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The diaries of William Mudge, wildfowler

Colin R. Tubbs

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There are few printed sources from which to reconstruct the size and variability of estuarine bird populations before modern systematic counting began. Hunters' records of the numbers of birds killed seasonally are a possible source of such information, but most such records have deficiencies which confound analysis. This article attempts to interpret the seasonal kills of William Mudge, a wildfowler (= hunter) who punt-gunned in Southampton Water and the Beaulieu River estuary on the central south coast of England between 1897-98 and 1952-53. A distinctive pattern of numerical change is evident, although it does not occur with equal strength in every species. Its main features are high kills associated with the First and Second World Wars and a low kill in the 1930s. Since the final entries in William Mudge's diaries the numbers of most species in the area have become much larger than those suggested by the diaries for the first half of the 20th century. It is tentatively proposed that these changes are in the main related to changes in hunting pressure, although it is not suggested that this was the sole influence on the changing status of every species.

Colin R. Tubbs, English Nature, 1 Southampton Road, Lyndhurst, Hampshire SO43 7BU, UK.

INTRODUCTION

The ornithological literature contains few direct indications of the size and variability of estuarine wader and wildfowl populations before the modern era of systematic counting began. In Britain wildfowl counts effectively began in 1952-53 and counts of all estuarine birds in most estuaries began in 1970-71 with the inception of the British Trust for Ornithology Birds of Estuaries Enquiry (BoEE), though in a few estuaries regular counts began in the 1950s or 1960s. Reconstruction of numbers and population changes in earlier times depends on piecing together fragments of evidence embedded in the literature and in unpublished manuscripts. In such sources most relevant allusions are of a general, qualitative kind. An interest in absolute numbers is a relatively recent phenomenon except in one particular respect: hunters often felt impelled to record the numbers of birds which they shot.

Most such records are of limited value because they are inconsistent as to locality, selective, irregularly kept, summed over periods of years, unrelated to shooting effort, or possess other defects which confound analysis. This article is about the shooting records of a particular wildfowler (= estuarine hunter) which are remarkable because they lack most such defects and moreover span a long period of time.

William Mudge shot waders, ducks, Brent Geese *Branta bernicla* and other birds from ashore and from a gunning punt in Southampton Water, the Beaulieu River estuary and adjoining parts of The Solent, on the central south coast of England (Figure 1), from the summer of 1897 until at least February 1952. He maintained a diary of his activities which for the most part is a daily narrative, although 1906-1920 is contained in a single long entry for the latter year (following his return from the First World War) and the period of 1920-

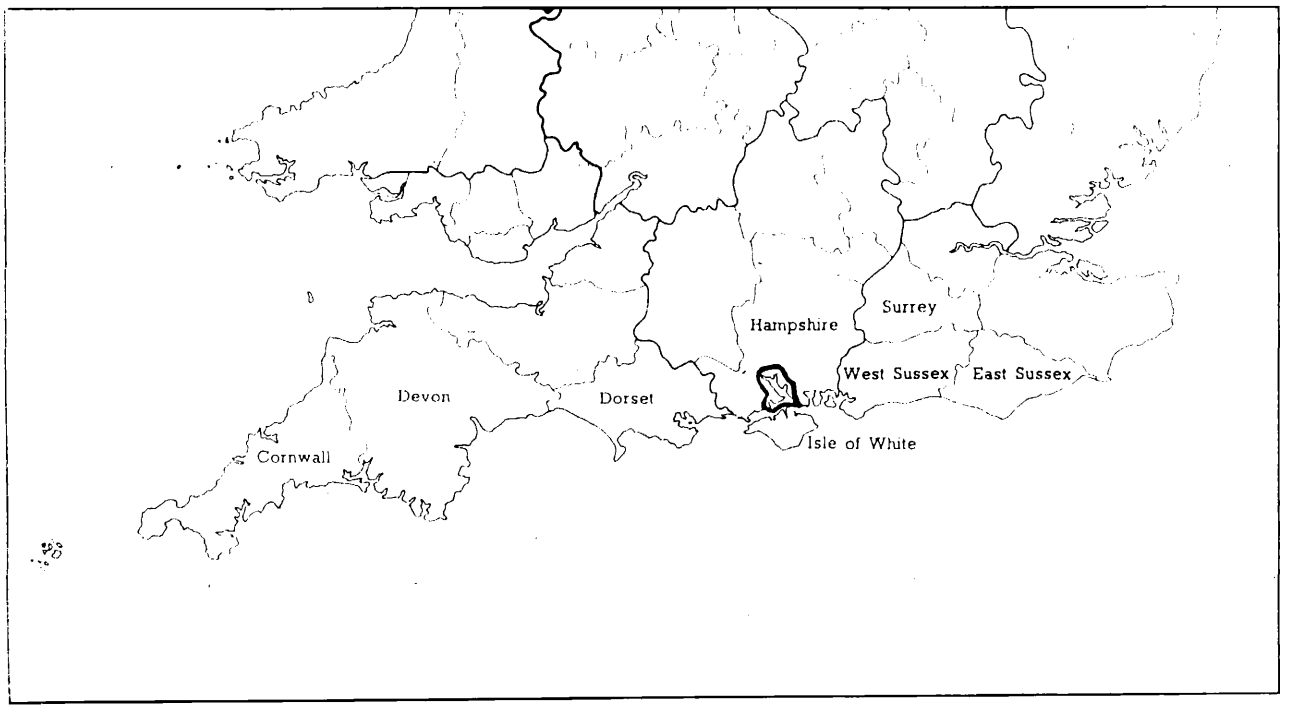

Figure 1. Location of Southampton Water and the Beaulieu River Estuary

1925 is summarised in a similarly long entry for 1925. The final entry, on 7 February 1952 is squeezed into the final page of the sixth volume of the diaries. Another volume probably followed but has been lost, for we know from his family that he continued wildfowling after that. The diaries cover no less than 52 wildfowling seasons. William Mudge died in 1964.

