Podoces, 2010, 5(1): 11–28

Results of Mid-winter Waterbird Counts in Iran in the Early 1970s

DEREK A. SCOTT
Castletownbere Post Office, Castletownbere, Co. Cork, IRELAND. Email: derekscott@eircom.net

Accepted 21 September 2010

Abstract: The mid-winter waterbird counts in Iran were initiated by the Department of the Environment in January 1967. The counts focused on pelicans, flamingos, swans, geese, ducks, cranes and coots, but some counts were also made of other species of waterbirds. By the early 1970s, the counts were sufficiently comprehensive to enable estimations to be made of the total numbers of many species of waterbirds present in Iran in the mid-winter period. The overall results of the counts and these population estimates are presented in a series of tables. It was estimated that in an 'average' year in the early 1970s, there were approximately 2,000–2,200 pelicans, 48,000–51,000 flamingos, 380–460 swans, 27,000–32,000 geese, 2.0–2.4 million ducks, 2,300–2,800 cranes and 370,000–410,000 coots wintering in Iran. The number of birds reaching Iran in autumn and remaining throughout the winter was greatly affected by weather conditions both in Iran and in the north Caspian region. In mild winters, large numbers of the hardier species, notably the swans *Cygnus* spp., remained throughout the winter in the north Caspian, while in extremely severe winters, a large part of the Russian wintering populations moved south into northern Iran. In dry years, when many of the wetlands in Khuzestan, central Fars and Seistan remained dry throughout the winter, large numbers of waterbirds continued on south to winter in the Indian subcontinent or Mesopotamia. In the winter of 1969/70, when conditions were unusually mild in northwestern Iran, large numbers of birds overwintered in the wetlands of the Urumiyeh basin in Azarbaijan, but in most years these wetlands froze over in December, and most birds had left the area by the time of the mid-winter counts.

Keywords: Iran, mid-winter, population estimation, waterbird count, waterfowl, wetland.

INTRODUCTION

The present note is intended as a brief summary of the results of the mid-winter waterbird counts carried out at wetlands throughout Iran during the five winters from 1970/71 to 1974/75. The full results of these mid-winter counts were presented in a series of Department of the Environment Project Completion Reports produced at the time, and the census data were submitted to the International Wildfowl Research Bureau (IWRB – later to become the International Wetlands and Waterfowl Research Bureau and ultimately Wetlands International).

Annual mid-winter counts of waterbirds in Iran were initiated by the Iran Game and Fish Department (later to become the Iran Department of the Environment) in the winter of 1966/1967 as part of an international effort to monitor populations of 'wildfowl' – species of ducks, geese, swans and coots – that were subjected to heavy hunting pressure by sport hunters and market hunters throughout Europe and western Asia. As the large populations of wildfowl constitute a natural resource of considerable economic importance, it was evident that efforts should be made to manage the populations on a sustainable basis through the rationalisation of hunting regulations and creation of protected areas throughout the birds' flyways. The first step was to estimate the total size of the wildfowl populations and to determine if the populations were declining, as was believed to be the case by many observers. Mid-winter counts of wildfowl had been going on in some European countries for a number of years, but it was not until January 1967 that the IWRB began to co-ordinate these counts at an international level and to encourage as many countries as possible in Europe and western Asia to participate. Iran was one of the first countries to join in these counts (now known as the International Waterbird Census (IWC)) and submit its census data in the appropriate format to IWRB for inclusion in an international database.

In the early years of the IWC, the counts focused almost exclusively on species of

Anatidae (ducks, geese and swans) and Eurasian Coots *Fulica atra*, although participants were also encouraged to count Greater Flamingos *Phoenicopterus (ruber) roseus* and the two species of pelican, Great White Pelican *Pelecanus onocrotalus* and Dalmatian Pelican *P. crispus*, as these were the subject of international conservation efforts and generally encountered in the same habitats as wintering wildfowl. In Iran, the Common Crane *Grus grus* was also included in the counts from the outset, as this was another species that was the subject of international attention and was a conspicuous element of the wintering waterbird populations in several regions of Iran. Thus, throughout the late 1960s and 1970s, the primary objective of the mid-winter counts in Iran was to count as many as possible of the pelicans, flamingos, swans, geese, ducks, cranes and coots present in Iran during the mid-winter period.

No special effort was made to count other species of waterbirds, and only those wetlands frequented by the target species were routinely visited by the teams of counters. Indeed, it was not until the launch of the Asian Waterbird Census by IWRB in January 1987 that all species of waterbirds were officially included in the counts. However, several of the experienced ornithologists participating in the mid-winter counts in Iran in the late 1960s and early 1970s kept records of all other species of waterbirds recorded during the wildfowl counts and in many cases gave estimates of numbers. This was particularly the case during the period 1970/71 to 1975/76, when the author made a habit of counting all species of waterbirds present at each site, with the exception of some of the commoner gulls *Larus* spp.

Little information on the mid-winter waterbird counts in Iran in the 1960s and 1970s has appeared in the published literature. Ferguson (1972) summarised some of the early work in the south Caspian region in the late 1960s, while Scott & Carp (1972) reported on the first mid-winter wildfowl counts in Khuzestan Province in 1971. Summers *et al.* (1987) provided estimates for the wintering populations of waders in Iran, based very largely on the mid-winter counts in the 1970s, and Perennou *et al.* (1994) presented the annual species totals for pelicans, flamingos, swans, geese, ducks, cranes and coots for the period 1967 to 1986. The mid-winter counts in the 1970s were used extensively in the identification of sites for designation as Important Bird Areas under the BirdLife International initiative (Evans 1994), and also in the identification of wetlands of international importance for inclusion in *A Directory of Wetlands in the Middle East* (Scott 1995).

DEVELOPMENT OF THE COUNTS

In mid-January 1967, the newly created Game and Fish Department of Iran requested David Ferguson, an American Peace Corps Volunteer attached to the organisation, to proceed to the southwest Caspian region in Gilan Province and, in collaboration with two Provincial Department Officers, initiate a duck-ringing programme. At the same time, Ferguson made an attempt to census wildfowl in the Anzali Mordab area. The results of this census were forwarded to the Asiatic Wildfowl Survey in Pakistan and IWRB in the U.K., and marked the first time that Iran had participated in international wildfowl counts. In the same winter, Lindon Cornwallis, a lecturer at the University of Shiraz, was carrying out avifaunal surveys in the wetlands of central Fars, and provided counts of wildfowl at nine sites in this province. In the following winter (1967/68), Ferguson counted wildfowl at 24 sites in Gilan and also carried out a partial survey of Gorgan Bay in Mazandaran, while Cornwallis again counted wildfowl at nine sites in central Fars. The same sites were counted in the winter of 1968/69, along with the Dasht-e Moghan in Azarbaijan and the lakes on the Turkman Steppe in Golestan. In the winter of 1969/70, a team led by Cornwallis carried out the first ever counts at wetlands in the Seistan basin and also visited the Hamoun-e Jaz Murian, although this was completely dry at the time. This team also counted the wetlands in central Fars, while another team led by Hubert Kowalski and Alain Tamisier, two French ornithologists from the Station Biologique de la Tour du Valat in France, counted wetlands in Golestan, Mazandaran, Gilan, Azarbaijan, Kordestan, Kermanshah, Tehran and Esfahan.

Shortly after the arrival of the author at the Game and Fish Department in late 1970, a permanent Ornithology Unit was established within the Department, and one of its primary tasks was to organise the annual mid-winter

wildfowl censuses and expand these to cover the entire country. Between the end of December 1970 and early March 1971, all major wetlands in the south Caspian region, Azarbaijan, Kordestan, Kermanshah, Esfahan, Khuzestan, Fars and Seistan were visited by Ornithology Unit personnel, and for the first time, counts were made at wetlands along the coast of the Persian Gulf and Persian Baluchestan. Thereafter, in each of the following four winters, efforts were made to cover all important sites in the five major wetland regions in Iran – the south Caspian region (Gilan, Mazandaran and Golestan), the Lake Urumiyeh basin in Azarbaijan, the Khuzestan lowlands, the lakes of central Fars and the Seistan basin – and as many other important wetlands as time and man-power allowed. Each year, small teams of experts were sent out by the Ornithology Unit to undertake the counts in various parts of the country. A small number of foreign ornithologists were invited to assist in the counts and provide on-the-job training for the Department personnel. These included Erik Carp (the Administrator of IWRB) in 1970/71, 1971/72 and 1973/74, Lindon Cornwallis in 1970/71 and 1972/73, John W.F. Davis in 1971/72, Mike Smart in 1972/73, Anthony Atkinson-Willes in 1973/74 and Mike de L. Brooke in 1974/75. As far as possible, counts were carried out during the month of January, but because of the vast size of the country and limited number of teams that could be fielded, it was usually necessary to begin the counts in the last week of December and continue until early February. Table 1 gives a summary of the mid-winter wildfowl counts carried out by the Ornithology Unit during the five winters from 1970/71 to 1974/75.

Starting with very poor coverage of only a few of Iran's major wetlands in the winter of 1966/67, coverage improved gradually and by the winter of 1971/72, almost all of the major wetlands and many of the less important wetlands were being visited. In an effort to improve the coverage of the mid-winter counts throughout Iran, in the winters of 1971/72 and 1972/73, the Ornithology Unit called upon the assistance of the Provincial Offices of the Department of the Environment. Personnel at offices throughout Iran were requested to visit as many as possible of the wetlands in their region that could not be visited by experts from the Ornithology Unit, and to count all the wildfowl that they observed. Because of the difficulties in identifying the pelicans, swans, geese and some species of ducks to species level, especially without the aid of binoculars, provincial personnel were requested to give only the total figures for pelicans (both species), swans (all species), geese (all species) and ducks (all species except Ruddy Shelduck *Tadorna ferruginea*). The counts of Greater Flamingos, Ruddy Shelducks, Common Cranes and Eurasian Coots posed no problems as these were well known birds and readily identifiable in the field. Special census forms were distributed to the Provincial Offices, and these included space for basic information on the wetlands, water levels, weather conditions during the counts, *etc.*

The response to this request for assistance proved exceptionally good, virtually all Provincial Offices readily undertaking censuses at wetlands in their region. In 1971/72, provincial personnel undertook wildfowl censuses at 162 localities not visited by teams from the Ornithology Unit and counted over 350,000 wildfowl (20% of the total in that winter). Some of these localities were wetlands known to be of importance for wildfowl but which on account of their isolation or relative inaccessibility could not be visited by Ornithology Unit personnel. Fifty-one sites were ab-bandans or areas of rice fields in the south Caspian region, and the remainder were mostly stretches of river, springs or small areas of temporary flooding of relatively minor importance for wildfowl. In 1972/73, the response from the Provincial Offices was not quite so good, but nevertheless yielded a total of 95 census forms from 43 sites that could not be visited by Ornithology Unit personnel. These counts by provincial personnel were particularly valuable in identifying wetlands of importance for wildfowl that had hitherto been overlooked by the Ornithology Unit, and thereby enabling the Unit to include these sites in future censuses.

