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Survey of Lesser White-fronted Geese in Nakhchivan, Azerbaijan, in January 2015

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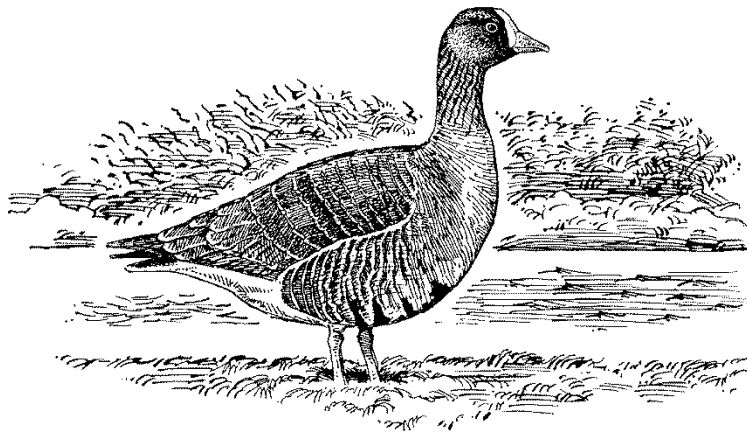
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Front cover photo: Winter pastures and agriculture fields close to the Aras water reservoir, Nakhchivan. © Vladimir V. Morozov

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SUMMARY

We carried out a field survey of wintering Lesser White-fronted Geese in the Aras water reservoir in the Nakhchivan Autonomic Republic in the period 20th-24th January 2015. We also surveyed the adjoining flood-plain area of the Aras River valley within Sadarak district near the border of Iran and Turkey in the same period. Only four small flocks of Lesser White-fronted Geese were located, of which the largest being 80 individuals. These observations together with tracking and location data from satellite transmitter tagged birds proves that the whole area of the Aras River valley from the border of Turkey to the Aras reservoir dam, serves as a wintering ground for the species. Considering their high importance, the wetlands of the Aras reservoir and the Sadarak district should be designated as a strictly protected area.

The survey also covered numbers and distribution of other waterbird species in the area. Within the Azerbaijan part, more than 25000 individuals of waterfowl and shorebirds overwinter, which qualifies this important area to the list of important RAMSAR wetlands.

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BACKGROUND

The Lesser White-fronted Goose *Anser erythropus* is listed in the Red Data book of the International Union for the Conservation of Nature (IUCN), as well as in Red Data books of all countries within its distribution area. International research on Lesser White-fronted Goose (later abbreviated as LWfG) found that some birds tagged with satellite transmitters in their breeding area in the Putorana plateau stopped in the Aras River valley during their autumn migration (Romanov & Pospelov 2006). Two birds tagged in Bolshezemelskaya Tundra and the Polar Urals stayed there for the whole winter 2013/2014 (Morozov et al. 2015). These data proved the necessity to carry out further investigations in the Aras River valley to clarify its importance as a wintering ground for LWfG.

Aim and objectives

To pursue this aim, *Birds Russia* in collaboration with *Azerbaijan Ornithological Society* and *Institute of Bioresources of Nakhchivan section of Azerbaijan National Academy of Science* carried out a pilot study of the Aras reservoir and the Aras River valley in Nakhchivan Autonomous Republic. The main objective was to gather information on the wintering of LWfG as well as the numbers and distribution of other waterbird species in that area.

METHODS & MATERIAL

Itinerary

We carried out a survey for wintering LWfG in the Aras reservoir in the Nakhchivan Autonomous Republic and the adjoining floodplain area of the Aras River valley within Sadarak district near the border of Azerbaijan and Turkey (Figure 1) in the period 20th-24th January 2015.

Study area

The Aras reservoir was created in 1972, and is located on the boundary between the Islamic Republic of Iran and Nakhchivan Autonomous Republic of Azerbaijan (Figure 1). The coast of the reservoir is situated 10 km to the south and south-west from Nakhchivan city, the capital of Nakhchivan Autonomous Republic of Azerbaijan. The Aras reservoir is located at an altitude of 777m asl. The total area of the reservoir is 14,500 hectares, with a length and width of 52 km and 6.1 km respectively. The maximum depth is 18.2 meters. The reservoir was created for electric energy production and for agricultural irrigation in both countries. The lowland areas at 100-500 meters from the coastline of the reservoir are occupied by winter pastures and agriculture fields (see photo on the front cover of the report). The Azerbaijan part of the Aras reservoir has status as a Governemental Nature Refuge.

