

not propose to deflect our researches from the behaviour of ducks and geese to the behaviour of the men who pursue them, but it would be useful if the sportsmen themselves could be persuaded to find out who they are and what they are about.



WILDFOWL CONSERVATION IN THE NETHERLANDS

by G. V. T. Matthews

THE Netherlands and the British Isles are so intimately connected in the pattern of wildfowl distribution that some knowledge of conservation measures being undertaken in the former country is necessary for a full understanding of our own situation. I was therefore fortunate to be invited to join a party which Dutch conservationists took on a tour of their reserves in November 1956. The information gathered on this trip was supplemented by observations made on other visits in September 1955 and June 1956.

Public Relations

There is no doubt that the Dutch public have had a keen interest in the welfare of their wildfowl stocks for much longer than have people in this country. This is due in part to a widespread economic interest in wildfowl, but also because wildfowl are present in much greater numbers and spread over a much larger proportion of the country. Then in that small country, more than most, the never-ceasing pressure of expanding human population and concurrent land drainage and reclamation is particularly obvious to all.

The Dutch were also fortunate in producing, early in the present century, outstanding men of character who had the ability to elicit the powerful support,

collect the large sums of money and set up the competent administrative machinery which are essential for successful nature conservation. Only since the war have men of like calibre come on the scene in Britain. There is now full governmental support of the conservation movement in Holland. Its scale can be judged by the fact that about £300,000 a year from public funds are being made available for the purchase of *new* nature reserves. Even allowing for the price of land being on the average three times that obtaining in this country, this is a staggering sum by present British standards. (Our Nature Conservancy have been able to spend only about £5000 a year on the acquisition of reserves in the last three years.) Nor has voluntary contribution to nature conservation tailed off in the Netherlands. In the hard weather of February 1956, wildfowl were suffering badly through lack of food. Large supplies were made available, some being dropped from aircraft. Appeals for funds to support this work were made to the public. These were so successful that when the emergency passed the committee found that it had £10,000 in hand.

The Dutch have not taken as many positive steps as we have to bring the lay public into contact with wildfowl. In many cases such steps are unnecessary because a great part of the wildfowl population is easily seen from the roads and dykes and in protected areas the birds are remarkably tolerant of people completely in the open. But in a number of places full enjoyment of the birds is not possible because of the lack of covered approaches and of a Slimbridge-type observation hut or tower.

Administration, Management, Research

There are at present more than fifty wildfowl refuges in the Netherlands, ranging in size from a few acres to an estuary of 15,000 acres. The majority are wardened throughout the year. The entire outer coastline is a sanctuary. The reserves for the most part are owned by the state, coming under the Ministries of Finance, of Education and of Transport. Their administration and management is often in the hands of the Forestry Service, a government body, but many are run by private organisations. These may be national—the Society for the Preservation of Nature Reserves and the Society for the Protection of Birds—or regional in character, such as It Fryske Gea (Friesland) and the Noord-Hollandsch Landschap, Waterschap Wieringermeer, Zeeuwsch Landschap and De Beer Foundations. In some cases the organisation also owns the reserve in question. A small number of reserves are privately owned. The efforts of all these different organisations are to some extent co-ordinated by the government-sponsored Council for Nature Protection, and advice on management and new acquisitions is provided by that body's Scientific Commission. But there is no body like our Nature Conservancy having overall responsibility for research, advisory services, administration of legislation and acquisition and management of reserves, nor the opportunity for close collaboration by all parties which that provides.

Hitherto the acquisition of reserves has been largely a matter of expediency. But the Dutch are very keen that future acquisitions should be more closely dovetailed with biological requirements and are seeking to integrate their series of refuges with those of neighbouring countries. It is hoped that the chief migration routes will then be adequately sprinkled with protected places, where a proportion of the birds will be able to feed and rest undisturbed. The Dutch feel particularly strongly that it is little use offering sanctuary within their own

borders if the birds they save are to be subjected to persecution as soon as they move on south and west. This they do when hard weather sets in and the shallow waters freeze. One appreciates better the international aspects in the conservation of migratory birds when one lives in a 'staging area'. We ourselves are too prone, in our privileged position at the end of the line, to regard the wildfowl reaching us as 'ours' and to legislate as if they were only harvested in these islands.

