

Final Project Report

“Finding-out of number and distribution of rare kinds of birds of a southeast part of Western Siberia”

Geographical location of the region of investigations

Investigations took place in the forest-steppe and steppe zones in south-eastern part of Western Siberia, located within Siberian Federal District of Russian Federation. This region consists of two large geographical zones: Baraba forest-steppe and Kulunda steppe.

The location of the field station where the project team lived is 78° E, 77°45' N, which is between Ob river and Irtysh river. This territory accommodates about 39.000 lakes in a forest-steppe and steppe zones.

Baraba Forest-Steppe

The combination of aspen and birch groves in watersheds, which are coupled with steppe and ploughed areas, is typical for forest-steppe in Western Siberia. Podzol soils that are normal for forest zone are replaced with gray forest soils in forest-steppe. Here one of the most important features is abundance of swamps, primarily in the Ob-Irtysh watershed, and water-meadow saline lands in forest-steppe. High degree of salinity is another important feature of the Western-Siberian forest-steppe.

The climate in Baraba forest-steppe is determined by its location in the east of Western Siberian plane and plenty of land depressions where cold air stays in autumn through spring. Transition of temperatures through 0 degree Celsius takes place around 13th of April. In the central land depression with its largest Chany lake the transition of temperature through 0 degree occurs on 20-21st of April. The length of frost-free period is about 110-120 days. Around Chany lake this period is about 80 days. The absolute temperature maximum is +38 degrees, and the absolute minimum is -50 degrees. The precipitation during the summer is 150-200 mm per year. The autumns here are dry but with light frosts. Baraba forest-steppe has more than 2500 lakes. Most lakes are shallow (depth is 2-10 m) and not very large (up to 5 km²). The lakes in the most northern part of forest-steppe have fresh water, and lakes in south have salt water. Large lakes are more saline than smaller lakes.

The largest part of Baraba forest-steppe is swampy and saline, and represent water-meadow saline lands. The swamp areas are gradually becoming more salty and are slowly turning into the slightly-salted and highly-salted meadows. The forest-steppe zone is featured by forest and steppe ecosystems, as well as presence of swamps, saline lands and meadows. Steppe ecosystems are more prevalent in the south. In the northern part of this zone forests represent 20-25% of the area, comparing to 4-5% in the south. Steppe ecosystems occupy up to 60% of the area in the south. Birch and aspen “islands” are usually found in depressions of relief, with small swamps in their centres.

Kulunda steppe

Kulunda steppe occupies the territory of Ob-Irtysh watershed, which is located southwards from Baraba forest-steppe. The western part is located within Kazakhstan. Kulunda steppe is a slightly hilly plain with elevation up to 110m above sea level in the north-west and up to 270m in the south-east. The climate of this region is heterogeneous: the south-western part is dry (it receives

250-260 mm per year). In the north-east part receives 300-350 mm per year. The average temperature is 20-21 degrees in July and -18-19 degrees in January. The length of period without frosts in the south-west is about 125-135 days, and a little shorter in the north and the north-east.

Kulunda steppe is less watered than Baraba forest-steppe. The number of lakes in Kulunda steppe is about 1400. Most of them are saline. The largest ones are Kulunda lake (740 km²) and Kuchuk lake (165 km²). Previously this region was occupied by feather-grass and dry feather-grass steppes. Now they all are ploughed and represent agricultural lands. The remaining areas of motley-feather-grass steppes are situated in the northern, western, and central parts of Kulunda steppe. The mosaic vegetation is developed in the lower reaches of Karasuk and Burla rivers, as well as in the north-west of this region, where there is a lot of different types of soils with high salinity.

