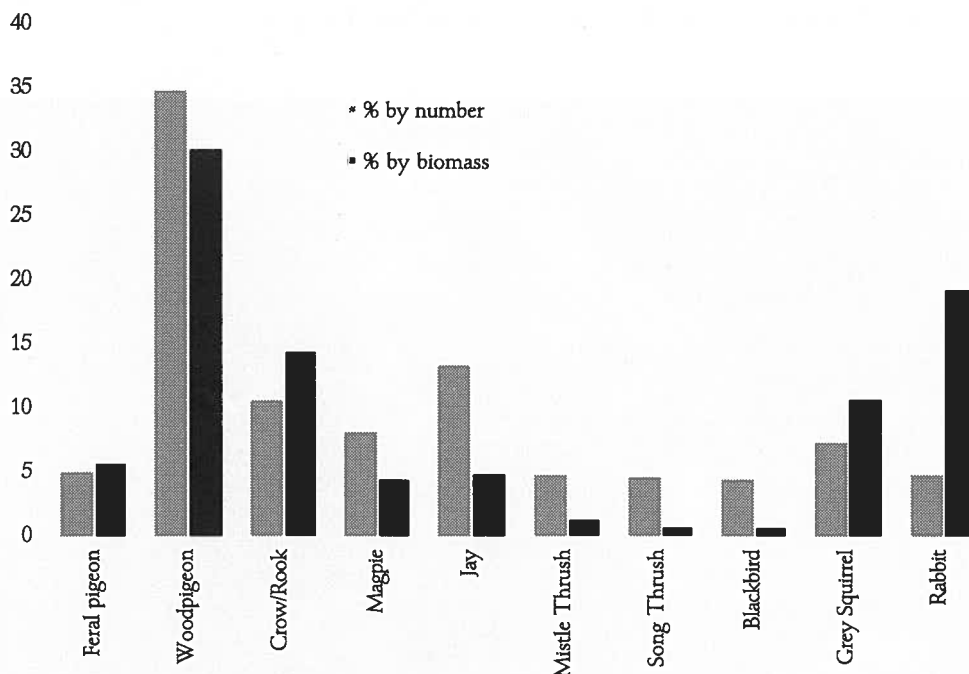


Figure 1. Main Goshawk prey species by number and biomass.

Woodpigeon was the most important prey species in both numbers and biomass. Jay and Magpie were important numerically but due to their smaller body size and Goshawks' predation on lighter nestling and fledglings their biomass contribution was lower. Conversely the Grey Squirrel and Rabbit biomass contributions were higher than their numerical contributions to Goshawk diet.

Prey Groups	Grouse	Other gamebirds	Waders	Pigeons	Corvids	Thrushes & Starlings	Other birds	TOTAL % BIRDS	Lagomorphs	Squirrels	Other mammals	TOTAL % MAMMALS	No. of prey items
Wales (this study)	0	0	1.2	30.6	36.3	15.6	3.2	86.9	5.3	7.7	0.1	13.1	2213
England/Scotland (Petty, in press b.)	6.3	2.1	0.9	48.5	19.6	5.9	8.1	91.4	5.2	1.8	1.6	8.6	3980

Table 1: Percentage prey in Goshawk diet during the breeding season in Britain

Note: Lagomorphs = Rabbit and Hares.

Prey Species	No.	Total %
Buzzard	3	0.13
Goshawk	6	0.27
Sparrowhawk	3	0.13
Merlin	1	0.04
Kestrel	10	0.45
Tawny Owl	13	0.58
TOTAL	26	1.60

Table 2: Birds of prey and owls in the diet of Goshawks during the breeding season in Wales (1991-1993)

Note: Total % is the prey species percentage contribution to goshawk diet. Total prey items collected was 2230, of which 21 items were not identified and six items could only be identified to family.