THE IMPORTANCE TO WILDFOWL OF THE RESERVOIRS IN ENGLAND AND WALES

G. L. Atkinson-Willes[1]

DURING the past twenty years the wildfowl of Great Britain have been more seriously threatened by the loss of their natural habitat than by any other single factor. Quite apart from numerous drainage and development projects in every part of the country, there has also been a marked tendency for more and more waters to be rendered untenable by disturbance. The reasons behind this new trend are legion; the big estates which once afforded a great measure of security to wildfowl have now become scarce; farming is more intensive; people have more leisure and greater mobility than ever before; and finally, as a result of all this, there is a new and vigorous demand for water as a recreational amenity. Sailing, fishing, water-skiing, hydroplaning, aqua-lung diving and even bird watching, all these are sports or pastimes in competition with wildfowl interests.

Against this general background the reservoirs stand out as one of the few saving graces; for here the trend is in the opposite direction. Any growth in the human population is at once accompanied by demands for more water, both for domestic and industrial use, a requirement which in many cases can only be met by the creation of great new lakes. The constant encroachment over the natural resorts of wildfowl is thus partly offset by the provision of artificial habitat. The water authorities regard this in a rather different light; their sole duty is to provide pure and wholesome water as cheaply as possible and they maintain, perhaps rightly, that their task is not helped by the presence of large flocks of birds. Wildfowl, however, are more readily tolerated than the general public, and in most places the flocks are encouraged by the freedom from human disturbance.

These preliminary remarks are enough to show that the reservoirs comprise a separate and rather specialised form of habitat. The purpose of this paper is therefore to examine their value from a national viewpoint, and more particularly to assess their possible contribution towards the current programme of wildfowl conservation. In the present context the term "reservoir" refers only to those used for domestic purposes; the much less common canal and industrial reservoirs lack the same strict control of public access, and so fall into a somewhat different category.

The total number of these drinking water reservoirs in England and Wales amounts to just under 550, and their total area to 35,000 acres or nearly 55 square miles. Three-quarters of them, however, may be dismissed forthwith as being either too high and bleak, or else too small to be of any great value to wildfowl. 268 reservoirs, for example, cover less than 20 acres; 51 lie at altitudes of a thousand feet or more; and a further 90, at slightly lower level, are set on open moorland with neither food nor shelter in the vicinity. In the north of England, in particular, the hill reservoirs along the Pennines seem to be almost completely barren. Sample counts show that at

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least thirty of them are most unlikely to carry even 50 ducks, and a further 35, including such big places as Thirlmere (812 acres), Ladybower (504) and Catcleugh (265) almost certainly fall into the same category. Equally unimportant are Lake Vyrnwy (1100) in Montgomery, the three big Birmingham reservoirs (1250) in Radnorshire, and a further ten in Wales and Devon. The effective number of reservoirs in the country is thus reduced to 140, and the total acreage to less than 22,000.

The question now arises as to the population which an inland water must carry before it attains national or even regional importance. Judging from the wildfowl count data, places carrying up to 250 ducks are common enough in all lowland areas of England and Wales; on the other hand gatherings of over 500 are relatively scarce, and ones of a thousand or more can safely be described as main centres of population. This, of course, gives no indication of any special importance a place may have for one particular species, but it does nevertheless help to put the reservoir populations into perspective. If a gathering of 250 ducks is the smallest that can be said to have any real importance, then the list of effective reservoirs is reduced to 50. It would be wrong, however, to dismiss without comment the other ninety places with populations of less than 250; individually their contribution may be small, but collectively they fill a very real need. One of the main problems of wildfowl conservation is to maintain the existing stocks not only at their present strength, but in their present distribution, a task which is made much easier by this network of undisturbed habitat all over the country. At one time it was the big estates which afforded most of the unofficial refuges in Britain, but now the smaller reservoirs have very largely taken their place. It is perhaps unlikely that they will ever be incorporated into the national system of wildfowl refuges, but their good effect is none the less relied upon.