Little work has been done on the scientific management of reserves to make them even more attractive to wildfowl. The emphasis has been laid on providing protection from destruction and disturbance, and it has been assumed, apparently with justification, that food stocks are adequate for the present population in normal conditions. Some excellent work has, however, been done on feeding habits, particularly in relation to possible agricultural damage. The main research effort, by the Institute for Applied Biological Investigations in the Field and by amateurs, has been directed to the study of distribution and populations. It is clear that estimation of numbers on the scale that occurs in the Netherlands presents many difficulties, particularly when the birds are spread over very large areas of water or sheltering in the extensive reed-beds. Certainly the range of the estimates produced by the distinguished members of our party was cause for sober reflection. We saw flocks of up to 7000 ducks, Mallard and Teal predominating; Coot were everywhere in like numbers, one flock of 1500 expanding and contracting like a great black whirlpool as it was attacked by a gull; Bewick's Swans occurred by hundreds. The main body of geese had not arrived, the weather being mild, but later we saw some thousand Greylags when on a trip up the Hollandsch Diep and through the twisting channels of the Biesbosch on a launch provided by the Ministry of Finance (Treasury!). The hospitable Dutch introduced us to a very agreeable form of bird-watching, sitting on deck with field-glasses in one hand and a glass of neat gin in the other. Lunch was taken anchored in the Sassche Plaat, off a mud island of some 250 acres, largely covered with *Scirpus*, on whose roots the geese were feeding. They were fighting to and fro quite unconcerned by the very dense river traffic. This latter had included a landing-craft flying the White Ensign, giving rise to some gentle digs from our hosts about gunboat politics.

From what we saw it would certainly appear that aerial survey, supplemented if possible by aerial photography, is the only method which holds out hopes of getting adequate estimates of the wildfowl populations present in the Netherlands.

Reclamation

The Dutch conservationists have developed excellent relations with the engineers carrying out the extensive land reclamation schemes. Opportunities occurring for the setting aside of areas in their original semi-natural conditions are seldom allowed to pass. A very important alteration in the general concept of land reclamation has come about in recent years. Hitherto the procedure was to throw a dam across an arm of the sea, or to build an arc of dykes from a relatively straight coast, then drain the enclosed polder. The process was then repeated and the land advanced step by step. In the land left behind, however, the water-table fell and the paradoxical situation arose that costly summer irrigation schemes were required. Conversely, in the polders nearest the current outer dyke, salt water seeped through, rendering the ground water saline and

restricting cultivation. Similar lessons on the dangers of over-zealous drainage have been learnt in America, where the summer drying-out has led to the formation of 'dust-bowls'. Such is their land-hunger that no Dutchman would contemplate the American solution of degrading farms back to marshes. However, they are taking steps to avoid the difficulties in future, as is shown in the reclamation scheme for the former Zuider Zee. First the dramatic, twenty-mile dyke was flung across the mouth of this great inlet of the sea. Then further dykes were built to enclose great areas to be pumped dry. The Wieringermeer Polder (50,000 acres) and the North-East Polder (120,000 acres) have already been drained and are in full cultivation. The dykes round East Flevoland (135,000 acres) had just been closed in the autumn of 1956, and we could see the tide going out for ever over this new land. Dredgers were still moving over the water, cutting drainage canals of the future. A rich but temporary feeding ground is exposed as the waters become shallow and recede. We did not see massed banks of waders, but driving, apparently straight out to sea, along the new Knardijk we came across an incredible concourse of at least 15,000 Scaup and 5000 Pochard. There were great flocks on the water, feeding on beds of a freshwater bivalve (*Dreissena polymorpha*) which had become accessible, or wheeling overhead in the sunlight.