Data and methods

During the search of *Oxyura leucocephala* and *Chettusia gregaria* we used these methods:

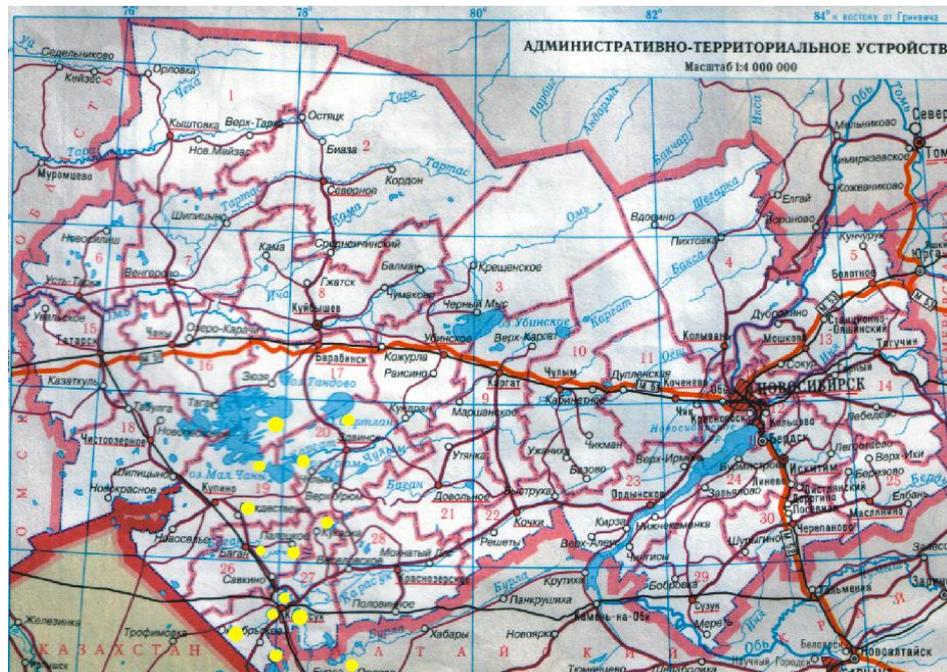
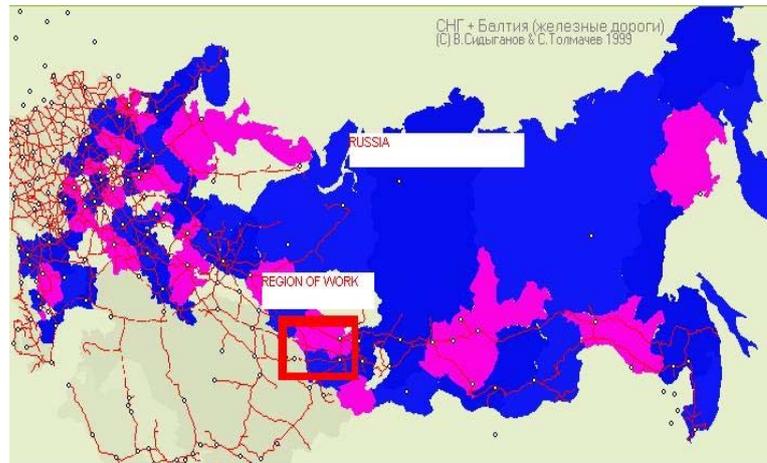
The analysis of the literature sources regarding the distribution of *Oxyura leucocephala* and *Chettusia gregaria*

1. in the past. We decided to conduct our surveys first in the places where these birds had been ever recorded.
2. Meeting with local specialists to discuss the plan of searching birds. We met with V.Schilo, the director of Kharasuk ornithological station. He offered the information where there was the higher probability to find these bird species.
Evaluation of the environment in local habitats. We picked out the habitats that could be inhabited by *Oxyura leucocephala* and *Chettusia gregaria*
3. or other rare bird species given their ecological preferences.

