

## Wildfowling in Northern Iran

Christopher Savage\*

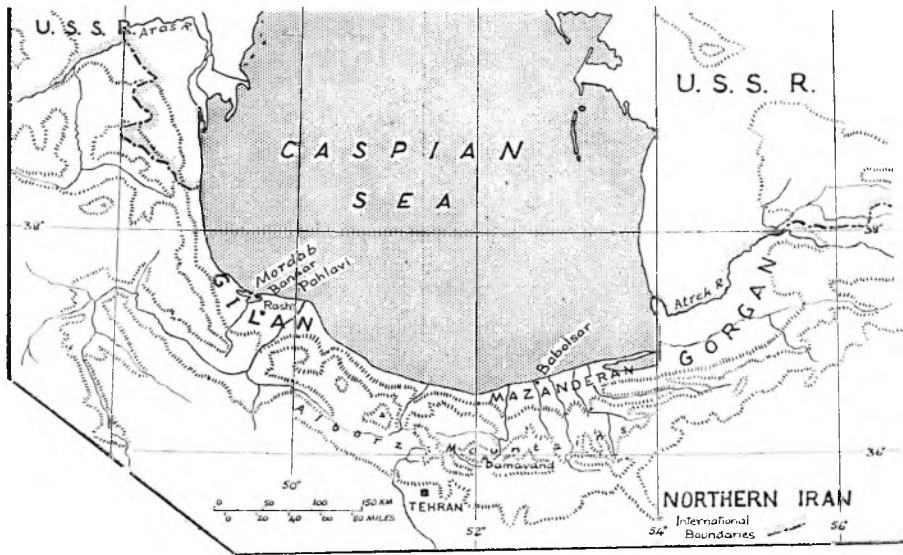
### Summary

WILDFOWL are very abundant in winter in the marshes of northern Iran where there is an important wildfowling industry: over 1,200,000 ducks may be killed in an average season. Ducks are taken in a variety of ways, described here in detail, from personal investigations in 1957 and 1959. The principal method of capture is by means of a net, gong, and flare at night. Mist-nets and clap nets sited at pools to which wild ducks are attracted by trained decoy-ducks are also widely used. Long flight nets, and the calabash method, are of minor importance. Shooting, though increasing, accounts for only about 9% of the kill (110,000 ducks). The author suggests that the future welfare of the ducks will probably best be achieved by adherence to the traditional methods of capture, which require the maintenance of large tracts of carefully-preserved flooded land. It is important that recent increases in the disturbance of the wild geese should be halted.

The Caspian provinces of Gilan and Mazanderan are important wintering grounds of Palaearctic waterfowl, and it is not surprising to find there a well established wildfowling industry primarily for procurement of food. This I discovered early in 1957 when posted to Mazanderan in connection with irrigation investigations. It was not, however, until two years later that I had the opportunity of devoting two weeks' local leave to a general study of the wildfowling situation, and I was then extremely lucky to have the company of Christopher Sellick who came out to Iran at short notice with very little persuasion. He arrived in Tehran on 23rd January, 1959, and on 27th we drove over the snow covered Alborz Mountains down to Rasht. The following morning we soon covered the few remaining miles to Bandar Pahlavi which was to be the jumping off place for a visit to the famous lagoon and duck marshes known as the 'Mordab'. A boat had been arranged in advance, but things do not always go according to plan, and this was no exception. By mid-afternoon however, the Game Council representative, Mr. Dadeshi, had managed to find another boat and two stalwart boatmen, Sa'aban and Ebrahim. They were most reluctant to set out that day as they were doubtful of reaching the other side of the lagoon before nightfall. Their doubts, as we found later, were well founded, but we were determined to start at all costs! Eventually we set off about 4 p.m.

Our day had not been entirely wasted as we had been able to investigate the bazaar where in the poulterers' stalls we found numbers of Mallard,

\*with illustrations by the author, including photographs of catching methods, at pp. 180-4.



Pochard, Pintail, Scaup, Wigeon, Tufted Ducks, Teal, a few Red-crested Pochards (one alive) and a female White-headed Duck *Oxyura leucocephala*. The last was of great interest but, alas, we saw no more.

Once out on the 'Mordab' Sa'aban informed us that he had no compass and when the mists got up we would be marooned till dawn. I told him that as a good Moslem he should carry a compass, to which he retorted that he was not a practising one! Nevertheless we soon ran into heavy mist as night fell and it did indeed become extremely cold, damp and inhospitable. We could hear shouts of others lost in the mist but could never find a soul even though we followed the shouts. It was true also that navigation without a compass was well nigh impossible. So Christopher and I got into our sleeping bags and curled up on the bottom of the boat to keep as warm as we could, while outside it rained a drizzle. Every now and then the mist cleared a little, and by the light of a pressure lamp Sa'aban and Ebrahim eventually found some scattered reed beds which they recognised. Before we realised what had happened the boat had come to a gentle rest beside a little reed shelter on stilts and still almost unbelieving we climbed up a wobbly ladder and through a small entrance hole. This was what was known as a 'mordab kumah'—one of many such shelters for the wildfowlers we were shortly to meet. There was just room for us to lie crouched and still have one square foot for a charcoal fire in the middle. While we slept our two companions sipped tea till dawn when we made an early rise. While loading our boat two others passed by on their way to Bandar Pahlavi with loads of ducks; one with thirty and the other with about a hundred. All kinds seemed to be there, but we particularly noticed Mallard, Teal, Gadwall, Tufted Duck, Pochard, Pintail and Shoveler.

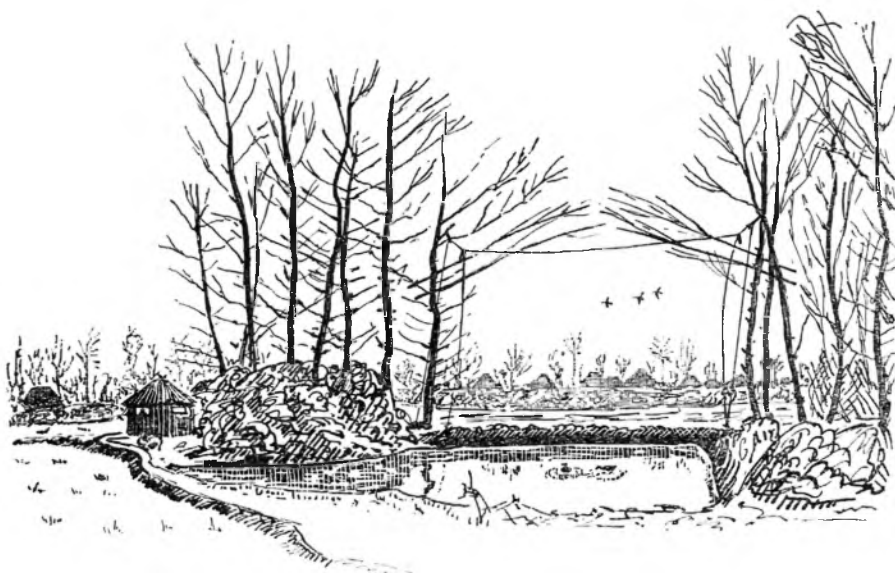
Once through the reed bed we followed a canal-like channel through bare flooded meadows with little wildfowlers' shelters on stilts scattered here and