Two more polders totalling 247,500 acres are planned. But there a halt will be called, leaving behind the main dyke a vast shallow fresh-water lake of more than half a million acres, the IJssel Meer. Moreover, large areas of water are being left between the new polders and separating them from the older land. The Zwarte Meer (4500 acres) is already a famous reserve, and the new Veluwe Meer bids fair to rival it. Thus the most grandiose reclamation scheme to date has actually resulted in the creation of much superlative wildfowl habitat. It is perhaps worth emphasising again that these are, relatively speaking, fair-weather refuges. Also there will be reduction in the area of open water as the silt-laden streams empty into them. The clear, swift-running brook that we were shown near Hulshorst is a great rarity in the Netherlands.

Needless to say, the indefatigable Dutch will not rest content when the Zuider Zee project is complete. Already they are committed to the Delta Plan, throwing dykes across the numerous estuaries and inlets in the south of their country. There is heavy opposition from interests that will suffer, such as the fisheries, and the technical difficulties are far greater by reason of the depth of the channels and their swift, scouring tides. But the Dutch are convinced by their experience that it is far cheaper and safer to hold a relatively short line of extremely powerful defences rather than maintain the hundreds of miles of subsidiary dykes needed at present. Incredible as it may seem at first sight, such dykes will be dismantled as the immediate need for them passes. Most of the Netherlands is simply alluvial deposit, so all rocks must be transported from as far afield as Belgium, and are reckoned to cost a guilder apiece.

After the Delta Plan there is talk of joining up the chain of Freisian islands and driving the sea back to this outer arc. Small wonder that the Dutch conservationists have moments of despair, even though, as we have seen, reclamation is not now wholly inimicable to wildfowl. On the great closing dyke, which thrusts massively between the sea and the IJssel Meer, holding them apart at different levels, I remarked expansively to one of our hosts that it must make him proud to be a Dutchman. He replied rather gloomily that he would be really proud of his countrymen when the birth-rate was dramatically lowered. And of course he was completely right. All our efforts to preserve

wildlife will be set at naught if the rising tide of humanity is not checked. Already the raging controversy over the Serengeti Park in East Africa sets the scene.

Land Drainage: 'Reallotment'

Besides their continual encroachments on the sea, the Dutch are assiduous in their endeavours to improve the land already reclaimed. The picturesque wind-mills have been largely supplanted by electric pumping installations, and the big rivers tamed between strengthened banks. Regular spring and winter floods are now a thing of the past, and great holding areas for wildfowl have vanished, particularly in the south of the country. A remarkable social revolution is in full progress, known as 'land reallotment'. Owing to large families and complex inheritance customs, a farmer frequently owns several small plots of land, none of an economic size and widely separated. The disadvantages are the same as those of medieval strip-cultivation, overcome in England, with much friction and hardship, by the Enclosures. In the Netherlands drastic government action is being taken in several areas, particularly in those damaged by the 1953 floods, but also in parts of the country untouched by that catastrophe. An area with natural boundaries is designated for reallotment, meetings are summoned and in some remarkable way agreement is reached whereby each landholder receives a single block equivalent in value to his scattered holdings. The new holding is centred about his farm, and if this is not possible a new farm is built and the old one pulled down. Fresh canals are dug to improve drainage, and new roads are thrown across the land so that every field shall have direct access to a hard roadway.

This opening up of the land hits at the nature reserves, particularly the smaller ones, by drying them out and destroying their isolation. One landowner had solved both these problems by the same device on his private wildfowl sanctuary in Schouwen. The inner refuge of 200 acres, of which 50 are open water, is bounded all round by massive dykes 12 to 15 feet high. The water-table is thereby kept at a higher level than the surrounding land, and loss by seepage is more than matched by rainfall. The distance from dyke to dyke does not anywhere exceed a thousand yards, but the effect of isolation is very marked indeed and noises from surrounding farmland are muffled. Since breeding birds nest right up to the dykes, the effect is to extend the refuge by at least a hundred yards in all directions. Outside the dykes is a deep moat some 12 feet across, passable only by a drawbridge and forming an effective barrier against trespassers, cats, dogs and the like.