With the more populous reservoirs the situation is rather different; for each is important in its own right, and the loss of any one might upset the whole balance of conservation. The 50 reservoirs that are known to carry more than 250 ducks are therefore treated in greater detail. In Table 1 they are grouped by regions into three categories, according to the peak numbers which are likely to appear on them in the course of a normal season. Where several adjoin each other, they are taken as a single entity; the actual number of pools being shown in brackets.

The most striking feature is perhaps the big concentration of important reservoirs in the southern and eastern districts of England, particularly in Essex, greater London, Northampton, Leicester and Somerset. In these five counties lie no fewer than 24 of the 29 places with over 500 birds, and all but one of those with 1000 or more. Of the others, Blithfield in south Staffordshire, Weirwood in Sussex, and Talybont in Brecknock all fall more or less into the same pattern, leaving only Eccup and Leighton, both in Yorkshire, as the main strongholds in the north.

The reasons for this uneven distribution need not concern us now; suffice it to say that the reservoirs in the south and east have the double merit of being not only suitable for ducks in large numbers, but of being in the right place as well. It is in this part of the country that the great majority of the European migrants make their first landfall, and it is here that many are content to remain, provided that they can find enough places to their liking.

Region	Level of Peak Population		
	250-500	500-1000	Over 1000
SOUTH & WEST	Darwell	Weirwood	—
THAMES BASIN	Wm. Girling Hillfield Foxcote	King George V Walthamstow (12) Hampton & (4) Kempton Lonsdale Road Island Barn W. Molesey (7)	Abberton Hanningfield King George VI Staines (2) Barn Elms (4) Queen Mary
SEVERN BASIN	Barrow Gurney (3) Shustoke (2) Llanishen	Sutton Bingham Talybont	Durleigh Cheddar Blagdon Chew Valley Lake
WASH	Cransley & Thorpe Malsor	Ravensthorpe	Pitsford Hollowell Eyebrook
HUMBER BASIN	Blackbrook Langsett Swinsty Lindley Wood Gouthwaite	Swithland Eccup Leighton Stanford	Cropston Blithfield
BORDER	Lockwood Coltcrag Fontburn Hallington	—	—
N.W. ENGLAND	Stocks Delph Haweswater	—	—
WALES	—	—	—
	21	14	15

Table 1: The distribution of reservoirs known to hold regular peak populations of more than 250 ducks. Five water undertakings in the Wash region are omitted; four comprise areas of the Norfolk Broads, which are classed as natural habitat; for the fifth area near Boston there is no information available, but it is presumed to carry more than 250 ducks.

For them the reservoirs have afforded alternative and in some cases additional habitat in the parts where it is needed most. Diving ducks, in particular, have benefitted from the new feeding grounds at their disposal, whilst for the dabbling ducks, the provision of a secure roost has in many cases open up a fresh tract of country for them to forage over.

Just how valuable the big reservoirs are may be judged from Table 2 which shows the mean level of population for various species during the months that they are most numerous. Calculated from the three highest counts between September and March of each year, the figures are designed to stress the sustained level rather than the temporary influxes which at times occur. Nevertheless some of the exceptional peaks are well worth noting. Abberton, for example, has as various times carried up to 4000 Mallard, 12,000 Teal, 5000 Wigeon and 3800 Pochard; Barn Elms has held up to 2300 Tufted; and Chew Valley Lake more than 1000 Shoveler.

	No. of years counted	Mallard	Teal	Wigeon	Shoveler	Pochard	Tufted Duck	Golden eye
Abberton (1940)	11	1250	2950	1700	150	1200	250	175
Chew Valley Lake (1953)	6	625	525	1275	225	375	350	10
Blithfield (1952)	7	1000	500	850	50	225	250	35
Pitsford (1955)	6	675	325	1525	20	400	200	20
Hollowell	3	975	125	900	10	125	50	5
Hanningfield (1954) ..	5	450	350	225	35	350	250	10
Blagdon	12	350	425	400	40	325	225	10
Eyebrook (1940)	12	700	225	800	10	100	10	5
Staines	9	300	25	100	15	250	550	10
Barn Elms	12	200	50	10	—	350	650	—
Cropston	11	375	325	425	5	25	40	—
Durleigh	11	100	250	225	50	175	75	5
King George VI (1947) ..	9	600	200	100	60	10	75	5
Cheddar (1938)	12	100	175	20	15	500	100	10
Queen Mary	9	425	25	20	25	50	325	10

Table 2: The average carrying capacity of the 15 most important reservoirs in England and Wales, calculated from the three highest counts in each year for which full data are available. The reservoirs are arranged in a rough order of merit, dependent on the total number of birds and on the value to individual species. The figures in brackets after the place names denote the date of first flooding.