In late 1971, the Department of the Environment acquired it own light aircraft, and thereafter it became possible to carry out aerial surveys at some of Iran's largest and least accessible wetlands. The first aerial surveys to include wetlands took place in January and February 1972, when Dr Fred A. Harrington, Jr. (Head of the Department's Division of Research and Development and a very experienced pilot) surveyed the Neiriz Lakes in central Fars,

mangrove areas in the Khouran Strait and the entire coastline of eastern Hormozgan and Baluchestan from Bandar Abbas to the Pakistan border. Aerial surveys organised specifically for the wildfowl counts were initiated in January 1973, when Harrington and the author were able, within the space of ten days, to undertake counts of wildfowl at all the major wetlands in Esfahan Province, central Fars, the Khouran Strait, the south coast from Bandar Abbas to the Pakistan border and the Seistan basin. In 1973/1974, the aerial surveys were extended to include the wetlands of Khuzestan, the entire south coast from southern Khuzestan to the Pakistan border (including Gheshm Island), and the Bampur River and Hamoun-e Jaz Murian basin in Baluchestan. In 1974/75, the aerial surveys again covered the wetlands of Esfahan, central Fars, Khuzestan, the entire south coast and the Seistan basin, and also included some wetlands in northcentral Khorasan (the Tayebad area and the Rud-e Shur, Rud-e Jowin and Rud-e Kalshur-e Jajarm).

Although invaluable in providing good counts of pelicans, flamingos, ducks, geese, swans, coots and cranes (the target groups in the mid-winter censuses), and also ideal for censuses of other large waterbirds, such as herons, egrets, storks, ibises, spoonbills and some large waders, *e.g.* Eurasian Oystercatcher *Haematopus ostralegus*, these aerial surveys were of little help in counts of the smaller waterbirds, such as most waders, small gulls and terns, and secretive species, such as the bitterns and most rails. Thus, ground surveys were undertaken whenever possible, as these provided a much better indication of the relative abundance of the various species wintering in the wetlands.

From the winter of 1971/72 to that of 1974/75, coverage was relatively uniform and almost comprehensive, with between 160 and 300 sites being covered each winter, although ever-increasing utilisation of aerial censusing techniques continued to improve the efficiency of the counting at some of the larger wetlands. By March 1976, personnel of the Department's Ornithology Unit had surveyed a total of 286 wetlands in Iran. These wetlands varied in size and importance from vast lakes and marshes of great international importance for waterbirds to small spring-fed marshes, rivers and ponds at which small numbers of wildfowl had been reported. A full list of these wetlands is given in an unpublished Project Completion Report on file at the Department of the Environment in Tehran (Scott 1976). It was now believed that most of the sites of any real significance for wintering wildfowl had been identified and counted at least once during the mid-winter period, with one notable exception. It should not be forgotten that because of the security situation along the Iraqi border in western Khuzestan Province, it had not been possible to carry out wildfowl counts in the vast marshes of the Hoor-al Azim which extended westwards into the Mesopotamian marshes of lower Iraq. It is only within the last few years that ornithologists have been allowed to enter these marshes and undertake waterbird counts, and these have confirmed that this wetland is, indeed, of great importance for wintering waterbirds (Amini & Willems 2008).

An indication of the extent of coverage achieved in the mid-winter counts from 1966/67 to 1974/75 is given in Table 2. The principal wetlands visited during the counts from 1970/71 to 1974/75 are listed in Appendix I.

RESULTS

The 'wildfowl'

The total numbers of wildfowl (pelicans, flamingos, swans, geese, ducks, cranes and coots) recorded during the mid-winter wildfowl censuses in the nine winters from 1966/67 to 1974/75 are given in Table 3. Tables 4a–4e give the species totals by region for each of the five winters from 1970/71 to 1974/75. In the four years of best coverage (1971/72 to 1974/75), fluctuations in the number of wildfowl observed almost certainly reflect real fluctuations in the number of birds present, rather than inconsistencies in coverage. In these four years, it was possible to arrive at an overall estimate of the numbers of wildfowl in the country during the mid-winter period by making allowances for gaps in coverage and instances of uncertain identification. These estimates, which are presented in Table 5, suggested that in an 'average' year there were approximately 2,000–2,200 pelicans, 48,000–51,000 Greater Flamingos, 380–460 swans, 27,000–32,000 geese, 2.0–2.4 million ducks, 2,300–2,800 Common Cranes and 370,000–410,000 Eurasian Coots wintering in Iran.

Other waterbirds

The coverage of the counts of waterbirds other than the target species of the IWC varied from year to year, depending on which sites were visited by teams of counters who recorded all species, but over the seven-year period from 1969/70 to 1975/76, all major wetlands were visited at least once by a counter who recorded all species of waterbirds. For most species, it has therefore been possible to give some estimate of the numbers present in an 'average' year, based on all the count data available. These estimates are presented in Table 6, along with the regional estimates for Great White Pelican, Dalmatian Pelican, Greater Flamingo, Common Crane and Eurasian Coot. Sixteen species of waterbirds, including three species of ducks, Cotton Pygmy Goose *Nettapus coromandelianus*, Long-tailed Duck *Clangula hyemalis* and Common Scoter *Melanitta nigra*, were recorded on fewer than four occasions during the mid-winter counts from 1969/70 to 1975/76. These species, which occur only as rare vagrants or irregular winter visitors in Iran, are listed separately in Table 7.

Table 1. Mid-winter waterbird counts undertaken by Ornithology Unit personnel and visiting ornithologists in Iran: 1970/1971 to 10974/1975.

Year & region	Sites	Type	Dates of survey	Observers
1970/71				
Gilan	19	Ground	8–12 January	A Adhami, M Bosch, DA Scott
		Ground	31 January – 3 February	A Adhami, DA Scott
Mazandaran	20	Ground	1–7 January	A Adhami, M Bosch, DA Scott
Golestan	15	Ground	28–31 December	A Adhami, M Bosch, DA Scott
Azarbaijan	22	Ground	23–29 January	M Bosch, DA Scott
Kordestan	2	Ground	14–15 December	A Adhami
Lorestan	1	Ground	12 February	A Adhami, E Carp, DA Scott
Tehran	5	Ground	25 December	M Bosch, DA Scott
Esfahan	4	Ground	1–4 January	S Bullock, W Kinunen
Khuzestan	14	Ground	12–20 February	A Adhami, E Carp, DA Scott
Fars	6	Ground	24 January – 25 February	L Cornwallis
Persian Gulf coast	6	Ground	20–27 February	DA Scott
Seistan	8	Ground	8–10 March	A Adhami, J Fazel, DA Scott
Baluchestan	3	Ground	28 February – 6 March	J Fazel, DA Scott
1971/72				
Gilan	29	Ground	13–22 January	JWF Davis, DA Scott
Mazandaran	26	Ground	23–29 January	JWF Davis, DA Scott
Golestan	13	Ground	30 January – 1 February	JWF Davis, DA Scott
Azarbaijan	15	Ground	28–31 December	JWF Davis, DA Scott
Kordestan	4	Ground	1 January	JWF Davis, DA Scott
Kermanshah	5	Ground	2 January	JWF Davis, DA Scott
Lorestan	1	Ground	31 December	E Carp, A Eftekhar
Tehran	10	Aerial	9 & 12 January	FA Harrington, M Smart
Khuzestan	25	Ground	31 December – 10 January	E Carp, JWF Davis, E Eftekhar, DA Scott
Fars	13	Aerial	6–7 February	FA Harrington (Neiriz Lakes only)
		Ground	11–19 January	E Carp, A Eftekhar
Persian Gulf coast	2	Aerial	12 February	FA Harrington (Khouran Strait only)
		Ground	10 January	E Carp, A Eftekhar (Bushire & Monde Delta)
Baluchestan	3	Aerial	19–21 February	FA Harrington, G Nelson
1972/73				
Gilan	32	Ground	23–31 January	A Adhami, M Smart
Mazandaran	22	Ground	23–31 January	A Adhami, M Smart
Golestan	11	Ground	3–4 February	A Adhami
Azarbaijan	20	Ground	5–7 January	A Eftekhar, D Hicks
Kordestan	3	Ground	7–8 January	A Eftekhar, D Hicks
Kermanshah	4	Ground	9 January	A Eftekhar, D Hicks
Lorestan	1	Ground	10 January	A Eftekhar, D Hicks
Tehran	7	Aerial	5, 9 & 23 Jan; 12 February	FA Harrington, DA Scott
Esfahan	2	Aerial	5 January	FA Harrington, DA Scott
Khuzestan	19	Ground	6–19 January	L Cornwallis, A Eftekhar, D Hicks, M Smart
Fars	15	Aerial	5–7 January	FA Harrington, DA Scott
		Ground	27 January – 5 February	L Cornwallis, A Eftekhar, C Kepler
Persian Gulf Coast	3	Aerial	8–9 January	FA Harrington, DA Scott (Hormozgan only)
		Ground	17 January	L Cornwallis, A Eftekhar (Monde Delta)
Seistan	7	Aerial	14 January	FA Harrington, DA Scott
		Ground	5–7 February	L Cornwallis, C Kepler

