

Initial direction tendencies in the European Green-winged Teal

G. V. T. Matthews, J. A. Eygenraam and L. Hoffmann

Introduction

MALLARD *Anas platyrhynchos* have been shown to fly off predominantly between north and west whether captured in Illinois, U.S.A. (Bellrose, 1958) or in Gloucestershire, U.K. (Matthews, 1961). It therefore seemed possible that such a tendency might be species-specific. Although later work (Matthews, 1963) showed that this was not so since different Mallard populations in Europe had different direction tendencies, the investigation of other species was obviously desirable.

Bellrose (1963) has since provided data on three further species caught in Illinois. Several hundred Blue-winged Teal *Anas discors* showed a north-west tendency while smaller numbers of Pintail *Anas acuta* and Canada Geese *Branta canadensis* tended respectively to the west and to the south-south-west. The present paper reports on the orientation of European Green-winged Teal *Anas crecca crecca* wintering in western Europe, having bred in the Baltic countries and north-west Siberia.

Technique

The Teal were caught at three ringing stations, the first and last being duck-decoys, the other operating cage traps:—

Piaam, Netherlands	53.02 N. 05.25 E.
Tour du Valat, S. France	43.30 N. 04.40 E.
Peakirk, England	52.38 N. 00.17 E.

The Dutch and French releases were undertaken at times when catches were abundant, the English releases being continued throughout the season. Generally the birds were taken straight to the release-point after capture but it was found possible in England to 'store' Teal, when necessary, for a few days in avaries, as has been done with Mallard. The birds were released one at a time in good, sunny weather and followed through binoculars until lost from sight. The bearing of this vanishing point and the time taken to reach it was noted. To avoid bias by local topography more than one release point was used in each case, five from Piaam, two from Tour du Valat and four main ones from Peakirk. The Dutch release points were from 10 to 95 km. distant, between west and SSE; the French points were 15 km. east and 45 km. NNW; the English points were 10 to 30 km. distant between north and south-west.

Results

Piaam

In September, 1960 a total of 192 Teal were released. In the Netherlands it is difficult to find release sites away from water, on which the birds tend to land. As a result a large proportion of birds came down and others were lost flying low and within a minute of release. In all only 88 birds (46%) gave satisfactory vanishing points and their bearings are plotted in Figure 1. A strong WSW tendency is apparent.

Tour du Valat

In February, 1961 a total of 129 birds were released, giving a much higher (84%) proportion of useful bearings, largely, it would seem, because of less watery release sites. The 108 vanishing points are plotted in Figure 2. Again half of the birds were lost between west and south although the scatter was wider and the tendency more southerly than for the Dutch-caught birds.

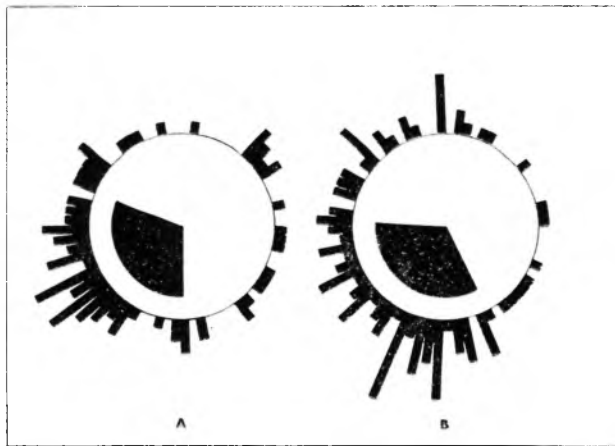


Figure 1. Bearings of the vanishing points of Teal caught at a) Piaam, Netherlands in September and b) Tour du Va'at, S. France in February. The length of each ray is proportional to the number of birds lost to sight in that direction. The central fan represents the spread of the distribution, being the mean deviation about the median (A $\pm 56^\circ$, B $\pm 60^\circ$).

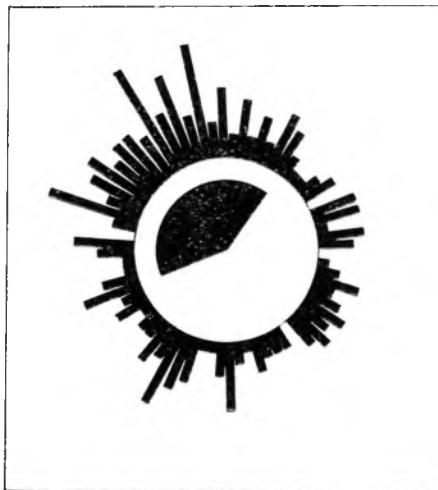


Figure 2. Bearings of the vanishing points of Teal caught at Peakirk, England, September-March. Mean deviation $\pm 74^\circ$.

Peakirk

Releases were carried out from September to March in three seasons, 1960-61 to 1962-63. The birds totalled 337, of which 70% gave useful vanishing points, the 234 bearings plotted in Figure 3. Here the situation is very different from that in the two other countries. No one quadrant is strongly favoured, though the proportion of bearings (39%) lying between north and west is significantly more than would be expected by chance.

Discussion

The distribution of release points was such that suggestions that the birds might be trying to fly 'home' (*i.e.* to the point of capture) can be dismissed.