The climate of the Aras River valley is warm and temperate. The summers are dry and hot. The middle temperatures in spring are +10 - +22°C, in summer +18 - +22°C and in winter -5 - -11°C. Minimal air temperature in winter can be as low as -30 - -32°C. In such cold winters only a small area of the reservoir (about 3-5 hectares) remains free of ice. The natural vegetation in the study area is semi-desert.

Survey method

The Aras reservoir was surveyed by driving along the coast and counting birds at chosen sites within the water body and the coastline. GPS was used to locate the borders of the counting sectors.

We carried out the bird counts in the first half of the day from sunrise to noon. Later in the afternoon, the counting ceased due to air refraction and unfavorable light conditions.

10x magnification binoculars and 20-60x magnification telescopes were used. Every bird congregation was counted once or twice by three people. The total for each congregation was calculated as an average of these counts. In two cases bird gatherings on water were counted by two people, while the birds located in the adjoining fields and pastures were counted by the third person. The results of counts were summed for each sector and for the whole area.

If the light conditions or density of goose flocks did not allow reliable identification of presence of LWfG or species composition with binoculars, a digital camera with 50x zoom and a digital SLR camera with 400mm lens were used.

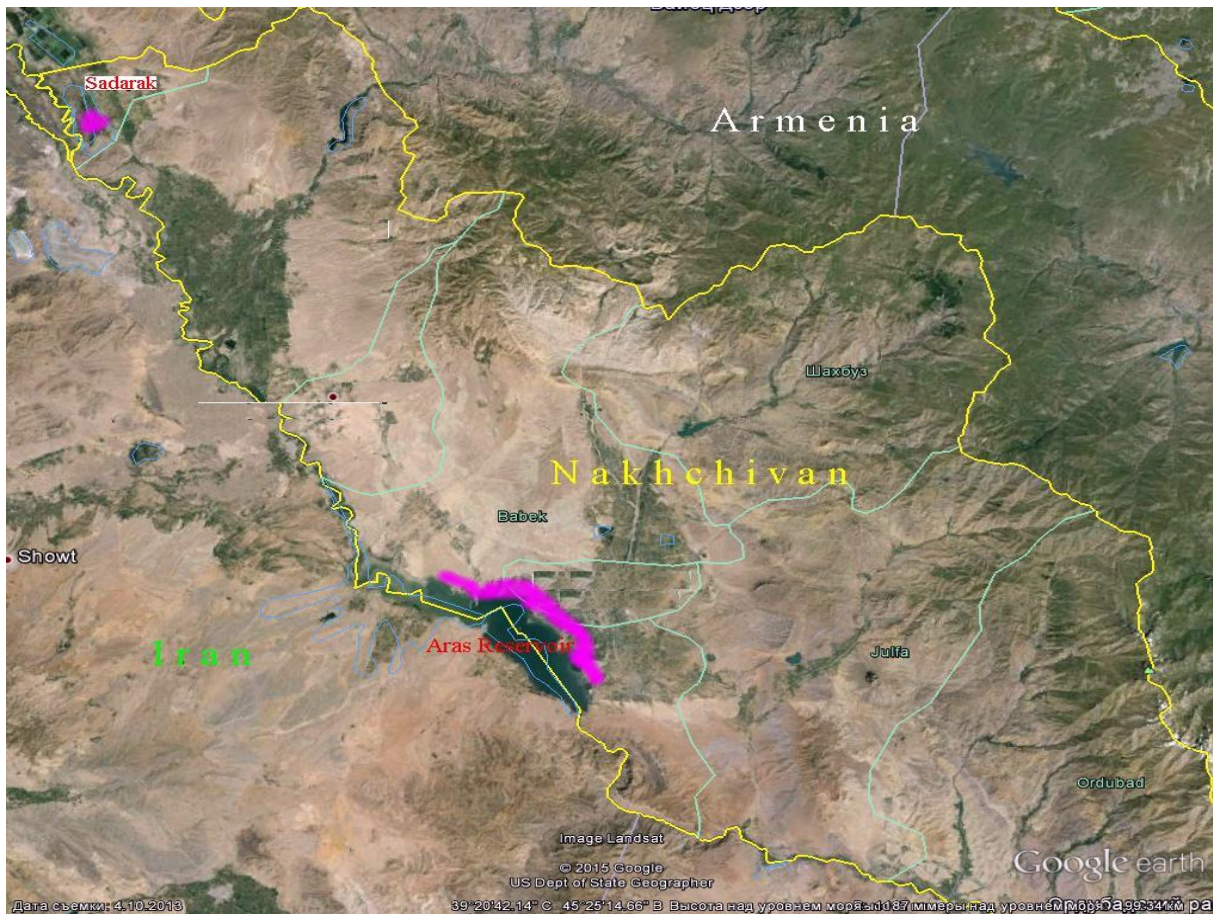


Figure 1. Location and map of Nakhchivan Autonomous Republic. Surveyed areas where LWfG were found are shown in pink.

