Survey of Lesser White-fronted *Goose Anser erythropus* in lower Ob River, Russia in autumn 2010

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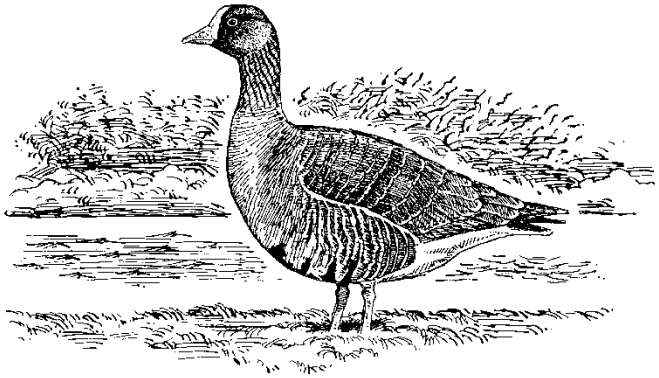

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Summary

A survey of Lesser white-fronted geese (LWfG) was carried out in the Lower Ob River in autumn 2010. Ca. 4000 Lesser white-fronted geese were found along the surveyed route. The study area was found to be a very important key stopover site for LWfG with very high level of hunting and poaching. In order to decrease the pressure of hunters on Lesser white-fronted geese and Red-breasted geese it is necessary to try to implement the following measures:

1. Change the terms of goose hunting: allow autumn hunt after 25. September, and move spring hunting to earlier dates or close it.
2. Organize seasonal patrolling in Elisarovskij and Kunovatskij nature reserves.
3. Organize a net of protected areas with full protection from waterfowl hunting in the territories of Berezovsky (KHMAO) and Shuryshkalsky (YANAO) regions.
4. In areas with oil- and gas prospecting and extraction it is necessary to control illegal transportation of hunters by helicopters and planes.
5. Implement a comprehensive education program for local hunters: spreading of booklets, flyers, posters and field guides; promotion of LWfG and RbG protection in hunter's literature, on TV, newspapers, and at the official sites of villages.
6. Continue the monitoring of LWfG during spring and autumn migration in this region.

Dates and participants

The survey was carried out in the period 13-26 September 2010 by a team consisting of S. Rozenfeld (A.N. Severtsov Institute of Ecology and Evolution, RGG), E.Strelnikov (NSR «Yugansky»),S. Shevtchik (pilot) and G. Kirtanov (pilot).

Study area

Waste high-water beds of the Ob-River are cut through in all directions by a number of branches and channels. The main watercourse is Bolshaya Ob. The water meadow of Dvuobie is formed by a series of low-lying swamps, low willow beds with sedge, swampy and peaty meadows as well as shrubby and parky willow beds. This habitat is crossed by a variety of branches and channels and in the middle part temporary reservoirs are located. They are called “sors”. The “sors” are flooded for a long period in spring, usually 80-100 days. Annual long spring-summer flood favors a slow development of soil and grass. Lakes and “sors” usually have a round and stretched form, and makes up areas from some dozens to several thousands of hectares.

The lake’s bottom is flat with thick layer of the oozy depositions. The depths of the reservoirs are 2-3 meters and decrease to 0.3-0.7m at low water levels. After water reduction in the shallowest parts, thinned groups of *Eleocharis acicularis*, *Equisetum arvense*, *Beckmannia syzigachne*, *Agrostis stolonifera, A. alba, A. straminea* appear. When it becomes drier, closed groups of “sory” meadows form a complex of *Agrostis stolonifera* + *Puccinellia sp*. In addition to this complex on the “sory” meadows, *Beckmannia syzigachne, Arctophila fulva, Senecio congestus* often appears, and in smaller amounts: *Cardamine amara, Polygonum aviculare, Rumex sp., Eleocharis acicularis, Equisetum arvense, Equisetum fluviatile*, *Stachys palustris, Gallum palustre*. Around the “sors” hummocky (about 60 cm height) sedge meadows are spread, herbage reaches 100 cm. The highest areas of the bed manes among the big channel and the main bed of the Ob-river is occupied by willow-, birch-, aspen-forests. Deciduous and conifer forests are located only above the flood plain terrace. All the geese migrating through this area are associated with the “sors” depressions, coasts of channels and large shallow lakes.

Study area

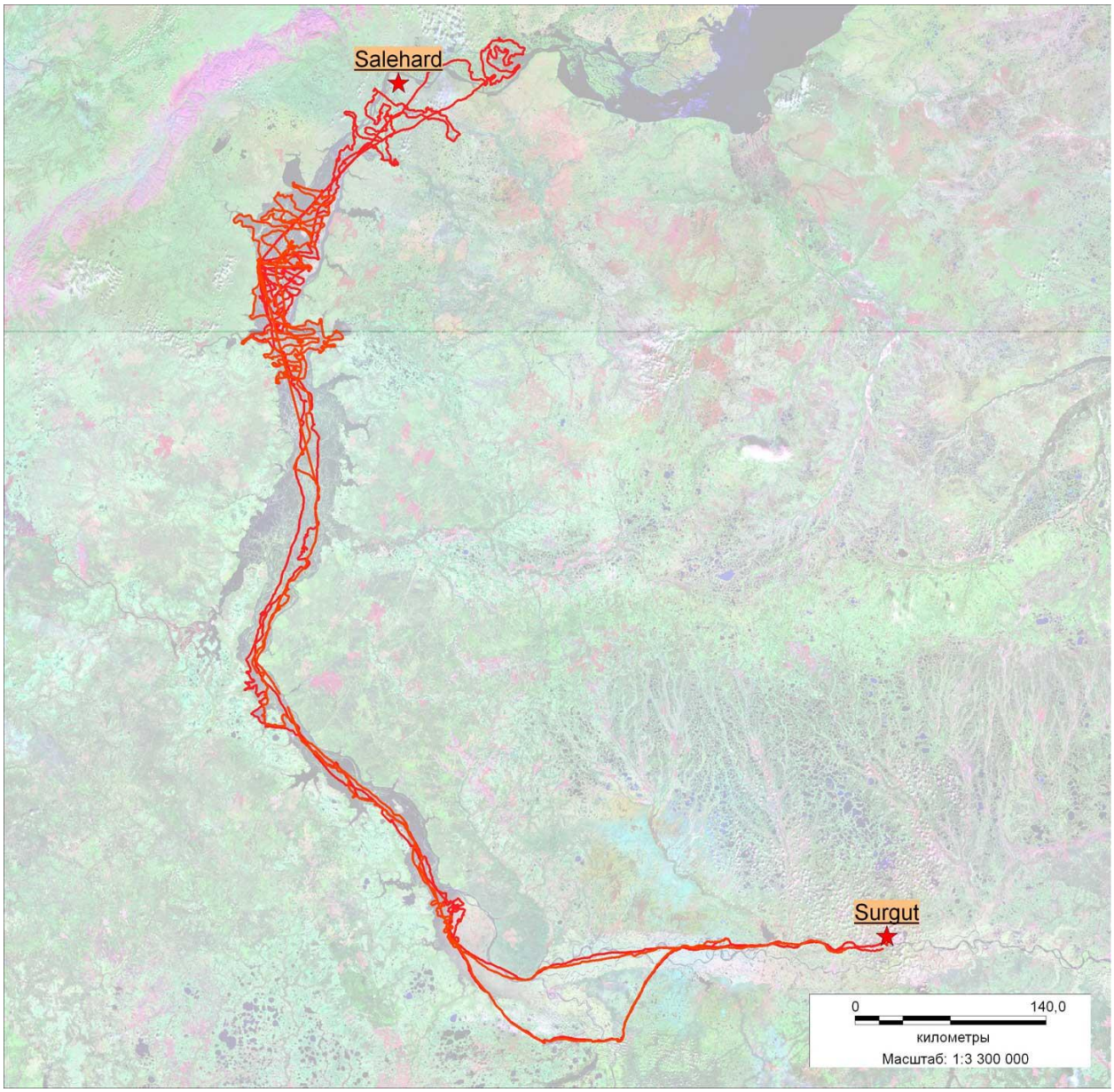

Figure 1. Tracks showing the flight routes during the survey. The total length of the tracks is 7340 km.