William Mudge does not seem to have been a professional wildfowler in the sense of depending on wildfowling for a living during the shooting season, but he certainly sold most of the birds which he killed. In fact, he was one of the earliest professional photographers, starting a business soon after the turn of the 20th century. The diaries are those of an articulate, knowledgeable enthusiast with a lifetime absorption in wildfowling: he simply could not keep away from the estuary. He was unusual among wildfowlers earlier this century in being a middle class businessman rather than either a professional wildfowler-fisherman-seasonal deckhand who left no record, or one of the 'gentleman-gunners' who contributed most to the wildfowling literature of Britain but who generally failed to record what they shot and saw in such detail or for so long as William Mudge. Mudge shot mainly waders and ducks from a gun punt (or 'flat' as they were known locally) in the intertidal zone. Among his most vulnerable quarry were high water roosts of waders at saltmarsh margins but he preferentially sought ducks and Brent Geese if they were present. The numbers and species of birds killed are recorded for 42 of the 53 seasons recorded in the diaries. In those 42 seasons he killed 15,228 ducks, Brent Geese and waders and a few grebes, divers, cormorants and herons. Of these, 9,988 (65%) were waders of 17 species. In addition to recording the birds he shot he reported extensively on the numbers he saw, although most references are general in nature (e.g. 'large' or 'small' flocks) rather than absolute counts. He also referred to general trends and recorded the opinions and recollections of other wildfowlers who sought the wildfowl and waders of Southampton Water and the adjoining parts of The Solent earlier this century.

ENVIRONMENTAL CHANGES IN THE ESTUARIES

Since the end of the 19th century, when William Mudge began wildfowling, there have been significant changes in the extent and ecology of the estuaries where he shot. Between 1920 and 1965 approximately 58% of the mudflats and saltmarshes of Southampton Water were lost to the expansion of the Port of Southampton, the construction of a major oil refinery and an 1800 MW power station, and the disposal of dredgings from the main approach channel to Southampton docks behind bunds (= dykes) which enclosed intertidal mudflats and saltmarshes. The period covered by the diaries also saw the colonisation of about 200 ha of the mudflats which survived land claim by the cord-grass *Spartina anglica*. The invasive forms of *Spartina* arose in Southampton Water in the late 19th century from the hybridisation of the native *S. maritima* with the North American *S. alterniflora* which is assumed to have arrived via transatlantic shipping. The early product of hybridisation was a male sterile form *S. townsendii*, but subsequently, towards the end of the century, a fertile tetraploid form appeared, *S. anglica*, which proved to have a remarkable capacity for colonising mudflats lower in the tidal range than other saltmarsh plants.

A further ecological change this century was the loss of the eelgrass *Zostera* beds. The Seventh Report of the Royal Commission on Sewage Disposal (HMSO 1911) described extensive *Zostera* beds in Southampton Water early in the century and Mudge refers to the difficulty in rowing a punt in the creeks because of the density of the *Zostera* beds at the same period. Butcher (1934) describes Southampton Water as having possessed abundant *Zostera* before its loss to the 'wasting disease' which reduced populations on both sides of the Atlantic in the late 1920s and early 1930s. In 1932 little remained of the beds (Butcher 1934). They have never recovered.

The Beaulieu River estuary and the shore east to Southampton Water (Figure 1) have survived more or less unscathed by development this century, but the area of intertidal flats there have nonetheless diminished. Between 1890 and 1950 about 150 ha of former mudflats in the estuary were colonised by *Spartina* but a greater loss of mudflat has derived from the landward migration of lower water mark, a phenomenon common to all the more exposed shores of The Solent since the mid-19th century and probably associated ultimately with a new pulse of sea level rise. Successive maps published since the 1860s show the intertidal zone to have been more than halved in width in rather more than a century. Extensive mudflats off the mouth of the Beaulieu River estuary and to its east have been lost and the exposed terminal cliffs of the saltmarshes in the estuary are now subject to greater exposure and retreat through wave action at high water.

Since the 1940s the *Spartina* marshes on the central south coast of England have entered a recessive phase in which the plants are dying and the platforms of accreted mud are eroding and slumping back to some semblance of the former mudflat profile (Tubbs 1980, 1984; Haynes & Coulson 1982; Haynes 1984). Where the terminal cliffs of the marshes are exposed to increased wave action through the loss of formerly protective mudflats, as in the Beaulieu estuary, they are also subject to rapid erosion retreat. Recession is widely evident both in Southampton Water and the Beaulieu estuary and to some extent represents the return of some lost mudflats. Such mudflat gain, however, post-dates the period covered by William Mudge's diaries which end at about the time the *Spartina* recession first became noticeable in The Solent.