RESULTS

Data from satellite transmitter tracking in previous years showed that LWfG were confined mainly to two areas within the Aras River valley (Figures 1 & 4). The first area is located within Sadarak district and consisted of vast damp low-grass meadows, nourished with water from the canal in the widest part of the Aras River valley (Figures 2 & 4). Within these meadows on the bank of the canal, a flock of grazing geese was spotted on 20th January. It consisted of 202 Greater White-fronted Goose *Anser albifrons* (later referred to as GWfG) and 11 LWfG of which the latter represented 5.1% of the total numbers. The weather conditions were good and allowed not only counts and proper identification of all geese, but we could also confirm that there were no transmitter-tagged birds among them. Further analysis of the information obtained through satellite transmitters confirmed the fact that tagged birds stayed in Aras reservoir at the same time.

During the second investigation of the area on 24th January, we discovered that the geese stayed within the same habitat and grazed at the same place as on 20th January. The total flock size was 233 geese, of which 11 were LWfG (probably the same birds as on 20th January) and 222 GWfG. LWfG accounted for 4.7% of the geese present. Interestingly, at the beginning of the day, there were 120 geese, 3 of which were identified as LWfG, but 30 minutes later another flock of 110-115 geese arrived from a distant part of the meadow and joined the flock. After that, the geese flew over the meadows and landed for grazing. At one site they were quite close to the observers (the distance was about 100 meters) and they were thoroughly counted (Table 1).

It is necessary to mention that a flock of more than 1,000 Greylag Geese stayed in the same territory, but they preferred to graze and rest in high-grass meadows with mudflats close to reed growth near the canal. Mixed flocks of GWfG and LWfG always stayed separately and never joined the Greylag Geese.



Figure 2. The landscape and habitats close to the Sadarak settlement. A mixed flock of GWfG and LWfG feeding on the grass meadow.

Table 1. Species composition and numbers of waterbirds on the grass meadows at the Turkish-Nakhchivan border close to the Sadarak settlement.

English name	Species Latin name	Survey dates	
		20.01.2015	24.01.2015
Pygmy Cormorant	<i>Phalacrocorax pygmaeus</i>	2	7
Eurasian Bittern	<i>Botaurus stellaris</i>		1
Great White Egret	<i>Ardea alba</i>	5	2
Grey Heron	<i>Ardea cinerea</i>	2	4
Greylag Goose	<i>Anser anser</i>	1,200	1,480
Greater White-fronted Goose	<i>Anser albifrons</i>	214	233
Lesser White-fronted Goose	<i>Anser erythropus</i>	11	11
Ruddy Shelduck	<i>Tadorna ferruginea</i>	32	115
Common Shelduck	<i>Tadorna tadorna</i>	9	6
Mallard	<i>Anas platyrhynchos</i>	11	185
Eurasian Teal	<i>Anas crecca</i>	43	100+
Gadwall	<i>Anas strepera</i>		24
Eurasian Wigeon	<i>Anas penelope</i>	34	48
Northern Shoveler	<i>Anas clypeata</i>	28	67
Common Pochard	<i>Aythya ferina</i>	2	24
Tufted Duck	<i>Aythya fuligula</i>		12
Western Marsh Harrier	<i>Circus aeruginosus</i>	3	6+
Common Moorhen	<i>Gallinula chloropus</i>		2
Common Coot	<i>Fulica atra</i>	61	15
Northern Lapwing	<i>Vanellus vanellus</i>		17
White-tailed Plover	<i>Vanellus leucurus</i>	3	3
Green Sandpiper	<i>Tringa ochropus</i>	1	2
Common Redshank	<i>Tringa totanus</i>	30	42
Spotted Redshank	<i>Tringa erythropus</i>	8	11
Common Sandpiper	<i>Actitis hypoleucos</i>		1
Ruff	<i>Philomachus pugnax</i>		6
Temminck's Stint	<i>Calidris temminckii</i>	2	
Little Stint	<i>Calidris minuta</i>	1	
Common Snipe	<i>Gallinago gallinago</i>	4	4
Total		1,678	2,168