Methods

The study area was split into five key zones based on information from data from satellite transmitter tagged birds. During the survey of these zones we used two hydroplanes A-27 and ЧЕ-22 for receiving maximum detailed data. The average height of the flight was 30-100m depending on the visibility.

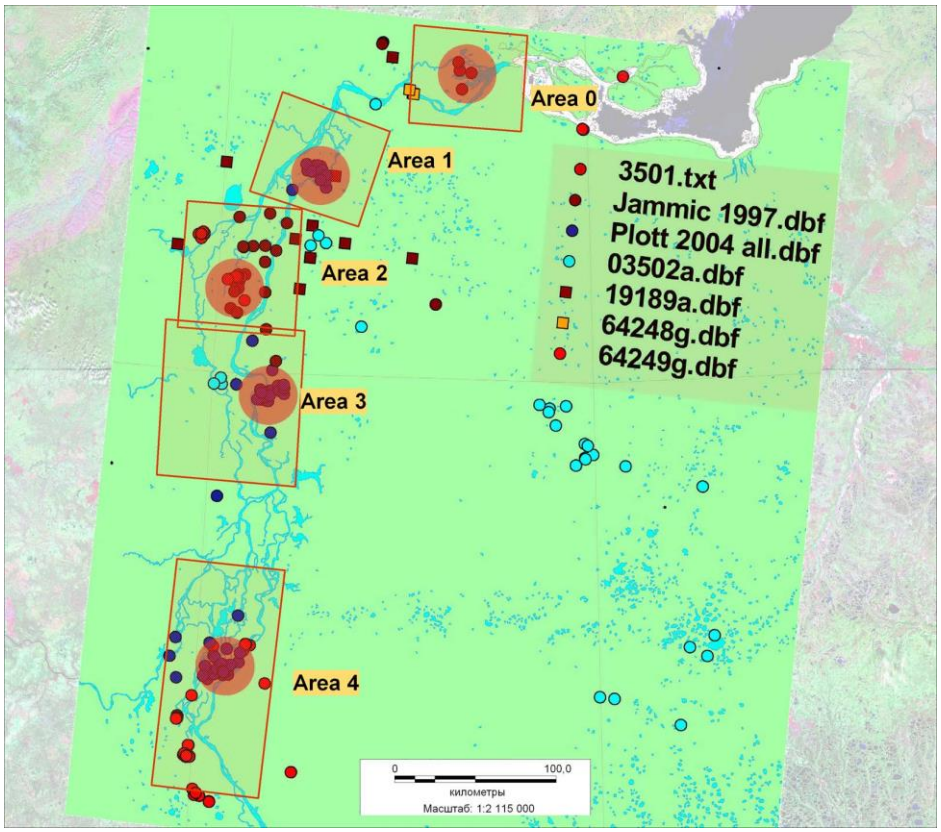

Figure 2. The five zones of study area surveyed. The colored dots indicate locations from seven different satellite transmitter tagged LWfGs.

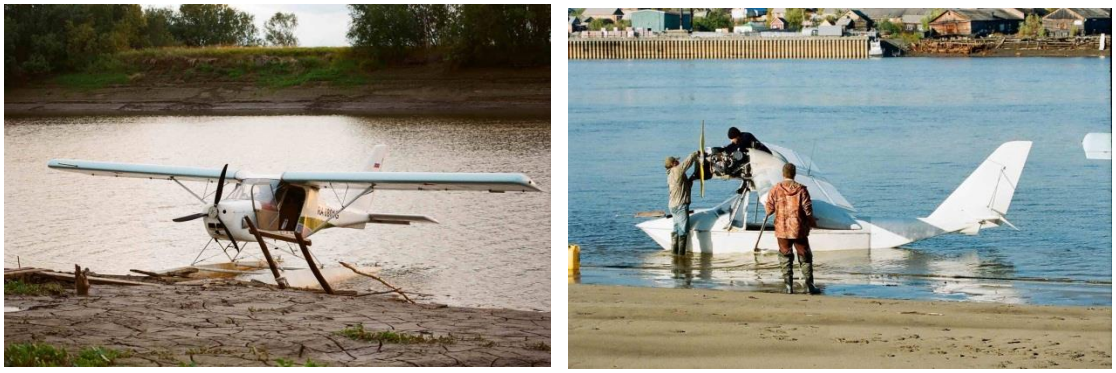

Figure 3. The hydroplanes used for the survey, A-27 on the left and Че-22 on the right.

Table1. Dates of survey in the defined zones

Region	Dates of survey
Area 0	21.09
Area 1	21.09, 22.09
Area 2	18-20.09, 22.09
Area 3	18.09, 21.09, 23.09
Area 4	16-18.09, 23.09, 24.09

For visual observations we used binoculars (Nikon 10x42mm) and telescopes (Yukon 6-100x100mm). The goose flocks were plotted with Garmin GPS, but also goose feeding sites, hunter's lodges, observed hunters and villages. In all goose flocks observed the number of birds and species ratio were estimated. For more detailed estimation and estimates of age ratio we used the photo cameras Canon and Pentax (with objectives 100-400mm and 600-1000mm). We also made descriptions and took pictures of typical habitats. We undertook a separate study on the feeding ecology of geese, including description of feeding habitats, analysis of food plants and droppings (6) samples collection. The diet pattern analysis was made by the coprological cuticular method. For defining plant species, the guide of Ramenskaya (1982) was used.

For the development of the bank of constant model preparations and of the atlas of microphotography of epidermis sculpture of feeding plants, a Leica microscope with camera Leica DFC 295 was used. For the work with GPS-data OziExplorer 3.95 was used, and GIS maps were created in MapInfo 8.5 on the basis of the Landsat 7.

For evaluation of the hunting pressure, information were collected by means of questioning of hunters, analysis of hunting & fishing societies (Rosochotrybolovsoyuz CHMAO-Yugra, Surgutsky Rayon Municipality of Khanty-Mansyisky Autonomous District of Surgut administrative region), official reports, and returned waybills of the hunters. For evaluation of real number and distribution of hunters, their houses, cars, boats, geese profiles sets and pedestrian hunters were mapped. For approximate evaluation of the total number of active hunters in autumn 2010, the number of boats in every village was counted. Also blood samples, samples of feathers and muscular tissues from the hunted LWfG were taken. Some feathers samples LWfG and Red-breasted Geese have been taken on the feeding places.

During the work, twelve villages in Kchehanty-Mansyisky Autonomy District (KHMAO) and Yamalo-Nenetsky Autonomous District (YANAO) were visited. In all inspected areas, flyers with information about LWfG were spread. Five thousand copies were sent to the Muji village and Yaguryah village for the spreading through administrative bodies among the hunters of KHMAO and YANAO.

Information work

At the Muji village official web site (www.adminmuji.ru) an article about rare goose species and an electronic version of the leaflet was published.

On September 20, an interview about the work on the project and the necessity of LWfG conservation was broadcasted in the news reports at the local TV (Salehard OGTRK «Yamal region»). Information about the project is also published on the State reserve "Yugansky" web site (www.naturhmao.ru).

Figure 4. Information about rare goose species on the official website of Muji village.

Goose migration pattern

According to the inquiry, the start of 2010 autumn migration and the first mass arrival of LWfG and RBG in the study area were registered on September 4. According to our observations, the onset of intensive departure of RBG from the northern part (area 0-1) of the surveyed area was on September 21. The mass arrival of WFG and intensive migration of LWfG, RBG and Bean Goose (BG) in southern direction in the central and southern part of study area was observed in the period 23-24 September. Thus, on September 23, 110 RBG were observed by rangers in Elyzarovskij reserve). By the opinion of the hunters questioned in Salehard and Shuryshkalsky regions there is no RBG spring migration in this area, and WFG cross this area in transit, mainly at night time and at high altitude.