I calculate that in 1911 there were 1,450 ha of mudflats and saltmarshes in Southampton Water. This has since been reduced to about 660 ha and of this about 330 ha are saltmarshes, including about 200 ha of *Spartina* marsh which became established on mudflats after the turn of the century. It is not possible to be so precise for the Beaulieu estuary but the scale of mudflat loss, to *Spartina* and advancing low water mark has been of an even greater magnitude. Thus, William Mudge's diaries cover a period of great change in the estuaries where he sought his quarry.

THE EVIDENCE OF THE DIARIES

The diaries include tabulations of the numbers of each species killed in each season from 1897-98 to 1905-06 and from 1919-20 to 1952-53. The record for 1919-20, however, appears to be incomplete, and that for 1930-31 is missing. Information on the number of days on which William Mudge shot in the estuaries is retrievable for the period from 1920-21 to 1952-53 with the exception of 1930-31. 'Lumping' of numbers of hunting-days in single diary entries deny us similar information before 1920. Also, it is not possible to calculate the number of hours in the field each season, which would be a better measure of hunting effort than the number of hunting-days.

Figure 2 gives the number of all birds killed each season. Figure 3 gives the number of days in which William Mudge shot in the estuaries after 1920. In Figure 4 the data are converted to numbers of birds killed per hunting day. Early in the century William Mudge killed around 900 birds per season, although in 1900-01 he killed an exceptional 1,900. By the mid-1930s the seasonal kill was only around 100 birds, rising again to 400-500 during and immediately after the Second World War. In some years the seasonal kill was related to the numbers of hunting-days, but this relationship was not consistent. Figure 4 confirms a real decline in numbers shot from 1920 to the mid-1930s, followed by an increase in the 1940s. In the early 1920s William Mudge was killing about 10-12 birds/day. In the late 1930s he was killing only 3-4/day, rising to a peak of 10-12 again in 1942-43 and 1943-44 before declining somewhat thereafter. The high kill in 1931-32 was aberrant: he killed only 60 birds but was out on only 7 days, on some of which he was lucky. From Figures 2-4 it will be seen that there was an overall increase in the numbers of hunting-days per season but a decline in the numbers of birds killed.

Figures 5-19 show the numbers of birds killed each season for each of nine species of waders, four species of ducks, the Brent Goose *Branta bernicla* and the Coot *Fulica atra*. These fifteen species were William Mudge's most frequent quarry and are those of which he killed more than 100 birds. The following patterns of change are discernible:

1. Dunlin *Calidris alpina* (Figure 5), Redshank *Tringa totanus* (Figure 6), Lapwing *Vanellus vanellus* (Figure 7) and Curlew *Numenius arquata* (Figure 8) show long term declines with minimum numbers killed in the 1930s (despite considerable hunting effort at that time - see Figure 3) and a revival (except for Redshank) in the 1940s.

2. Oystercatcher *Haematopus ostralegus* (Figure 9), Black-tailed Godwit *Limosa limosa* (Figure 10), Knot *Calidris canutus* (Figure 11), Grey Plover *Pluvialis squatarola* (Figure 12), Turnstone *Arenaria interpres* (Figure 13) and Shelduck

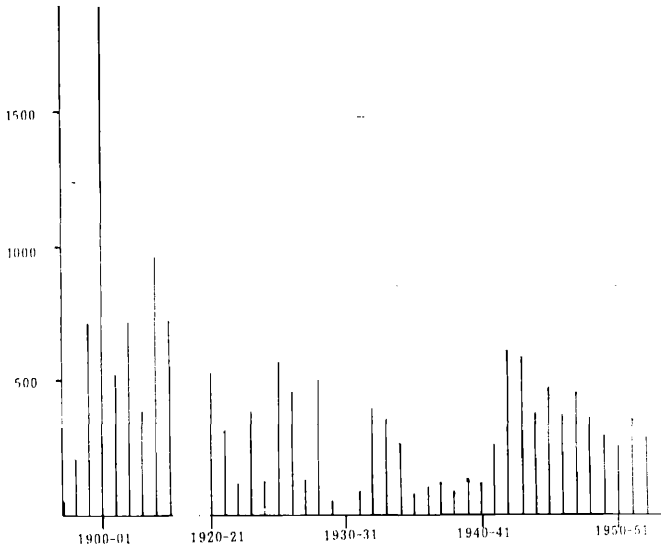

Figure 2. Total numbers of waders and wildfowl killed each season by William Mudge