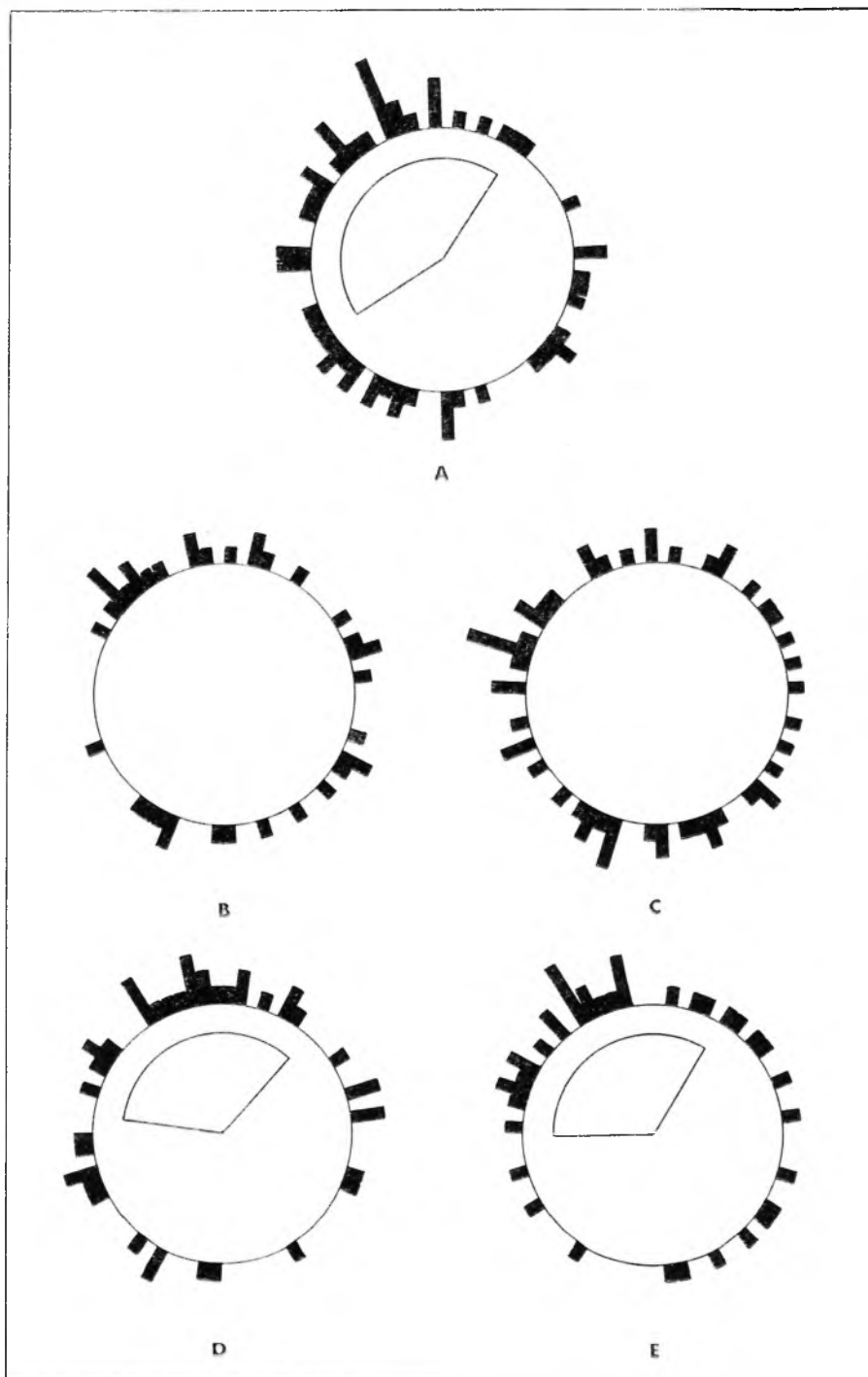


Figure 3. Bearings of the vanishing points of Peakirk Teal grouped according to month of capture.

A) September, m.d. $\pm 78^\circ$; B) October; C) November;
D) December, m.d. $\pm 62^\circ$; E) January-March, m.d. $\pm 61^\circ$.

Although the Dutch birds might have been proceeding in the general migratory direction for that time of year this was certainly not the case in the French releases; there, if anything, such a tendency would be the reverse of that shown. There were thus grounds for supposing that we were dealing with a "nonsense" orientation correlated with neither homing nor migration. The similarity of the Dutch and French results suggested that a SW tendency might be species-specific or at least common to Teal from quite a wide breeding area; for some of the French birds pass through the Netherlands while others move on a more direct line to and from the breeding grounds (Hoffmann, 1960). However the English results have made such a simple answer untenable as these birds derive from the same general area as those passing through the Netherlands.

On the precedent of the results obtained with Mallard caught at Peakirk (Matthews, 1963), an explanation based on different migratory sub-populations having different orientations would result in different scatters at different seasons. In the present case, however, there is no substantial local-bred population to give an orientation pattern which is seen to change as migrants arrive. The migratory sub-populations must themselves be sufficiently different in their time of arrival and/or length of stay for visible differences in the scatter patterns to emerge. Splitting the Peakirk results according to date of capture (Fig. 4) does not produce any very clear-cut differences. However the north-west tendency is strong in September (39%) and again in December (39%) becoming most marked after the turn of the year (51%). All three values are significant statistically. In both October and November, however, the scatters are essentially random. A likely interpretation of these changes is that an early wave of Teal with north-westerly tendencies arrives in eastern England and takes up residence. Teal with other direction tendencies then arrive but mostly pass on (*e.g.* to Ireland) and have not returned by the end of March. Such a picture is not inconsistent with what is known of Teal movements through England (Boyd & Ogilvie, in prep.).

It is unlikely that the situation will be clarified by further English releases, but it would be desirable to extend the season of releases in the Netherlands. The lack of marked directional trends in Peakirk Teal at the time when they can most plentifully be trapped means that they cannot be used to investigate the astronomical bases of orientation.

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