Table 2. Number, species ratio and distribution of geese within the study area

Date (September)	Latitude	Longitude	LWFG	RBG	BG	WFG
16-17	61.30928	67.75494	400		6	

16-17	61.26931	67.44126			400	
16-17	63.26611	65.08996			12	200
16-17	61.50749	67.60418	55		2	89
16-17	61.30944	67.75363	322			20
16-17	63.19308	65.19719	11			
17	62.03030	66.94440	322	43		
17	63.18620	65.07692	21			
17	63.26610	65.08996	17	137	22	
18	64.99052	65.27435			10	20
18	65.50546	65.15701	5			
18	65.54308	65.15242	23			52
18	64.71521	65.31194	27		150	
18	61.16381	64.87370		4		
18	65.34001	64.83186	113		150	
19	65.18907	65.13661	40			120
19	65.19806	65.01641			2	
19	65.17001	65.01562			210	
19	65.12395	64.59528	78			130
19	65.10227	64.59168	14			14
19	65.13351	65.12469			12	
19	65.01953	65.09724	21		14	15
19	65.03457	65.04315	5		43	12
19	65.07392	65.03682			3	
19	65.35864	65.02495			6	
19	65.36485	65.07291				5
19	65.35689	65.09414	28			120
20	65.39615	65.24943	20			
20	65.60856	65.56588	140			
20	65.40368	65.30108	2	74		
20	66.06326	65.91242	131		64	
20	66.15584	66.34441	63	56	5	
20	66.06590	66.63966	39			
20	66.35820	66.59134	19	17	90	
20	66.43731	66.27443	21		95	
20	66.34697	66.40064	57		105	
20	66.22643	66.02362	8		71	
20	66.07892	65.80154	70		18	
20	66.07976	65.80523	22	90	22	
20	65.99925	65.76146	49	48		
20	65.69114	64.56334			10	
20	65.65841	65.40918	9		90	
20	65.67205	65.30394				130
20	65.72015	64.89523				28
20	65.68392	64.80994				180
20	65.74888	64.87062	18			

20	65.83475	65.60057		145		
20	65.52835	65.20964	40			60
20	65.45469	65.04656		18		
20	65.48552	65.27399		29		
20	65.41437	65.41076		28		
21	66.78004	68.21995	4	150		
21	66.62070	68.14654		193		
21	65.85274	65.56995			9	
21	65.87432	65.60335		29	28	
21	64.89357	65.05643	48			
21	65.20094	65.00009			48	
21	65.08811	65.11248	91			
21	65.05245	65.18824			13	
21	65.07986	65.69013			450	
21	65.02198	65.92891	180			20
21	64.90421	65.65881	84		320	
21	64.68435	65.13247			43	
21	64.72892	65.19142			12	
21	64.78805	65.35542	17		98	
21	64.78551	65.07133			30	
21	64.79136	65.12064			72	
21	64.86847	65.34232	32		315	
21	64.84285	65.02574			91	
21	64.95192	65.38927	84		80	
21	64.95644	65.03891			228	
21	64.97712	64.80797			128	
21	65.00533	64.92221			15	
21	64.99354	65.07461	26		23	
21	65.08043	64.92891			74	
21	65.24837	64.66892			17	
20	65.39616	65.24944	20			
20	65.40369	65.30108	2			
20	65.39767	65.41508		70		
20	65.48116	65.20327		40		
20	65.60856	65.56588	140		200	
20	66.06326	65.91241	1		50	
20	66.15585	66.34441			150	
20	66.06591	66.63966	40			
20	66.35821	66.59134			100	
20	66.43731	66.27443			25	
20	66.34697	66.40064			12	
20	66.35721	66.52845			200	
20	66.22643	66.02362	30		270	
20	66.07893	65.80154	20		70	
20	65.99925	65.76146	50			

21	65.74675	65.38004			100	
21	65.86883	65.60643			30	
21	66.63836	67.79099		20		
21	66.73341	68.38754		20		
21	66.70298	68.38413				9
21	66.78258	68.33687		150		
21	66.78004	68.21995	4	151		
21	66.58616	68.09458				300
21	66.59791	68.11887		172		
21	65.87432	65.60335	40		15	
21	65.85274	65.56995			9	
22	65.23418	65.13703		38		
23	65.11599	64.48310	82			
23	64.89724	65.04826	48			
23	64.77667	65.21182	8			
23	64.68594	65.37151			184	
23	64.01443	65.73922			54	
23	63.85393	65.62707	15		42	
23	63.63741	65.51257		110	5	
23	63.47892	65.42971			4	
23	63.36755	65.43074		222		
23	63.33835	65.38976		110		
23	63.31521	65.29321		450		
23	63.25581	65.22277		48		
23	63.09894	65.12153		3500		
23	62.93612	65.02506	13		24	
23	62.84524	65.18765	24			
23	62.63575	65.20114	37		55	150
23	64.44161	65.65656		21		
23	63.80847	65.69479	39			
23	63.80173	65.66404		1		
23	63.68719	65.60123				120
23	63.76997	65.64517		100		
23	63.67929	65.65579	40		31	300
23	63.61566	65.53711	30			
23	63.49755	65.46222			30	
23	63.34064	65.34893			7	
23	62.83079	64.96519	110		93	400
23	62.81078	65.02211	15		4	
23	62.78671	65.06784				500
23	62.76955	65.10021			15	500
23	62.43311	65.07952				150
23	62.67059	65.07328	20		8	20
23	62.62151	65.13119	50			
23	61.30928	67.75494			21	

23	61.41139	67.82778	15			15
23	61.42514	67.84721	65			400
23	61.43641	67.86776	10			
23	61.46718	67.90015			53	
23	61.50148	67.71204			17	
23	61.55573	67.67496	151		2	300
23	61.82882	67.34151	12			26
23	62.36253	66.10553	10		18	
23	62.35431	66.13373	18			
24	62.34541	66.15952			210	
24	62.28921	66.34581				22
24	62.17475	66.44921			26	
24	62.11539	66.78726	8		4	453
24	62.04039	66.99487			48	
24	61.44051	67.74743			30	

Table 3. Total number of geese observed during the survey

LWfG	RbG	BG	WfG
3943	6284	5922	4880

Table 4. Breeding success (% of juveniles in observed flocks)

Species	LWfG	RbG	BG
Number of observed flocks	3	1	3
Number of observed individuals	41	272	10
% of juveniles	85.3	76.4	82.3

Figure 5. The pattern of hunting pressure depending on goose distribution in the study area.