This refuge was started in 1930 and completed before the war. It was then largely ruined by the Germans inundating the island. Restored, it received an even more violent set-back in the disastrous storm-surge of 1953. For once a bird sanctuary provided immediate practical benefit, obvious to everyone. The refuge's dykes diverted the main onrush of the sea and gave the inhabitants of the nearby village time to flee from their houses and gather on the nearest high point, again the dykes. From here they were rescued by helicopter.

The area has now been 'reallotted', surprisingly, to benefit a refuge. All the owner's land is now grouped round the inner refuge, and, as he holds the shooting rights, the whole area of virtual sanctuary is thus about 500 acres. It is neatly bounded by roads on three sides and by the shore on the fourth, where the owner's manorial rights over the foreshore extend down to low-water

line. Several 'tiresome' neighbours have been moved elsewhere, and the flood-shattered farm-houses will be pulled down.

Shooting and Netting

The British shooter's lot is a happy one compared with that of his Dutch counterpart. Wildfowling in the true sense does not exist in the Netherlands. No shooting at all is allowed on the outer sea coast, although this restriction is less onerous than it might appear, since the coast is generally poor wildfowl habitat. Rather surprisingly, shooting licences (equivalent to our gun licences and costing £5) are only issued to shooters who have shooting rights over at least 100 acres for land game or $2\frac{1}{2}$ acres for wildfowl. As a direct result of this restriction, only about 20,000 licences are issued each year. In this country, with a population only five times that of the Netherlands, the number of licences exceeds 300,000. The open season lasts from 1 August to 31 January, and shooting is forbidden on Sundays and feast-days. Shooting may only take place from half an hour before sunrise until half an hour after sunset. Shooting of birds on or near blow-holes or gaps in ice is not allowed, nor of birds exhausted by unfavourable weather conditions. The Minister of Agriculture has the power to stop all shooting immediately there is a severe frost, making his decision known by a simple announcement on the radio. Incidentally, similar powers are exercised in Denmark, Hungary, France and Germany. The Dutch stress the desirability of continuing the ban after the severe frost, since the survivors represent the best breeding stock. It is difficult to visualise British voters permitting a Minister to be armed with such arbitrary powers. But it is possible that shooters would impose voluntary restrictions on the rare occasions when this country is gripped by a heavy and prolonged frost; or even cut down on their own sport when such conditions occur on the Continent and our islands are the last refuge open to Europe's wildfowl.

Punt guns and swivel-guns are prohibited, but the use of mechanically propelled boats in immediate pursuit of wildfowl is permitted. Live decoys may be used tethered, provided they are neither blind nor maimed in any way. Barnacle, Brent and Canada Geese, Eider, Shelduck and Red-crested Pochard are protected completely. All other geese and duck may be taken during the open season.

The netting of geese by means of large spring-operated clap-nets, to which they are attracted by tethered decoys, has been nearly abolished. Special licences are issued to those who have long practised this technique, but not to would-be new recruits. Less than twenty persons are concerned with goose netting, each making an annual catch of between twenty and fifty geese, and considering it a particularly bountiful year if a hundred birds fall to their wiles. One may perhaps hope that the traditional technique will be kept alive for ringing purposes, as in the case of a woodcock-netting site we were shown near Rijs in Friesland. An enormous net 30 yards long by 13 yards wide is slung vertically on pulleys between two young telegraph-posts, straddling a known 'rode' in a wood. The operator watches intently in the half-light, and just as the flying woodcock is about to hit the net, the latter is allowed to slide down, entangling the bird in its now slack meshes. We spent some hours in the early morning staring at the net and saw three woodcock miss it. Even the operator's statement that he had caught 28 woodcock in the previous fortnight did not arouse much enthusiasm.

