

REPORTED CASUALTIES TO RINGED DUCKS IN THE SPRING AND SUMMER

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How important are predators, diseases and accidents in their effects on the numbers of ducks? This is a crucial question in population dynamics, yet it is quite unanswerable at present, because so little is known about causes of death other than man. The purpose of this short note is to summarize what can be learned in this field from the recoveries of British-ringed ducks. Attention is concentrated on the months March to August for three reasons. First because this period covers the breeding season, a time when in Britain and some other countries shooting is both illegal and little practised so that ducks found dead are relatively unlikely to be shooting casualties not retrieved by the shooters. Second, because it is known from a variety of other studies that losses to predators and some diseases are commoner in the breeding season than in winter. Third, because losses suffered immediately prior to breeding, or in the course of incubating eggs or rearing young have relatively larger effects on the output of any population than losses at other times of year.

Over 60,000 ducks, including 27,000 Mallard *Anas platyrhynchos* and 28,000 Teal *Anas crecca*, have been ringed in Britain, of which at least 8,000 have been recovered. Yet the number of spring and summer recoveries which include some indication of how the bird died amounts to only 881 and at least 629 of these records are of birds killed by man, mostly in August. The other 252 recoveries comprise no more than 0.4% of the ducks marked and less than 1 in 50,000 of the total British-visiting duck population at risk in the last twelve years (in which most of the ringing has been done). A sample as small as this is unlikely to be adequately representative.

A further difficulty is that most people finding dead ringed ducks are in no position to carry out thorough examinations to establish the cause of death, so that only the most obvious causes are likely to be recorded, and even these may sometimes be guessed wrongly. In Table 1 the reported non-shooting casualties are assembled in three main classes. Mallard and Teal provide nearly the same number of records. But whereas the 115 Mallard recoveries comprise 36% of all those reported for the months March to August, the 114 Teal represent only 26% of the spring and summer reports for that species. This difference might reflect greater susceptibility to 'natural death' in the Mallard, but it is much more likely to be due to the difference in the breeding distribution of the two species. Many ringed Mallard stay in England to breed and so are more likely to be found and reported than are Teal breeding abroad in countries with much less dense human populations. The ten records in the "other dabbling ducks" column are made up of six Wigeon *Anas penelope*, two Pintail *A. acuta*, one Shoveler *A. clypeata* and one Garganey *A. querquedula*. They represent only 12.5% of the known spring and summer deaths of ringed birds of these four species. Why this proportion should be so low is not clear. The 13 diving ducks comprise 32% of the total recoveries in March-August.

Table 1: Reported causes of death of British-ringed ducks recovered from March to August, excluding those deliberately killed by man.

	Mallard	Teal	Other dabbling ducks	Pochard & Tufted Duck	Total
predators	18	21	2	0	41
accidents	29	52	0	6	87
'found dead' ..	68	41	8	7	124
Total	115	114	10	13	252

An interesting feature of Table 1 is that there are specific differences in the proportion of deaths assigned to predators or accidents as against birds found dead from no obvious cause. In particular the proportion of casualties attributed to accidents is much higher among Teal and the diving ducks than it is for Mallard and the other dabblers. This difference, unlike that in the kill by man, is not to be explained by the relative abundance of British recoveries of Mallard, since the ratio of apparent accidents to other causes of death, excluding the kill by man, is very nearly the same in Britain as abroad. Casualties classed as accidental include birds caught in fishing-nets, fish-traps, or musk-rat traps, colliding with overhead wires, killed on or near their nest by mowing-machines and some other odd ones—such as collision with cars and trains.

Table 2 sets out the records in these categories, differentiated by sex as well as by species. The most striking sex difference is in casualties due to mowing machines which, not surprisingly, appear to be confined to females. In some parts of North America losses of ducks and their nests from this cause have assumed serious proportions, so that efforts have been made to reduce them by fitting 'flushing bars' on the machines in front of the cutters, but such casualties have attracted little attention in Europe. This is perhaps because nesting in open grass fields is not very common in Mallard and Teal. Pintail and Shoveler, which favour open sites, are only sparsely distributed as breeding birds in north-west Europe. It is worth noting that all six cases in the Mallard were British. Even though the samples are small, the proportion of mowing machine casualties in female Teal (1 in 19 accidents) is significantly smaller than in Mallard (6 in 16). This may reflect differences in agricultural practices between Scandinavia and England, or in choice of nest sites by the two species.

Table 2: Identified causes of accidental deaths of ringed birds. The 'Total records' column includes six ducks not sexed when ringed and six of species other than Mallard and Teal.

	Mallard	Teal	Males	Females	Total records
overhead wires ..	11	4	12	3	17
nets and traps ..	6	38	23	21	50
mowing machines	6	1	0	7	7
others	6	3	5	4	13
	29	46	40	35	87

Two recoveries have resulted from mowing machines cutting the ringed leg off a bird which flew away otherwise unharmed. Two instances of unringed ducks losing legs in this way have been found at Slimbridge.

Males and females seem to be equally liable to be caught in fishing-nets, fish-traps or musk-rat traps. All the casualties in these devices were reported from overseas, mostly from Finland and Sweden. None has been noted in Russia, but it is possible that they occur there too, because many Russian recoveries lack any details of the manner of finding or say 'caught' without further qualification. (Such records have been omitted from Table 2). Ducks caught in fish- and musk-rat traps are sometimes released again.

The evidence that males are more likely to be killed than females by collision with overhead telephone or power lines, though suggestive, is not statistically conclusive. This hazard accounts for a higher proportion of reported deaths in Britain than overseas. But are any other countries so cluttered with wires?

Deaths attributed to predators amount to one-sixth of the reported losses not known to be due to man. Whether it is really the case that predators are only half as important as accidents due to human constructions and machines cannot be decided on the available evidence, though it seems possible in England, where predators are few. Of 41 predator records, 20 were attributed to mammals and 18 to birds. The mammals included 9 foxes, 7 cats and 3 dogs. The birds identified were 6 Eagle Owls *Bubo bubo*, 4 Peregrines *Falco peregrinus*, 1 Goshawk *Accipiter gentilis*, 1 Sparrowhawk *A. nisus*, and 4 'hawks.' Nearly all the records of birds-of-prey came from Sweden. There is some indication that females are more vulnerable to mammalian predators than males, which is to be expected since females alone incubate. More remarkably, 13 of the 17 ducks of known sex reported taken by birds-of-prey were males.

The relatively large class of ducks 'found dead' is the most frustrating. Presumably some were unretrieved shooting casualties and others may have been dead too long to make a guess at the cause of death possible. Yet if some of these birds could have been submitted to expert examination they must surely have included more cases of disease than the three English Mallard so labelled.

It seems unlikely that ringing, however massive in scale, can make a major contribution to our knowledge of the causes and incidence of wildfowl mortality, other than the consequences of human activities. But practicable alternative methods of approach are little more promising and it still seems necessary to clutch at straws.