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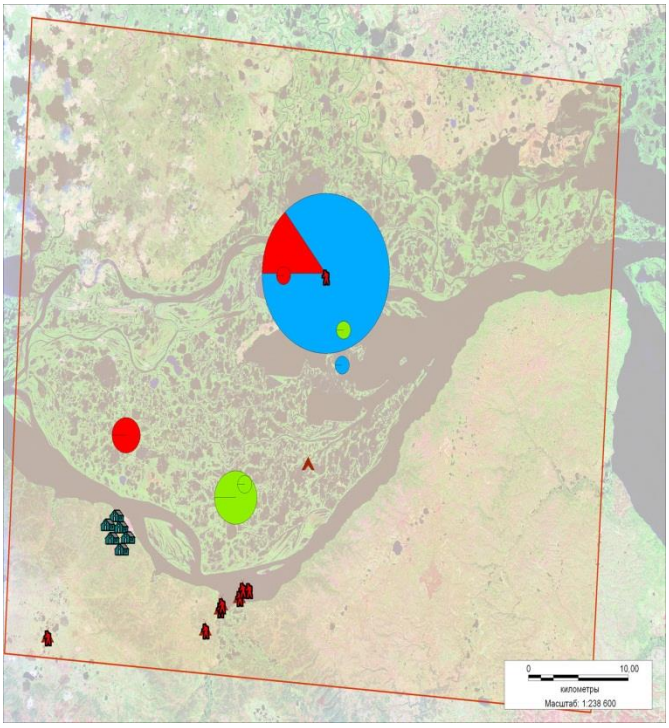
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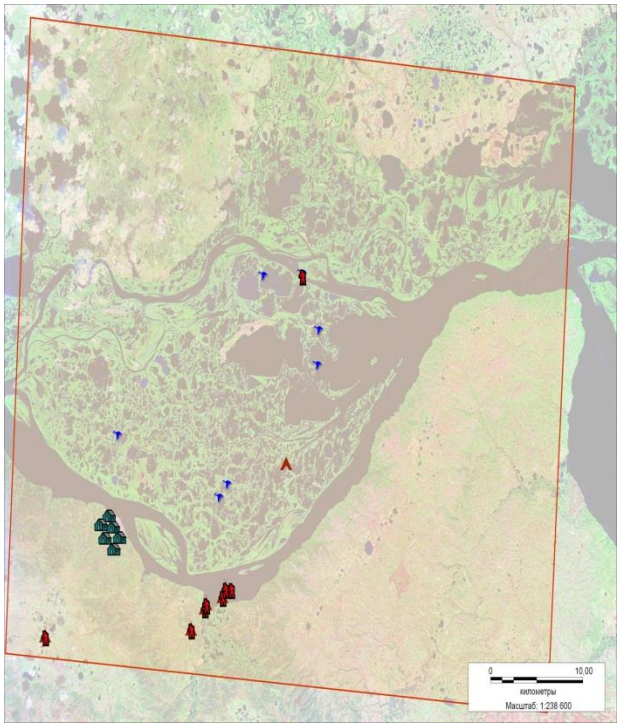
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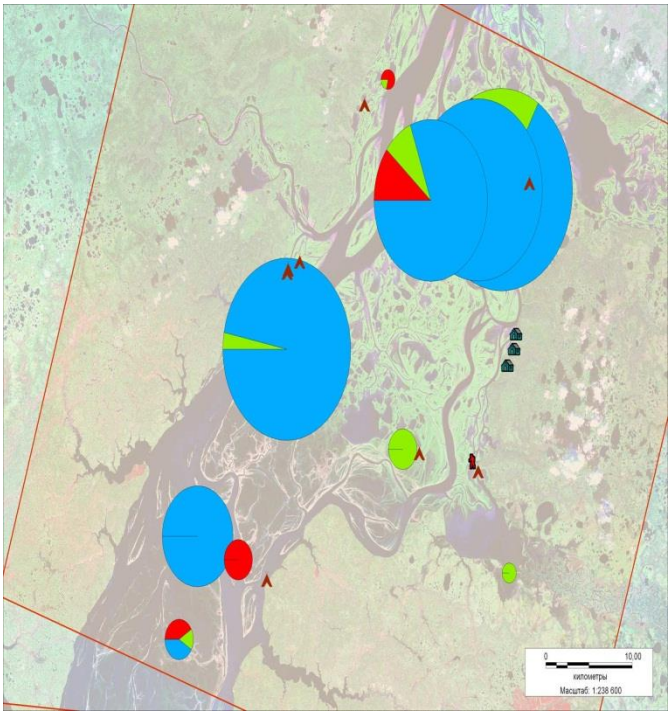
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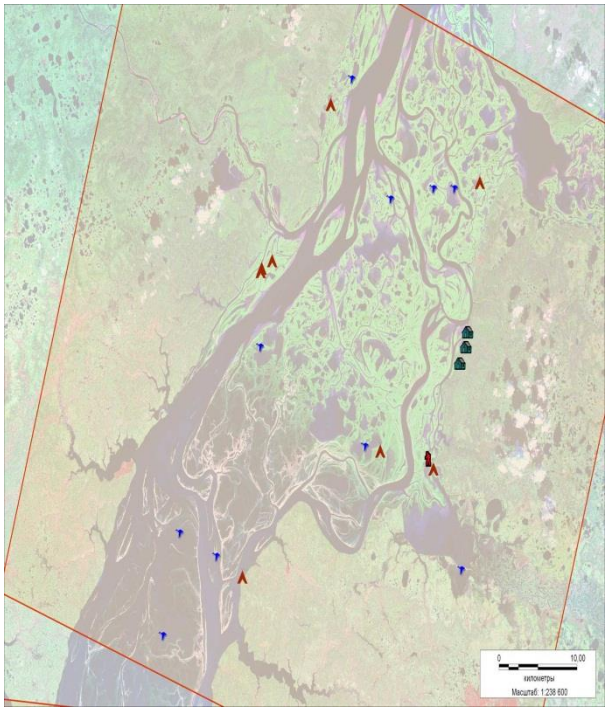
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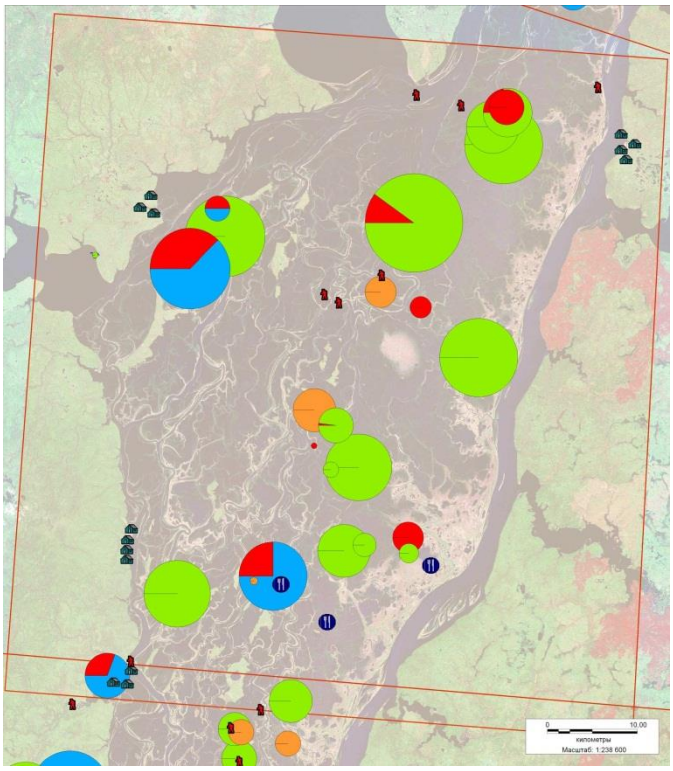

