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Resident birds of western Caspian lowland

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Abstract

The change of environment over the past 100 years and its impact on the resident birds in the West of the Caspian Lowland are considered. Unlimited deforestation, draining of lakes and marshes, developing arid and semiarid lands for settlements, non-stop grazing in large numbers are among the factors that have changed the entire ecosystem, including populations of birds. It is not accidental that the so-called "sedentary birds" do not actually exhibit a sedentary lifestyle, and many species have populations with 2 - 4 different types of stay at the same place and at different times of the year.

Keywords: Birds, fauna, Caspian Lowland, Azerbaijan

1. Introduction

It should be remembered that the first data on the character of bird stay in the West of the Caspian Lowland have been published in XVIII and XIX centuries by European scientists. In XX century, the work was continued by local researchers [1-5]. Recently, a taxonomic spectrum of birds of Azerbaijan was compiled [6]. Some authors paid particular attention to changes in the avifauna under the influence of anthropogenic factors [5, 7]. However, local biotopical distribution and character of the stay of populations was studied in only one small area in Gobustan [2].

It should be noted that the natural landscape of the western Caspian Lowland has changed dramatically under the influence of anthropogenic factors for over the last 100 years. Khachmaz forests which covered northern part of the lowland to the Caspian coast were destroyed. All natural resources of the western Caspian Lowland from Samur River in the North to Astara district in the South were exploited unlimitedly. An industrial city of Sumgait was built and the number of rural settlements greatly increased. The natural landscapes in Absheron Peninsula were strongly reduced. Kura riparian forests on Salyan plain, as well as relic Hyrcan forests at the coast of Caspian Sea from Lenkoran to Astara were destructed. All this taken together, has dramatically changed the landscape of the Caspian Lowland. The total result is a recent state of the fauna of resident birds. To correct these mistakes of the past time, a population-based study of wildlife is necessary.

2. Material and Methods

The material of the paper is based on results of the field work conducted by authors in 1960-1970 and 2005-2015 years. Routing methods of bird census constituted the basis of the working procedures. A special attention has been paid to the habitat distribution, the population structure of species, character of stay of populations, reproduction state and its success. We tried to establish limiting factors influencing changes of fauna and bird populations. Special attention has also been paid to the degree of timidity of birds from human, as well as to place, time and manner of foraging at population level. The results of the study of bird populations were estimated by multifunctional method: comparison of color and size of birds; the number of individuals in the covey; distance from the overnight place to foraging area; the path and speed of the flight; degree of timidity from human; relation to the person (pedestrian, on the horse, to the car, to the boat with motor and without it, etc.); place, time and mode of foraging; the population density in the spring, summer, autumn and winter; the manner of feeding and its seasonality; bioindicator value and others [2, 5, 8-10].

3. Results and Discussion

In the result of our research 73 species of so-called sedentary birds were found in the western Caspian Lowland, from Samur River to the border with Iran. Of these, 37 (50.7%) species were represented by only one really settled population that lives here permanently (S) (Table 1).

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Table 1: True sedentary birds (S).