Taking into account all available information we decided to first inquire into the territory of Bagan lake system, Chany lake, as well as surroundings of Kharasuk town (figure 1). We used the following methods for waterfowls' survey. The team splits into 2 groups. Each group worked in different areas to engage as much area as possible into survey. Groups worked each morning beginning the sunrise. All birds that rested on the lake were counted. Information on their species and quantity was registered. The binoculars (20-zoom) and field bird guides were used to help identify species. When some lakes were too large to observe the complete lake surface from one place, the group moved along the lake's bank until all observed birds have been counted. Each bird was counted individually. When there were too large flocks of birds (more than 1000 birds), they were counted by tens. Birds that were assembled in flocks of several thousands individuals were counted by hundreds.

We conducted 48 surveys during 106 hours total. These surveys took part on 32 lakes. In addition to that, vehicular bird surveys were conducted along 3227 km of roads. Specially designed questionnaires were used for guiding conversations with local people, which included questions about rare birds and wild nature in general; 224 persons from 12 settlements were questioned (84 of them were hunters).

Figure 1 – Region of work



● - place of research

Oxyura leucocephala

During the period of our investigations we found total 100 *Oxyura leucocephala*; 54 of them were young. This bird species was found on 7 of 32 lakes. The highest abundance of this bird was on two lakes in Karasuk town.

Table 1. Abundance of *Oxyura leucocephala* during nesting period

Lake	Area of the lake, km ²	Abundance of <i>Oxyura leucocephala</i> , number of birds per km ²
Pestryakov lake	3.24	0.6
Pokrovka lake	0.501	1.9
Lake #1 in Karasuk town	0.352	19.9

Lake #2 in Karasuk town	0.035	114.3
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When we extrapolated the abundance of *Oxyura leucocephala* in the south-eastern part of Western Siberia, we took into account the types and salinity of lakes, number of lakes, abundance of population, and its geographical distribution. We did not take into account the abundance of *савки* on lakes in Karasuk town, because it is relatively very high and cannot say something about abundance of this species in the whole region. The average abundance of *Oxyura leucocephala* during the nesting period was 1.25 birds per km² in area of lake waters. Thus, the total number of *Oxyura leucocephala* in the after nesting time in the South – East part of the West Siberia is about 2000-2500 individuals. So, the total number of *савки* in the south-eastern part of Western Siberia is about 2000-2500 birds. The average abundance of birds, including brood during post-nesting period was 437.1 birds per km² of lake waters.

Table 2. Abundance of *савки* during post-nesting period

Lake	Area of the lake, km ²	Abundance of <i>Oxyura leucocephala</i> , number of birds per 1 km ² of lake waters	Abundance of <i>савки</i> broods, number of birds per 1 km ² of lake waters
Khoroshenkoe lake	0.12	8.4	0
Svetloe lake	0.035	1371.4	571.4
Krasny Yar lake	2	1	0
Lake #1 in Karasuk town	0.352	0	25.6
Lake #2 in Karasuk town	0.035	742.8	714.3

Chettusia gregaria

We have not found any *Chettusia gregaria*, although we examined a long route (3227 км). We know from the literature that just 30 years ago this bird inhabited these steppes and regularly nested. Interviews with local specialists showed that sometimes the nests of *Chettusia gregaria* are found nowadays. The last time the nest was found in 2002 in the vicinity of Karasuk town. Moreover, according to opinion of ornithologist Igor Karykin there are two permanent colonies of *Chettusia gregaria* (20-25 pairs) in the Kulundinskay steppe on the boundary with Kazakhstan. To our mind, the total number of *крячка* in this region (that includes Novosibirsk oblast and Altai oblast) is not more than 10 nesting pairs of birds.

Tetrax tetrax

The abundance of *Tetrax tetrax* in the whole territory of steppe zone remains extremely low. During the last years findings of *Tetrax tetrax* are happening more often in different regions of Kazakhstan and the south of Western Siberia. We found 2 *Tetrax tetrax* near Novomikhailovka village in Baraba forest-steppe on 19th of August 2006.