Note: "+" after figure indicates that count is a minimum

An area near the central part of the Aras reservoir (located between the dam and the settlement of Karachug) was the second area where satellite transmitter tagged LWfG had been located from transmitter data (Figures 1 & 4). We investigated this area in the period 21st-23rd January and found a large gathering of geese at the reservoir shore near the dam. On 21st January, there were two mixed GWfG and LWfG flocks of 162-200 and about 400 birds respectively. As the light conditions were unfavourable, and the geese were cautious, it was not possible to estimate the proportion of the two species. An estimate based on pictures of 100 geese from the smaller group showed that approximately 40% of them were LWfG.



Figure 3. A view of the habitats at the bank of Aras reservoir.

Another mixed group of GWfG and LWfG stayed near the reservoir opposite the settlement of Karachug (Figures 3 & 5). On 23rd January the geese grazed on the wheat fields (Figure 6) and moved actively around the place, so it was difficult to ascertain if there were transmitter tagged birds among them as well as to calculate the total number of birds. Three approximate counts revealed about 470-480 geese with 30-32 LWfG among them (Figure 7). Thus, the proportion of LWfG was about 6.5%, which was approximately the same as in the Sadarak area.

Table 2. Observations of White-fronted- and Lesser White-fronted Geese during the winter survey.

Date	# GWfG+LWfG		Site name	Latitude	Longitude
	combined	# LWfG			
20.01.2015	211-213	11	Sadarak district	39.65694	44.84014
21.01.2015	162-200	>80	Aras Res. Near Araz village	39.11830	45.39821
21.01.2015	400	-	Aras Res. Near Araz village wheat field near Karachug	39.12476	45.39777
23.01.2015	480	30-32	settl.	39.18412	45.36019
24.01.2015	233-235	11	Sadarak district	39.65694	44.84014
sum	1,486-1,528	>132-134			