Year & region	Sites	Type	Dates of survey	Observers
Baluchestan	4	Aerial	9–11 January	FA Harrington, DA Scott
1973/74				
Gilan	26	Ground	6–13 January	A Adhami, GA Atkinson-Willes
Mazandaran	22	Ground	13–19 & 23–24 January	A Adhami, GA Atkinson-Willes
Golestan	12	Ground	19–22 January	A Adhami, GA Atkinson-Willes
Azarbaijan	9	Ground	2–5 January	E Carp, A Eftekhar, J Mansoori
Kordestan	1	Ground	6 January	E Carp, A Eftekhar, J Mansoori
Zanjan	2	Ground	18–20 January	H Fotoohi
Hamadan	2	Ground	13 January	H Fotoohi
Kermanshah	1	Ground	7 January	E Carp, A Eftekhar, J Mansoori
Lorestan	4	Ground	10,11 & 17 January	H Fotoohi
Tehran	5	Ground	Various dates	H Fotoohi, DA Scott
Khorasan	8	Ground	18–31 January	E Kahrom
Esfahan	7	Aerial	15 January	FA Harrington, DA Scott
		Ground	8 January	MR Vaziri
Khuzestan	19	Aerial	20–25 January	FA Harrington, DA Scott
		Ground	8–15 January	E Carp, A Eftekhar, J Mansoori
Yazd	1	Ground	15 January	MR Vaziri
Fars	16	Aerial	16–20 January	FA Harrington, DA Scott
		Ground	16–24 January	E Carp, A Eftekhar, J Mansoori
Persian Gulf Coast	12	Aerial	25–27 January	FA Harrington, DA Scott
Kerman	3	Ground	21–24 January	MR Vaziri
Seistan	8	Aerial	9 February	FA Harrington, DA Scott
		Ground	9–11 January	E Kahrom
Baluchestan	4	Aerial	27–28 January, 8 February	FA Harrington, DA Scott
1974/75				
Gilan	19	Ground	11–15 January	FB Argyle, H. Fotoohi
Mazandaran	15	Ground	16–23 January	FB Argyle, H. Fotoohi
Golestan	9	Ground	25–28 January	FB Argyle, H. Fotoohi
Azarbaijan	26	Ground	7–11 January	MA Ashtiani, M de L Brooke
Kordestan	3	Ground	11–13 January	MA Ashtiani, M de L Brooke
Kermanshah	6	Ground	14 January	MA Ashtiani, M de L Brooke
Lorestan	5	Ground	15–16 January	MA Ashtiani, M de L Brooke
Tehran	4	Ground	Various dates	DA Scott et al.
Khorasan	19	Aerial	1–4 February	FA Harrington, DA Scott
		Ground	7–14 January	J Mansoori
Esfahan	7	Aerial	9 January	FA Harrington, DA Scott
		Ground	18–21 January	J Mansoori
Khuzestan	28	Aerial	14–18 January	FA Harrington, DA Scott
		Ground	17–25 January	MA Ashtiani, M de L Brooke
Fars	18	Aerial	9–14 January	FA Harrington, DA Scott
		Ground	26–27 January	MA Ashtiani, M de L Brooke
Persian Gulf coast	11	Aerial	18–20 January	FA Harrington, DA Scott
Seistan	9	Aerial	31 January	FA Harrington, DA Scott
Baluchestan	7	Aerial	21–22 January	FA Harrington, DA Scott

Table 2. Number of sites visited during the nine mid-winter waterbird counts: 1966/67 to 1974/75

Region	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75
Gilan	5	24	12	9	19	49	32	26	19
Mazandaran		5	3	5	20	51	37	22	15
Golestan			7	6	15	19	19	12	9
Azarbaijan			1	11	22	25	22	9	26
Kordestan				2	2	11	6	1	3
Zanjan							5	2	
Hamadan								2	
Kermanshah				1		13	4	1	6
Lorestan					1	11	2	4	5
Tehran, Semnan, Shahrud				1	5	16	8	5	4
Khorasan						19	3	8	19
Esfahan				2	4	4	3	7	7
Ilam						1	1		
Khuzestan					14	25	19	19	28
Yazd						8	2	1	
Fars	9	9	9	6	6	23	15	16	18
Bushehr & Hormozgan					6	11	4	12	11
Kerman								3	
Seistan				5	8	13	7	8	9
Baluchestan					3	9	4	4	7
TOTAL	**14**	**38**	**32**	**48**	**125**	**308**	**193**	**162**	**186**

Table 3. Mid-winter counts of 'wildfowl' by region: 1966/67 to 1974/75

Region	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
Gilan	20,200	148,700	134,900	99,500	278,500	563,400	1,058,700	391,600	203,300
Mazandaran	-	17,600	34,400	48,400	451,500	778,700	439,800	252,300	501,600
Golestan	-	-	18,900	67,700	13,400	15,100	22,100	18,600	81,800
Azarbaijan	-	-	1,400	389,600	16,700	32,300	900	20,400	23,100
West Provinces	-	-	-	4,200	1,000	5,200	1,600	28,300	2,600
Khorasan	-	-	-	-	-	3,700	400	1,400	3,800
Central Plateau	-	-	-	3,700	800	1,200	4,200	1,000	400
Esfahan	-	-	-	8,300	1,100	15,600	2,200	17,500	10,400
Khuzestan	-	-	-	-	63,900	96,100	130,800	234,100	846,200
Central Fars	20,600	38,300	63,500	148,000	34,700	225,000	459,700	342,700	383,900
Seistan	-	-	-	32,200	200	3,300	718,100	550,000	176,200
Persian Gulf coast	-	-	-	-	200	1,300	600	16,200	26,300
Baluchestan	-	-	-	-	500	2,800	1,500	900	800
Grand TOTAL	**40,800**	**204,600**	**253,100**	**801,600**	**862,500**	**1,743,700**	**2,840,600**	**1,875,000**	**2,260,400**

Table 4a. Mid-winter counts of pelicans, flamingos, swans, geese, ducks, cranes and coots in Iran in 1970/71.

Common name	Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coast	Baluch.	TOTAL
Great White Pelican	*Pelecanus onocrotalus*			6							258				**264**
Dalmatian Pelican	*Pelecanus crispus*		40	295						7	14	6			**362**
Greater Flamingo	*Phoenicopterus roseus*	1,395	1	102	174					36	5,760		211	151	**7,830**
White-headed Duck	*Oxyura leucocephala*			18											**18**
Mute Swan	*Cygnus olor*		29	253											**282**
Whooper Swan	*Cygnus cygnus*		17	1	7										**25**
Bewick's Swan	*Cygnus bewickii*	57	7	5											**69**
Unidentified swans	*Cygnus* sp.			63	11										**74**
Greater White-fronted Goose	*Anser albifrons*	77	503	18	120					1,120	113				**1,951**
Lesser White-fronted Goose	*Anser erythropus*	1	20	1,500	8					355	102				**1,986**
Greylag Goose	*Anser anser*	36	2,425	3,036	33			186	2	2,964	3				**8,685**
Red-breasted Goose	*Branta ruficollis*									3					**3**
Unidentified geese	*Anser* sp.			272	100					2	5,650				**6,024**
Ruddy Shelduck	*Tadorna ferruginea*	291	2	328	370		68		3	93	1,701				**2,856**
Common Shelduck	*Tadorna tadorna*	3,360	2	450	193		4		6	12	2,085				**6,112**
Eurasian Wigeon	*Anas penelope*	17	15,363	37,665	459		3			1,247	253	51		3	**55,061**
Gadwall	*Anas strepera*	14	3,546	4,106	182			360		387		59		2	**8,656**
Eurasian Teal	*Anas crecca*	731	83,892	100,261	967		153		205	12,981	6,312	4		8	**205,514**
Mallard	*Anas platyrhynchos*	608	27,682	93,112	3,737		588	250	451	587	2,353			228	**129,596**
Northern Pintail	*Anas acuta*	7,091	33,673	1,096	515		2		2	17,537	1,433	7		2	**61,358**
Garganey	*Anas querquedula*									86	1				**87**
Northern Shoveler	*Anas clypeata*	1,600	3,729	7,106	461					671	9	2		4	**13,582**
Marbled Duck	*Marmaronetta angustirostris*	11								12,635	2,003				**14,649**
Red-crested Pochard	*Netta rufina*		932	2,090	306					7	3			1	**3,339**
Common Pochard	*Aythya ferina*	1,091	32,665	742	434				2	92	38	34		8	**35,106**
Ferruginous Duck	*Aythya nyroca*		273	8	6					6		9			**302**
Tufted Duck	*Aythya fuligula*	28	6,537	28,339	288			40		7	5	1		3	**35,248**
Greater Scaup	*Aythya marila*		11	14											**25**
Long-tailed Duck	*Clangula hyemalis*			1											**1**
Common Scoter	*Melanitta nigra*			1											**1**
Common Goldeneye	*Bucephala clangula*	7	325	760	11					1					**1,104**
Smew	*Mergellus albellus*	50	12	21	15						3				**101**
Red-breasted Merganser	*Mergus serrator*			772										7	**779**
Goosander	*Mergus merganser*			3											**3**

Common name	Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coast	Baluch.	TOTAL
Unidentified ducks		212	12,850	162,898	4,970				17	12,380	6,340				**199,667**
Common Crane	*Grus grus*									64	215				**279**
Eurasian Coot	*Fulica atra*	22	53,937	6,160	81			132	416	587	20	1		116	**61,472**
Total swans		**57**	**53**	**322**	**18**										**450**
Total geese		**114**	**2,948**	**4,826**	**261**			**186**	**2**	**4,444**	**5,868**				**18,649**
Total ducks		**15,111**	**221,494**	**439,791**	**12,914**		**818**	**650**	**686**	**58,729**	**22,539**	**167**		**266**	**773,165**
TOTAL all species		**16,699**	**278,473**	**451,502**	**13,448**	**no counts**	**818**	**968**	**1,104**	**63,867**	**34,674**	**174**	**211**	**533**	**862,471**

Table 4b. Mid-winter counts of pelicans, flamingos, swans, geese, ducks, cranes and coots in Iran in 1971/72.