№/№	Species	Character of stay
1.	<i>Botaurus stellarus</i> - Linn., 1758	S
2.	<i>Ardea cinirea</i> - Linn., 1758	S
3.	<i>Circus aeruginosus</i> - Linn., 1758	S
4.	<i>Buteo rufinus</i>	S
5.	<i>Alectoris chukar</i> - Gyray, 1830	S
6.	<i>Francolinus francolinus</i> - Linn., 1766	S
7.	<i>Phasianus colehicus</i> - Linn., 1758	S
8.	<i>Pterocles orientalis</i> - Linn., 1758	S
9.	<i>Columba palumbus</i> - Linn., 1758	S
10.	<i>Columba oleans</i> - Linn., 1758	S
11.	<i>Columba livia</i> - Gm., 1789	S
12.	<i>Streptopelia decaocto</i> - Friv., 1838	S
13.	<i>Streptopelia semeqalensis</i> - Linn., 1766	S
14.	<i>Asio otus</i> - Linn., 1758	S
15.	<i>Asio flammeus</i> - Pont., 1763	S
16.	<i>Athene noctua</i> - Scop., 1769	S
17.	<i>Strix aluco</i> - Linn., 1758	S
18.	<i>Alcedo atthis</i> - Linn., 1758	S
19.	<i>Picus viridis</i> - Linn., 1758	S
20.	<i>Dendrocopos syriacus</i> - Hem., 1833	S
21.	<i>Galerida cristata</i> - Linn., 1758	S
22.	<i>Calandrella rufescens</i> - Vieil., 1820	S
23.	<i>Calandrella cinerea</i> - Gm., 1788	S
24.	<i>Melanocorypha calandra</i> - Linn., 1766	S
25.	<i>Pica pica</i> - Linn., 1758	S
26.	<i>Corvus corax</i> - Linn., 1758	S
27.	<i>Cettia cetti</i> - Tem., 1820	S
28.	<i>Panurus biarmicus</i> - Linn., 1758	S
29.	<i>Aegithalos caudatus</i> - Linn., 1758	S
30.	<i>Remiz pendulinus</i> - Linn., 1758	S
31.	<i>Remiz makronyx</i> - Sever., 1879	S
32.	<i>Sitta neumayer</i> - Mich., 1830	S
33.	<i>Passer domesticus</i> - Linn., 1758	S
34.	<i>Passer montanus</i> - Linn., 1758	S
35.	<i>Chloris chloris</i> - Linn., 1758	S
36.	<i>Emberiza calandra</i> - Linn., 1758	S
37.	<i>Porphyrio porphyrio</i> - Zar. Et-el., 1911	S

The sedentism of other species is formal. Ten species of birds were represented by three types of populations, namely: arriving for reproduction (N), arriving for overwintering (H), and migratory population (Tr) (Table 2).

Table 2: Birds with reproductive, overwintering and Migratory populations (N, H, Tr).

№/№	Species	Character of stay
1.	<i>Podiceps ruficollis</i> - Pall., 1764	N, H, Tr
2.	<i>Podiceps nigricollis</i> - Brehm., 1831	N, H, Tr
3.	<i>Egretta alba</i> - Linn., 1758	N, H, Tr
4.	<i>Egretta garzetta</i> - Linn., 1766	N, H, Tr
5.	<i>Tadorna ferruginea</i> - Pall., 1764	N, H, Tr
6.	<i>Tadorna tadorna</i> - Linn., 1758	N, H, Tr
7.	<i>Tringa totonus</i> - Linn., 1758	N, H, Tr
8.	<i>Tringa ochrurus</i> - Linn., 1758	N, H, Tr
9.	<i>Motacilla alba</i> - Linn., 1758	N, H, Tr
10.	<i>Turdus merula</i> - Linn., 1758	N, H, Tr

Another group, including 7 species, was represented by birds with two types of populations: sedentary (S) and arriving for overwintering (H) (Table 3).

Table 3: Birds with sedentary and arriving for the winter populations (S, H).

№/№	Species	Character of stay
1.	<i>Gallinula chlopus</i> - Linn., 1758	S, H
2.	<i>Larus ridibundus</i> - Linn., 1776	S, H
3.	<i>Garrulus glandarius</i> - Linn., 1758	S, H
4.	<i>Parus caeruleus</i> - Linn., 1758	S, H
5.	<i>Parus major</i> - Linn., 1758	S, H
6.	<i>Sitta europaen</i> - Linn., 1758	S, H
7.	<i>Carduelis carduelis</i> - Linn., 1758	S, H

The next group of birds is also represented by 7 species, which has the following types of populations: sedentary (S), arriving for the winter (H), and migratory (Tr) (Table 4).

Table 4: Birds with sedentary, arriving for the winter and migratory populations (S, H, Tr).