there. It was very much as we visualised the 'pig-wallows' described in 'Wild Chorus' though we saw no signs of any pig ourselves. There were quantities of birds, mostly Teal, with plenty of herons, egrets and even some pelicans. Amongst them all wandered horses which splashed around in search of grazing. The channel took us to the village of Nagarestan where we saw numbers of boats rigged for wildfowling and even had a demonstration, but we pressed on for Siah Darvishan where we were expected by the 'katkhoda' or headman of the village, Mahmud Mohammadi. We had come specially to see, and if possible film, wildfowling by means of net, gong and flare, but our hospitable host offered to show us something else first which proved extremely interesting.

#### *The Decoy Ponds*

A short walk from the house, across some very muddy paddy fields, was a group of trees growing on two sides of a rectangular pool about 20 feet wide and 40 feet long. At one end we almost walked into a fine mist net hanging in the gap between the trees. It measured some twenty feet square and its upper side was held by a taut cord strained between pulley blocks attached to the trees on either side. Moreover the overhanging branches of the trees were cleverly arranged to conceal the top of the net and, as it were, to provide a frame to the opening. A little to one side and well concealed in some low bushes was the decoyman's hide. Inside this was a basket-like rack in which he kept his 'fliers'—hand-reared Mallard which during the day were normally kept and fed on the decoy pond. These are thrown out of the hide to fly round the trees and into the pool when at dusk or dawn suitable flights of wild duck are spotted approaching from the lethal side of the net. The wild birds are enticed down into the pool which they are approaching at speed when they strike the net. At this moment, or a fraction of a second before, the decoyman pulls a vine rope which by an ingenious series of toggles and slip knots releases the net with the wild birds enmeshed. The net is quickly cleared and reset, and the traitorous Mallard decoy duck then return to the hide along a special little water channel. Encouragement can be given, if necessary, by splashing on the water a rope laid across the pool for the purpose. Within minutes the decoyman is ready to lure the next flight of duck to their doom.

Nearby was another kind of decoy pond known as 'nema'. There a section of paddy field about fifty metres square was kept flooded with water to a depth of a few inches and swimming around were some fifteen hand-reared Mallard duck and ten Greylag-type domestic geese. From the centre of the pond the decoyman produced from the water a pair of heavy string clap-nets which he proceeded to set. Then, with a couple of small boys, he rounded up the decoy birds and soon had all but seven or eight of them tethered by their legs around the catching area. The remaining birds were then taken to a low hide constructed in the middle of one side of the decoy pool from which the nets are operated, and were put in their baskets. This type of decoy pool is only used in the evening or at night, when the duck from the Mordab come searching for their feeding grounds. As in the previous type of decoy pond, the 'fliers' are thrown out of the hide as the wild birds are seen approaching and, as often as not, down they come into the decoy pool. The tethered decoys struggling at their stakes cannot look reassuring to the visitors straight from the marsh, but perhaps their fears are overcome by the liberal baiting of the

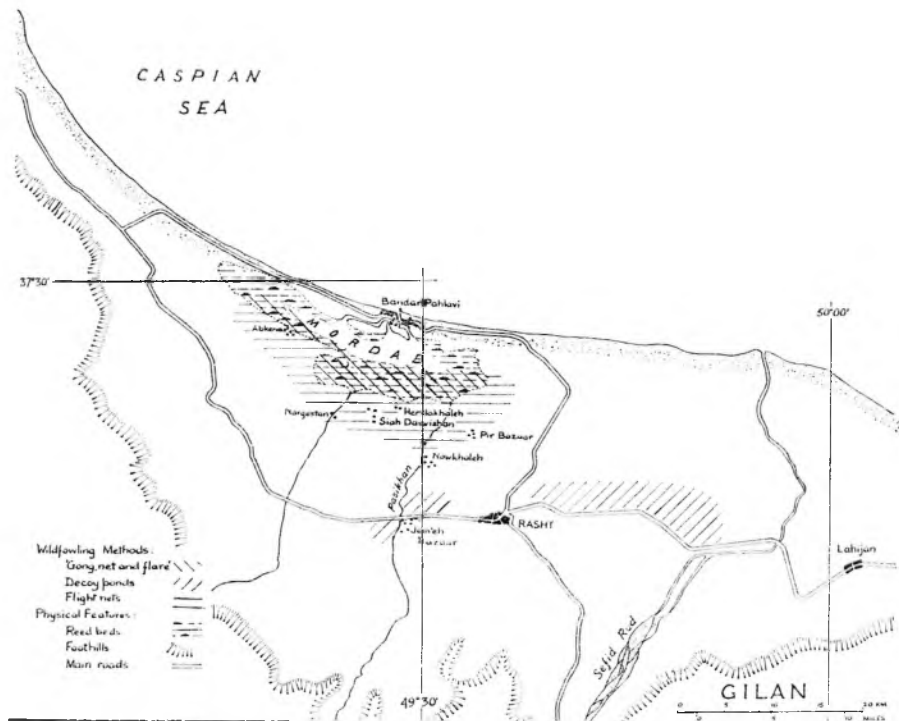


pool with rice, particularly near the clap-nets. Whatever the reason may be, this particular type of trap appears to be singularly successful for catching both duck and Greylag Geese. Once the wild birds are in the catching area the decoyman pulls over the nets as fast as he can. This is no easy matter as both nets and hauling ropes are under water and considerable resistance has to be overcome.

The 'nema' decoy pond appears to be quite popular in Gilan for its distinctive pattern was discernible from aerial photographs at 42 locations. Although not very efficient or easy to operate, it is possibly the most suitable way of taking ducks in densely settled country. In winter the paddy fields are lying drained and idle so that by flooding only one section the attention of passing duck is focused on it. The previous type of decoy pond is also attractive in the same way but requires trees and space which cannot be used for any other purpose. In view of all this it is possible that in a good year with abundant waterfowl a great many more 'nema' decoy ponds may be set up than were identified in the photographs. Domestic Mallard-type ducks are kept throughout Gilan and there can be no lack of suitable decoy birds.