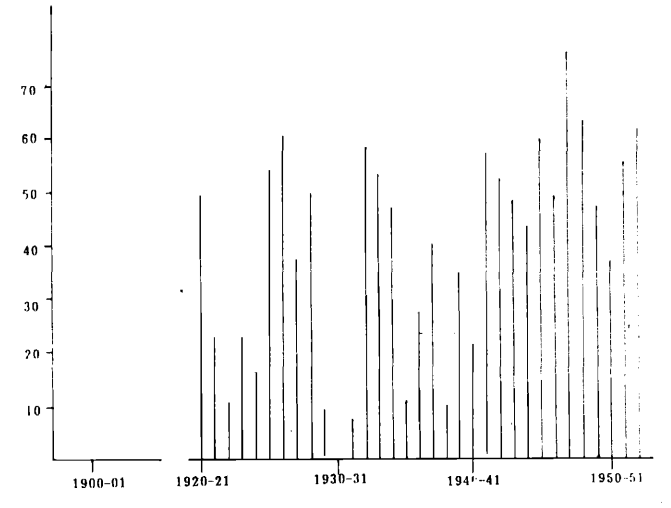

Figure 3. Numbers of days each season on which William Mudge shot

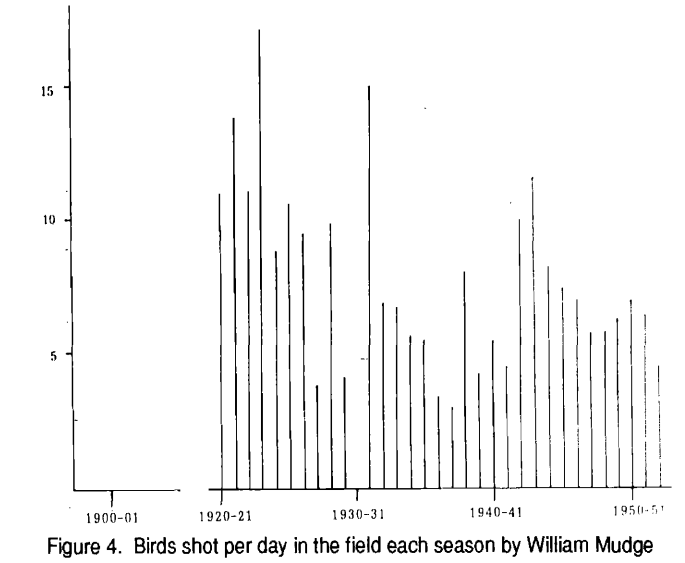

Figure 4. Birds shot per day in the field each season by William Mudge

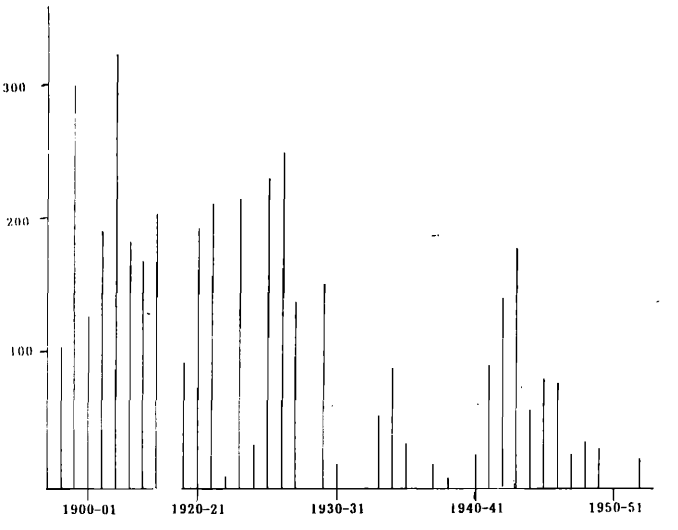

Figure 5. Number of Dunlin *Calidris alpina* killed each season by William Mudge

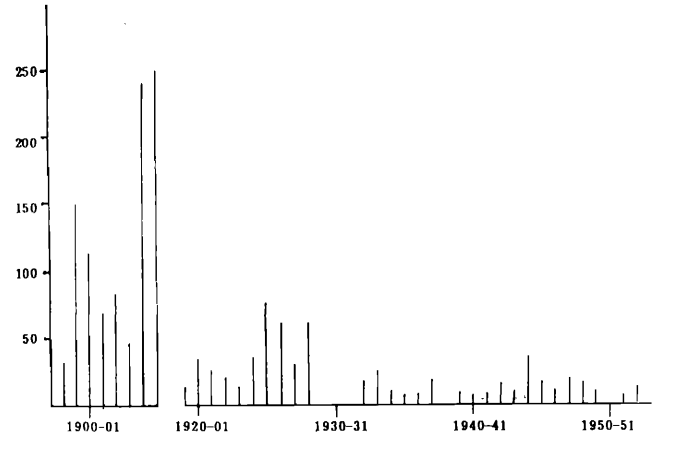

Figure 6. Number of Redshank *Tringa totanus* killed each season by William Mudge

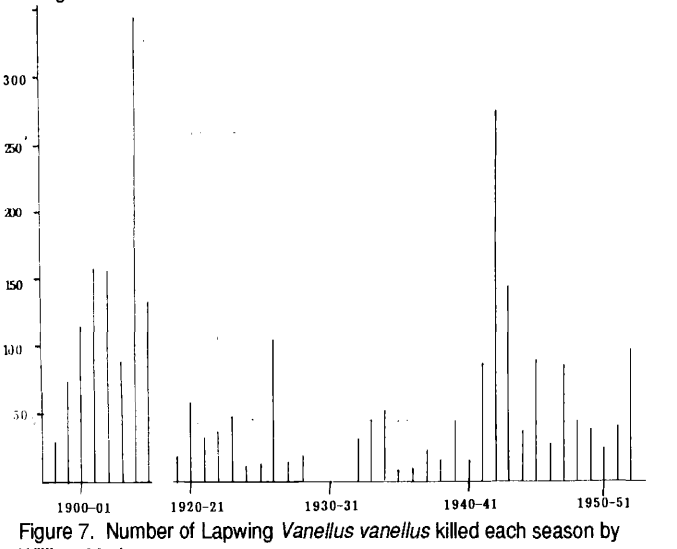

Figure 7. Number of Lapwing *Vanellus vanellus* killed each season by William Mudge