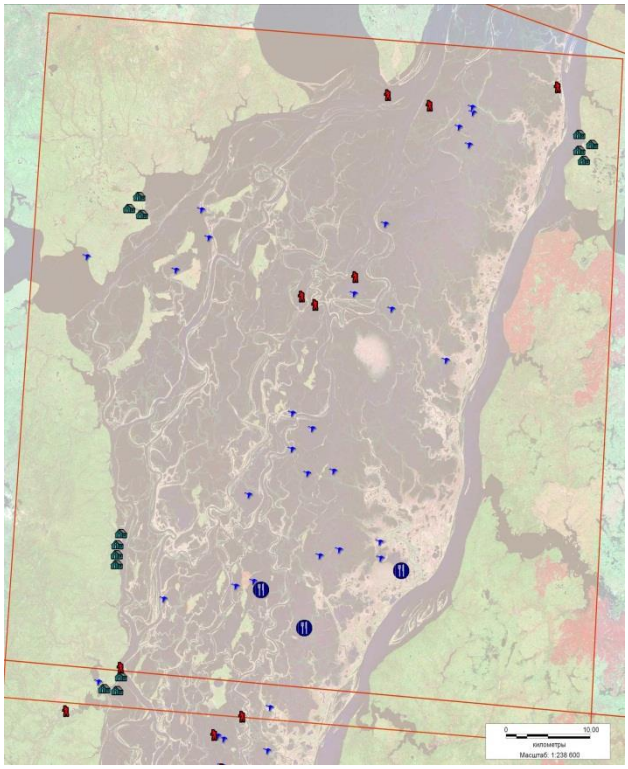

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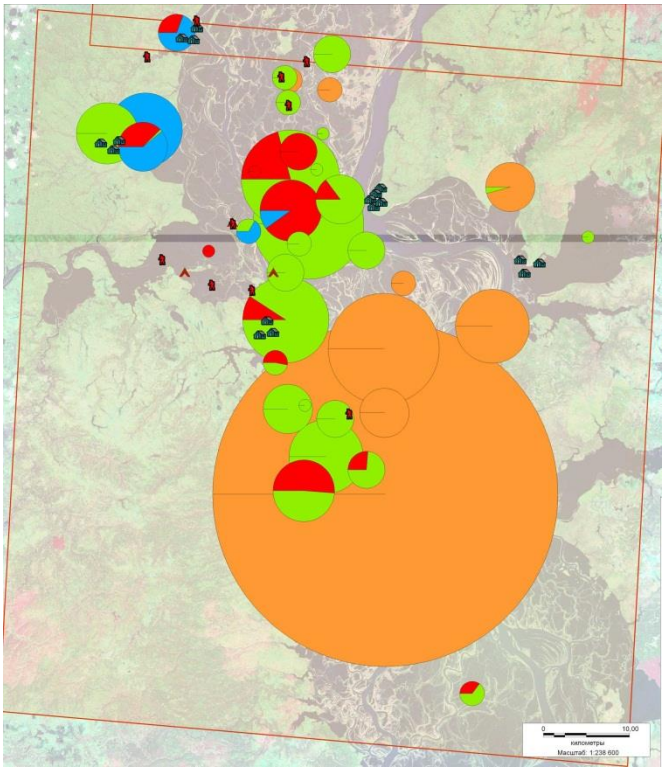
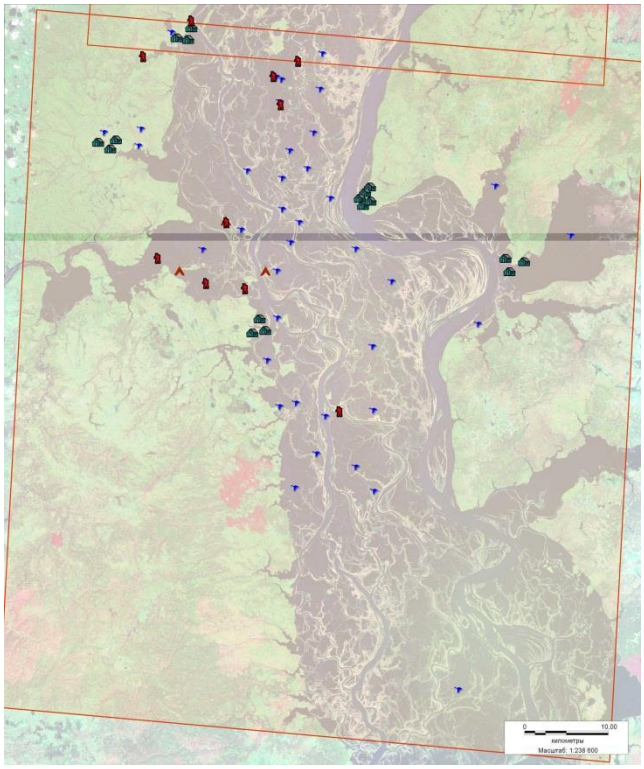
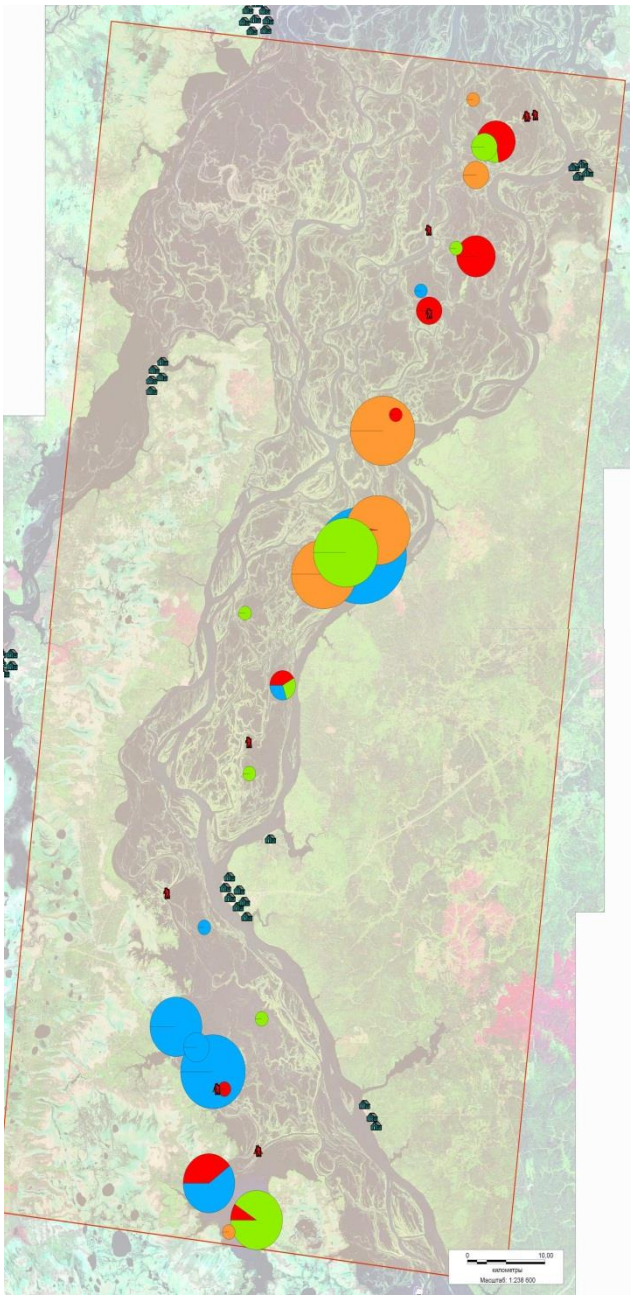
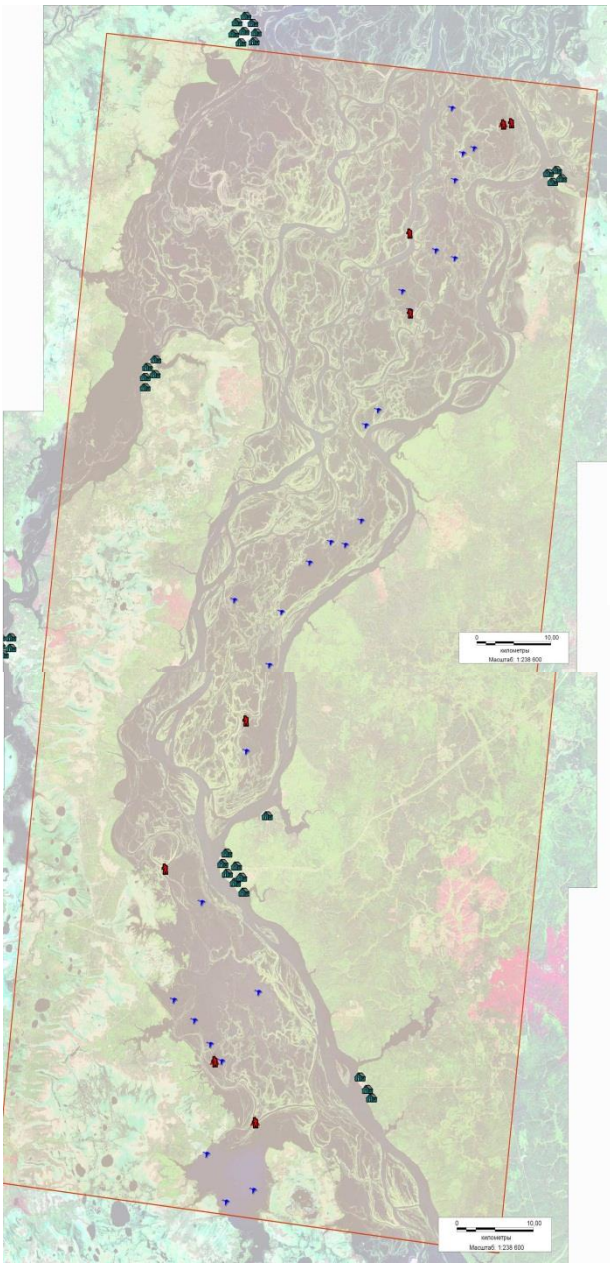