#### *A Net, a Gong and a Flare*

When at last the sun had gone down our host took us over to the tea house at Hendakhaleh, a small village right on the edge of the marsh. Here we were taken over by Mohammad Javad, a very experienced duck catcher, and were at once plied with glasses of strong Persian tea with plenty of sugar. What at last we saw has been described at length by Peter Scott in 'Wild Chorus' and more recently in 'The Eye of the Wind', for in 1938 he visited the very same marsh. Since then the water level in the Caspian Sea and in the Mordab has been falling steadily. In 1938 the wildfowlers hunted "in specially preserved broads surrounded by trees and well grown with low vegetation



through which waterways have been cut". To-day these are largely high and dry and the waterways are cut in the reed beds which have grown up in the now shallow lagoon. The methods, however, do not seem to have changed much.

The wildfowlingers go out in two boats. In the bow of the first on an earthen platform burns a flare, hooded behind with rush matting to maintain the rest of the boat in darkness. The flare is still usually of bulrush fluff soaked in kerosene which burns with a weak, flickering and very smoky flame. It is replenished as necessary from a stock of prepared fuel carried in the boat. Often however one sees in the Mordab a special oil lamp with two large one inch diameter cotton wicks which have much the same effect as the bulrush fluff. Although pressure lamps are widely used in houses in the Mordab, their use is scorned for catching duck as it is believed that the flickering flame has an important function in bewildering the ducks! Behind the flare stands the duck-catcher with a great elongated hand-net, and a companion in the stern propels the boat with a curious paddle which can be used as a paddle or pole as required. In the second boat close behind are two men, one in front poling or paddling and the other beating a small brass gong incessantly. It is part of the ritual that the gonging must not stop. By having the poler of the second boat in front, he can, if need be, assist the forward boat in dealing with a catch while the other continues gonging. The boats glide silently down the prepared channels and the duck-catcher deftly catches every bird that comes within reach. Mallard are the most susceptible to this method of hunting and almost invariably wait for the boat to approach within three or four yards.

When they leap into the air it is often possible to catch two at a time. On the other hand a bird which starts swimming away can usually be caught by a sweep of the net which just touches the water first and makes the bird jump. Once caught, the duck-catcher locks its wings, legs and head behind its back and throws it into the well of the boat. This method of catching ducks requires considerable skill, and having seen it in action one can believe wildfowlers' claims of catches of as many as 600 or more in a single night when conditions are perfect.

#### *Woodcock and Smugglers*

After our night with the duck-catchers we were just about to leave when our host asked if we would like to see how they caught Woodcock. We were naturally very interested as Gilan and the Caucasus further north are famous for the enormous numbers of Woodcock which come there in winter. Behind the village was a large willow plantation and through this had been cut a 'ride', widening out to about a hundred feet on the edge of the paddy fields. Across the end of the funnel so formed was erected a long narrow flight-net running on pulleys at one end. They explained that morning and evening a man stood at the end of the net with the net hanging slack and when a Woodcock came flying down the ride he would jerk the net tight and catch it. The daily average, however, was low compared with duck netting and the season's bag usually only amounted to a hundred or so.

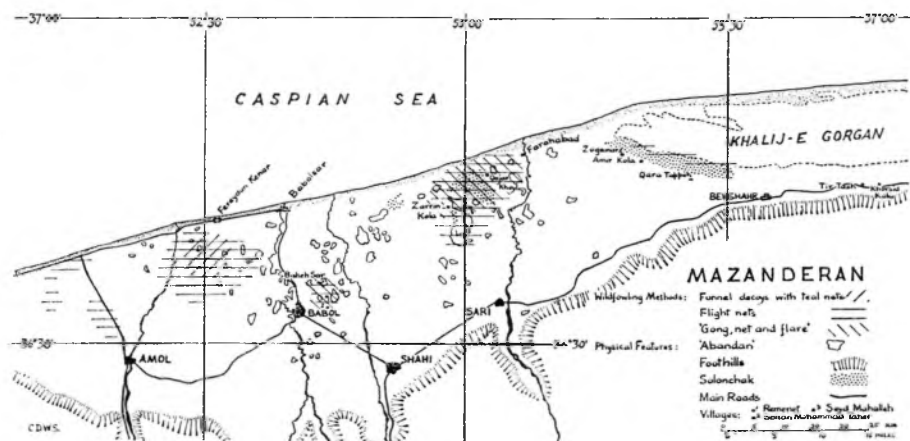
Similar nets known as 'dar dam' are also used extensively around the Mordab villages but the catches are not so great as by other means. A more lethal set-up was seen over the open water of the Mordab, a great long heavy flight net of five to six hundred yards in length. This is the 'sel dam' and is used for catching low flying ducks, particularly diving ducks, during heavy rain or stormy weather. At other times the net is too heavy and conspicuous for anything to fly into. These nets are rigged on tight wires leaving a bag at the bottom for the birds to fall into and be retained in till extracted. This type of net, which can be operated successfully only very occasionally, seems generally to be operated by fishermen, who have their shelter on stilts built near one end.

While studying all these fascinating aspects of the Mordab, we suddenly spied a large flat-bottomed boat approaching us with a beautiful triangular sail well filled with a following breeze. With a sudden break in the cloud and bright sunlight it was a splendid picture but our hopes of a photograph were soon shattered as Sa'aban advised us not to take photographs as the men were smuggling charcoal and seemed taken aback at finding us there at all. We therefore contented ourselves with exchanging greetings.

#### *Mazanderan*

After a few memorable days in the Mordab we drove eastwards along the coast road to Babolsar, where I had had my headquarters during 1957. We were joined there by Hessam Moini, an active young man who had helped us a lot during the irrigation surveys and who had accompanied me on a number of official and unofficial expeditions. Moini spoke little English but could understand my Persian and what is more translate replies to my questions into Persian I could understand. The local language was the Mazanderani dialect and that I never learnt to fathom.

The countryside of Mazanderan is quite different from Gilan. It is very



flat and open and, unlike Gilan, the rainfall and river discharge is often inadequate for the irrigated cultivation of rice in which both areas specialise. As a result the farmers have had to construct huge shallow reservoirs to conserve and regulate their water supplies. These are called 'abandans'. For reasons of topography and water supply those in the north-east tend to be largest and, in winter, shallowest and most suitable for dabbling ducks.

By virtue of the system of land-tenure, the pattern of villages and homesteads is different in the two districts. In Gilan the farmers' homesteads tend to be isolated like islands in the surrounding paddy fields, whereas in Mazandaran, at least until recently, the village has generally been the unit where a number of tenant farmers have lived in groups, all paying rent to the same landlord. As a result, during winter when no cultivation is taking place, and the fields are partially inundated with flood water, there are often large areas of open and relatively undisturbed paddy fields to attract duck, particularly at night. During the day, to avoid constant harassing from wildfowlers, they usually go out to sea where they can be seen resting in huge rafts. In stormy weather they come inland to the larger 'abandans'.