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coa.	Baluch.	Total
Pelecanus onocrotalus	4		6										101	**111**
Pelecanus crispus		28	300	2					58					**388**
Pelecanus sp.			27								86	323		**436**
Phoenicopterus roseus	246	178	4,617	297		29		2	104	52,429	17	313	2,081	**60,313**
Oxyura leucocephala		3	373	4										**380**
Cygnus olor		2,476	2,491	240										**5,207**
Cygnus cygnus		247	192	9										**448**
Cygnus bewickii	4	24		5										**33**
Cygnus sp.	10	1,998	1,018	28										**3,054**
Anser albifrons	476	150	48						1,300	3				**1,977**
Anser erythropus	10	1	3,493						200					**3,704**
Anser anser	582	833	8,338	44					5,089	193				**15,079**
Anser sp.	2,474	627	476	5	45	3	295	70			292	129	25	**4,441**
Tadorna ferruginea	1,009		108		798	5	58	810	606	1,425	10			**4,829**
Tadorna tadorna	382	69	1,091	159		1			1	1,554				**3,257**
Anas penelope	378	1,948	77,218	133			39		529	293				**80,538**
Anas strepera	23	1,139	22,529	195			83		126	250				**24,345**
Anas crecca	3,649	69,041	166,017	2,300		191	167		6,520	47,243				**295,128**
Anas platyrhynchos	5,436	119,113	204,868	1,776		279	754	23	3,307	5,559		16	5	**341,136**
Anas acuta	2,783	5,241	7,581	495		1	36		20,532	104,360				**141,029**
Anas querquedula			2											**2**
Anas clypeata	13	567	10,700	256		2	35		190	726			306	**12,795**
Marmaronetta angustirostris									10,000	150				**10,150**
Netta rufina		2,485	7,173	1,245										**10,903**
Aythya ferina	167	34,137	3,569	1,354		2	17		287	36				**39,569**
Aythya nyroca	1	19	4	15			2		4					**45**
Aythya fuligula	117	5,881	5,520	570			39		46					**12,173**
Aythya marila		5	2											**7**
Bucephala clangula		238	1,326	43			4							**1,611**
Mergellus albellus	395	524	74	846			53			8				**1,900**
Mergus serrator		1	76											**77**
Mergus merganser	1	3	2	11			31							**48**
Unidentified ducks	13,168	135,105	120,577	1,085	2,742	731	2,385	8,800	45,402	6,503	2,799	390	194	**339,881**
Grus grus					22		206		1,315	544	15	55	4	**2,161**
Fulica atra	951	119,076	85,163	3,977	70	2	986	1,700	496	3,730	24	48	36	**216,259**
Unidentified ducks or coots		62,280	43,676		12		41	4,200			70	12	24	**110,315**
Total swans	**14**	**4,745**	**3,701**	**282**										**8,742**
Total geese	**3,542**	**1,611**	**12,355**	**49**	**45**	**3**	**295**	**70**	**6,589**	**196**	**292**	**129**	**25**	**25,201**
Total ducks	**27,522**	**375,519**	**628,810**	**10,487**	**3,540**	**1212**	**3,703**	**9,633**	**87,550**	**168,107**	**2,809**	**406**	**505**	**1,319,803**
TOTAL all species	**32,279**	**563,437**	**778,655**	**15,094**	**3,689**	**1,246**	**5,231**	**15,605**	**96,112**	**225,006**	**3,313**	**1,286**	**2,776**	**1,743,729**

Table 4c. Mid-winter counts of pelicans, flamingos, swans, geese, ducks, cranes and coots in Iran in 1972/73.

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Prov.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf co.	Baluch.	TOTAL
Pelecanus onocrotalus		4							17	40	400			**461**
Pelecanus crispus		3	189						20	60	104	184	322	**882**
Pelecanus sp.									146					**146**
Phoenicopterus roseus	10	4	3,918	52					204	28,691	9	390	819	**34,097**
Oxyura leucocephala			9							9				**18**
Cygnus olor		218	198	31					1					**448**
Cygnus cygnus		253	6	3										**262**
Cygnus sp.		6		23										**29**
Anser albifrons		46	9							20				**75**
Anser erythropus		10	3,378	36						50				**3,474**
Anser anser	1	775	10,270	19				2	511	277	775			**12,630**
Branta ruficollis		1		2										**3**
Anser sp.			409	44			27	40	1,343	193				**2,056**
Tadorna ferruginea	28	3	189		35	3	84	74	181	4,856	45			**5,498**
Tadorna tadorna	70	3	782					30	83	4,159	2,000		3	**7,130**
Nettapus coromandelianus											1			**1**
Anas penelope		38,317	26,734			8	5	16	225	6,590	7,000		1	**78,896**
Anas strepera		1,491	10,506						77	556	3,500		4	**16,134**
Anas crecca	59	659,358	154,801	770		2,307	66	1,000	24,771	85,956	215,030		197	**1,144,315**
Anas platyrhynchos	285	35,657	104,145	884		1,829	50	200	4,443	20,417	38,000		110	**206,020**
Anas acuta	1	44,424	4,115			44		11	61,772	91,870	305,500			**507,737**
Anas querquedula		1								1	1			**3**
Anas clypeata		24,653	5,836					40	2,959	6,550	9,500		2	**49,540**
Marmaronetta angustirostris									19,979	1,534				**21,513**
Netta rufina		2,586	643							10	9			**3,248**
Aythya ferina	56	67,357	679	894			3	40	155	3,010	5	1	5	**72,205**
Aythya nyroca	11	71	4						4	60	2			**152**
Aythya fuligula	15	45,478	10,104	555			1	45	128	463				**56,789**
Aythya marila		2	1											**3**
Bucephala clangula		285	1,398	19										**1,702**
Mergellus albellus	1	59	48							5				**113**
Mergus serrator			47									1	2	**50**
Mergus merganser			2											**2**
Unidentified ducks	315	2,650	76,633	4,142	317	28	942	450	11,164	10,440	112,500			**219,581**
Grus grus					46		250	30	387	754	162			**1,629**
Fulica atra	38	134,957	24,773	14,633	7	16	156	183	2,270	193,125	23,525		6	**393,689**
Total swans		**477**	**204**	**57**			**27**	**42**	**1,854**	**540**	**775**			**739**
Total geese	**1**	**832**	**14,066**	**101**					**1**					**18,238**
Total ducks	**841**	**922,395**	**396,676**	**7,264**	**352**	**4,219**	**1,151**	**1,906**	**125,941**	**236,486**	**693,093**	**2**	**324**	**2,390,650**
TOTAL all species	**890**	**1,058,672**	**439,826**	**22,107**	**405**	**4,235**	**1,584**	**2,161**	**130,840**	**459,696**	**718,068**	**576**	**1,471**	**2,840,531**

Table 4d. Mid-winter counts of pelicans, flamingos, swans, geese, ducks, cranes and coots in Iran in 1973/74.

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coa.	Baluch.	TOTAL
Pelecanus onocrotalus	1								12	800	1,300	46		**2,159**
Pelecanus crispus		23	180						239	100	36	279	188	**1,045**
Phoenicopterus roseus	146		2,898	189					12	33,267	40	3,768	501	**40,821**
Oxyura leucocephala			10	1										**11**
Cygnus olor			143											**143**
Cygnus cygnus		2	33	3										**38**
Cygnus sp.	3	1												**4**

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coa.	Baluch.	TOTAL
Anser albifrons	824	67					20		1,780	30				**2,721**
Anser erythropus	133	1	171	1,190					280	71		21		**1,867**
Anser anser	430	308	5,009	580		1	107		11,112	1,450	2,235	3		**21,235**
Anser sp.	2,050		2,524	1,612		19	37		4,780					**11,022**
Tadorna ferruginea	3,039	2		140	43	10		531	386	4,788	250	30		**9,219**
Tadorna tadorna	147	50	764	636				3	11	5,229	760	425		**8,025**
Anas penelope		33,064	25,011	253			4		13,734	4,875	6,800	2,370	50	**86,161**
Anas strepera	24	7,880	11,042				4	3	10,945	1,156	17,500	305	13	**48,872**
Anas crecca	154	152,312	107,474	1,078	6	111	37	7,736	90,671	78,921	230,030	4,561	66	**673,157**
Anas platyrhynchos	1,223	16,898	43,784	3,814	1,396	434	2,058	5,123	20,327	13,296	29,100	658	35	**138,146**
Anas acuta		31,563	2,602	184				2	34,448	19,710	127,604	540	50	**216,703**
Anas querquedula									10				1	**11**
Anas clypeata	1,408	1,630	2,586	340				60	10,064	748	12,501	403	1	**29,741**
Marmaronetta angustirostris									4,140	2,287		50		**6,477**
Netta rufina		243	84						3	3				**333**
Aythya ferina	2,564	15,938	4,582	589		9	3,000	225	276	20,298	5,000	48	25	**52,554**
Aythya nyroca		1							11	76			1	**89**
Aythya fuligula	163	8,237	10,645	146			4,000	135	1,247	97		2		**24,672**
Bucephala clangula		464	469											**933**
Mergellus albellus		71	27	8		2		5	1					**114**
Mergus serrator		1	13									3		**17**
Mergus merganser			1			22								**23**
Unidentified ducks	160	46,995	26,139	1,360		350	3,000	2,050	22,372	15,035	77,970	2,119		**197,550**
Grus grus								13	711	671	14	120		**1,529**
Fulica atra	7,894	75,835	6,093	6,463		11	16,000	1,597	6,535	139,761	38,900	400	1	**299,490**
Total swans	**3**	**3**	**176**	**3**										**185**
Total geese	**3,437**	**376**	**7,704**	**3,382**		**20**	**164**		**17,952**	**1,551**	**2,235**	**24**		**36,845**
Total ducks	**8,882**	**315,349**	**235,233**	**8,549**	**1,445**	**938**	**12,103**	**15,873**	**208,646**	**166,519**	**507,515**	**11,514**	**242**	**1,492,808**
TOTAL all species	**20,363**	**391,586**	**252,284**	**18,586**	**1,445**	**969**	**28,267**	**17,483**	**234,107**	**342,669**	**550,040**	**16,151**	**932**	**1,874,882**

Table 4e. Mid-winter counts of pelicans, flamingos, swans, geese, ducks, cranes and coots in Iran in 1974/75.