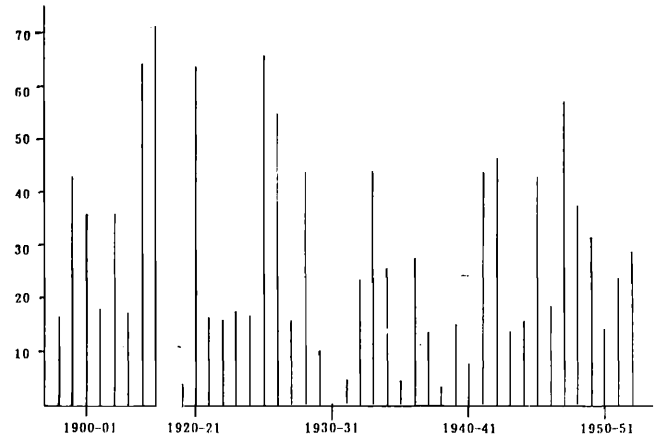

Figure 8. Number of Curlew *Numenius arquata* killed each season by William Mudge

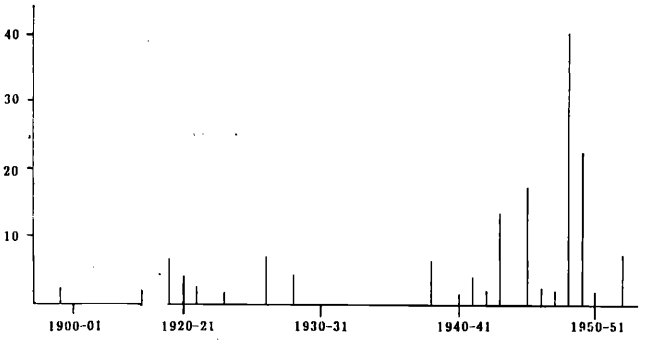

Figure 11. Number of Knot *Calidris canuta* killed each season by William Mudge

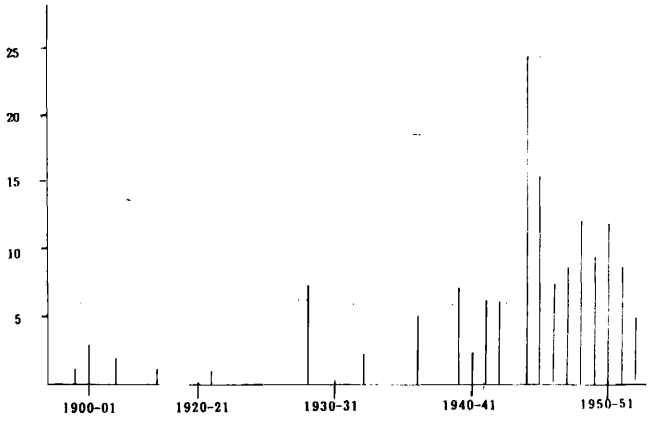

Figure 9. Number of Oystercatcher *Haematopus ostralegus* killed each season by William Mudge

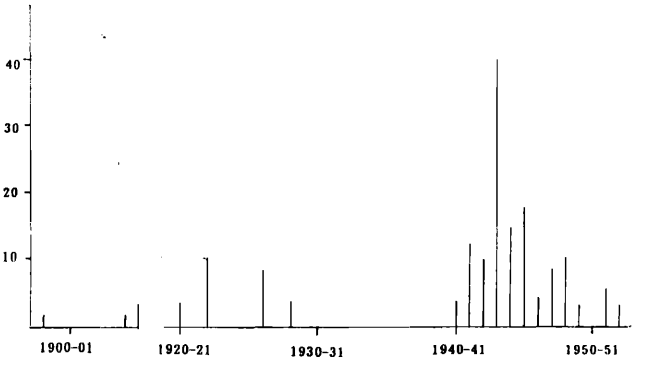

Figure 12. Number of Grey Plover *Pluvialis squatarola* killed each season by William Mudge

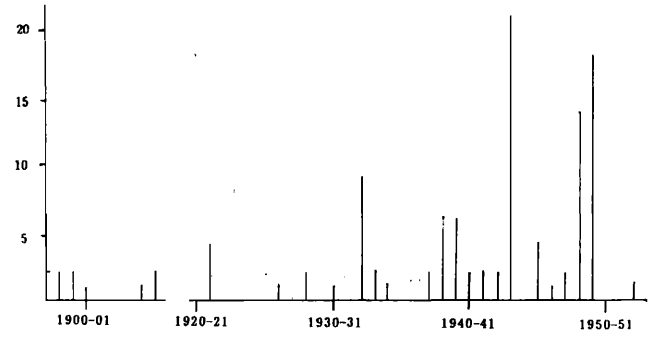

Figure 10. Number of Black-tailed Godwit *Limosa limosa* killed each season by William Mudge