Aquila rapax

Aquila rapax inhabits the dry steppes of Kazakhstan and the south of Western Siberia. The Russian ornithologists report that the number of *Aquila rapax* in the Baraba and Kulunda steppe is no more than 20-25 nesting pairs of birds. We found 1 adult *Aquila rapax* near Novomikhailovka village in Baraba forest-steppe on 19th of August 2006.

Local people and nature protection

The preliminary data from the survey of local people we may conclude that they have literally no information regarding *Oxyura leucocephala*, *Chettusia gregaria* and other rare bird species and they know nearly nothing about the importance of protection of these species. Only 9 out of 224 surveyed people recognized the image of *Oxyura leucocephala*, and 2 persons recognized *Chettusia gregaria*. Eight people reported that they know that these species are rare, and that it is necessary to conserve them. About 30000 hunters are officially registered on the territory of our investigations. We questioned 84 of them, and only two of them recognized the image of *Oxyura leucocephala*. That is, *Oxyura leucocephala* can easily be shot by local hunters because hunters are not informed that this species is rare and should be protected. We think that one of the first tasks for the conservation of the rare bird species in this area should be the organization of different educational programs for local people. It is necessary to teach people how to recognize these birds and to inform them about the importance of birds' conservation, especially taking into account the fact that many *Oxyura leucocephala* were found on the lakes within the town.

Conclusions and recommendations

Conclusions and recommendations for *Oxyura leucocephala*:

1. *Oxyura leucocephala* is a rather common species on some lakes in the south-eastern part of Western Siberia. This species was found on 7 out of 32 investigated lakes. It nests on three of these lakes for sure. In spite of this, *Oxyura leucocephala* cannot be found often in this region in general. Further investigations about the distribution of this species in the south-eastern part of Western Siberia should be conducted. The most important territories for habitation of *Oxyura leucocephala* are the system of lakes Bagan, Chani and lakes on the territory of Karasuk city.
2. Conduction of the additional research to find out further location of the species in the South – East part of the West Siberia.
3. Studying of the biology of the West Siberia population of *Oxyura leucocephala* It is essential to study such issues like success of the breeding of the species, factors that determine location and number (for instance, presence of food and population dynamics depending on the level of water in the water basin), biology of nesting. Finding out this data will allow further understanding the causes of decreasing of the number of *Oxyura leucocephala* in the nature from biotic factors.
4. To catch the limited number of *Oxyura leucocephala* in the nature with the purpose of creating the methodology of breeding in the urban area and further putting them into the wild nature. It is of vital importance, because preservation of the birds in the urban area will allow save the gene pool of West Siberia population in case of extinction of the species from the territory of West Siberia. Furthermore, the methodology of the breeding of these birds in the urban area will be

well developed that can be important in the event that re-acclimatization of *Oxyura leucocephala* is needed.

Conclusions and recommendations for *Chettusia gregaria*:

1. *Chettusia gregaria* is nearly an extinct species in the investigated area. It can be found extremely rarely and not every year. It is necessary to investigate in details the other steppe areas in the south-east of Western Siberia in order to possibly find the remaining *Chettusia gregaria* individuals and to organize their protection. It is also necessary to conduct educational programs for local people to teach them how to recognize these birds and how to inform ornithologists about such a finding.
2. It is of vital importance to create a population of these birds in the urban area. Possibly, breeding of the *Chettusia gregaria* in the urban area is the last effective method of preservation of these species in the South – East part of the West Siberia.
3. Conduction of the research with the aim of studying of success of the breeding of these species in the conditions of West Siberia and finding out the causes of catastrophic decreasing of the number of these species.
4. Conduction of the regular monitoring of the number of *Chettusia gregaria* in this region.

Other conclusions and recommendations:

1. The investigated region is also an important place for nesting of other rare birds, such as *Aquila nipalensis*, *Tetrax tetrax*, *Circus macrourus*, *Haliaeetus albicilla*, *Egretta alba*, *Glareola nordmanni* and *Larus ichthyaetus*
2. The level of environmental knowledge of local people is very low. The majority of these people cannot recognize rare bird species and do not know about the importance of their conservation. This is a big threat for birds' conservation, especially because there are 30000 officially registered hunters and many illegal hunters in this region.
3. Drawing attention of public to the problem *Oxyura leucocephala* and *Chettusia gregaria* preservation.
4. Development of the cooperation with the local commercial organizations that could become the basis of financial support of the conservation programs of these species in the region.