Area 4

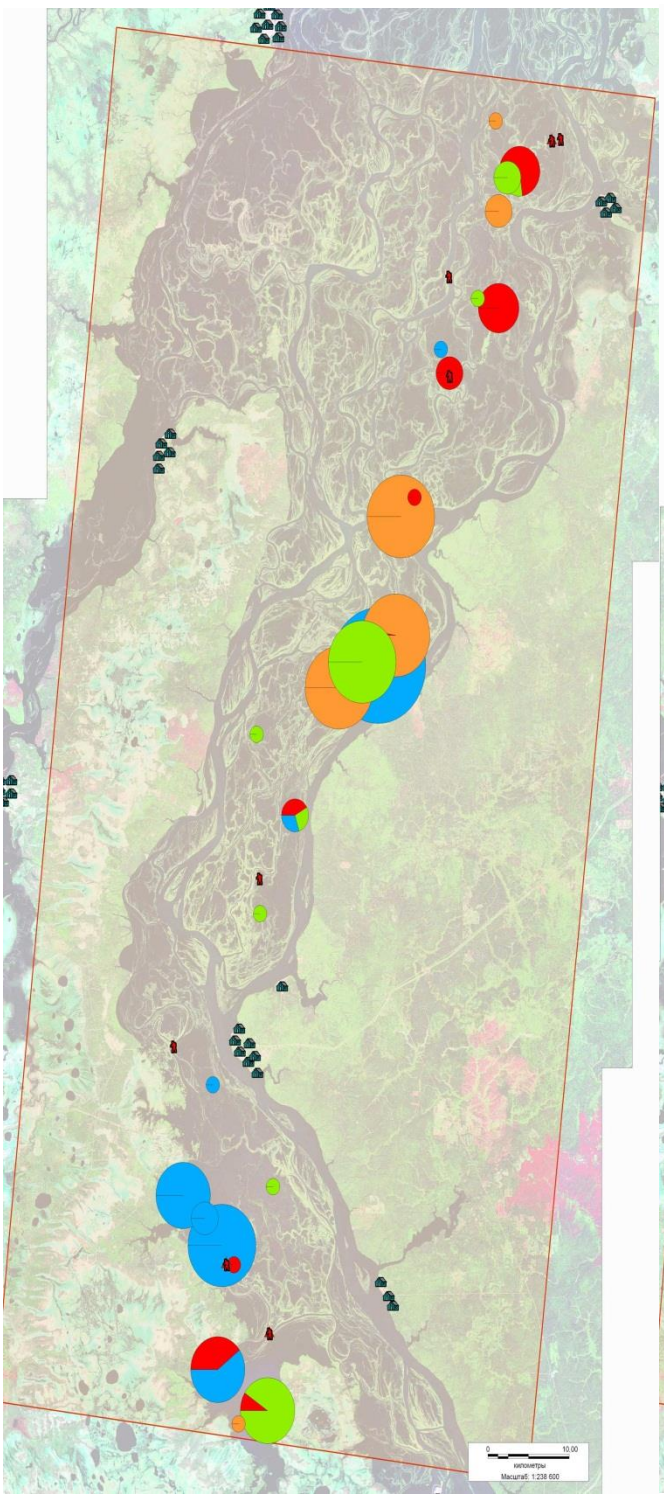
Central part

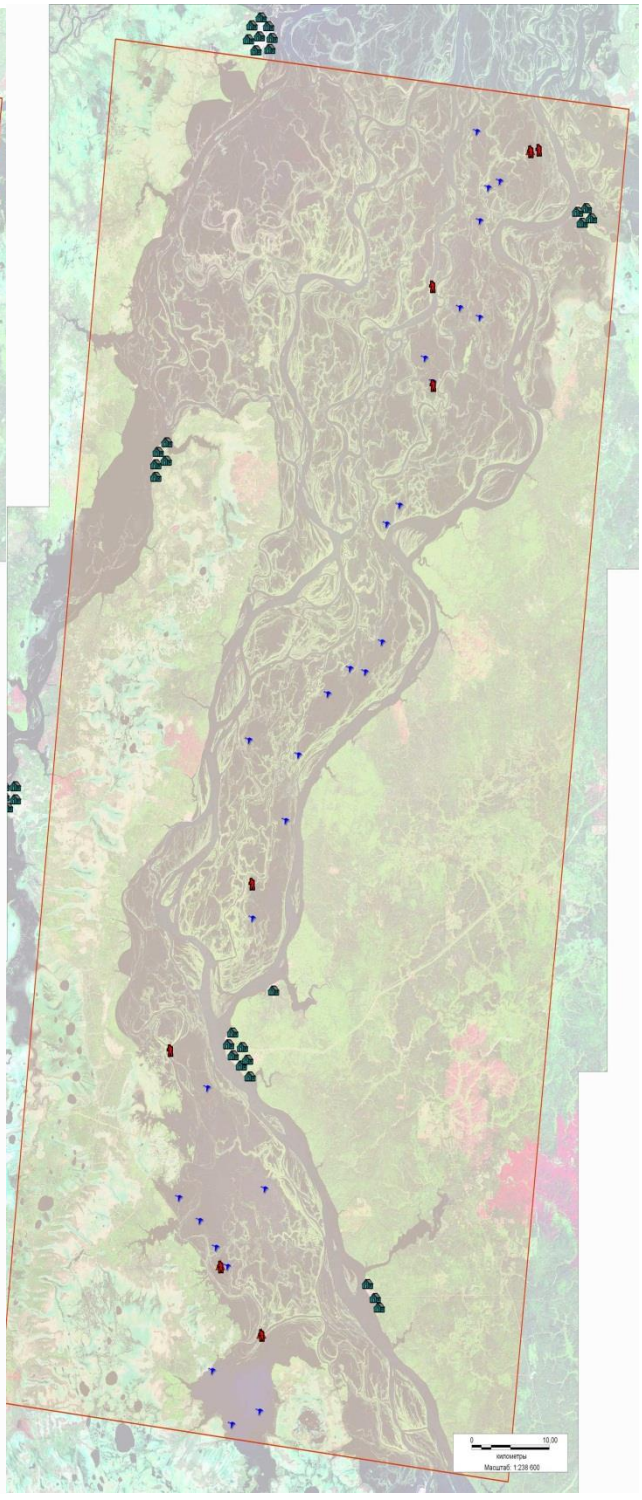




Area 4

Southern part





Feeding ecology and biotope's distribution of Lesser White-fronted Goose (LWfG) and Red-breasted Goose (RBG) in study area

Main feeding habitats of Lesser White-fronted Goose

In the study area LWfG use several types of feeding habitats:

1. Muddy and sandy banks, where *Equisetum arvense* dominates with sedge and small amounts of grass (*Poaceae*) on the top. This feeding habitat is used very frequently. If there are small parts of low-grassed muddy areas in the "sors" depressions, LWfG prefer to feed in this habitat.