Duck Decoys

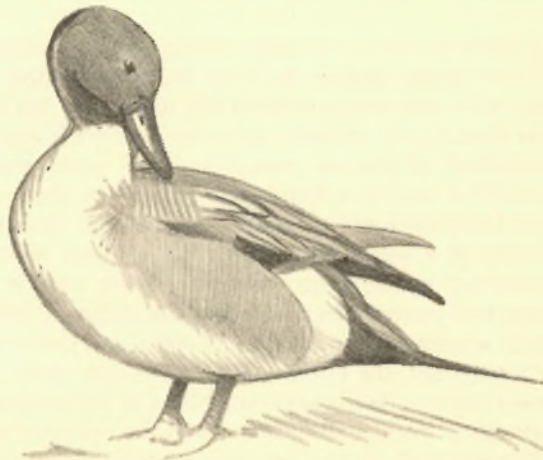
Undoubtedly the most controversial question in the Dutch wildfowl conservation picture is the part played by the duck decoys. There is no argument that in the past they have accounted for enormous numbers of ducks. The highest individual score in one year has been suggested as 100,000, but that is almost certainly an exaggeration. However, one decoy is known to have caught 30,000 in a season, in particularly favourable conditions, within the last quarter of a century. Decoys, as is well known, originated in Holland and had been in operation for centuries without causing serious diminution in stocks. To claim, as some wildfowlers have done, that only decoys could seriously shrink wildfowl numbers is to show ignorance of what happened in North America, where there were no decoys at all. Still, what we really want to know is whether the present decoys are being excessively destructive.

The number of active decoys in the Netherlands has shown a progressive decline over the past century or so:

| | | | | | | |
|------|----|----|----|----|----|-----|
| 1838 | .. | .. | .. | .. | .. | 220 |
| 1888 | .. | .. | .. | .. | .. | 170 |
| 1930 | .. | .. | .. | .. | .. | 145 |
| 1948 | .. | .. | .. | .. | .. | 120 |
| 1956 | .. | .. | .. | .. | .. | 113 |

In addition to the active decoys there are 30 decoys in a fair state of preservation but no longer catching ducks.

A major factor in the decline of decoys is undoubtedly agricultural improvement. The opening up of the countryside is particularly disastrous to decoys, for they lose that isolation without which it is impossible to provide an undisturbed roosting-place. In one area that we visited near Rossum no less than nine decoys had recently been sterilised in this way. The virtual elimination of autumn flooding has also greatly reduced the catches, particularly in the case of inland decoys. Another factor which may be expected to have a strong influence on the survival of decoys is the extent to which they are profitable. Using Payne-Gallwey's figures (and noting in passing that he was not always accurate—he credited the Netherlands with only 70–80 active decoys in 1886),



Pintail drake

we may compare the prices received by the Dutch decoyman seventy years ago with today:

| Species | Price per Bird in Pence | | Rise in Price 1886-1956 |
|----------------|----------------------------|------|----------------------------|
| | 1886 | 1956 | |
| Mallard | 16 | 62 | × 3·9 |
| Pintail | 11 | 31 | × 2·8 |
| Wigeon | 8 | 21 | × 2·6 |
| Shoveler | 8 | 18 | × 2·3 |
| Teal | 5 | 13 | × 2·6 |

The year 1886 marked the nadir of the decline in price levels following the Napoleonic Wars. Using the cost-of-living indices where available and price levels in other cases, it would seem that the cost of living in the Netherlands has increased by six times since the 1886 period. A given catch is thus worth only from half to two-thirds what it was seventy years ago.

Nevertheless, though decoys must be less profitable than they were, they might still be workable if they gave a reasonable return. But any attempt to determine the average catch for the 113 Dutch decoys (and so arrive at a picture of their importance in European conservation) brings us up against the reticence to be expected under the shadow of the tax-collector. A recent attempt to measure the human harvest of cockles in Morecambe Bay, to compare with that of Oyster-Catchers, met with similar difficulties.

A decoyman in the Netherlands requires a wage of about £400 a year. The food used to entice the ducks into the pipes runs to another £100, and repairs, which may require extra labour, ground tax, water-rate, registration and other dues will certainly absorb another £100. So the decoy must catch £600 worth of ducks before it can maintain itself, let alone make a profit. The prices for the four decoys which had recently been sold as going concerns were £600, £1200, £1600 and £2700. We may therefore take an average market value of £1500, compared with the compensation the government were paying for decoys sterilised by reallocation—£1000 apiece. A return of £100 per annum on the investment would not seem excessive, bringing to £700 the value of the catch needed to make a profitable decoy.