#### *Variations in Gonging Technique*

At the village of Bisheh Sar there is to be found a very special 'abandan'. It is fifty hectares (about 124 acres) in extent, has exceptionally fine reed beds and during the autumn and winter months is alive with duck. The village is owned by Mr. Ahmad Owsia and the tenant of the 'abandan', at least during the duck season, is Mr. Abol Qasem 'Ala, whose family have had the hunting rights for nearly a hundred years. Mr. 'Ala tells that his grandfather evolved the method of catching ducks with net, gong and flare. As his equipment and technique is singular, possibly the Gilakis (as people of Gilan are called) got the idea from Bisheh Sar! At the beginning of autumn, just after the rice harvest, Mr. 'Ala invites a hundred men from the village to come and prepare the labyrinth of waterways he requires in the 'abandan'. The traditional reward for their labours is a generous chicken lunch. This done, the 'abandan' is strictly preserved from disturbance and no shooting is allowed in the vicinity, for very shortly the duck start arriving. By 15th Aban (5th November)

there is usually a sufficient lead established to commence netting, and from then to 15th Esfand (6th March) the wildfowlers go out every evening when the moon is favourable. From the seventeenth to the twenty-fifth of the lunar month the catch is usually good. From the twenty-fifth to the seventh less good, and from the seventh to the seventeenth they find it not worth going out at all.

Mr. 'Ala has two boats. Unlike those in the Mordab they are large heavy dug-out canoes which can each take three or four people easily. His light is now a modern pressure lamp, though in the past he used bulrush fluff and kerosene. His nets are five metres long and constructed on a bamboo frame. They are far heavier than those used in Gilan. His gongs, most probably his grandfather's, are worn through in places and the holes by which they are suspended have often been redrilled. Their tone, as can be imagined, is quaint and high pitched, but as long as they hold together he will continue to use them! Mr. 'Ala does not often go out himself these days but he came out with us to demonstrate his particular variant in the art of catching ducks. As usual we started with many cups of strong sweet tea in a small thatched shelter beside the 'abandan'. We all sat round a glowing charcoal brazier while Moini and the others took turns with a hubble-bubble pipe. On these occasions time seems to drag and as the conversation exhausted my vocabulary we soon became drowsy. Mr. 'Ala must have seen this for at last he took us out to the boat moored alongside. The boat would only take four, so we had to make two sorties so that Christopher and I could each see the old man at work. Mr. 'Ala, after carefully priming and adjusting the lamp, took up position behind the hood, a little boy sat in the middle with the gong and the son stood in the stern to pole the boat. We being above the normal complement had to sit in the well of the boat, which very soon was to start filling with trussed-up Mallard. As we slid quietly into the 'abandan' Mr. 'Ala took a net from a hiding place in the reeds and carefully soaked it for better effect. The little boy started gonging, first softly and then rising and falling to the instructions of the old man so that it took on an eerie ring which was at once mysterious and difficult to locate. Mallard came in sight ahead. First they looked one way and then the other as if uncertain as to what to do. When the boat was about seven or eight yards away the old man gently stamped his foot at which signal the boat surged forward and the Mallard leaped into the air. But already the heavy net was poised over them and as they flew into it, it turned slightly and they were caught. In seconds their wings were locked behind their backs and they were lying in the bottom of the boat. Occasionally a duck would not rise and passed within arm's reach still watching in amazement. Only when it heard the pole, or more probably saw movement of the boat, would it fly off, with little more than a bewildered 'quack'. Time and again Mallard would rise from the water to be taken silently with the huge net, and only for the moment that they were in the net would they call in alarm. Very few birds flew off out of range. What was the explanation? In the first place there were possibly twenty times as many Mallard there in the 'abandan' as we actually saw and hardly a bird that touched the net escaped to be wiser next time. The sight and sound of the wildfowler were dazzling and bewildering, and resembled nothing which they had cause to fear. Thus while Mr. 'Ala could take his harvest the 'abandan' could at the same time provide a refuge for wildfowl round about.



So with thirty or forty ducks in the bag we returned to the village for supper—wild duck served in six different ways!

#### *Funnel Decoy Ponds and Teal Nets*

The following day Mohandes Kia, a friend from Babol, very kindly arranged for us to visit another duck preserve near Fereydun Kenar. I knew the area quite well but this was a special visit. Mr. Hoseyn Bahrami and Mr. Seyd Hoseyn Hoseyni were waiting for us when we arrived just before dawn, with two very large dug-out boats. One was lined with a superb Persian carpet laid on straw which we soon found to be very comfortable. Each boat had a charcoal brazier to keep us warm on the journey, and one had a steaming 'samovar' to provide a constant supply of tea.

Fereydun Kenar is a small coastal town in the centre of the most valuable rice growing area in northern Iran. Moreover it is the market for some forty-seven villages all of which trap duck. The locals say that the two are not unrelated as the catching of duck necessitates almost sanctuary conditions and they believe that the thousands of waterfowl living there in winter help to retain the fertility of the soil. This certainly is the tradition and, as one can see very clearly from the air, the natural topography has been developed over the years for catching duck as well as for rice cultivation. As we moved inland up a narrow waterway we soon caught glimpses of belts of trees with rectangular notches in their silhouette. As dawn was breaking, flights of Teal came skimming low over our heads. One made straight for the gap in the trees. Just as it passed over, a net suddenly appeared and then as suddenly disappeared again. This was one of 180 or so Teal nets which we were shortly to see demonstrated. We disembarked up a small feeder channel which had brought us to the edge of one of the characteristic belts of trees. This we found to be in the form of a ring from six to eight hundred yards across. The paddy fields inside were kept flooded to a shallow depth and were teeming with duck of all kinds: Mallard, Teal, Wigeon, Shoveler, Gadwall, and Tufted Duck, with a few Red-crested Pochard and an occasional Ferruginous Duck. On the inner edge of the belt of trees were more than thirty decoy funnels—not like those in Europe with water below and netting above, but funnels left in the main belt of trees leading to small decoy ponds fitted with clap nets.\* Behind these and within the cover provided by the trees were numbers of Teal Nets, usually one stand to every decoy funnel. As we arrived the decoymen were just taking their nets down but were persuaded to show us how they operated them.

In the morning and evening during the winter months large numbers of Teal move around over the paddy fields, skimming the ground or, if they have to cross one of the belts of trees, choosing the lowest parts. For generations the Mazanderanis have been catching them at these very places and their name for Teal 'chartā'i' means 'four at a time' which is par for the course! The nets known as 'damrah' are about thirty metres long and two metres high, with about the equivalent of a two-and-a-half inch mesh and made of hemp twine dyed black with the skins of sugar beet. They are suspended by ropes running over pulleys, usually improvised from old glass lamp stands. They hang in pairs so that while one is being cleared the other can be ready for the next flight. As the birds approach the net is quickly and silently thrown

\*see aerial photograph on p. 180

in the path of the ducks and often catches three or four at a time. The idea was very similar to the Woodcock nets that we found in Gilan except that the elaborate arrangements of pulleys and the cutting of the path through the trees made the method efficient enough to catch wily Teal on a commercial scale.

