

PROPORTIONS OF MALE AND FEMALE DUCK ON TAY ESTUARY, 1910-1925.

BY

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STATISTICS of numbers in the study of birds are not often available. This is the apology the writer offers for the accompanying table showing the approximate proportions of male and female met with of some of the commoner duck. It is, unfortunately, incomplete in many respects: it represents the summary of a long series of records made under conditions good and bad, and it does bear out, in cold figures, various peculiarities of proportion and distribution in a manner more compact than mere generalities in writing could convey.

There are, of course, weaknesses in the statement. It is not possible in ordinary field work with a binocular to distinguish in most cases between juvenile and female; accordingly these are grouped together. There is also the eclipse plumage of the male which may affect the figures for September; probably only Goldeneye, Goosander and Merganser are involved however.

Broadly speaking, these ducks show the three possible variations—Mallard (*Anas p. platyrhynchos*), an equality of ♂ and ♀, Wigeon (*A. penelope*), Scaup (*Nyroca m. marila*) and Goosander (*Mergus m. merganser*), an apparent surplus of ♀, and the rest, a varying surplus of ♂. Teal (*A. c. crecca*) has not been included as it does not occur normally on the lower Tay Estuary. In certain cases it has been deemed advisable to give two figures, one of which represents the average, the other the result, when certain apparently abnormal records are excepted.

The equality of numbers of ♂ and ♀ Mallard is rather puzzling in some respects. Counts made at different seasons, both on fresh water and salt, have always given the same result, and the break-up of the wintering flocks has left a mere handful—not a dozen—probably consisting of two-thirds female which may or may not linger on salt water until lost among the males which come down for a period from the end of May until the approach of moult sends them into hiding. What becomes of the young of the year is not clear; of course, the young males assume a plumage similar to the adult their first autumn, yet the proportion of ♂ to ♀ in the various broods must be well maintained. There is another way of looking

at it, however, and that is the probability that many of the local nesting birds drift away in early autumn and their places are taken by immigrants, in many cases at least, already in pairs. Sometimes the September records seem to show this.

The Wigeon tends to be a bird of passage as the records show, but there is no doubt that adult males are relatively scarce at both passages, and the few records of relative numbers on fresh water show the same peculiarity.

The Shoveler (*Spatula clypeata*) is included, although material is so scanty, for the reason that the March figure is confirmed by records on fresh water. These are not given because the growth of cover renders counting quite hopeless, but the surplus of drakes is demonstrated by the amount of display and war-like excursions, which continue well into May.

Pintail (*A. a. acuta*) records refer to passage birds in spring ; the figures give hint of females lingering over the winter.

The Pochard (*N. f. ferina*) seems to run to excess of males at most seasons, why is not clear. It has nested on a loch in south-west Forfarshire in 1925 and 1926 ; it attempted to do so on a neighbouring loch in 1917, and, although common at all seasons, except June, it does not appear to be breeding at all freely. Whence the males come from in July to local lochs (2.7-1) the writer has, so far, not discovered. This bird is certainly extending its range and appears to take a long time to settle down.

The Tufted Duck (*N. fuligula*) shows some of the peculiarities of the Pochard. Like it, it appears that the sexes tend to separate during the winter, with a distinct preference for fresh water on the part of the females in the case of the Tufted Duck. Probably, this duck also is pressing on to new ground. The figures for fresh water are given for this, for the Pochard and for the Goldeneye (*Bucephala c. clangula*), and show interesting differences.

The Scaup, Goldeneye and Long-tailed Duck (*Clangula hyemalis*) do not show any very marked peculiarities. The material available for the first and last is not great. The Goldeneye has apparently nested in Perthshire in recent years.

The figures for the Eider (*Somateria m. mollissima*) are at first sight rather remarkable. Clearly there are complex influences at work. Unfortunately, little or no material is available for December, which appears to be a critical period. The writer is inclined to suspect the November

figures, knowing well that the male is so much more conspicuous than the female, and the dull haze of winter does not help. From records of October, particularly the first half, it appears that the males pack far more than the females. In one case, at least, while males were certainly in the vast majority and in close packs, the females were scattered over the wide shallows rather than in the narrow flows preferred by the males, and so had to be looked for. On the Tay Estuary, probably 100 pairs or so nest, and by the end of July all the young birds are away to better feeding grounds among the rocks further north, accompanied by the females, while the birds remaining are apparently the males in eclipse. By September the family parties are scattering, but the separation continues until early in the year. Whether the tendency for display during the winter brings about some pairing and consequently an increasing tendency for females to join the packs is perhaps a speculation, but it may be so far correct. The writer has discussed some of the peculiarities of numbers in April and May (see Vol. XIX., p. 46) when dealing with the courtship.