Taken as a whole these various population comprise a significant proportion of the national total. From a very rough estimate of the peak numbers occurring in England, Scotland and Wales it seems likely that the 16 reservoirs mentioned above may now hold as much as 3% of all the Mallard in the country, 4% of the Teal and Wigeon, and 15-20% of the Pochard and Tufted. Moreover this is quite a new development; for no fewer than eight of the largest and most important reservoirs have all been flooded within the past 25 years.

In view of this massive contribution towards wildfowl conservation one should perhaps try to forecast what might happen in the event of the water authorities relaxing their present strict control over public access. Information on this and on the effects of various forms of disturbance is not easy to come by; all too often any change in population is equally attributable to other factors, such as the creation of a new reservoir nearby, or the loss of local feeding grounds through development. In the west Midlands, however, A. R. M. Blake found that the canal reservoirs around Birmingham provide a number of fairly clear cut examples. Motor boats, he says, are the worst possible form of disturbance, followed by sailing, fishing from rowing boats, and fishing from the bank. Shooting is seldom if ever a problem, the majority of owners and tenants being only too keen to maintain a good stock of birds.

To quote a specific instance, the 150-acre canal reservoir at Cannock used at one time to carry a small but varied population of both dabbling and diving ducks throughout the winter months, this despite the fairly constant attention of local gunners. Since 1956, however, sailing has been allowed, and the place is now frequently deserted. The most seriously affected are the dabbling ducks; both Teal and Wigeon have virtually disappeared, and even Mallard are reduced to odd pairs. Diving ducks still occur, at times in some strength, but big flocks are less common and there are many days when none at all are present. Other examples of disturbance are found at Belvide reservoir nearby, where fishing takes place both from

the bank and from boats. The effect here is that birds will not remain within 150-200 yards of either a moving or a moored boat, nor within 100 yards of someone on the bank. When there are a number of fishermen, both ashore and afloat, the whole 175 acres of water is rapidly rendered untenable. A great deal, of course, depends on the duration of the disturbance; if it only happens at weekends, and if an alternative resort is available, then no lasting harm is done. This is very much the experience elsewhere. At Cheddar, for example, there has been sailing every weekend for several years, but the Pochard flock is still the third largest on any reservoir in England. When disturbed they usually circle for a while and then make off either towards the coast or else over the Mendip to the other Somerset reservoirs, not returning until all is quiet. In other words the immediate result of disturbance is likely to be the same wherever it occurs, although in some cases the after-effects may be mitigated by other factors.

In summer the situation is more serious, especially on reservoirs with natural banks and a big breeding population. At this time even small amounts of disturbance at infrequent intervals are enough to keep birds away from their nests, and to curtail the potential output. In this respect any place carrying more than 20 pairs of breeding ducks should certainly rank as important.

This discussion on disturbance may perhaps seem academic in view of the present policy of the water authorities, who as a body are firmly set against any form of human interference with their reservoirs. The fact remains, however, that in individual cases there has already been some relaxation. Sailing not only takes place at Cheddar, but is now starting at Pitsford as well, whilst fishing, mainly for trout, is an accepted feature at a number of places. The object of this paper has therefore been to pinpoint the reservoirs which really matter to wildfowl, so that a case can be made for keeping them as they are. There is no use assuming a dog-in-the-manger attitude, demanding that all reservoirs be instantly declared inviolate refuges; all one can ask is that very special thought be given before wildfowl are denied these new resorts as well as the old. Only 15 of the 550 reservoirs in England and Wales are of prime importance to ducks, and only 8000 of the 35,000 acres of water; this at least should leave room for compromise.

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