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coa	Baluch.	TOTAL
Pelecanus onocrotalus									60	150	572			**782**
Pelecanus crispus		41	511						90	50	12	220	183	**1,107**
Phoenicopterus roseus	373		2,850						2,815	40,481		1,059	567	**48,145**
Oxyura leucocephala	9			19						3				**31**
Cygnus olor			81											**81**
Cygnus cygnus			17											**17**
Cygnus bewickii	14													**14**
Cygnus sp.			11											**11**
Anser albifrons	139								659	154		10		**962**
Anser erythropus			4,926						104	182		37		**5,249**
Anser anser	413	272	2,930	882		3	53		4,676	918	1,505	950		**12,602**
Anser sp.	255		5	30					1,936					**2,226**
Tadorna ferruginea	47			4	381	4	1	47	714	4,084	7	53		**5,342**
Tadorna tadorna	703		305	138		1			4	6,790	251	165	11	**8,368**
Anas penelope		3,253	76,823	620	2		14		11,323	3,450	2,600	1,100	4	**99,189**
Anas strepera		3,070	22,053	2,480		5	10	76	12,489	2,558	3,214	355		**46,310**
Anas crecca	1,017	89,475	184,389	11,231	479	121	106	4,980	384,353	78,417	63,109	13,018	45	**830,740**
Anas platyrhynchos	2,378	12,265	41,266	6,154	2,666	176	335	2,767	26,785	30,893	20,053	1,292	27	**147,057**
Anas acuta	242	19,372	32,288	83				12	247,768	81,735	50,340	3,765		**435,605**

Scientific name	Azarb.	Gilan	Mazan.	Golest.	Khoras.	N Plateau	W Provinc.	Esfah.	Khuzes.	Fars	Seistan	Persian Gulf coa	Baluch.	TOTAL
Anas clypeata	402	5,782	51,996	2,266				5	20,836	2,830	3,575	1,405		**89,097**
Marmaronetta angustirostris	4						3		5,253	1,200		1,000		**7,460**
Netta rufina			7	1,708						80	502			**2,297**
Aythya ferina	1,258	23,971	4,572	3,091	3	1	270	289	585	3,552	8,000	40	4	**45,636**
Aythya nyroca						3		10	14	10				**37**
Aythya fuligula	24	8,685	15,664	46		12	350	115	76	520				**25,492**
Aythya marila		1												**1**
Bucephala clangula		13	285						1					**299**
Mergellus albellus				48			11		3					**62**
Mergus serrator		1												**1**
Mergus merganser						2	6							**8**
Unidentified ducks	675	2,733	37,075	1,797	14	20	580		101,363	19,750	18,920	1,400		**184,327**
Grus grus					274			51	703	886	450	96		**2,460**
Fulica atra	15,126	34,323	23,524	51,204		44	850	2,060	23,616	105,164	3,060	323		**259,294**
Total swans	**14**	**109**												**123**
Total geese	**807**	**272**	**7,861**	**912**		**3**	**53**		**7,375**	**1,254**	**1,505**	**997**		**21,039**
Total ducks	**6,759**	**168,621**	**466,723**	**29,685**	**3,545**	**345**	**1,686**	**8,301**	**811,567**	**235,872**	**170,571**	**23,593**	**91**	**1,927,359**
TOTAL all species	**23,079**	**203,257**	**501,578**	**81,801**	**3,819**	**392**	**2,589**	**10,412**	**846,226**	**383,857**	**176,170**	**26,288**	**841**	**2,260,309**

Table 5. Estimated total populations of 'wildfowl' wintering in Iran based on nationwide mid-winter wildfowl counts in the four winters from 1971/72 to 1974/75. Figures marked with an asterisk are actual counts.

Scientific name	1971/1972	1972/1973	1973/1974	1974/1975
Pelecanus onocrotalus	750–900	500–600	2,200–2,300	800–900
Pelecanus crispus	450–500	1,000–1,200	1,100–1,200	1,150–1,250
Phoenicopterus ruber	65,000–70,000	35,000–37,500	41,500–44,000	49,000–51,000
Oxyura leucocephala	500–700	25–100	25–100	50–100
Cygnus olor	8,500–9,000	500–550	150–200	100–150
Cygnus cygnus	700–900	300–350	50–75	25–50
Cygnus columbianus	50–100			14*
Anser albifrons	2,500–3,500	100–500	3,500–5,000	2,500–3,500
Anser erythropus	4,500–5,500	4,000–5,000	5,000–7,500	6,500–7,500
Anser anser	20,000–23,000	15,000–17,500	28,000–32,000	15,000–18,000
Branta ruficollis		3*	22*	
Tadorna ferruginea	7,000–8,000	7,000–8,000	10,000–11,000	7,000–8,000
Tadorna tadorna	15,000–20,000	18,000–25,000	20,000–25,000	20,000–25,000
Anas penelope	120,000–150,000	120,000–150,000	100,000–120,000	120,000–150,000
Anas strepera	30,000–40,000	25,000–35,000	60,000–80,000	60,000–80,000
Anas crecca	450,000–600,000	1,250,000–1,350,000	800,000–1,000,000	1,000,000–1,200,000
Anas platyrhynchos	500,000–700,000	350,000–400,000	250,000–350,000	250,000–350,000
Anas acuta	230,000–300,000	550,000–600,000	300,000–350,000	500,000–550,000
Anas querquedula	2*	3*	11*	
Anas clypeata	25,000–35,000	60,000–70,000	40,000–60,000	100,000–120,000
Marmaronetta angustirostris	15,000–20,000	25,000–30,000	10,000–15,000	9,000–12,000
Netta rufina	15,000–20,000	4,000–4,500	500–1,000	2,500–3,000
Aythya ferina	55,000–70,000	78,000–85,000	65,000–80,000	60,000–75,000
Aythya nyroca	200–1,000	200–1,000	200–1,000	150–500
Aythya fuligula	20,000–30,000	60,000–65,000	35,000–40,000	35,000–40,000
Aythya marila	7*	3*		1*
Bucephala clangula	2,000–2,500	1,900–2,200	1,200–1,500	400–750
Mergellus albellus	2,500–3,000	150–250	150–250	100–150
Mergus serrator	200–500	75–250	50–200	1*
Mergus merganser	50–100	2*	50–100	8*
Grus grus	2,500–3,000	2,000–2,500	2,000–2,400	2,800–3,200
Fulica atra	350,000–400,000	450,000–500,000	375,000–400,000	300,000–350,000

Table 6. Wintering populations of waterbirds other than Anatidae in Iran, based on mid-winter counts undertaken between 1969/70 and 1975/76. For secretive species that are largely overlooked in the counts, only the maximum counts or indications of abundance are given. When there was only one record of a species in a particular province or region, the actual count is given, followed by the month and year in brackets.

Common name	Scientific name	Azarb.	Gilan	Mazand.	Golest.	Khoras.	N Plat.	W Provinc.	Esfahan	Khuzes.	Fars	Seist.	Persian Gulf co.	Baluch.	Estimat. TOTAL
Black-throated Diver	*Gavia arctica*		1 (Jan 74)	0-10	1 (Jan 72)										<10; irregular
Little Grebe	*Tachybaptus ruficollis*	50	500	250	50			150	50	50	50	50		50	1,250-1,500
Red-necked Grebe	*Podiceps grisegena*		0-5	5-20											10-20
Great Crested Grebe	*Podiceps cristatus*	10	1000	3000-5000	50-100			10			350	20	20	100	5,000-7,000
Horned Grebe	*Podiceps auritus*		4 (Jan 72)	20-100	5 (Jan 72)								1 (Feb 74)		50-200
Black-necked Grebe	*Podiceps nigricollis*	500	500	1500-2500	100				0-5	15	500		30	50	3,500-4,500
Great White Pelican	*Pelecanus onocrotalus*	0-10	0-15	0-10						20-30	150-800	400-1300	40-50	2 (Jan 74)	500-2,300
Dalmatian Pelican	*Pelecanus crispus*		20-40	180-510	0-5					60-240	50-100	40-100	200-280	180-320	1,000-1,250
Pygmy Cormorant	*Phalacrocorax pygmeus*		750-1000	50-100						0-30					800-1,100
Great Cormorant	*Phalacrocorax carbo*	0-10	5000	10000	0-10				20-50	750-1500	200	50-150	5500-6000	3500-7000	25,000-30,000
Little Egret	*Egretta garzetta*		100-300	10-50			0-5	1-5	1-5	250-500	100-450	0-5	50-100		600-1,400
Western Reef Heron	*Egretta gularis*												650-900	80-120	700-1,000
Grey Heron	*Ardea cinerea*	50	50	300-400	50-100	10	10	20	25	600-800	250-350	100-300	900-1200	200-250	2,750-3,600
Goliath Heron	*Ardea goliath*												15-30	1 (Jan 73)	15-30
Purple Heron	*Ardea purpurea*									20-50	1-10	5 (Jan 76)	4 (Jan 74)		50-100
Great Egret	*Casmerodius albus*	20-50	200-300	500-1000	250-350	10-50	10-50	30-50	30	300-400	550-600	2000-2500	600-800	150-250	4,500-6,500
Cattle Egret	*Bubulcus ibis*		1-25							10-70					50-100
Squacco Heron	*Ardeola ralloides*		0-5							0-5	0-11		1 (Jan 75)		10-20
Indian Pond Heron	*Ardeola grayii*												max. 6	max. 6	unknown
Black-crowned Night Heron	*Nycticorax nycticorax*		50						10	200	300				300-500
Great Bittern	*Botaurus stellaris*		max. 3	max. 2	1 (Dec 70)					3 (Jan 75)	max. 3				unknown
Black Stork	*Ciconia nigra*	0-1					0-3		1 (Jan 74)	5 (Jan 74)	10-15		5 (Jan 75)	0-2	50+
White Stork	*Ciconia ciconia*							0-10	rare	300-1,400	450-950		0-10		750-2,050
Glossy Ibis	*Plegadis falcinellus*			0-10						50-100	60-100		0-10		100-200
Sacred Ibis	*Threskiornis aethiopicus*									50-100					50-100
Eurasian Spoonbill	*Platalea leucorodia*		2 (Jan 70)		1 (Jan 74)					100-150	50-100	0-70	330-830	40-100	700-1,200
Greater Flamingo	*Phoenicopterus roseus*	250-1600	0-170	2200-6500					0-560	100-1800	30000-50000	0-40	400-3800	500-2100	35,000-70,000
Common Crane	*Grus grus*					50-275		200-250	15-50	700-1300	550-900	150-450	100-120		2,000-3,200
Water Rail	*Rallus aquaticus*		max. 5	max. 15	max. 3		max. 2	max. 3	max. 1		max. 4				Unknown
Purple Swamphen	*Porphyrio porphyrio*		max. 42							max. 11		2 (Jan 76)			Unknown
Common Moorhen	*Gallinula chloropus*		max. 31	max. 5	max. 6		max. 6	max. 5	max. 40	max. 55	Max. 16				Unknown
Eurasian Coot	*Fulica atra*	1000-15000	80000-140000	20000-50000	10000-50000		50-100	1000-16000	1000-2000	5000-25000	100000-200000	5000-40000	300-500	50-150	300,000-500,000
Crab Plover	*Dromas ardeola*												950-1350	200-400	1,250-1,750
Eurasian Oystercatcher	*Haematopus ostralegus*			50-100									6000-8000	3000-4000	9,000-12,000
Black-winged Stilt	*Himantopus himantopus*	1 (Dec 71)	1-10	50-150	20-50					1400-1800	800-1200	100-150	20-50		2,500-3,000
Pied Avocet	*Recurvirostra avosetta*	20-100	20-50	500-900						150-250	300-600	100-250	250-600	20-50	1,500-2,500
Great Thick-knee	*Esacus recurvirostris*												70-150	50-100	50-100
Eurasian Golden Plover	*Pluvialis apricaria*		50-100	450-750	10-50						3 (Jan 74)		1 (Feb 74)		500-1,000