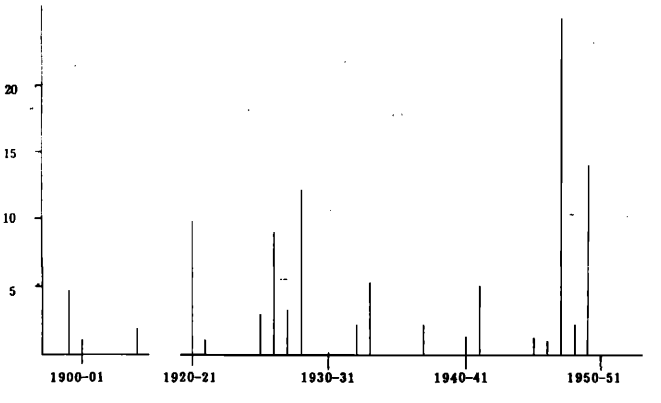

Figure 13. Number of Turnstone *Arenaria interpres* killed each season by William Mudge

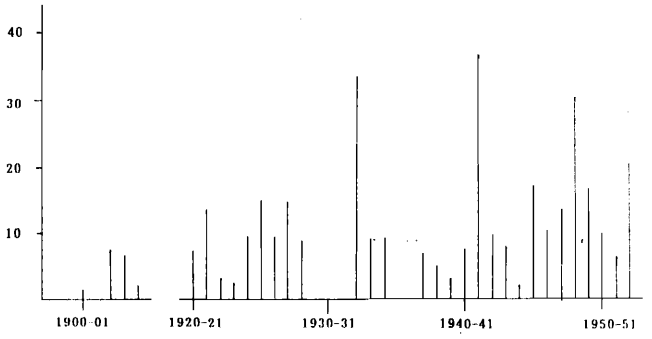

Figure 14. Number of Shelduck *Tadorna tadorna* killed each season by William Mudge

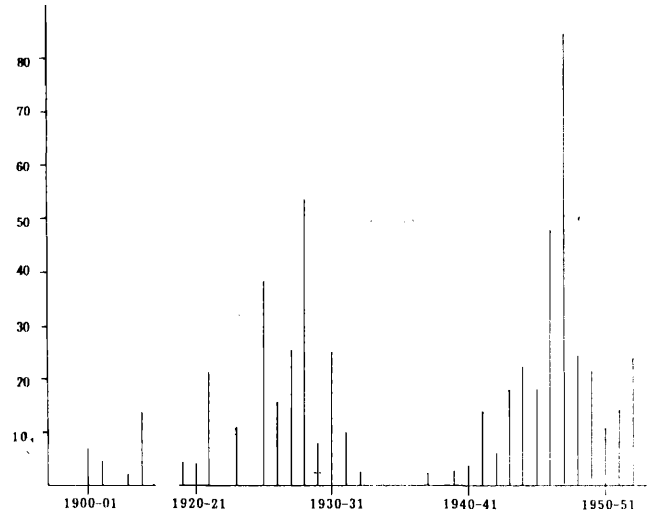

Figure 15. Number of Wigeon *Anas penelope* killed each season by William Mudge

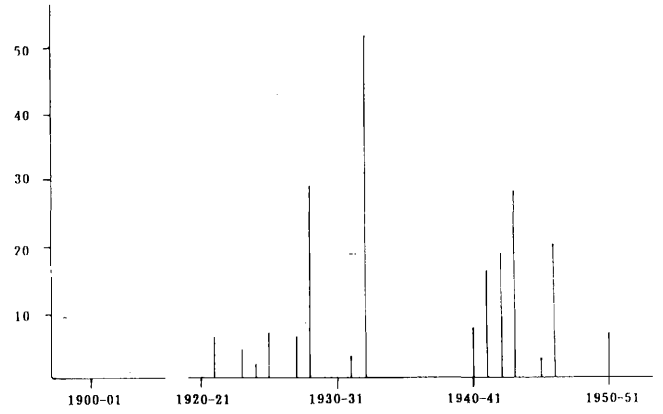

Figure 16. Number of Brent Geese *Branta bernicla* killed each season by William Mudge

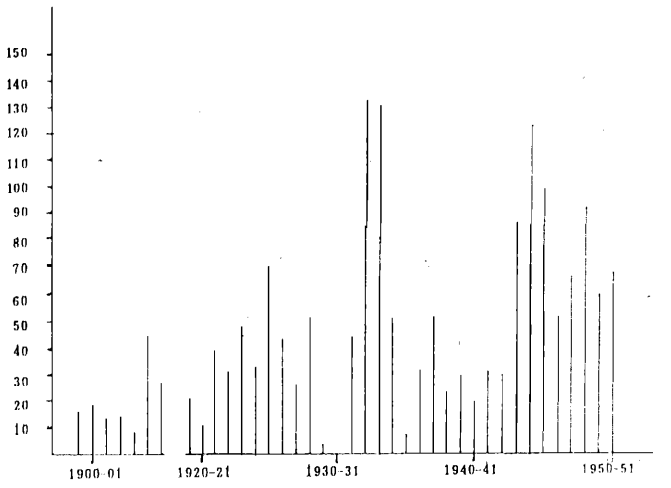

Figure 17. Number of Teal *Anas crecca* killed each season by William Mudge

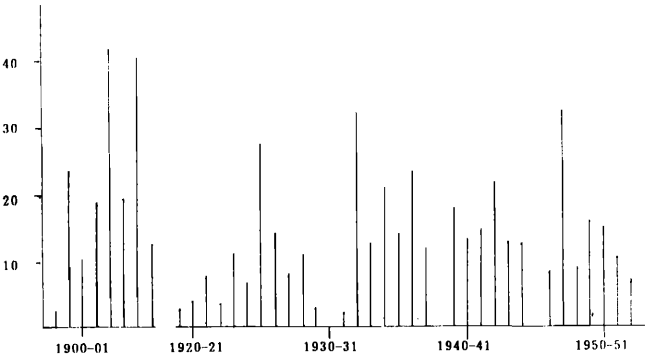

Figure 18. Number of Mallard *Anas platyrhynchos* killed each season by William Mudge