Nearby we were shown a little thatched shelter which housed decoy ducks used to lure wild Mallard into the funnel type decoys or 'damgah'. The decoy birds are all hand-reared and kept in the farmyard for the first three years. The most valuable birds however are even older and are called 'dashti', translated for me as 'Quisling ducks'. These are the most traitorous of all, for whereas the usual decoy duck is merely thrown out of a hide to fly back into the trapping pond where it is fed in winter, the 'dashti' flies out into the paddy fields and joins the wild Mallard. After a minute or so he suddenly leaps into the air and chases some of the other decoy duck into the trapping pond. Most Mallard fall for this manoeuvre and follow the 'dashti' into the trap. Once they are in, the decoyman jerks a wire to release a large clap net which falls and covers the whole pool. The interesting thing is that when he comes back to clear the net the wild birds all struggle and become partially entangled. The tame ones keep perfectly still and swim out to safety as soon as he lifts the net! There is however a small part of the pool which the net does not reach and the decoy birds learn to congregate there before the net falls.

Nearly twenty-five thousand duck pass through the hands of traders in Fereydun Kenar and many more are consumed in the villages where they are caught. The duck are sold for 70 to 80 Rials a pair (seven to eight shillings) for Mallard and 30 Rials (three shillings) for Teal. The down and contour feathers are collected and sold separately for prices ranging from 1800 Rials for 16½ kilograms of Mallard down to 2500 Rials for 16½ kilograms of Teal down (approximately £9 and £12. 10s. respectively). 1000 ducks are said to produce from 16½ to 24 kilograms of down.

#### *Zarrin Kola*

After our visit to Fereydun Kenar we visited a very different type of coastal area. To the east of Babolsar there have in the past been lagoons which have silted up and, as the level of the Caspian Sea has continued to fall, have become vast areas of poorly drained 'solonchak' soils. These are important grazing grounds for sheep and goats which are brought down from the mountains in winter, but they are equally important as wintering grounds for Greylag and Lesser White-fronted Geese as well as for thousands of dabbling ducks. The predominant vegetation is *Salicornia* which thrives on salty conditions. Associated with this is a growth of Bermuda Grass *Cynodon dactylon* which only starts sprouting when the ground is flooded by the autumn rains and it is this which really seems to attract the geese.

The villages in this area are isolated in winter by flood water and miles of mud in all directions, so we went to visit them on foot. It was no easy matter, even though we were lucky enough to find a horse to carry our baggage. Moreover we had been unable to contact a friend who was to have given us introductions to the 'kathodas' of the villages en route, so we had to rely on Moini. The hospitality we received was amazing, particularly as we arrived looking like tramps and splashed with mud from head to foot. As we

arrived at Zarrin Kola Pa'in (lower) we noticed that under the eaves of almost every house there hung a long hand net and we were slightly put out when we were asked to go on another mile and a half to Zarrin Kola Bala (upper) where the 'kathoda' lived. There again we saw plenty of hand nets so we knew we had come to the right place. There was no shortage of informants, for a crowd gathered at once. We soon learnt that the villagers spent most of their winter months fishing or wildfowling, depending on which was likely to be the most fruitful. We had arrived after heavy rain and had already seen baskets of beautiful silver fish which had been netted or harpooned in streams nearby. Unfortunately there were not many duck about as it was late in the season but they agreed to take us out that night to demonstrate their techniques.

In 1957 I had been puzzled to see literally dozens of lights working over the saltings one autumn night. I had counted over forty lights and had wondered if they could be the lights of hunters but on finding the next time I passed that the place was just a huge mud flat I had rejected the idea. Now however I learnt that in early autumn on a suitable night sometimes nearly two hundred teams go out from the villages of Zarrin Kola, 'Abbas' Ali Kesh, Seyd Mahalleh and Qajar Kheyl, each with light, gong and hand net. On the saltings they hunt geese on foot, and on the flood water and 'abandans' they hunt duck both from boats and on foot. Sometimes there are large numbers of Coots and these they harpoon with a trident-like weapon mostly used for fish. Unlike the duck-catchers in Gilan and the 'abandans' at Bisheh Sar they hunt in the open and still report huge kills. Of the geese they can only catch Greylags: only in years when there are large numbers do they hunt them seriously.

That night we decided to take some film of the gonging operations. The plan however nearly ended in tragedy. Christopher planned the set and with our host and his sons I walked down to the boats by the light of a swinging pressure lamp. Christopher went ahead to film us coming through the trees but he had not gone far before we heard a splash and later a shout for help. He had fallen down a well—fortunately a fairly shallow one so we could pull him out without difficulty. The greatest tragedy was that his camera went in too and by the time it had been recovered the slightly brackish water had even permeated the lenses. Christopher took it all extremely well and could even see the funny side of it! Our village friends were very kind and helped him to dry out his clothes over a charcoal brazier.

The next day we left Zarrin Kola and took a boat for the first part of our journey which traversed a great series of 'abandans'. It was a glorious day with bright sun and clear sky such as one often has in Mazandaran after heavy rain. Near 'Abbas' Ali Kesh we suddenly came upon one of the most exciting sights of our trip—an 'abandan' absolutely teeming with duck, mostly Mallard, Teal and Wigeon. These kept rising in waves as we pushed through the reeds and then came back skimming over our heads before pitching into another part of the 'abandan'. The most interesting part was that it transpired that we were only a few hundred yards from the village and there moored to the bank was a row of hooded dugout canoes! In fact they had not hunted the previous night as the landlord had asked them to prepare a good show of duck for the provincial governor or Ostandar who was due to visit the place in a few days' time. Nevertheless the difference between that 'abandan' and the adjacent ones we had just passed through and where shooting was being

allowed, was most marked. From there we walked across the goose marshes to Qajar Kheyl. It was very slippery and quite heavy going but nevertheless from the number of wheel tracks we saw it was obviously passable to four-wheel-drive vehicles when a little bit drier. We were not surprised to hear from the 'kathoda' that during the winter months hunters come from Sari and Babol to hunt the geese from jeeps. They probably kill very few but undoubtedly caused untold disturbance. We were even less surprised when the 'kathoda' said that the numbers of geese coming to the marsh has decreased markedly in recent years. Nevertheless it had not occurred to him to connect the two ideas. This was distressing news as only two years before, on 24th January, I had seen several thousand Lesser Whitefronts on that very marsh and amongst them six Red-breasted Geese. The latter are well known (the local name is 'Arus Gaz or the Bride Goose) but have always been irregular visitors amongst the flocks of Lesser Whitefronts.