Common name	Scientific name	Azarb.	Gilan	Mazand.	Golest.	Khoras.	N Plat.	W Provinc.	Esfahan	Khuzes.	Fars	Seist.	Persian Gulf co.	Baluch.	Estimat. TOTAL
Grey Plover	*Pluvialis squatarola*		50-100	200-300	10-50					5-10	0-3		550-1200	200-500	1,000-2,000
Common Ringed Plover	*Charadrius hiaticula*		20-50	200-300						10-50			1500-3500	1000-2500	2,500-5,000
Little Ringed Plover	*Charadrius dubius*									0-10			2 (Jan 76)		rare and irregular
Kentish Plover	*Charadrius alexandrinus*		150-300	500-800	100-200		5 (Dec 70)			400-800	300-500	250-500	3500-7500	1000-2500	5,000-10,000
Lesser Sand Plover	*Charadrius mongolus*												1250-3000	1000-2500	2,500-5,000
Greater Sand Plover	*Charadrius leschenaultii*		1 (Jan 72)	1-10							0-10		3500-7500	2500-5000	5,000-10,000
Eurasian Dotterel	*Eudromias morinellus*	1 (Dec 71)		13 (Jan 72)						100-250			200-500		500-1,000
Northern Lapwing	*Vanellus vanellus*	300-500	4000-6000	4000-6000	7000-10000	100-200	400-600	500-800	200-300	1500-2000	5000-8000	1000-1200		6 (Feb 74)	25,000-35,000
Red -wattled Lapwing	*Vanellus indicus*							2 (Jan 75)		com.	com.		com.	com.	>5,000
White-tailed Lapwing	*Vanellus leucurus*		0-1		2 (Jan 72)			1 (Jan 72)		900-1200	300-400		10-50		1,200-1,600
Eurasian Woodcock	*Scolopax rusticola*		abund.	com.	uncom.		uncom.	1 (Nov 73)	1 (Jan 71)		1 (Jan 74)			1 (Jan 73)	>5,000
Common Snipe	*Gallinago gallinago*	100-250	abund.	abund.	100-250		250-500	250-500	100-250	com.	com.	com.	50-100		>10,000
Jack Snipe	*Lymnocryptes minimus*	1 (Jan 71)	com.	com.			uncom.			uncom.	uncom.	1 (Nov 73)			>1,000
Black-tailed Godwit	*Limosa limosa*	10-50	800-1500	2000-4000	10-50		4 (Feb 73)	2 (Feb 71)		2000-4000	800-1000	4000-6000	200-300		10,000-15,000
Bar-tailed Godwit	*Limosa lapponica*			1-10							1 (Feb 74)	8 (Jan 76)	13000-19000	10000-13000	25,000-35,000
Whimbrel	*Numenius phaeopus*												50-110	50-100	100-250
Eurasian Curlew	*Numenius arquata*	20-50	1-10	150-300	50-100					1-10	20-50	10-50	7000-13000	6000-8000	15,000-25,000
Spotted Redshank	*Tringa erythropus*	0-10	80-150	50-100	10-50			0-10		50-100	10-50	10-20	10-50		250-500
Common Redshank	*Tringa totanus*	50-100	700-1000	800-1200	250-400	50-100	20-50	100-200	50-100	1800-2200	1600-2000	500-700	4000-8000	4000-8000	15,000-25,000
Marsh Sandpiper	*Tringa stagnatilis*		0-10	1 (Dec 74)	2 (Jan 69)					100-250	0-10	1 (Jan 76)	150-350	100-250	500-1,000
Common Greenshank	*Tringa nebularia*	10-50	10-50	50-100	1-10		0-5	0-10	1-10	50-100	20-50		100-200	100-200	350-750
Green Sandpiper	*Tringa ochropus*	10-50	100-250	100-250	20-50	10-50	50-100	50-100	20-50	100-250	100-250	20-50	10-50	1-10	750-1,500
Wood Sandpiper	*Tringa glareola*		3 (Feb 70)	0-10						20-50	2 (Dec 70)				20-50
Terek Sandpiper	*Xenus cinereus*									1 (Jan 76)			1600-2800	200-500	2,000-3,000
Common Sandpiper	*Actitis hypoleucos*		1 (Jan 75)	1 (Dec 74)			2 (Jan 74)			1-10			20-60	20-50	50-150
Ruddy Turnstone	*Arenaria interpres*			1-10									600-1250	100-250	500-1,500
Sanderling	*Calidris alba*		20-50	250-350									3500-7500	4000-6000	10,000-15,000
Little Stint	*Calidris minuta*		0-10	0-10						100-300	50-200		350-750	100-250	500-1,500
Temminck's Stint	*Calidris temminckii*		1-10	1-10	0-10			2 (Jan 72)		50-200	20-50	1 (Feb 74)			100-250
Dunlin	*Calidris alpina*	300-600	700-1000	6000-8000	300-500		0-10			800-1200	800-1200	1300-1700	30000-48000	15000-25000	50,000-90,000
Curlew Sandpiper	*Calidris ferruginea*										1 (Jan 72)		1 (Jan 72)		10-50
Broad-billed Sandpiper	*Limicola falcinellus*												50-100	100-250	500-1,000
Ruff	*Philomachus pugnax*		1-10				0-10			50-100	20-50	50-100	0-1		100-250
Arctic Skua	*Stercorarius parasiticus*		1 (Jan 71)										0-3	0-8	Unknown
Sooty Gull	*Larus hemprichii*												20-50	50-100	100-150
Common Gull	*Larus canus*	2 (Jan 71)	100-1000	100-1000	50-500		0-10		0-10	50-100	0-5		10-50		300-3,000
Caspian / Armenian / Heuglin's Gull	*Larus cachinnans / armenicus / heuglini*	1-10	500-1000	500-1000	100-200	10-30			0-5	2,000-5,000	50-100	150-300	10000-15000	8000-10000	20,000-35,000
Lesser Black-backed Gull	*Larus fuscus*		0-5	5-10						5-10			10-20	0-5	20-40
Great Black-headed Gull	*Larus ichthyaetus*		100-200	250-2500	0-10					20-50	0-10	50-150	200-500	200-500	800-4,000

Common name	Scientific name	Azarb.	Gilan	Mazand.	Golest.	Khoras.	N Plat.	W Provinc.	Esfahan	Khuzes.	Fars	Seist.	Persian Gulf co.	Baluch.	Estimat. TOTAL
Black-headed Gull	*Larus ridibundus*	10-20	3000-5000	5000-10000	500-1000		100-200	100-200	20-50	2000-5000	2000-5000	500-1000	15000-25000	5000-10000	35,000-60,000
Slender-billed Gull	*Larus genei*	0-20	100-200	1000-2000				0-5		2000-5000	100-1000	1000-2500	10000-15000	20000-30000	35,000-55,000
Little Gull	*Larus minutus*	25 (Jan 70)	0-2000	0-1500	0-200					2 (Jan 73)	31 (Jan 73)				100-3,000
Gull-billed Tern	*Sterna nilotica*			0-3						100-2000	1 (Jan 73)		300-500	50-100	1,000-3,000
Caspian Tern	*Sterna caspia*									50-100			300-800	300-500	750-1,500
Lesser Crested Tern	*Sterna bengalensis*												Thous.	Thous.	many thous.
Greater Crested Tern	*Sterna bergii*												Thous.	Thous.	many thous.
Sandwich Tern	*Sterna sandvicensis*		0-40	10-50									Thous.	Thous.	many thous.
Common Tern	*Sterna hirundo*			0-10	0-10								0-10		<50
Saunders's Tern	*Sterna saundersi*												0-10	0-10	<50
Whiskered Tern	*Chlidonias hybrida*	7 (Jan 70)	4 (Jan 74)							100-300		10-100			100-400

Table 7. Species recorded on fewer than four occasions during the mid-winter waterbird counts in Iran between 1969/70 and 1975/76

Species	Date	No.	Location	Province
Red-throated Diver *Gavia stellata*	31/01/71	1	Caspian near Ramsar	Mazandaran
Socotra Cormorant *Phalacrocorax nigrogularis*	14/01/74	14	Coast of Gheshm Island	Hormozgan
African Darter *Anhinga rufa*	15/01/73	3	Dez Wildlife Refuge	Khuzestan
	15/01/75	1	Dez Wildlife Refuge	Khuzestan
Little Bittern *Ixobrychus minutus*	26/01/73	1	Lake Parishan	Fars
Cotton Pygmy Goose *Nettapus coromandelianus*	10/01/73	1	Hamoun-e Sabari (shot by hunter in early January)	Seistan
Long-tailed Duck *Clangula hyemalis*	07/01/71	1	Caspian near Fereidoon-Kenar	Mazandaran
Common Scoter *Melanitta nigra*	07/01/71	1	Caspian near Alamdeh	Mazandaran
Spotted Crake *Porzana porzana*	01/02/71	1	Shahkelayeh Ab-bandan	Gilan
Red Phalarope *Phalaropus fulicarius*	07/01/70	1	Bandar Anzali	Gilan
Pomarine Skua *Stercorarius pomarinus*	25/01/74	1	Morghu Island	Bushehr
	19/01/75	1	Bandar-e Lengeh	Hormozgan
	25/01/75	1	Chahbahar	Baluchestan
White-eyed Gull *Larus leucopthalmus*	24/01/75	1	Chahbahar	Baluchestan
Great Black-backed Gull *Larus marinus*	01/02/73	1	Now Farahabad	Mazandaran
Brown-headed Gull *Larus brunnicephalus*	22/01/75	1	Chahbahar	Baluchestan
Mediterranean Gull *Larus melanocephalus*	01/02/76	1	Miankaleh Peninsula	Mazandaran
White-cheeked Tern *Sterna repressa*	10/01/73	1	Chahbahar	Baluchestan
White-winged Tern *Chlidonias leucopterus*	07/01/72	2	Abadan	Khuzestan

CONCLUSION

The mid-winter counts revealed that the numbers of wildfowl reaching Iran in autumn and early winter and remaining throughout the winter were greatly affected by weather conditions and hence wetland conditions both in Iran and in the Russian Caspian region to the north. In mild winters, large numbers of the hardier species, such as Mallard *Anas platyrhynchos*, Red-crested Pochard *Netta rufina*, Common Goldeneye *Bucephala clangula*, Smew *Mergellus albellus* and Red-breasted Merganser *Mergus serrator*, remained throughout the winter in the north Caspian, while in extremely severe winters, such as that of 1971/72, large portions of the Russian wintering populations moved south and entered northern Iran. This was particularly the case with the swans *Cygnus* spp. In the relatively mild winters of 1972/73, 1973/74 and 1974/75, only a few hundred swans appeared in northern Iran, but in the very cold

winter of 1971/72, there was an exceptional invasion of swans in Gilan and Mazandaran, with perhaps as many as 10,000 birds involved. At the same time, unusually high numbers of White-headed Ducks *Oxyura leucocephala* appeared in Mazandaran, presumably because an important wintering area for this species further north on the east side of the Caspian Sea had frozen over.