The composition of the average catch for the whole country is given as Mallard 73%, Teal 15%, Wigeon 8%, Pintail 4%. Of course there are wide variations, many coastal decoys catching mainly Teal, others notable for their Pintail or Shoveler or Gadwall. But as an overall picture the above distribution is probably not misleading and indicates that a bag of 100 ducks will sell for about £21. A total catch in round numbers of 3300 ducks will therefore produce the income required for an overall profit, 2900 that for maintenance.

The average catch for 1956-57 as reported officially by 42 decoys was 2240. This accords with previous estimates by Dutch conservationists which vary from 2000 (made as long ago as 1939) to 2500 (1950).

The divergence of the 'official' average catch from the estimated minimum for profitable operation is due to two factors. Firstly the admitted catch is probably rather lower than the actual catch. Secondly the average has little meaning because the sizes of the individual catches vary so widely. Two decoys

are known to make catches of up to 20,000 birds each and some 25 are classed as 'really destructive' with catches of 5000-10,000 apiece. But many, perhaps the majority, are making small, uneconomic catches. Thus five decoys on Terschelling, known intimately by the investigator concerned, gave average catches of 730, 1316, 1283, 934 and 523 per decoy in the five seasons just before the last war. Such decoys are run on a part-time basis, the decoyman's main income being derived from other sources, such as farming.

We can conclude therefore that their failure to produce an economic return will not effect a reduction in the number of decoys to anything like the same extent as will agricultural improvements. At the same time it seems safe to conclude that the annual take at Dutch decoys does not exceed 300,000 birds.

This is quite a respectable total, but may be brought into proportion by considering shooting losses. The Dutch estimate that these exceed the decoy kill in their own country, and our own licensed shooters have each to shoot but one duck a year for a similar figure to be reached. Moreover, a considerable proportion of the Mallard taken in decoys are 'home-grown'. It is estimated that about 50,000 pairs, a third of the Dutch population of Mallard, breed in decoys and their immediate environs. They are encouraged to do so by putting out wicker nesting baskets, sometimes as many as 500 in the larger decoys. Almost every post in Friesland seemed to have a nesting basket. With so much encouragement, an average breeding population of a decoy of 350 pairs is not an excessive claim. We reckon that about 150 pairs of Mallard breed at the New Grounds, where they are only tolerated and consistently turned out of nesting boxes intended for their more exotic relatives.

Ringling data have indicated clearly that catches of Mallard early in the season, which have a peak in August, are almost wholly composed of Dutch-bred birds and represent almost two-fifths of the season's kill. The other three-fifths (say 180,000 birds) is composed of migrants, Mallard—which reach a second peak in December—predominating over other surface-feeding duck (blauwgoed) in a proportion of three to two. The decoy season is the same as that for shooting (August-January inclusive). The Dutch birds caught are usually birds of that year—those which have escaped the perils of their first season learn to stay out of trouble and remain as the more or less permanent 'lead' at the decoy.

The presence of a large decoy-bred population of Mallard means that the destruction of true wildfowl is considerably less than the overall total indicates. But the argument that decoys are actively beneficial in that they increase the population of Mallard is less attractive. Quantitatively there is no disputing the facts, but the quality of the product leaves much to be desired. Admixture with domestic blood is all too obvious in the majority of Mallard around decoys. Certainly a purist would not be distressed if the European population of Mallard was reduced by *this* 50,000 pairs. If one wants to farm ducks it would seem best to do so whole-heartedly as is done on a large scale round Harderwijk, using a high-protein diet of small fish for maximum production. At one point there our convoy of cars, full of wildfowl experts, was constrained by the narrowness of the road to follow a large lorry piled high with crates of Aylesburys, shedding a snowstorm of feathers.