№/№	Species	Character of stay
1.	<i>Phalacrocorax carbo</i> - Linn., 1758	S, H, Tr
2.	<i>Phalacrocorax pygmaeus</i> - Pall., 1773	S, H, Tr
3.	<i>Aythya niroca</i> - Guld., 1770	S, H, Tr
4.	<i>Netta rufina</i> - Pall., 1773	S, H, Tr
5.	<i>Fulica arta</i> - Linn., 1758	S, H, Tr
6.	<i>Alauda arvensis</i> - Linn., 1758	S, H, Tr
7.	<i>Emberiza schoeniclus</i> - Linn., 1758	S, H, Tr

Five species of birds are represented by sedentary (S), migratory (Tr) and visiting for food (Tf) populations (Table 5).

Table 5: Birds with sedentary, migratory and visiting for food populations (S, Tr, Tf).

№/№	Species	Character of stay
1.	<i>Phalacrocorax carbo</i> - Linn., 1758	S, H, Tr
2.	<i>Phalacrocorax pygmaeus</i> - Pall., 1773	S, H, Tr
3.	<i>Aythya niroca</i> - Guld., 1770	S, H, Tr
4.	<i>Netta rufina</i> - Pall., 1773	S, H, Tr
5.	<i>Fulica arta</i> - Linn., 1758	S, H, Tr
6.	<i>Alauda arvensis</i> - Linn., 1758	S, H, Tr
7.	<i>Emberiza schoeniclus</i> - Linn., 1758	S, H, Tr

To four primarily sedentary species of birds (S) sometimes joint migratory populations (Tr) (Table 6).

Table 6: Birds with sedentary and migratory populations (S, Tr).

№/№	Species	Character of stay
1.	<i>Circus cyaneus</i>	S, Tr
2.	<i>Accipiter nisus</i>	S, Tr
3.	<i>Rallus aquaticus</i>	S, Tr
4.	<i>Vanellus vanellus</i>	S, Tr

White-tailed eagle (*Haliaeetus albicilla*) - is presented in our fauna with two populations: arriving for the winter and migratory. The year-round sedentary lifestyle in this species was not observed. Thus it is not included in our list.

Kestrel (*Falco tinnunculus*) - has a settled, arriving for reproduction, and migratory populations (S, N, Tr). The sedentary population of kestrel is less numerous than others and more tied to settlements. Finally, the rook (*Corvus frugilegus*) - had 4 types of populations in western Caspian Lowland: arriving for reproduction, overwintering, for food, and also nomadic. A colony of rooks was found in the reeds at Lake Agzybir^[5], but soon disappeared. Just at the mouth of the Kura River rooks colonies were registered by us until the last 10 years. The reason for the disappearance of these

colonies was a human factor (sampling of eggs and chicks by local people as a food).

3.1. Deprived of reproduction places, and vanished species in the fauna of the Caspian Lowland

Ciconia nigra – Linn. 1758 - Black Stork. It inhabited the valley and riparian forests. Being very cautious bird it was deprived of reproduction places and now occurs as a transit bird. *Pandion haliaetus* - Linn., 1758 - Osprey (N), Tr. Earlier arrived for reproduction. Now found only as an over flight bird. *Milvus migrans* Bodd, 1783 - Black Kite (N), Tr. Earlier arrived for reproduction, and later became the transit.

Accipiter badius Gm., 1788 – Shikra. It was not observed during the last 15 years. *Aquila heliaca* San., 1809 - lived in the forests, but during the past 10-15 years, has been recorded only on the overflight. *Falco subbuteo* Lion. 1758 – Eurasian Hobby. Had a reproductive population in the lowland and riparian forests, while during the last 15 years, was found only on the overflight. *Phasianus colchicus* Linn. 1758 – Common Pheasant. Was a typical resident of lowland and riparian forests, and even in the blackberry bushes and reeds, and later vanished completely. *Columba palumbus* Linn. 1758 - Wood pigeon. He lived in the valley, and riparian forests, but now is missing. The population was destroyed as a result of hunting.