Moving eastwards, we next visited Qara Tappeh and Amir Kola, which are situated right out on the low-lying 'solonchak' plain near the great lagoon called the Khalij-e Gorgan. The soils are poor and generally too salty for more than scattered cultivation of subsistence crops. However, in spite of this, winter grazing for sheep is excellent and vast flocks of fat-tailed sheep compete with the geese. But there too, alas, we heard the same story of diminishing numbers and saw for ourselves the wheel tracks of hunters' jeeps.

Two years before I had seen countless thousands, whereas this time I had difficulty in finding a few hundred to show Christopher. It is not that there are probably any less geese visiting the Southern Caspian shores in winter than before but rather that they have been forced to move where they will be less disturbed. Not far east, on the borders of the Soviet Union, are the Atrek Marshes and the Gorgan Steppe. In these border areas disturbance is minimal and in certain places, such as near Lake Atagel, visited by Peter Scott in 1938, there is probably adequate grazing for large numbers. Nevertheless, as the rainfall during the autumn months is only a third of the corresponding rainfall in central Mazanderan,\* it is unlikely that there is any extent of conditions similar to those described above where the autumn rains bring up a new growth of Bermuda Grass. This seems the key to the proper conservation of geese, certainly the Lesser Whitefront, in northern Iran. The danger lies in the conservatism of wild geese, for if they are forced by disturbance to change their feeding grounds the saltings of Mazanderan are unlikely ever to regain their former popularity, particularly as the area available to them is decreasing gradually due to reclamation projects.

Our host at Qara Tappeh was an elder of the village by name of Ahad Khan in whose house Peter Scott had stayed in 1938. He remembered him well as he had asked all the same questions! He knew the Red-breasted Goose well but had not seen one for several years. The people of the village did not hunt, except to a small extent on the shore with flight nets. We asked how this was done and the reply amused us. "First you must prepare a 'korsi', a charcoal brazier to sit by, as it is bitterly cold. Round this you build a shelter against the wind. Then you put up your net between poles, tie a string from one end of this to your big toe and go to sleep."

\*Unpublished records for Babol Sar and Gorgan 260 mm and 81 mm for three months of autumn.

In the last thirty years the mean sea level of the Caspian has fallen nearly eight feet (from 26.0 to 28.3 metres below Black Sea level) and the Khalij-e Gorgan lagoon has receded about three kilometres near Qara Tappeh. The exposed mudflats and the shallow lagoon are very difficult to reach. Near Tir Tash however there can at times be large numbers of waterfowl, which include Scaup, Tufted Duck, Shoveler, Wigeon, Mallard, Common and Ruddy Shelduck, as well as occasional Smew and Red-breasted Merganser. It is possible that Goldeneye also occur as I have watched a party of thirty fishing in the sea near Farahabad. However hunting with and without firearms is not at all intensive in these parts compared with the hunting grounds further west which I have described above.

### PROBLEMS OF CONSERVATION

In the Caspian Region wildfowl are hunted not only by sportsmen but also by the farmers of Gilan and Mazanderan, as we have seen above. To the farmers wildfowl are a crop to be harvested as assiduously as their cotton or beans. The total annual harvest in an average year is estimated at nearly one and a quarter million duck alone (see Appendix), worth nearly a hundred million Rials (£500,000). This is a fact that needs consideration in drafting conservation measures.

The problem of conservation of the wildfowl populations in Iran is different from that in Britain or the United States, as the numbers that remain to breed are almost negligible. Thus there is no means of increasing stocks by protection of breeding grounds. Conservation measures must therefore be limited to control of the kill and provision of refuges. The traditional methods of wildfowling without firearms depend essentially on refuge-like conditions and it is ironic that possibly the most effective means of improving the conditions of wildfowl in northern Iran is to encourage the industry as long as possible. In Japan, where until the end of the Second World War there existed a wildfowl industry of comparable scale, the annual harvest quickly fell from about a million to about two hundred thousand when the traditional hunting preserves were abused. To-day such preserves as remain are officially encouraged as their value as refuges is generally appreciated. Moreover where the farmer is directly and financially interested in the sanctity of the hunting preserve, his co-operation in maintaining it is assured. It should also be noted that the methods of hunting avoid the wounding of birds and other undue cruelty. Liming and angling, now fortunately banned in Japan, have never been employed in Iran for catching waterfowl.

A world-wide problem in relation to wild life is destruction of habitat. In Gilan the Mordab and its southern preserved reed beds are the crucial features. Fortunately, in addition to the wildfowling interests, it has been found that the lagoon is one of the principal breeding grounds of the 'mahi sefid' or White Fish *Rutilus frisii kutum*, commercially one of the most important fish after the Sturgeon. Though it is feasible to drain and reclaim the Mordab, it is unlikely that any further lowering of the water level will be allowed on account of the serious effects this would have on the fisheries. In regard to the southern reed beds it is understood that the Game Council are very much aware of their value and have already taken measures to preserve them from shooting.

In Mazanderan, even fifty years ago, the greater part of the coastal plain was poorly drained semi-swamp forest. With the pacification of the Turko-

mans, development of the area has been rapid until now 86,000 hectares (213,000 acres) are under rice cultivation. The only obstacle to further reclamation is availability of water supplies for irrigation. The importance of this to wildfowl is that, because of the difficulties of water supplies, over 11,000 hectares (27,200 acres) of good land have to be used for some four hundred shallow reservoirs or 'abandans', many of which are ideally suited to their needs. If, as seems likely, at some time in the future dams are built to develop the irrigation potential of Mazandaran, then it is certain that most of these 'abandans' will have to be ploughed up, very much to the detriment of the wildfowl. This need not be catastrophic. As had been noted at Fereydun Kenar, the duck hunting preserves achieve considerable success by merely flooding selected paddies. The same can be done elsewhere, but the key to success would seem to be provision of refuges.

### Appendix

#### *Estimation of annual duck harvest in Mazandaran and Gilan*

At the time of my enquiries during the period 1957-59 there were no official or unofficial records of duck taken in Mazandaran and Gilan. Moreover one must allow for the fact that when making enquiries in the countryside the peasant very often prefers to give the answer that he thinks is expected rather than admit to not knowing the answer: and this is not only limited to peasants. Thus in trying to evaluate the probable annual duck harvest it has been necessary to allow for this by a factor of personal judgment after applying every possible check. Time spent in field enquiries were necessarily limited but most areas were visited both in 1957 and 1959 with generally reasonable correlation of results.

#### GILAN

The main hunting ground is in the southern fringe of the great Mordab, south of Bandar Pahlavi. Allowance for trapping outside this area has been made by study of aerial photographs on which 'nema'-type decoy ponds can be distinguished. Most shooting takes place around Bandar Pahlavi, where is to be found the only gun shop in the Ostan (province). The estimate of shooting pressure has therefore been based on sales of cartridges and materials for making cartridges in Bandar Pahlavi and so virtually for the needs of Gilan. This is dealt with in detail below.