A much more cogent argument for the retention of decoys is, paradoxically, their value as refuges. Even when being used for catching, decoys provide sheltered, undisturbed roosts for ducks, which would otherwise be lacking in a highly agricultural land. The decoyman guards his property jealously. In some

cases the decoy wood is surrounded by a moat crossed by only one bridge alongside his house, which is actually in the wood. There are severe laws against trespass and disturbance of decoys, supported by long-established public opinion in their favour. In most cases the freedom from disturbance assured by the 'afpalingsrecht' is not confined to the decoy and its wood but extends to a zone round it. The radius of this zone varies in different parts of the country as follows:

| <i>Province</i> | <i>No. of working decoys and 'afpalingsrecht' (metres)</i> |
|----------------------|--|
| Groningen . . . | 3 (all 500 metres) |
| Friesland . . . | 18 (1 nil; 1 400; 16 1200) |
| Wadden-Islands . . . | 11 (6 nil; 2 1130; 1 1200; 1 1506; 1 unknown) |
| Noord-Holland . . . | 9 (3 1130; 1 1318; 2 1506; 3 unknown) |
| Overijssel . . . | 13 (6 nil; 7 1130) |
| Gelderland . . . | 19 (18 753; 1 1506) |
| Utrecht . . . | 4 (2 753; 2 1130) |
| Zuid-Holland . . . | 17 (3 753; 1 767; 1 800; 8 1130; 4 unknown) |
| Noord-Brabant . . . | 15 (2 nil; 13 750) |
| Zeeland . . . | 4 (1 150; 1 600; 2 unknown) |

Shooting is absolutely forbidden within the zone, and it was no coincidence that the only sizeable flock of Greylags we saw in the north of the country was feeding in the protected zone around Piaam decoy.

If a decoy falls into disuse, both the protective zone and the inner sanctuary of the pool will soon cease to be respected. Neither the state nor the conservation societies could provide funds to establish a warden at every decoy. Nor, indeed, would his employment be justified for such a small area unless he undertook ringing or the decoy was part of a larger nature reserve. So if the decoys at present active become non-operational, the diffuse sanctuary throughout the country that they now represent would be lost. There is a strong argument for maintaining the decoys on a selective catching basis, only Mallard being taken for the market. With Mallard comprising nearly three-quarters of the overall catch, such a limitation would be no great hardship to the decoyman or, alternatively, would require only a fairly small subsidy. Restrictive agreements are already in operation at decoys owned by a conservation society: Texel; Otterskooi, Giethoorn; Bakkerskooi, Wanneperveen; Kiarsderwijde, Wanneperveen; Breukelerveen, Utrecht; Naardermer, Amsterdam; Lekkerkerk, Zuid-Holland; Berkenwoude, Zuid-Holland.

Five other decoys, incidentally, have been turned into reserves where no catching is permitted: Anjummer Kolken (two decoys), Friesland; Giekerk, Friesland; Oude Miede, Friesland; De Dulver, Capelle; and three are devoted to ringing only: Piaam, Friesland; Gameren, Gelderland; Asperen, Gelderland.

Decoys do not only provide refuges for wildfowl. In very large areas of the Netherlands woods are absent save for those surrounding decoys. Indeed, it is generally a safe assumption that any isolated wood of mixed trees is a decoy-wood. They thus play a part in keeping up the stocks and widening the range of those species of animals and plants adapted to a woodland habitat. The Long-eared Owl and Golden Oriole are regular breeders in decoy-woods. Since the woods here have been in existence for centuries, they also provide interesting relict sites in the midst of intensive cultivation. Incidentally, decoy-woods played an important part in the saving of Dutch Resistance men from the Germans.

Decoymen do not welcome visitors, even those with official sanction, and I was able to examine only six decoys in detail, at Piaam (which had six pipes, all the rest having four), Giekerk, Vlieland, Asperen, Gameraen and Schouwen. The Vlieland decoy was derelict, but was of particular interest in that the pipes were shielded by earthen dykes instead of rush screens. These were continuous along the length of the pipes, as were the rush screens at Giekerk. This type of screen is simpler to construct than the usual 'Venetian-blind' variety, but does not allow a dog to appear and disappear. The decoyman can only expose himself at one position, and then has to run along a narrow bank inside the pipe.