Bubo bubo Linn. 1758 – Eagle - Owl. It was sedentary inhabitant of dense riparian and lowland forests. The population was destroyed as a result of forest destruction and cattle grazing.

3.2. Status of populations of one species from each group as an example

Columba livia Gym., 1789 -Sizy dove. It has only a sedentary population (S) with a high density. Hemi-sinanthropous species [11]. The populations occur mainly under the roofs of the houses and under bridges, they visit in large flocks the cornfields and open plains for foraging. The density of the population decreases until the spring under the influence of amateur hunting and natural elimination.

Podiceps ruficollis Pall. 1764. Little Grebe in the west of the Caspian depression does not have a strict sedentary populations. It arrives in March. In April, builds a water floating nest, especially where the pond is covered with algae. This population is distributed on all the near-caspian shoals, armlets and lakes. In total, we observed about 500 pairs of breeding birds. Sometimes they form small colonies of 3-5 pairs. Keep person up to 10 m. In the autumn the number of specimen increases significantly due to migrants, while in winter the population density sharply reduces because of the freezing of shallow water. Therefore, in our region it has three types of populations (N, N, Tr).

Podiceps nigricollis Brehm, 1831. Black-necked-grebe. It has 3 types of the populations in our region: sedentary birds, arriving for the winter and migratory (S, H, Tr). The density of the settled population smaller than others. It prefers standing reservoirs, especially on the banks of ponds, bays and lagoons. Do not avoid the proximity of gulls and terns. The reproduction period begins in May. It is usually not observed from the middle August to middle September. However, in October the population density highly increases due to arrival of migrants. Then the winter the population is forming with less number of specimens.

Fulica atra Linn, 1758. Coot. It has 3 types of populations in the region: sedentary, arriving for the winter and migratory (S, H, Tr). The density of sedentary population is low compared to the other populations. Its nestling habitat is reed

tufts. For foraging it visits shallow coast in bays, various reservoirs and lagoons. Spend the night in the open waters.

Haliaeetus albicilla Linn., 1758 – White-tailed sea eagle. Two rare populations were observed on the western shore of the Caspian strip, namely, spring arriving to reproduce, and autumn arriving for overwintering (N, H). Reproductive population consisted of 5 pairs at a distance of 30-50 km from each other. They nested on the canal near the willow on a metal stand and high-voltage electric line close to the sea. The nests were large, each year being completed and reaching the size of more than 1.5 m. It is, however, cautious bird. When disturbed by people it leaves the nest even with baby bird. We failed to study the migratory population. In the winter the species was observed in Shirvan National Park and Kyzylagach State Reserve, in both cases only by one pair.

Larus ridibundus Linn, 1776 -. Black-headed Gull. It occurs all year around in the shores of the Caspian Sea from the border with Russia to Iranian border. In winter, these were observed more frequently, but always in small packs (3-8 birds). We did not registered migratory population. They build their nests on the small islands of the Caspian Sea, even on non-functioning platforms.

Larus cachinnans Pall, 1881 -. Caspian Gull. The sedentary species (S). It settles on the near-shore islands. It nests in the same place and on the non-functioning oil and gas platforms. They hibernate in the open field. Rest on the water. In spring and autumn there migration population with large flocks of 50-70 individuals (Tr). In the winter time they couple in specific population, which flies from the islands to large landfills in packs of 100 or more individuals for foraging. Thus seagull has three populations in our region (S, Tr, Tf).

4. Conclusion

Seventy three (73) species of so called “sedentary” birds were observed in the Western Caspian Lowland within the territory of Azerbaijan. Of these only about a half (50.7%) proved to be a true sedentary. Other species had additional populations with different character of stay. These included migratory, arriving for overwintering, arriving for reproduction, and visiting for foraging populations.

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