#### *Hunting with net, gong and flare*

There are twelve villages concerned with the catching of duck by this method: Pir Bazaar, Nowkhaleh, Hendakhaleh, Siah Darvishan, Nargestan, Sergestan, Chumeskhal, Kowlescr, Chokver, Esfand, Qoraba, Abkenar. At Siah Darvishan it was estimated, I consider reliably, that there were two hundred and fifty boat teams operated by these villages. In addition there were some twenty-five boats operating from Bandar Pahlavi itself, mostly owned by shop-keepers.

The estimated catch was given as three to four thousand duck per boat per annum. In support of this very high figure it must be recorded that under ideal conditions one boat may catch as many as six hundred in a night! If the weather is windy a likely catch is 150-300 per boat, but if still, then only 50. The season lasts five months, though after the first three there are fewer birds about and catches are reduced accordingly. Nevertheless, the weather in Gilan is generally cloudy and the duck catchers only expect to lose five nights a month due to the phase of the moon coupled with poor cloud cover.

Additional evidence that these figures are of the right order was also obtained from Siah Darvishan. We were told that the rent for the hunting right for one pair of boats was Rials 120,000 (£570) and that for this outlay they expected average proceeds from the sale of birds of Rials 320,000 (£1,524). The local price of Mallard, their principal quarry, was Rials 80, from which one assumes that they expect to catch 4,000 birds. On the other hand, to break even as far as the rent is concerned, they would have to catch 1,500. Usually however Rials 10 are given to the men for every bird caught, so to make a profit more than 1,700 birds have to be caught.

Thus the catch is likely to be 4,000 in a good year. Like most sportsmen they probably like to consider a good year as an average year and 3,500 would appear to be a fair estimate for an average year. In regard to the number of boats 250 amongst twelve villages does not seem excessive considering that the area of hunting ground (reed beds) is about 15,000 hectares (over 37,000 acres) and that in Mazandaran 50 hectares was more than enough for one boat. The total catch is therefore likely to be of the order of  $250 \times 3,500$ , or 875,000.

*Decoy Ponds*

Forty-two decoy ponds were identified from aerial photographs. These were mostly located around Jo'meh Bazaar due west of Rasht near the Pasikhan River. There are also many others east of Rasht towards Kuch-e Isfahan. In the time available it was not possible to interview any of the owners. The probable catch at each pond is estimated as about 500, say 21,000 in all.

*Long Flight Nets*

Only three long flight nets were observed. These were operated by fishermen as a side line and only caught large numbers of birds under stormy conditions and then mainly diving ducks such as Pochard and Scaup. For the purposes of the estimate it is assumed that the annual catch is of the order of 750, or 2,250 in all. In a good year the catch is likely to be far greater than this. In addition to duck, large numbers of coots and waders are also caught, but these are not included in the estimate.

*Flight Nets (small)*

The small flight nets are not as skilfully operated in Gilan as they are in Mazanderan but with greater numbers of birds around and with more favourable lighting conditions it is assumed that the average catch is about the same. There were said to be approximately 150 nets in use in the twelve villages, so allowing 100-200 per net the annual catch would be about 30,000.

*Calabash Method*

This is only used at the very beginning of the season if the water is warm enough, and even then only on a casual basis. The annual bag is probably not more than 500, say 350.

*Shooting*

Shooting is limited to the side of the Mordab towards Bandar Pahlavi as the great areas of reedbeds to the south are reserved for hunters with net, gong and flare. Even so the shooting grounds are immense. There are more than 450 licence holders, besides many visiting hunters from Tehran and neighbouring areas. Hunting is done both by day and by night. In the daytime hunters in boats work the reedbeds on the northern side of the Mordab or stand waist deep in clumps of reeds while their boatmen drive the birds towards them. Hunting at night is done by the light of pressure lamps, usually in the early hours of the evening. In 1959 there were two high speed motor boats used for duck hunting but these were not satisfactory as the propellers were for ever becoming entangled with fishing nets. It is understood that they have in any case since been banned.

Shooting pressure can be judged from sales of shot. In the season 1958/59 the shop in Bandar Pahlavi sold 15 tonnes of lead shot. In a 'good' year the sales leap to 30 to 40 tonnes! The recommended load for a 12-bore is 32 gms, i.e. 30 cartridges per kilogramme. Thus if 1959 be taken as an average year the equivalent of 15,000 x 30, that is 450,000 home-loaded cartridges must have been made. In a 'good' year the equivalent figure would be 900,000 to 1,200,000. In addition at least 6,000 ready-made cartridges are sold each year, on top of which one must allow for most visiting hunters from Tehran and elsewhere bringing their own. Shots fired therefore probably amount to 10% more than the amount calculated from sales of shot.

Judging by impressions in the market at Bandar Pahlavi and experience in the Mordab, possibly 50% of the bag are Coots and 2% are Pheasants. For a broad estimate 50% can be assumed to be ducks. Thus if one in three shots kill, and since most local hunters try to kill more than one bird at a time this is a conservative estimate, the total kill from this source would amount to one third of a half of  $(450,000 \div 45,000) = 82,500$  duck. In a 'good' year the equivalent figures indicate a kill of 165,000 to 220,000 duck.

*MAZANDERAN*

In Mazanderan conditions are very different. The feeding grounds are much more accessible to man and generally the birds have to go out to sea to rest during the day. Exceptions to this are certain areas where the professional duck catchers operate and where shallow reservoirs or specially flooded rice paddy fields are carefully protected from disturbance. Enquiries showed that this was more widespread than at first thought. As in Japan it has been found that where waterfowl are numerous enough trapping is the most efficient method of taking birds for the market. Shooting is certainly carried out but mostly on certain favourite 'abandans' or reservoirs, and mostly by individuals working on their own.

*Decoy Ponds and associated Teal Nets*

In the immediate hinterland of Fereydun Kenar there are some 80 to 90 highly specialised decoy ponds each with falling Teal Nets. Some 47 villages have these or similar nets and the total number of nets is estimated at 180. From these villages some 20-25,000 pass through the hands of dealers and traders in Fereydun Kenar.

The catch by the decoy ponds can be evaluated from the fact that though no rents are paid the right to a stand changes hands for Rials 20,000 to 50,000. At the local wholesale price of Rials 80 per pair this is equivalent to nearly 500 to 1,300 Mallard. Undoubtedly some of the stands are very much better than others, and also it must be remembered that the decoymen usually operate Teal Nets in conjunction with the decoy. The decoys are only operated when there are Mallard flying nearby or feeding in the immediate vicinity. Most throws are unproductive and a day's catch of 15 is good. The season lasts five months so it is conceivable that a good stand may take 500 to 600 Mallard a year. Poorer stands would possibly only average about 200 to 300. In an exceptional year with a rough sea the catch may be as much as 2,000. The general average is however estimated at 400.