2. Flooded plains, presenting flat areas with *Arctophila fulva* and *Agrostis*. At the channel outlets there are "sors", where *Agrostis stolonifera and Puccinellia sp*. dominates and horsetails and underwater vegetation are rich. The depth of lakes and channels here reaches 1.5 meters.


3. Muddy banks of large lakes, channels, cannel outfalls into flood plains. This is a marsh biotope and "sors', where complex of *Agrostis stolonifera* and *Puccinellia sp*. dominates. Near the shore of lakes, pools and channels, grass species (*Arctophila fulva*, *Beckmannia syzigachne*, *Senecio congestus* and *Bryophyta*) are numerous mixed with motley grass (*Rumex sp., Cardamine amara, Polygonum aviculare* etc.). Vegetation cover here can reach 60-100%, and the height of the grass "carpet" is 1.5-2 cm. At the border between dry land and water grass "carpet" may reach 3-8 cm. In this feeding habitat, the goose species prefer different areas. White-fronted Geese prefer to

feed closer to the lake shores (as compared to the LWfG) where the grass coverage is higher. The LWfG (and RBG) – graze on low *Agrostis stolonifera* and *Puccinellia sp*. "carpets" with vast areas of muddy bare soil, where it is easier to reach underground parts of plants.

4. Shallow lakes with waste bars on the shores and in the center, where *Agrostis stolonifera, Puccinellia sp., Equisetum sp. and Arctophila fulva* are dispersed in spots.

5. Sandy banks near large channels with spots of horsetail and motley grass (*Rumex sp., Polygonum aviculare, Cardamine amara, Myosotis sp., Ranunculus reptans* etc.), bordered by belts of high grass (*Arctophila fulva* and *Beckmannia syzigachne*) with spread individual willows.

Main feeding habitats of Red-breasted Goose

In the study area this species is associated with the following feeding habitats:

1. Large (about 1.5-2 km in diameter) shallow lakes with vast muddy banks, where *Eleocharis acicularis of* less than 1 cm height grows without making "carpets". The shores of these lakes are occupied by belts of high *Beckmannia syzigachne*, *Arctophila fulva* and *Senecio congestu,* which is continued by hummocky marshland dominated by sedges and low ridges with high willows.


"Sor's" depressions, with flat flooded marsh habitat with large spots of bare soil, where a complex of *Agrostis stolonifera and Puccinellia sp*. dominate. On the, borders mosses and sedges are abundant.




There is a clear difference in grazing preferences between the goose species (figure 1). RBG prefer to utilize the underground parts of sprouts smaller plants that do not form full cover of the soil. LWfG

prefer to graze on short-grassed carpets of “sors” or lake bars, belts of short grass, mainly *Arctophila fulva*, or horsetail stripes on the banks of channels. WfG use more highgrassed “carpet” of marsh type area on the ‘sor”, and also the belts of the groundsel (*Senecio congestus*).

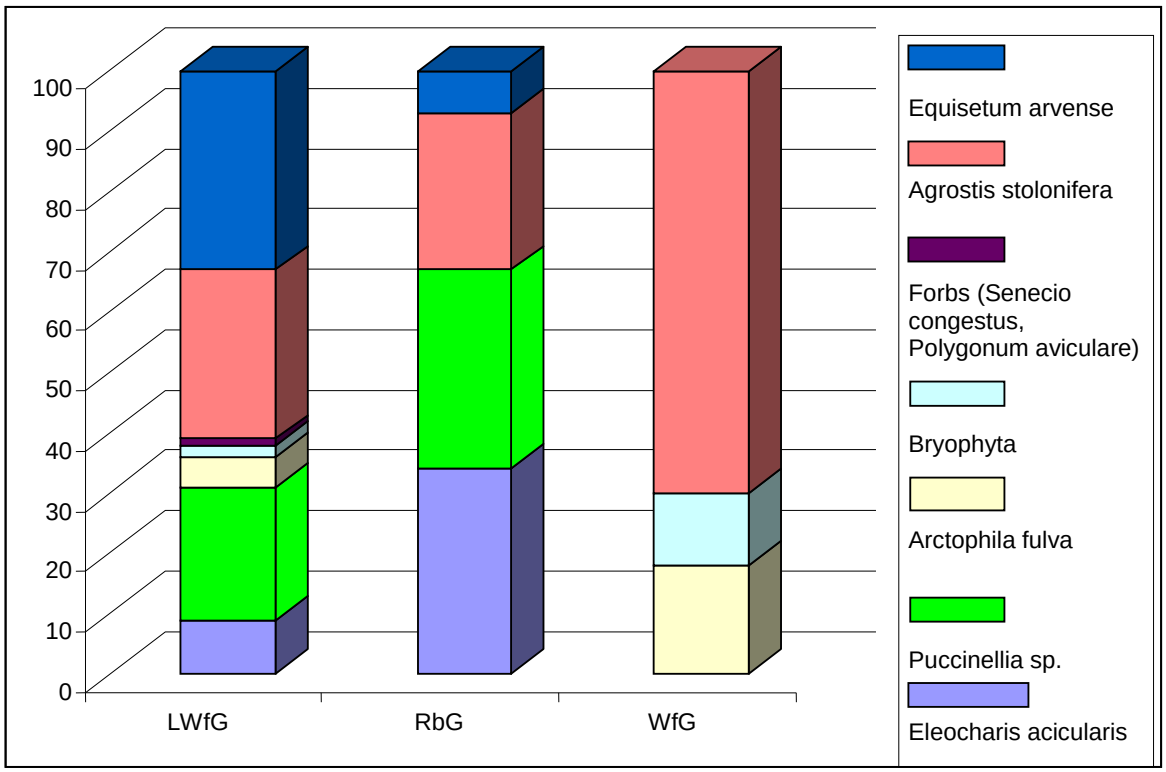


Figure 6. Grazing preferences of LWfG, RbG and WfG in the study area. The bars show the selection of grazing plants in percentage of the total consumption.

Bean Geese prefers to feed in high-grassed “sors”, swamps and flood-plain lakes. In such habitats *Agrostis stolonifera* and *Ranunculus reptans* dominate in the low-lying, often fully flooded, parts. At the shores, *Agrostis straminea*, *Beckmannia syzigachne*, *Arctophila fulva* and *Senecio congestus* are plentiful, which are willingly eaten up. “Sors” and lakes alternate by vast areas of sedge hummocky marsh transferring to low ridges with willows, birch and asp.

LWfG and WfG sometimes use such biotopes together with Bean Geese, but more willingly use ‘sors”, the shores that make the muddy bars.

In the study area, the spring flood level defines the distribution of the muddy marsh type parts of "sor's" depressions and thus, influence the height and structure of vegetation. Therefore the distribution of LWfG and RbG depends on the accessibility of the grazing habitats. In case of shortage of these marsh type habitats, LWfG and RbG move to the lake shores and the bars of channels or to the shallow lakes.

Evaluation of hunting pressure on LWfG in Lower Ob-river

The study area (Lower Ob and Dvuobie region) is situated within the territory of two administrative units: Khanty-Mansyisky Autonomous District (KHMAO) and Yamalo-Nenetsky Autonomous District (YANAO).

Khanty-Mansyisky Autonomy District (KHMAO)

In the whole district, 79 000 of hunters are officially registered. This information is, however, outdated as the re-registration was several years ago. In Khanty-Mansyisky region 12 570 hunters are registered. In the information from the regional hunting & fishing society (Rosochotrybolovsoyuz KHMAO-Yugra, Surgutsky rayon) of Khanty-Mansyisky Autonomous District of Surgut administrative region, 16 454 hunters have hunting licenses, 50-70% of which hunt waterfowl (it is important to note that approx. half of them go out to hunt only at the opening and closing of the hunting season). Of these hunters, 2-3% is specialized in goose hunting (250-300 hunters). Approximately 15-20 hunters go out every season to hunt geese along Ob to the north up to the border to YANAO. The main areas for goose staging are located remote places which are difficult to access. In autumn it is possible to reach these places only by helicopter. Accordingly, hunters often use helicopters MI-8, which serve hydraulic hookups and oilrigs. So, in some regions the zone of the "hunters influence" is closely linked to the network of gas-pipelines. One of the most visited places by hunters by helicopter is the outskirts of the village Kamennij. In accordance with new legislation, waterfowl hunting is defined with the following bag-limits: autumn – 5 ducks, 1 goose; spring – 3 ducks, 1 goose, but in practice, the hunting is not regulated.