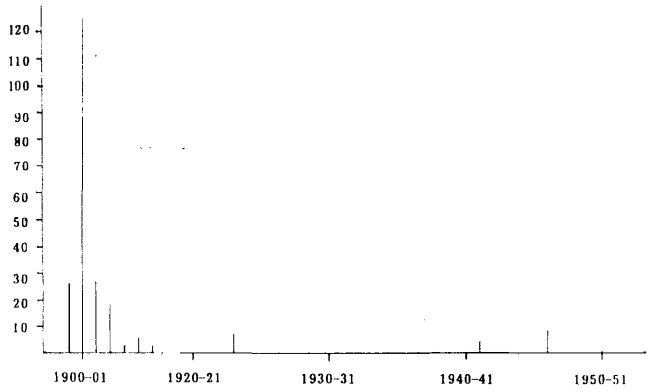

Figure 19. Number of Coot *Fulica atra* killed each season by William Mudge

Tadorna tadorna (Figure 14) exhibit a pattern of low numbers taken until a rise in the 1940s, although in the case of the Shelduck there is more than a hint of rising numbers from the 1920s. The Turnstone fits least comfortably into this pattern. This species is however among those least likely to be killed by an estuarine punt gunner and William Mudge shot a total of only 109.

3. Wigeon *Anas penelope* (Figure 15) and Brent Geese (Figure 16) show a distinctive pattern in which few Wigeon and no Brent Geese were shot early in the century, followed by a peak in the 1920s and early 1930s, then few or none until a second peak in the 1940s. Teal *Anas crecca* (Figure 17) follow a similar pattern but the numbers killed are much larger.

4. Mallard *Anas platyrhynchos* (Figure 18) shows a long term decline in numbers killed, despite intermittent high seasonal kills. There is no suggestion of the 'low' in numbers in the mid-1930s common to most other species.

5. Most Coot *Fulica atra* (Figure 19) were killed early in the century. The diaries tell us that there was then a large wintering flock at the head of Southampton Water which was depredated by numerous punt gunners and that it had gone by the 1920s.

Recurrent features in Figures 5-19 are a low kill in the 1930s and a high kill in the 1940s. In several species there is also a strong hint of a peak in the 1920s, but this is difficult to interpret because of the gap in the record between 1905-06 and 1919-20, a period during which William Mudge's wildfowling was curtailed successively by the need to build up his business as a photographer and by the First World War during which he was abroad.

DISCUSSION

The general similarity between trends in seasonal kills (Figure 2) and number of birds shot per day (Figure 4) after 1920 suggests that in the main the trends in numbers of individual species killed (Figures 5-19) reflects real changes in numbers present. This, of course, assumes that the kill varies with the number of birds available to be killed. Potentially, changes in numbers may be related to the amount of habitat and food available, to disturbance, hunting mortality, changes in weather patterns or factors operating elsewhere within the geographical range of the different species. Local hunting mortality would not necessarily limit local numbers of particular species.

During the period covered by the diaries dramatic changes occurred in the estuaries where he hunted. A large proportion of the intertidal flats were lost to industrial and other development, the spread of *Spartina* and the landward movement of low water mark. However, the evidence from the text of the diaries is that the numbers of birds which William Mudge saw (rather than shot) were consistently very much smaller than those familiar since the 1950s.

William Mudge habitually recorded flocks of waders and ducks which he considered unusually large and he periodically estimated the numbers of Mallard, Wigeon and Teal present in one or other of the estuaries. He recorded all Brent Geese seen, for that was the punt gunners' ultimate prize. The flocks of Curlew, Redshank, Lapwing and Dunlin he saw and considered large would now be thought unremarkable. The maximum numbers of Wigeon and Teal he recorded were less than half of those present in the same localities at the same time of year since the 1950s. The largest flock of Brent Geese he saw was 80 (1933-34), and that was in the Beaulieu River estuary where now the winter peak exceeds 1,000. From the diaries it is evident that Oystercatcher, Black-tailed Godwit, Grey Plover, Knot, Turnstone and Shelduck occurred only in small numbers, at least before the 1940s, although there is a hint in the numbers killed that there was something of a peak in numbers of these species after the First World War. With the exception of Knot, all now occur in Southampton Water and the Beaulieu River estuary in hundreds where formerly they occurred in tens.

The numbers of most species of waders and ducks, and of Brent Geese have progressively increased in The Solent estuaries since the mid-1950s (Tubbs 1977, 1980; Tubbs & Tubbs 1982; Kirby & Tubbs 1989). If numbers were lower earlier in the century it is unlikely that habitat loss was implicated in the declines to a low point in the 1930s which is a recurrent feature of Figures 5-19, even if we could then account for the apparent increase in the 1940s. It is possible, however, that the loss of the *Zostera* beds may have contributed to the low numbers of Brent Geese and Wigeon shot between 1932 and 1940. Their subsequent recovery in numbers may have resulted from a successful switch to other foods.