Teal Nets are operated morning and evening throughout the season, though probably less regularly when not directly associated with the decoy ponds. The 80 to 90 associated with decoy ponds therefore probably average 300 to 400 Teal per annum and the remainder 100 to 300. The overall average is taken as 250. The total take may be estimated as follows:

80-90 decoy ponds (say 85) x 400 ducks	= 38,000 mostly Mallard
180 Teal Nets x 250 ducks	= 45,000 mostly Teal

Total      83,000

This figure includes the number of birds consumed locally and therefore does not unduly conflict with the generalisation that 20-25,000 pass through the hands of traders in Fereyduh Kenar.

Shooting is only allowed in this area after 15th Esfand, by which time most of the birds have left. Occasionally royal visitors shoot over the decoy pond preserves but as this is not popular with the peasants and affects their livelihood, it happens very seldom. The first shoot after 15th Esfand is traditionally the landlords' privilege. I attended one of these and the bag only numbered about thirty as almost all the birds flew out to sea as soon as the first shot was fired. The take by this means is not likely to be significant.

#### *Bisheh Sar*

At Bisheh Sar a 50 hectare (120 acre) 'abandan' is hunted by means of net, gong and flare during 15th Aban-15th Esfand (4th November-7th March). It is hunted by one family who use one or two boats. They pay a rent of Rials 40,000 (£190) and expect an average take of about 4,000 birds, mostly Mallard. These fetch 70 to 100 Rials each in Babol market, but usually Rials 80. In addition there are some 60-70 Teal Nets operated in the vicinity of the 'abandan' which catch an average of 4-5 birds a day. The total catch is estimated to average about 300 a year, or about 20,000 in all. The inhabitants of the villages of Remenet and Soltan Mohammad Taher also hunt in a similar manner but no details are available. There is no shooting at Bisheh Sar before 15th Esfand and then little beyond the landlords' shoot. At one such I attended the bag amounted to about 25 Mallard, a few Teal and a large number of Coots. Such bags are not significant in comparison with the take by other means.

#### *Zarrin Kola-Qajar Kheyl*

Near the coast from Zarrin Kola to Qajar Kheyl the villagers use the net, gong and flare method extensively both for catching duck on the 'abandans' and for catching geese early in the season on the extensive saltings. Under the eaves of almost every house one can find the characteristic hand-nets and if the estimate given for the number of boats is considered in terms of the number of family teams of hunters the figures can well be believed. Moreover I have personally seen and counted forty such teams hunting in one large shallow lagoon. The Headman of Zarrin Kola gave the following estimate of hunting teams:

Zarrin Kola Bala (upper)	12 boats (i.e. teams)	on flood waters
Zarrin Kola Pa'in (lower)	20 boats    „	on 'abandans'
'Abbas 'Ali Kesh	30 boats    „	} on 'abandans' and flood waters
Seyd Mahalleh	30 boats    „	
Qajar Kheyl	100 boats    „	

The duck hunting grounds are very large 'abandans' and flood waters, which are not elaborately developed and preserved for duck catching like those at Bisheh Sar or even the swamps of the Mordab. Some of them, probably due to the salinity of the soil, have sparse or no reed beds and they are hunted both from boats and on foot.

The season at Zarrin Kola starts as soon as the birds arrive with the autumn and lasts through till the end of Bahman (20th February). They consider the best month to be Azar (21st November-20th December) and expect to be able to hunt every night except the 14th-18th of the lunar month. If it rains the catch is likely to be 100 duck per boat but the average is only 10 to 15. In the early part of the season, when the geese arrive, some effort is diverted to hunting these. Assuming therefore that the average number of nights hunting for a team after duck is 25 and the average catch is 12, the total average annual take is likely to be  $190 \times 25 \times 12 = 57,000$ . The majority of these are certainly eaten locally but once a week during the season a duck market is held at the village of Ab Mal near Farahabad.



In some years hundreds of geese, mostly Greylag, are caught but in 1958-59 none were taken.

#### *Flight Nets*

In the same area as the net, gong and flare hunting referred to above there is extensive flight netting. People from the villages of 'Abbas 'Ali Kesh and Seyd Mahalleh work an estimated 100 flight nets mostly over seasonal flood water near the village of Towqdar. These are only operated during the three months of autumn and for the most part one man watches four or five nets. I was able to obtain no data on average catches but in view of the elaborate arrangements which are made for a comparatively short season, one can assume a take of about 100 per net or 10,000 in all. Flight nets are also used at Qajar Kheyli but probably only to a limited extent. The population is very small and most of this is fully occupied in keeping cattle and sheep. Elsewhere from Gilan to Qajar Kheyli the majority of the duck catchers are also fishermen and decide their quarry from day to day according to the relative prospects.

#### *Shooting*

Shooting, often with muzzle loaders, is widely indulged in. Birds so obtained are mostly for home consumption and are probably 50% Coots. As in the case of Gilan an estimate of shooting pressure can be judged from sales of shot and powder. Both Babol and Sari have gun shops but neither could give any general information on consumption from year to year. At Babol the consumption of shot was given as 1,000 kg per annum — equivalent to 30,000 cartridges. In Sari I was given the consumption of powder as 50 kg per month during the season, say 200 kg all told — equivalent to 125,000 cartridges. In addition a few thousand ready-made cartridges are also sold. Not many of the latter are used as almost all local people load their own, since this can be done for a fraction of the cost of imported cartridges. Assuming the bag factors to be the same as for Gilan, the estimated duck kill may therefore be  $160,000 \times 50\% \times 0.33 = 27,000$ .

### **Summary Estimate of Annual Harvest of Ducks in Mazandaran and Gilan**

Location	Method	Remarks	Kill in Average Year
<b>GILAN</b>			
Mordab Villages	Net, gong and flare	250 boat teams x 3-4,000	875,000
Near Rasht	Decoy Ponds	42 x 500	21,000
Mordab Villages	Long flight nets	3 x 750	2,250
	Short flight nets	150 x 200	30,000
	Calabash method	No details say	350
Throughout	Shooting	Based on sales of lead shot	82,500
<b>MAZANDERAN</b>			
Fereydun Kenar	Decoy Ponds	85 x 400	38,000
	Teal Nets	180 x 250	45,000
Bisheh Sar	Net, gong and flare	Remenet and Soltan Mohammad Taher villages not included	4,000
	Teal Nets	60-70 x 300	20,000
Zarrin Kola-Qajar Kheyli	Net, gong and flare	190 x 300	57,000
	Flight Nets	100 x 100	10,000
Throughout	Shooting	Based on sales of lead shot at Babol and powder at Sari	27,000
			<hr/> 1,212,100 <hr/>