In the years 2008-2010 the official total limits and registered hunting bags for the district were as follows:

Autumn 2008 – 400 geese (according the official report – 595 shot)
Spring 2009 – 300 geese (according the official report –187 shot)
Autumn 2009 – 200 geese
Spring 2010 – 200 geese
Autumn 2010 – 100 geese

Table 5. Official statistics on hunting bags of geese during spring and summer-autumn in KHMAO.

Season	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Spring	540	690	949	905	599	716	604	809	715	1018	Hunt forbid-den	686	409	187
Autumn	-	1511	261	259	527	833	631	563	898	668	678	-	**595**	-

The number of geese shot in the regions of KHMAO is about 50-100 individuals per region. Hunting on Graylag Goose and Taiga Bean Goose is prohibited since 2003. Both species are included in the Red book of KHMAO as rare species with decreasing populations (category 2). The official reports of the hunters' organizations demonstrated that the provided information has nothing in common with the real situation concerning controlling of the hunting bags. There is a limit on the total goose hunting bag for the district, and therefore the figures of shot geese in all official reports are always close to the allowed limit. Real reports from the hunters are not even looked through. We analyzed the returned reports from hunters and got the following results:

In spring 2010 (hunting period 1-16.05), 2808 permissions were provided for waterfowl hunting, of which 77 were not used. In the regions within the key staging areas of LWfG, about 2550 permissions were provided. According to the official report, 45 geese were shot, according to the returned report from hunters, 13 geese were shot. Taking into the consideration that reports are filled in and returned by only 3% of the hunters, the number of geese shot should be about 400.

Goose hunting at LWfG grazing sites

In autumn 2010 (hunting period 04.09-30.11), eight geese were shot according to the official statistics. According to the returned reports from hunters: 51, and according to our assessment: 150-200 geese. In spring, the extent of the goose hunting in the study area is greater, since the goose staging areas are easier accessible in this period. During spring staging, it is possible to reach the staging areas by snowmobile or boat. The best known place for LWfG and RbG staging in the southern part of the area is the outskirt of the Elisarovsky (Yaguryah Village) Federal Reserve. Despite

the fact that this reserve has federal status at presence, it does not employ staff, so there is no real protection in this area. This territory is a traditional hunting place for “elite hunters”, and good all-terrain vehicles render possible to reach goose staging sites that were previously inaccessible. These conditions have increased the hunting pressure on the LWfG in recent years. Within the borders of the reserve, four hunters shot 10 (6 adult and 4 juveniles) LWfG and 4 Bean Geese on September 17-18 in 2010. According to interviews in the area of the reserve, each hunter shoots about two geese. Those that specialize in goose hunting may shoot dozens. For example, during one day in 2009 four hunters shot 52 geese. Thus, only in this area, 1-2 LWfG are shot by each hunter per season (altogether 150-200 LWfG). Taking into consideration that LWfG often migrate through this area in pure flocks of 15-50 individuals, a similar proportion of LWfG may be representative for the total hunting bag. From our evaluation and in the opinion of A.E. Zhirnov (the late inspector of the reserve) the average number of LWfG shot during each hunting season within the reserve and in adjoining territories can reach 100-150 birds.

Two-three big goose staging sites exist also in the Ustrem Village region. These sites are also used by LWfG and RbG during migration. The main number of RbG migrates directly through the village. In Ustrem Village, five hunters are registered officially, but in reality almost the whole village population (except for small children) is actively hunting (about 20 persons). The radiuses of their hunting trips are about 30 km. Despite the small number of goose hunters, the goose hunting bag here is very big – about 10 geese per person per hunting trip. During RbG migration the hunters shoot this species quite often – for example only during 15-16.09. 2010 the hunters from Ustrem shot 3 RbG.

Yamalo-Nenetsky Autonomy district (YANAO)

In accordance with the data from the office of protection, control and regulation of bio resources of YANAO and Yamal-Nenets administrative body of Rosselkhoznadzor (the main official structure for controlling the hunt in Tyumen oblast, YANAO and KHMAO), located in Muji village (regional center of Shurushkalsky region), spring goose hunting was most popular and successful, because in this period it is easier to reach hard-accessible places. In the village itself, there are about 500 hunters, 100 of which are specialized on goose hunting, shooting 10-15 birds per person per season. As a result, only in Muji village in spring, the hunters shoot about 1000-1500 geese, and in autumn – about 700-1000.

When interviewing the hunters, it appeared that 20% of the hunted geese are LWfG. Accordingly, in this region 200-300 LWfG are shot in spring. In the Shurushkalsky region, located in the central part, eight villages are situated, in which about 2000 hunters live. The radiuses of their hunting trips are 50-60 km (there is a small overlap of hunting zone of Muji village and Azovi village). The main hunting regions of the hunt are Sinya River, flood plain of Ob and the interfluves, and also a huge “sor” near Shuriskaly village. In accordance with our evaluation and the interviews, 2500-3000 geese are got during the spring hunting season, and about 1500 geese in the autumn hunting season. LWfG composes 20-30% and sometimes 50% (!) of the hunting bag. One of the interviewed hunters said that a group of six hunters only in autumn 2010 shot 40 LWfG during one hunting trip! Accordingly, in this region the hunters can kill about 1500 LWfG in spring and about 750 in autumn.

In the northern part of the study area: the region of Salehard, LWfG is hunted less frequently. The hunters estimate its number as 10% of the WfG number migrating through this region. Unfortunately, there was no possibility to estimate to what extent LWfG are shot in this area. Therefore, a preliminary evaluation assesses that approx.1700 LWfG are shot by hunters in spring and about 900 in autumn. But this preliminary evaluation needs to be more precise: we need the additional research and constant monitoring of the hunting pressure on LWFG in Lower Ob-river and Dvuobye. By our point of view, as well as by the opinion of ranges from hunting inspection, the great

problem is the illiteracy of hunters, and ignorance of the rare goose species in the Red Book of the Russian Federation.

In accordance with the information that was provided by the head of the special MHS department (ГО ЧС), high-ranked officials from Moscow arrived by a small helicopter especially to hunt geese in the Beryozovo Village Region. The helicopter is assembled at the place. According to this information, geese were intensively hunted. In our opinion this information is not credible, as we found no dwellings for VIP's in the area. In the same time to the north-east of Salekhard, we observed a couple of proper cottages at geese stopover sites. Both regions are key sites both for LWfG and RbG.

Recently, discussing the problem of the geese hunt, we mark that a lot of people expresses the support of the prohibition of spring geese hunt. Among them - the hunters, hunters, specialized only on the geese hunt and officials from Administration of game husbandry. So, quite a big amount of hunters are not against the closing of geese spring hunt, and it is clear that "stream" should be worked on.

Conclusion

Hunting/poaching is a major threat for the Lesser White-fronted Goose in the study area. Probably the hunting along this river stretch makes a bottleneck for the LWfG populations. The hunting pressure is increasing because of increasing living standard of the local hunters that at present afford transportation and technology to reach the hard-accessible regions. One important problem is the hunters' unauthorized use of the helicopters that serve oil-development and hydraulic constructions.

Appendix

Measurements of a young LWfG, killed by poachers near Elyzarovsky reserve (61.30928N 067.75494E) 17.09.2010: Bill (to nostril) 17.3 mm, bill 36.1 mm, head (including bill) 86.4 mm, tail 86 mm, wing 362 mm, leg 58.9 mm.