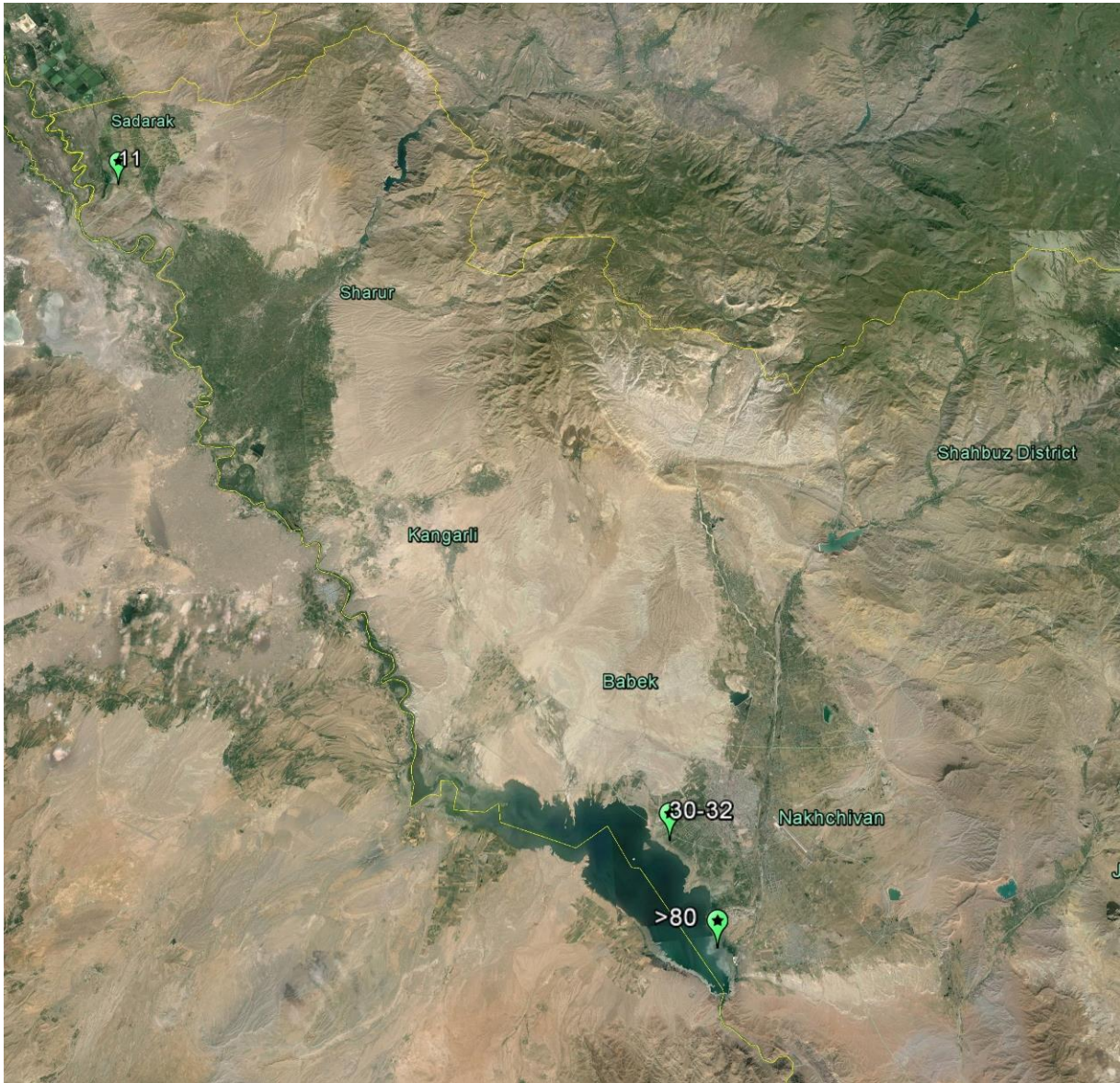


Figure 4. Satellite image of sites with numbers of Lesser White-fronted Geese observed during the survey.

DISCUSSION

The Aras reservoir is of great importance for geese as a day and night roosting site. Since the state border between Azerbaijan and Iran stretches along this area, access to this territory is restricted and low disturbance creates quite favourable conditions for birds.

Unlike ducks, which prefer to stay in shallow water near the shore, geese often graze at a distance from the reservoir. In the morning, they fly to the adjoining fields of winter wheat, which is their favourite food in winter when there is no fresh grass in ploughed fields and pastures. We found excrements and observed geese in wheat fields regularly while counting them. The locations of satellite transmitter tagged birds also suggest that wheat fields are one of their predominant food resources.

The high numbers of waterfowl and geese observed in Sadarak despite small areas of open water can be explained by a wide variety of low- and high-grass habitats of different structure providing food supply for geese. LWfG and GWfG prefer low-grass communities concentrated in wet grass meadows of middle and upper flood zone (Figure 7), while Greylag Geese are confined mainly to high-grass areas with mudflats spread along the bank of the canal behind the reed belt (Figure 9).



Figure 5. Geese feeding at the bank of Aras reservoir near Karachug village.



Figure 6. Wheat fields near the banks of Aras reservoir are one of the feeding habitats for LWfG in Nakhchivan Autonomous Republic.



Figure 7. A mixed flock of GWfG and LWfG feeding on a wheat field at Karachug village.



Figure 8. Feeding habitat for LWfG in Sadarak district near the Aras River.



Figure 8. Feeding habitat for Greylag Geese in the Sadarak district near the Aras River.

We conclude that the Aras reservoir and the Aras River valley in Nakhchivan Autonomic Republic are of primary importance for LWfG and other waterbirds. Within the Azerbaijan part, more than 25,000 individuals of waterfowl and shorebirds overwinter, which qualifies this important area both as a BirdLife International Important Bird Area (IBA) and to the list of important RAMSAR wetlands.

As far as wader numbers are concerned, the wetlands near the settlement of Sadarak area are less important compared to the Aras reservoir. In total, we counted 3,846 individuals of different waterbirds species within the Sadarak area. However, due to the state borders of four countries, the access to this district is limited and we did not manage to survey the whole area. We believe that a larger number of geese than we counted winter in this area. The data obtained through satellite transmitter tagging of LWfG in Russia have revealed that the geese move around and stay for a period from some few days to several weeks within the habitats of both areas (Aras reservoir and Sadarak). The whole area of the Aras River valley from the border of Turkey to the Aras reservoir dam serves as wintering grounds for LWfG. Considering their high importance as a wintering area with little disturbance and low hunting pressure, the wetlands of the Aras reservoir and Sadarak district should be assigned status as a strictly protected area.

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