Turning to other possible factors, I can find no evidence of changes in weather patterns which might be related to the changes in bird numbers reflected in the numbers shot. Disturbance alone is unlikely to be implicated if only because the amount of recreational and commercial activity in the estuaries has been much greater since the 1950s than before. I believe therefore that the circumstances point to hunting as the major influence on bird numbers.

The key to such an interpretation is in the peak in numbers shot which coincides with, and immediately follows, the Second World War. At that time there were not only considerable constraints on hunting, especially on the coast and particularly with punt guns, but most hunters were preoccupied in the human conflict of the time. William Mudge (who survived the earlier conflict of 1914-18) was, however, able to continue hunting and from his diaries he seems to have had the estuaries (and especially the Beaulieu River estuary)

more or less to himself. Both his total kill and the kill per day increased. In 1942-43 and 1944-45 the total kill exceeded that in any other season after the first decade of the century. This may have been the result of the release of populations from the dampening effect of hunting mortality or it may mean that the few remaining hunters had more birds to kill. Probably both factors were involved. There is a parallel situation in the increase in numbers of birds of prey during both the First and Second World Wars when game-keepers were greatly reduced in numbers in Britain (see Tubbs 1974 for a review).

If bird numbers rose in response to reduced hunting pressure during the Second World War it seems possible that the decline in the numbers shot by William Mudge in the 1920s and 1930s may be attributable to hunting mortality and perhaps also to the associated disturbance. It is unfortunate that there is a gap between 1905-06 and 1919-20 in the record of birds killed, for this period included the First World War. However, there are many remarks in the diaries between 1919-20 and 1926-27 to the effect that numbers of ducks and waders were larger after the war than before it. Indeed, the numbers of ducks which he recorded in the early years of the century were very small. Moreover, the ducks changed their behaviour during the war years and were then and subsequently to be found in the estuaries in day-time instead of resorting to the comparative safety of the open Solent waterway as they had done before the war. By 1926-27 ducks were again spending the daylight hours at sea: "Wigeon were fairly plentiful - out in The Solent. In shallow waters, unless very rough, they were seldom seen".

The diaries contain numerous remarks about the large number of punt gunners in Southampton Water and neighbouring parts of The Solent early in the century; many were professionals in the sense that from August to the following March they depended on shooting for the market to provide at least part of their livelihood. It is not possible, either from William Mudge's diaries or other local sources to estimate the numbers of hunters but it was plainly large and the competition for the available birds was intense, as the diaries testify. Remarks such as that for 31 December 1903 - "despite all the very severe weather, there are a lot more flats and gunners out than birds" are frequent. There are numerous references to thwarting, or being thwarted by, other gunners in the pursuit of waders and wildfowl. William Mudge achieved relatively high kills at that time by going afloat at 0300-0400 hrs each morning before his regular work, and then again in the evening: most punt gunning then took place at night or in the dawn and dusk. It is not difficult to accept that such intensive hunting would have depressed populations and that the reduction in hunting pressure during the First World War would have found a response in increasing bird numbers. The diaries do not explicitly say that there was an increase in numbers of hunters after the war but this seems likely. Certainly, the diaries confirm that there were again many punt gunners present in the 1920s and 1930s and that a few still depended on shooting for part of their living. Many wildfowlers who shot in The Solent at that time say that unemployment drove many to seek money from fishing and wildfowling in the 1920s and 1930s (N. Horton, unpublished interview survey of wildfowlers), just as many turned to fishing in The Solent area as unemployment rose in the early 1980s. Throughout his career as a hunter, William Mudge sold most of his kill and to that extent could be described as a professional, though it was incidental to his main livelihood.

My tentative conclusions are that the high numbers of many species after the First World War were a response to the cessation of hunting; and that the increase in numbers in the 1940s was again the result of the withdrawal of hunting. The progressive increase in the numbers of most species of waders and ducks, and of Brent Geese, since the mid-1950s can even more credibly be attributed to release from hunting pressure following the protection of most waders and the Brent Goose by the Protection of Birds Act 1954 and by subsequent legislation elsewhere in northern Europe. The accompanying transformation of wildfowling from the indiscriminate pursuit of all birds inhabiting estuaries to a more controlled and selective sport, and the demise of the professional wildfowler, must also have played its part (Marchington 1980). In Southampton Water and the Beaulieu River estuary hunting in the intertidal zone and on the shoreline died out in the 1960s and 1970s, discouraged by industrial landowners and the Port Authority in Southampton Water and by the landed estates which control the Beaulieu River estuary. William Mudge was probably the last punt gunner to go afloat in either estuary.

This interpretation of the changes reflected in William Mudge's seasonal kills is a general one and of course, does not exclude other factors in seeking to explain changes in the status of particular species. It also requires the corroboration of similar sources of information from elsewhere and these seem hard to find. References to the recovery of wader and wildfowl numbers during the First and Second World Wars are common in the British wildfowling literature (e.g. Wentworth-Day 1949), as are allusions to a long- term decline in the numbers of waders and wildfowl in estuaries between the 19th century and the Second World War. However, they are seldom supported by evidence. It would be of great value to reconstruct with more certainty, the history of wader and wildfowl populations if other sources of information comparable to the diaries of William Mudge were to be found.

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