The material regarding the Common Scoter (*Oidemia n. nigra*) and Velvet Scoter (*Oi. f. fusca*) is very scanty, but, such as it is, it points to a marked excess of males.

The Goosander and Merganser (*M. serrator*) show rather an interesting contrast. Whether the relative breeding ranges of these two species has anything to do with it is a speculation. The Goosander nests, or endeavours to do so, over most of Perthshire, and presumably will come to salt water in winter. The excess of females rather indicates that the Tay is also on the southern margin of its wintering as well as breeding range. Its tendency to wander, and indeed its whole character, seems far less energetic than its commoner relative, the Merganser. Just where its headquarters are in winter, in Scotland, is a matter of doubt, and the records available do not point to the open sea as a usual habitat, nor even the less turbulent but yet fully maritime areas within the bar, anyway so far as Tay is concerned. The Merganser finds much of its feeding ground in the shallows over sand at the bar of Tay, as well as the less exposed areas up river outside the areas of mud.

The question in general raised by these figures is "what are the habits of these birds outside the breeding-season?" Most of them leave fairly well-defined breeding areas and vanish into the unknown for the most part during the remainder of the year. They offer some interesting little problems for those in a position to investigate them.

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OVER PERIOD 1910-1925.

NAME.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	M'ch.	April	May	Remarks.
	All months ♂=♀									
Mallard ...	...	...	...	...	...	...	...	...	...	{ In October, ♀ sometimes appears to be in excess; probably ♂ still in eclipse.
Wigeon ...	...	1-3	1-2.6	—	—	1-2	1-1.7	—	—	April/May records insufficient.
Shoveler ...	...	1-1	—	—	—	—	4-1	—	—	*Only two records on salt water.
Pintail ...	...	1-1	—	—	*	1-1.2	1.4-1	1.1-1	—	*Only January record a ♀.
	{	4.7-1	2-1	4-1	—	—	4-1	2.3-1	1.4-1	Records on fresh water.
Pochard ...	{					†				†See below.
	{	—	1.2-1	1.4-1	1.4-1	♂ only	2-1	♀ only	—	Few records March, April, May.
	{	—	1-2.6	—	—	1-1	1.5-1	1.6-1	—	Records on fresh water; *1.2-1 if 1925 [excepted.
Tufted Duck	{	—	—	—	—	†	*	—	—	†See below.
	{	—	2-1	2.6-1	2.9-1	2-1	3-1	1.3-1	♀ only	Records on salt water in May few.
Scaup Duck	1-2.5	1-7	—	1-1.2	1-1.5	1-2.8	1.3-1	2-1	♂ only	One record June ♂; one August, a ♀.
Goldeneye	{ All ♀	1-6	2-1	—	—	1.3-1	1-1.2	1-1.8	2-1	February/March period of most records.
Long-tailed Duck	{	1-4.3	1.1-1*	3-1	1.5-1	1.1-1	1-1	1-1.2	1.75-2	Records on fresh water few.
Eider ...	...	—	All ♀	—	—	All ♂	1.5-1	3.2-1	1-1	*1919 excepted—1.75-1.
Scoter ...	...	6-1	4-1	—	—	1-3	1-1	2-1	4-1	April records most numerous.
Velvet-Scoter ...	...	4-1	3-1	—	—	—	All ♂	4-1	—	Largest numbers, Mid-Sept. to end Nov.
	...	—	—	—	—	—	—	—	—	Scanty material available.
	...	—	—	—	—	—	—	—	—	Very little material concerns males
	...	—	—	—	—	—	—	—	—	{ only—mostly October.
Goosander	† All ♀	1-20†	1-70*	1-1.5	1-1.2	1-1.5	1-2	1.3-1	—	{ †1-50 without 1924 records. ‡May include ♂s. eclipsed.
Merganser	...	1-2.5	1-11	1-1.5	1.2-1	1.3-1	1.9-1	1.3-1	1-1.1	*1-60 without 1921 records.

The figure for the ♂ is given first in each case, e.g. Wigeon in October were in proportion of one male to three females.

Figures for Pochard and Tufted Duck for February are affected by presence of abnormal numbers of ♀ in 1917; neglecting these, the figures become :—Pochard 2.2-1, Tufted Duck 3-1.