The use of earthen dykes has been followed in the Schouwen decoy which is an entirely new construction, built by the government to replace two lost by flood-silting and reallotment. The floods had destroyed all the trees in this area, and the traditional shelter of a decoy-wood was therefore not available. Instead, four 12-foot dykes had been thrown up round the whole decoy, the actual pipe screens being of rush. In addition, another dyke, 15 feet high, had been placed between the decoy and the more inhabited part of the surrounding countryside. Even with excavating machinery on the spot for flood repair work, this decoy had cost some £10,000 to construct. There is thus no fear that the number of decoys will increase in the Netherlands. This was the decoy's first catching season and it was little more than a raw excavation operated by the decoyman's widow, but already there was a good lead and the catch stood at 800. This decoy belongs to the owner of the private refuge described earlier, and will be restricted to Mallard catching in 1959. One of the original decoys here had incorporated a diving-duck trap—a cage 30 feet \times 12 feet with a weighted door operated from a hide. Tufted Duck and Pochard used to be caught in fair numbers.

All the decoys seen had pipes of rectangular cross-section, and, being barely 7 feet high and 10 feet across, their mouths seemed very small compared with those at Slimbridge. In four decoys, instead of the pipes continuing to diminish in cross-section, they are terminated when about 5 feet high by a sloping area of wire-netting, the 'mirror'. The birds fly against this, drop to the ground and scuttle through a one-way swing wire door into a catching-box. The likelihood of birds flying up again may be further reduced by backward pointing osier sticks pushed into the ground below the 'mirror'. There seemed to be no opinion as to whether this type of trap, which originated in Friesland, was more efficient than the tunnel type. Its main advantage is that the pipes can be some 10 yards shorter, an important consideration when land is very precious.

It was surprising that in only two of the decoys—Asperen and Schouwen—was a dog used. In the others feeding alone is relied on to bring the call ducks into the pipe and the wild birds with them. This has the disadvantage that the 'call' birds are in the van and flush back when the decoyman shows, carrying some of the strangers with them. With a dog the habitués are less likely to take notice than are new-comers.

Only one decoyman insisted on the carrying of burning peat. We were told that the practice is rapidly dying out. This is surprising in view of the persistent suggestion that ducks have a well-developed sense of smell, a suggestion based mainly on the evidence of decoymen. But even if the faith in the ducks' sense of smell is dying, decoymen are still unwilling to pass up-wind of the pond. It is probable that ducks have a keen sense of hearing; sounds—the crackle of a leaf, footfalls on the quaking soil, even breathing—would be more easily detected

when the wind is behind their source. One cynical Dutchman suggested that decoymen tread more carefully when carrying a burning brand, while another advanced the opinion that a higher standard of personal hygiene amongst decoymen had eliminated the need for a smell obliterator.

Some hundreds of ducks were present in the Asperen, Gameren and Schouwen decoys, but good estimates are impossible when peering through cracks in screens. At Piaam a proper observation hide had been built. From this was revealed an incomparable spectacle in the brilliant sunlight. More than 2000 Teal and 500 Shoveler crowded the pool and its banks. These were trampled clear for two yards, and the birds were spread out evenly, at their 'individual distances', giving the effect of a brightly coloured, polka-dot scarf. The constant twittering uproar was insect-like in its intensity.

Conclusions

The Dutch are setting the rest of Europe an example by the vigorous way in which they are tackling the problems of wildfowl conservation within their borders. Widespread public interest and massive governmental support have been elicited. A good number of refuges have already been set aside and more are being designated every year. The extensive programmes of land reclamation and drainage are certainly bringing about a loss of wildfowl habitat, but new habitats are also coming into existence and are being incorporated into the refuge system. Shooting is on a smaller scale than in this country, netting has almost vanished and the especial problem of duck decoys is well in hand.

The Netherlands is but a small country, and for their efforts to bear the fruit they deserve it is essential that other countries which share the same migratory wildfowl should take like measures of conservation. In particular, the British and Dutch efforts should be very closely co-ordinated. It is a sobering thought that we are the main market for wildfowl killed commercially in the Netherlands. In 1949 we imported a hundred thousand.

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