The extensive wetlands of the Urumiyeh basin in Azarbaijan are of great importance for waterbirds both as breeding sites and as staging areas during the spring and autumn migration seasons, but this region of Iran experiences extremely low temperatures in winter and most of the freshwater wetlands are usually frozen over and under snow cover by the time of the mid-winter counts. This was the case during the five winters from 1970/71 to 1974/75, when the average count of 'wildfowl' was only 18,700 (maximum 32,300 in 1971/72). However, in the winter of 1969/70, the weather in northwestern Iran was unusually mild and the wetlands were still in excellent condition at the time of the mid-winter counts. A total of 389,600 wildfowl were recorded during a five-day survey of the Urumiyeh basin in mid-January 1970, including over 64,000 ducks and 323,000 Eurasian Coots. Under normal conditions, the freshwater wetlands in the Urumiyeh basin freeze over during December, and the great majority of birds resume their autumn migration to winter farther south in the wetlands of Mesopotamia or beyond. This was particularly evident in the winter of 1972/73, when conditions in Azarbaijan were unusually severe. A five-day survey of the wetlands of the Urumiyeh basin in late November 1972 produced a total of 173,000 wildfowl including over 93,000 ducks and 78,000 Eurasian Coots, but only six weeks later, in early January 1973, all of the freshwater wetlands and most of the brackish wetlands were frozen over, and only 890 wildfowl remained.

Farther south in Iran, the numbers of wintering wildfowl are greatly affected by the amount of rainfall and extent of flooding in the wetland basins. In dry years, when many of the wetlands in Khuzestan, central Fars and Seistan remain dry throughout the winter, large numbers of wildfowl continue on southeast or southwest to winter in the Indian subcontinent or Mesopotamia. The winter of 1970/71 was particularly dry; water levels in the wetlands of Khuzestan were low, many of the wetlands in central Fars were dry, and the entire Seistan basin was almost completely dry. The very low counts of wildfowl in central Fars (34,700) and Seistan (200) reflect these poor conditions. However, the winter of 1971/72 was unusually wet, with heavy rainfall throughout Iran. Extensive flooding occurred at wetlands in Khuzestan and central Fars, and large numbers of wintering wildfowl were again present. The wetlands of the Seistan basin were almost completely dry at the time of the counts in January and only 3,300 wildfowl were recorded, but extensive flooding occurred in March and April 1972. By the following winter, the wetlands of Seistan were fully flooded and in excellent condition. An aerial survey in January 1973 recorded over 718,000 wildfowl, including 693,000 ducks.

The winter of 1973/74 was rather wet, with quite high rainfall throughout the central plateau. The wetlands of Khuzestan, Fars and Seistan were well flooded and in good condition, and this was reflected in the relatively high counts of wildfowl in all three regions. In 1974/75, however, rainfall was patchy. The wetlands of central Fars were in good condition, but the wetlands of Khuzestan and Seistan were only partially flooded at the time of the mid-winter counts, although subsequent rains brought levels to their usual maxima later in the winter. The total count of 176,000 wildfowl in Seistan in January 1975 was well down on the previous two winters, but the count of 846,000 in Khuzestan was exceptionally high. The reason for these high numbers in Khuzestan was not clear, but it is possible that unusually dry conditions in the Mesopotamian marshes in neighbouring Iraq had forced many birds across the border into Iran.

The counts of waterbirds other than 'wildfowl' were insufficiently comprehensive to enable meaningful comparisons to be made of the fluctuations in numbers from year to year. However, it was clear that several species, notably Horned Grebe *Podiceps auritus*, Common Gull *Larus canus*, Great Black-headed Gull *L. ichthyaetus* and Little Gull *L. minutus*, were 'hard-weather' species that wintered commonly to the north of Iran and arrived in their largest numbers only during severe winters such as that of 1971/72.

REFERENCES

Amini H. & Willems F.J. 2008. Waterbirds in Iran. Results of a mid-winter count in the provinces of West Azarbayjan, Gilan, Mazanderan, Golestan, Sistan-Baluchistan, Hormozgan, Fars, Bushehr & Khuzestan of the Islamic Republic of Iran, January 2007. Department of Environment, Islamic Republic of Iran. 392 pp.

Evans M.I. (ed.). 1994. *Important Bird Areas in the Middle East*. BirdLife Conservation Series No.2. BirdLife International, Cambridge, U.K. 410 pp.

Ferguson D.A. 1972. Waterfowl wintering, resting and breeding areas of the south-west Caspian lowlands. *Wildfowl* **23**: 5–24.

Perennou C., Mundkur T., Scott D.A., Follestad A. & Kvenild L. 1994. *The Asian Waterfowl Census 1987–91: Distribution and Status of Asian Waterfowl*. AWB Publication No.86. IWRB Publication No.24. AWB, Kuala Lumpur, Malaysia and IWRB, Slimbridge, U.K. 372 pp.

Scott D.A. 1976. A List of the Wetlands of Iran. Project Completion Report W–1–54–4. Department of the Environment, Tehran. 34 pp.

Scott D.A. (ed.). 1995. *A Directory of Wetlands in the Middle East*. IUCN, Gland, Switzerland and IWRB, Slimbridge, U.K. xvii + 560 pp, 13 maps.

Scott D.A. & Carp E. 1972. A Survey in Khuzestan, Iran. *In*: Carp, E. (ed.), *Proc. International Conference on Conservation of Wetlands and Waterfowl, Ramsar, Iran*. IWRB, Slimbridge, pp. 292-298.

Summers R.W., Underhill L.G., Pearson D.J. & Scott D.A. 1987. Wader migration systems in southern and eastern Africa and western Asia. *Wader Study Group Bulletin* No. **49 Supplement** and IWRB Special Publication No.7: 15–34.

Appendix I. Principal wetlands visited during the mid-winter waterbird counts from 1970/71 to 1974/75. The absence of a cross could mean either that the site was not visited, or that it was visited but there were no 'wildfowl' present (usually because the wetland was frozen solid or completely dry).

Site name	Province	Coordinates	70/71	71/72	72/73	73/74	74/75
Caspian Sea: Astara to Rezvandeh	Gilan	-	x	x	x	x	x
Caspian Sea: Rezvandeh to Chaboksar	Gilan	-	x	x	x	x	x
Lower Sefid Rud	Gilan	3700N, 4935E		x	x	x	
Menjil Dam	Gilan	3644N, 4922E				x	
Sadi Sangar Dam	Gilan	3706N, 4943E		x	x	x	
Abbas-Abad Dam	Gilan	3823N, 4850E	x	x	x	x	x
Jocandan Ab-bandan (Jukandan)	Gilan	3753N, 4852E		x	x	x	x
Amirabad Ab-bandan	Gilan	3731N, 4913E	x	x	x	x	x
Galugah Ab-bandan	Gilan	3729N, 4921E	x	x	x	x	x
Anzali Mordab	Gilan	3725N, 4928E	x	x	x	x	x
Siahkasheem Marsh (Siakeshim)	Gilan	3724N, 4922E	x	x	x	x	x
Selke Protected Region (Selkeh)	Gilan	3724N, 4929E	x	x	x	x	x
Esfand Ab-bandan	Gilan	3722N, 4921E	x	x	x	x	x
Mahruzeh Ab-bandan	Gilan	3725N, 4923E	x	x	x	x	x
Nargestan Ab-bandan	Gilan	3722N, 4923E	x	x	x	x	x
Amirkelayeh Lake	Gilan	3718N, 5010E	x	x	x	x	x
Bandar Kiashahr Lagoon & mouth of Sefid Rud	Gilan	3720N, 4955E	x	x	x	x	x
Chaff Bala Ab-bandan	Gilan	3716N, 5012E		x	x		
Sarajar Ab-bandan (Saraj)	Gilan	3716N, 5008E		x	x		
Papkeyadeh Ab-bandan	Gilan	3714N, 5010E		x	x		
Daryasar Ab-bandan (Mordab Sayadi)	Gilan	3711N, 5014E	x	x	x		x
Shahkelayeh Ab-bandan	Gilan	3710N, 5011E	x	x	x		x
Caspian Sea: Chaboksar to Alamdeh	Mazandaran	-	x	x	x	x	x
Caspian Sea: Alamdeh to Farahabad	Mazandaran	-	x	x	x	x	x
Caspian Sea: Farahabad to east end Miankaleh	Mazandaran	-	x	x	x	x	x
Fereidoon Kenar Ab-bandans	Mazandaran	3635N, 5231E		x		x	x
Bisheh Kola (Mahmudabad) Ab-bandan	Mazandaran	3636N, 5243E	x	x	x	x	
Jambol Marsh (Jambul)	Mazandaran	3642N, 5245E	x	x	x	x	
Anar-Marz Ab-bandan (Enarmaz)	Mazandaran	3645N, 5250E				x	x
Seyed Mahalleh Ab-bandans	Mazandaran	3644N, 5300E	x	x	x	x	x
Zarin Kola Ab-bandans	Mazandaran	3643N, 5300E	x	x	x	x	x
Larim Sara plains	Mazandaran	3645N, 5303E		x	x	x	x
Sari Ab-bandan (13 km north of Sari)	Mazandaran	3642N, 5302E		x	x	x	
Lapoo-Zargmarz Ab-bandans	Mazandaran	3650N, 5317E	x	x	x	x	x
Ghara Tappeh & Tir Tash plains	Mazandaran	3644N, 5330E	x	x		x	
Miankaleh Peninsula & Gorgan Bay	Mazandaran	3650N, 5345E	x	x	x	x	x