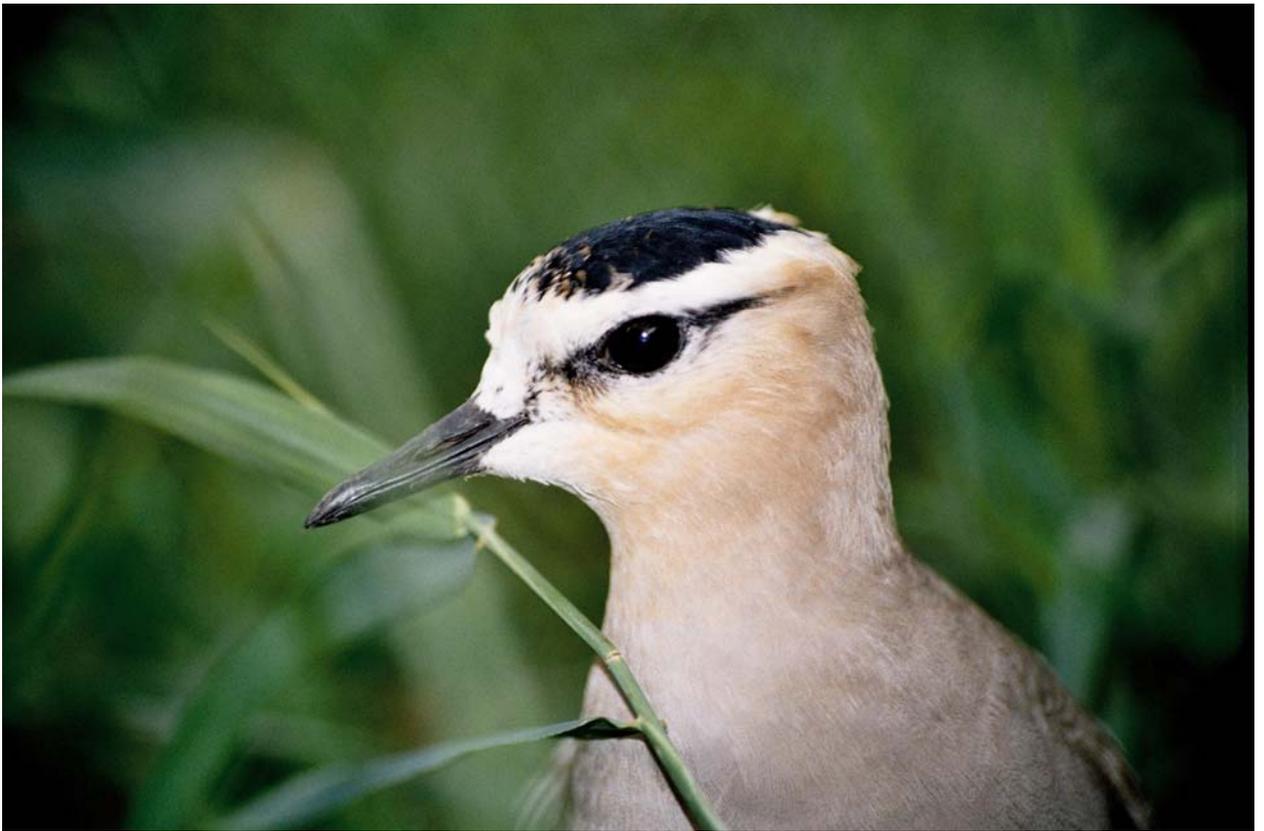


Figure 2 - Chettusia gregaria



Figure 3 - Chettusia gregaria



Figure 4 - *Oxyura leucocephala* on the Lake #1 in Karasuk town



Figure 5 - *Oxyura leucocephala* on the Lake #2 in Karasuk town



Figure 6 - *Oxyura leucocephala* on the Pokrovka lake