Site name	Province	Coordinates	70/71	71/72	72/73	73/74	74/75
Gomishan lagoons & Turkoman steppes west	Golestan	3715N, 5355E	x			x	x
Turkoman steppes east	Golestan	3720N, 5445E		x		x	
Incheh Lake	Golestan	3713N, 5430E	x	x	x	x	
Lake Alagol	Golestan	3721N, 5435E	x	x	x	x	x
Lake Ulmagol	Golestan	3725N, 5438E	x	x	x	x	x
Lake Ajigol	Golestan	3724N, 5440E	x	x	x	x	x
Lake Gharmudeh	Golestan	3726N, 5432E	x	x	x		
Incheh Borun Ab-bandan	Golestan	3728N, 5443E	x	x	x	x	x
Lake Daneshmand	Golestan	3730N, 5448E	x		x	x	x
Voshmigir Dam	Golestan	3712N, 5445E		x	x	x	x
Lake Bibishervan (Bibi Shirvan)	Golestan	3709N, 5452E	x	x	x	x	x
Lake Eymar (Iymer)	Golestan	3708N, 5452E	x	x	x	x	x
Golchin Lake	Golestan	3700N, 5450E	x				
Dasht-e Moghan & Aras River	Azarbaijan	3935N, 4800E		x	x	x	x
Akh Gol (Agh Gol)	Azarbaijan	3933N, 4447E	x				
Lake Siahbas	Azarbaijan	3844N, 4508E	x				
Shahpur Marshes (Shahpur Abad Dam)	Azarbaijan	3812N, 4455E	x	x	x		x
Gori Gol	Azarbaijan	3750N, 4640E	x	x	x	x	x
Lake Uromiyeh	Azarbaijan	3730N, 4530E	x	x	x	x	x
Ghara Gheshlaq Marshes (Gareh-Gheshlagh)	Azarbaijan	3710N, 4550E	x	x	x	x	
Yadegarlu Marshes (Yadegarlo)	Azarbaijan	3702N, 4532E	x	x	x	x	x
Shur Gol & Hassanlu marshes (Ghoube-baba Ali)	Azarbaijan	3701N, 4528E	x	x	x	x	x
Miandoab Dam and marshes	Azarbaijan	3659N, 4605E	x	x	x		
Dorgeh Sangi Lake	Azarbaijan	3659N, 4534E	x	x	x	x	x
Sheytan-Abad Marsh	Azarbaijan	3658N, 4525E			x		x
Lake Kobi (Gopy)	Azarbaijan	3657N, 4530E	x	x	x	x	x
Nowruzlu Dam (Nowrooz Loo)	Azarbaijan	3655N, 4610E	x	x	x		x
Mahabad Dam (Yusef Kandy)	Azarbaijan	3648N, 4545E	x	x	x	x	x
Saqqez Dam	Azarbaijan	3623N, 4631E		x			
Lake Zaribar (Marivan)	Kordestan	3532N, 4607E	x	x	x	x	x
Sanandaj Dam	Kordestan	3515N, 4700E		x			
Hashelan wetland (Bakhtaran marshes)	Kermanshah	3433N, 4655E		x	x		x
Silakhor Marsh	Lorestan	3333N, 4904E		x		x	x
Pol-e Dokhtar marshes	Lorestan	3305N, 4743E	x	x	x		x
Rud-e Shur (Nishabur to Sabzevar)	Khorasan	3605N, 5815E			x	x	x
Rud-e Kalshur near Miandasht	Khorasan	3620N, 5645E		x			
Rud-e Kalshur near Esfarayen	Khorasan	3650N, 5630E					x
Rud-e Jowin	Khorasan	3640N, 5730E		x		x	x
Torbet-e Jam River	Khorasan	3510N, 6045E				x	x
Hari Rud near Sarakhs	Khorasan	3630N, 6109E				x	x
Gharpuzabad Marshes	Tehran	3555N, 5025E	x	x	x		
Latian Dam	Tehran	3547N, 5140E			x	x	x
Galenow Marshes (Ghale Now)	Tehran	3536N, 5136E		x	x		x
Deh Namak marshes	Tehran	3515N, 5257E		x	x		x
Gavkhouneh Lake (Gavekhoni)	Esfahan	3220N, 5247E	x		x	x	x
Zaindeh Rud, lower marshes (Zayandeh Rud)	Esfahan	3230N, 5215E			x	x	x
Shah Abbas Dam	Esfahan	3244N, 5040E					x
Gandoman Marsh	Esfahan	3150N, 5107E	x	x			
Choghakor Marsh (Cheghakor)	Esfahan	3155N, 5054E	x				
Keyes Marsh	Esfahan	3302N, 5030E	x				x
Esfahan steel mill pond	Esfahan	3240N, 5138E				x	x
Ilam area, farmland	Ilam	3335N, 4605E		x			
Dez Dam	Khuzestan	3238N, 4828E				x	
Sagvand Marsh	Khuzestan	3219N, 4813E		x	x	x	
Shush, rice paddies and marshy plains	Khuzestan	3215N, 4810E	x	x	x		
Marshes along Andimeshk - Ahwaz road	Khuzestan	-	x	x	x		
Bamdej Marshes & Sadi Shavour (Horeh Bamdej)	Khuzestan	3145N, 4836E	x	x	x	x	x
Ahu Dasht marshes	Khuzestan	3150N, 4832E				x	x
Dez River marshes (with Deh Noh & Haft Tappeh)	Khuzestan	3150N, 4838E	x	x	x	x	x
Karun River marshes & oxbow south of Shushtar	Khuzestan	3145N, 4854E	x	x	x	x	x
Mulla Seni plains	Khuzestan	3130N, 4852E		x	x	x	x
Ahwaz, marshes on outskirts	Khuzestan	3120N, 4835E	x	x		x	
Marshes along Ahwaz - Khorramshahr road	Khuzestan	3105N, 4815E	x	x	x		
Marshes along Ahwaz - Abadan road	Khuzestan	3055N, 4833E	x	x			
Susangerd marshes, Karkheh River (Kh.-al Azim)	Khuzestan	3145N, 4755E	x		x	x	x
Bostan area, flooded farmland	Khuzestan	3138N, 4757E	x			x	

Site name	Province	Coordinates	70/71	71/72	72/73	73/74	74/75
Hamidieh (Omidiyeh) oxbow lake and grassland	Khuzestan	3120N, 4820E	x	x	x		x
Shadegan Marshes	Khuzestan	3020N, 4820E	x	x	x	x	x
Abadan oil refinery pond (gravel pit)	Khuzestan	3025N, 4815E		x	x	x	x
Bandar Emam Khomeyni (Shahpur) creeks	Khuzestan	3025N, 4905E	x	x			x
Izeh & Sheiko lakes	Khuzestan	3152N, 4954E					x
Coast of SW Khuzestan (Kh. Amaya & Kh. Musa)	Khuzestan	3005N, 4850E				x	x
Coast of SE Khuzestan	Khuzestan	-				x	x
Kaftar Lake	Fars	3034N, 5247E					x
Dorudsan Dam (Dorodzan Dam)	Fars	3015N, 5220E		x	x	x	
Zarghan, Lapuyee & Dasht-e Baiza marshes	Fars	2950N, 5240E		x	x	x	x
Kamjan Marshes	Fars	2940N, 5305E		x	x	x	x
Bandamir Marshes (Band-e Amir) & Kur River	Fars	2950N, 5252E			x	x	
Doshok Marshes	Fars	2937N, 5315E				x	x
Lake Bakhtegan	Fars	2936N, 5324E	x	x	x	x	x
Lake Tashk (including Gumoon)	Fars	2940N, 5324E	x	x	x	x	x
Lake Maharlu (including Barm-e Shur)	Fars	2930N, 5248E	x	x	x	x	x
Soltanabad Marshes	Fars	2930N, 5235E	x	x	x	x	x
Haft Barm lakes	Fars	2940N, 5210E			x	x	x
Dasht-e Arjan	Fars	2937N, 5159E	x	x	x	x	x
Lake Parishan (Perishan)	Fars	2931N, 5148E	x	x	x	x	x
Persian Gulf coast: Bostanu to Hilleh (Halileh) Rud	Bushehr	-	x			x	x
Delta of Hilleh Rud (Halileh Rud)	Bushehr	2910N, 5050E				x	x
Bushire Bay	Bushehr	2900N, 5053E		x			x
Monde River Delta (Protected Area)	Bushehr	2810N, 5118E		x	x	x	x
Persian Gulf coast: Monde River to Bandar-e Lengeh	Bushehr	-	x			x	x
Bandar Abbas shore	Hormozgan	2710N, 5515E	x		x	x	x
Khouran Strait (including Hara Protected Area)	Hormozgan	2650N, 5540E	x	x	x	x	x
Coast of Gheshm Island	Hormozgan	-			x	x	x
Deltas of Rud-e Shur, Rud-e Shirin & Rud-e Minab	Hormozgan	2705N, 5645E			x	x	x
Deltas of Rud-e Gaz & Rud-e Hara	Hormozgan	2640N, 5650E			x	x	x
Coast: Bandar Abbas to Jask	Hormozgan	-	x	x	x	x	x
Khor Jask	Hormozgan	2540N, 5740E	x		x	x	x
Deltas of Rud-e Jagin & Rud-e Gabrik	Hormozgan	2535N, 5820E			x	x	x
Hamoun-e Sabari (including Dakegaz)	Sistan & Baluch.	3120N, 6120E	x	x	x	x	x
Hamoun-e Helmand (including Kuh-e Khvajeh)	Sistan & Baluch.	3010N, 6110E	x	x	x	x	x
Hamoun-e Puzak (Takht-e Shah, Mahmoodi)	Sistan & Baluch.	3120N, 6145E	x	x	x	x	x
Shela Rud, Hamoun-e Helmand	Sistan & Baluch.	3030N, 6100E			x	x	x
Seh Bulak Lake	Sistan & Baluch.	3045N, 6125E				x	
Coast: Jask to Chahbahar	Sistan & Baluch.	-	x	x	x	x	x
Chahbahar Bay & Khor Konarak	Sistan & Baluch.	2525N, 6030E	x	x	x	x	x
Coast: Chahbahar to Govater	Sistan & Baluch.	-	x	x	x	x	x
Lower Sarbaz River (Bahu Kalat River)	Sistan & Baluch.	2540N, 6100E	x	x	x	x	x
Khor Govater (Govater Bay)	Sistan & Baluch.	2510N, 6130E	x	x	x	x	x