Figure 7 - *Oxyura leucocephala* on the Lake #1 in Karasuk town



Figure 8 – eggs of *Oxyura leucocephala* on the Lake #1 in Karasuk town

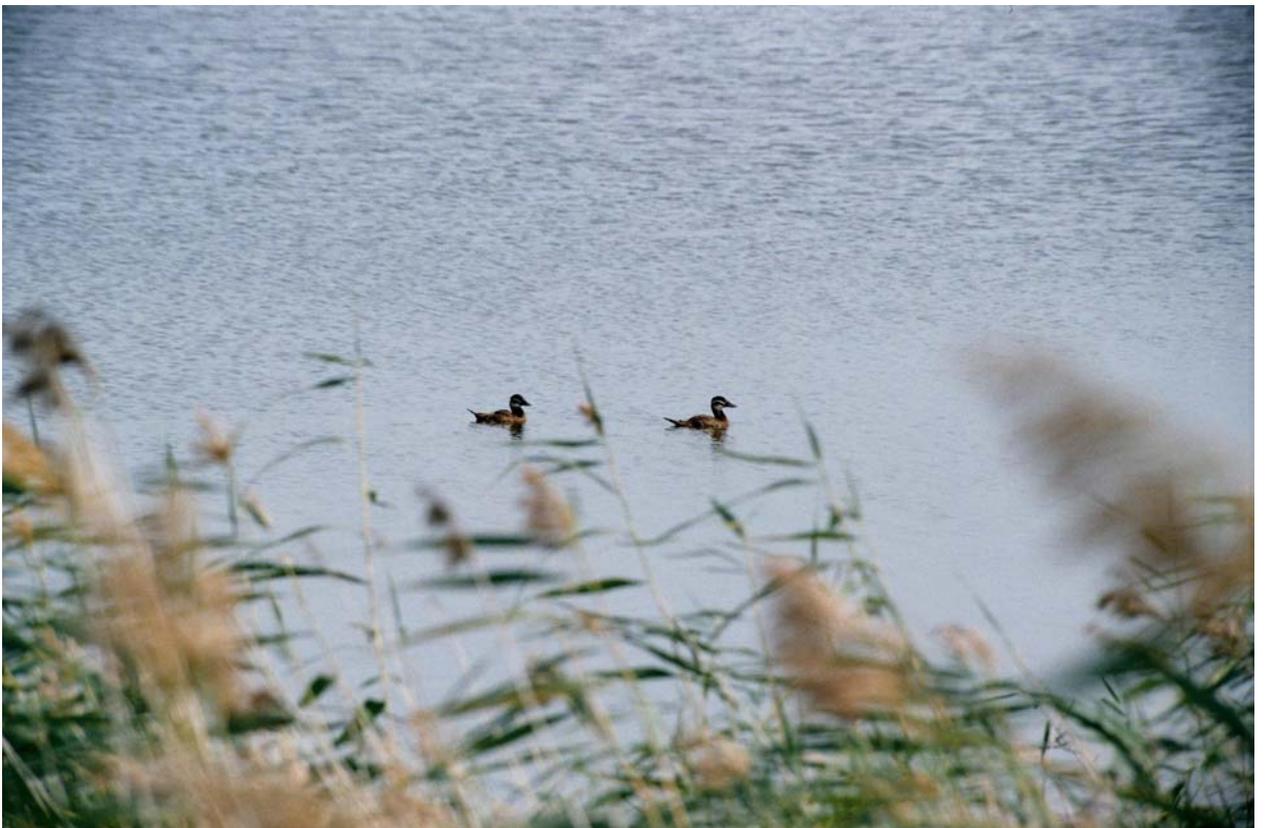


Figure 9 - young of *Oxyura leucocephala* on the Lake #2 in Karasuk town

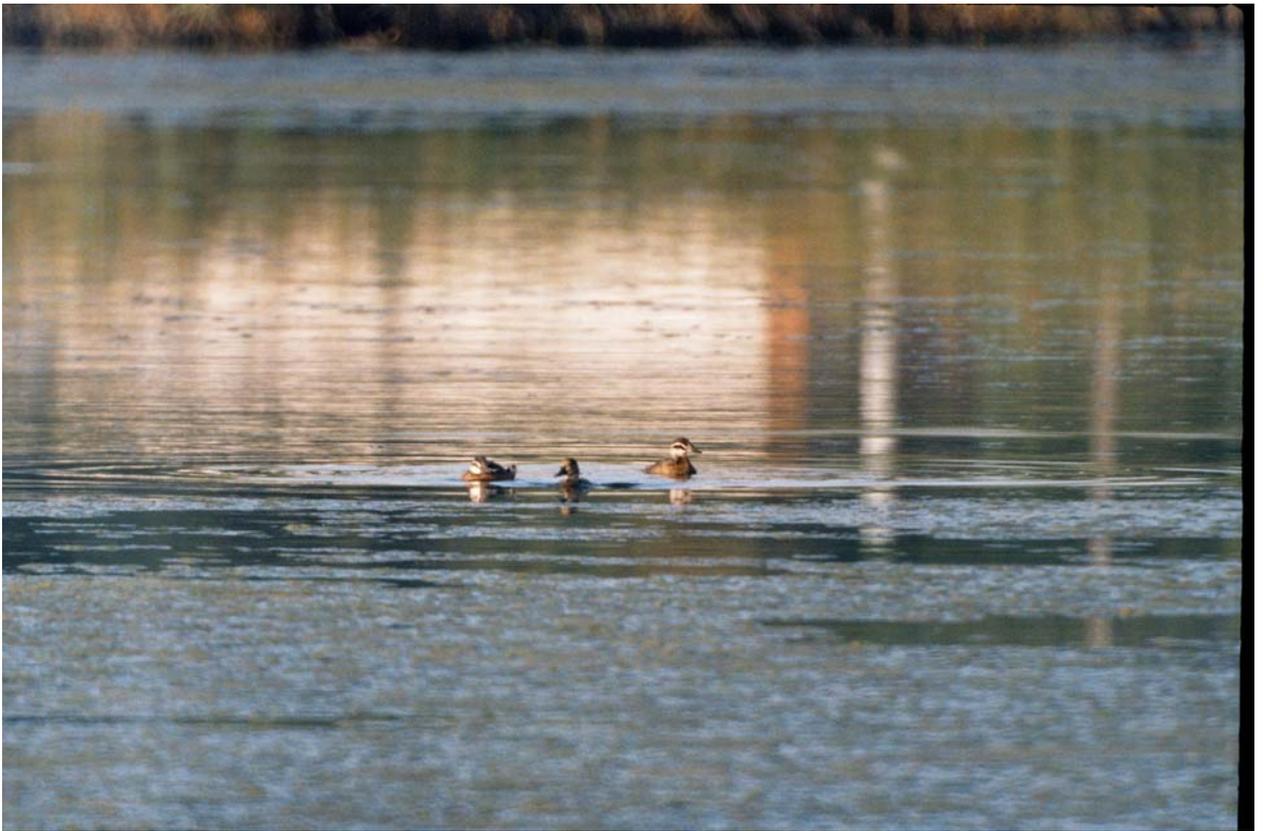


Figure 10 - young of *Oxyura leucocephala* on the Lake #1 in Karasuk town



Figure 11 - the Lake #1 in Karasuk town



Figure 12 - Svetloe lake



Figure 13 – members of project



Figure 14 - members of project



Figure 15 – Alexander Kornilov and Evgeniy Murzachanov (members of project)