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The data on the distribution of the Red-throated Loon (RTLO) (*Gavia stellata*) on Yamal Peninsula and Lower Ob' region until the present time were insufficient, because the majority of investigators provided only general information. There are a few nest sightings reported. All observations and data collection were gathered parallel with conducting faunistic work. The purpose of this article is to summarize literature and the data collected by the authors on distribution, number and some peculiarities of biology of the RTLO in the north of Western Siberia.

As it is known, the distribution of nesting and foraging microhabitats is very typical for the Red-throated Loon (Flint, 1982; Bundy, 1976; Cramp, Simmons, 1977; Douglas, Reimchen, 1988; Eriksson et al., 1990). This bird nests on small and very small lakes (0.8-10 ha), and flies considerable distance (from 2-7 to 15-20 km) to feed on large lakes, rivers, and sea shores. Therefore this bird is sighted more often during feeding or movements. It's quite difficult to find a small lake, where RTLO breeds, especially considering its low density. Commonly, the known nest sightings are related either to high loon density sites (especially during the route investigation of the territory), or to the long-term study sites. On survey routes, usually, there is no time to search for nests, even when one can view the distressed birds near their nests in the typical crouching pose (hiding) (sprawling on the water). In our opinion, there is no reason to reject the nesting possibility in those cases when nests were not found, disturbed birds were not recorded, but sightings of loons during nesting period are regular. RTLOs are often observed in courtship display, flying from site to site, and foraging.

Number and distribution

In reviews on birds of Yamal (Danilov et al., 1984; Ryabitsev, Alekseeva, 1995) the RTLO was observed nesting along the entire shore of Baidaratskaya Guba, Kara Sea and Obskaya Guba. Such observations are consistent with the known gravitation of the RTLO to the coastal regions. The nesting density on the shore is usually 0.1-0.3 pair / sq km (Flint, 1982; Danilov et al., 1984; Sosin et al., 1985). In the mouths of some rivers and on laida islands near western and northern parts of peninsula it is considerably higher, reaching 1.0-1.8 pair/ sq km, for example, on the northern island of Archipelago Sharapovy Koshki and in mouths of rivers Yuribei and Yakhady-yakha (Danilov et al., 1984; Sosin et al., 1985). On the eastern shore the RTLOs occur more seldom (Sosin et al., 1985; Ryabitsev, 1993).

Arctic Islands and Northern Yamal (70-73 N.L.)

On Belyi (White) Island the RTLO is quite numerous (Tyulin, 1938; Sosin, Paskhal'nyi, 1995). It is because this species penetrates in the northern direction to Arctic deserts – considerably farther, than the Black-throated Loon (Arctic Loon) (*Gavia artctica*). In the rest of its breeding range the RTLO is also common on Arctic Islands and shores (Vorob'yov, 1963; Uspenskiy, 1965; Krechmar, 1966; Krechmar et al., 1978; Belikov, Randla, 1987; Solov'yov, 1993; Schamel, Tracy 1985). In 1981 and 1983 the bird density on the Belyi Island was 0.4 and 0.8 individuals per 1 km of survey route, or 1.0 and 1.2 birds / sq km, nesting density – 0.1 and 0.4 pairs/km of the route, or 0.4 and 0.6 pairs/sq km. In spite of very short duration of the fieldwork on the island, 3 nests were found and 13 broods were sighted. Large concentrations of birds were not recorded only in 1981 several times the groups of 304 specimens were sighted (Sosin, Paskhal'nyi, 1995).

On the mainland arctic tundra of Yamal in 1981 on average 0.07 birds per 1 km of survey route were recorded, or 0.09 birds / sq km (Sosin, Paskhal'nyi, 1995), i.e. approximately 10 times fewer than in the same year on Belyi Island. More loons were recorded in the west and north of this subzone: 0.1-0.2 birds / km of route, or 0.1-0.3 birds/ sq km. The loons were especially numerous in the lower stream of Yakhady-yakha River. Birds were sighted on small lakes of the “placor” (placers – flat watershed territories) tundra and on the proper river (about 1 bird per 1 km of former river-bed). However in the headwaters of Yakhada-yakha and to the northeast, in the middle stream of Hole-yakha, in August 1989 the species was not recorded.

The RTLO nesting was also confirmed on lower parts of Syador-yakha (1981 – nest; 1983 – was not included in counts). This species was quite common near the mouth of rivers Yaptorma-yakha and Lainteyakha, in the beginning of August 1989 and 1981 respectively.

On the eastern shore of the Arctic zone of the peninsula the RTLOs were observed less frequently. Thus, near Drovyanaya settlement and in the Sabetta-yakha River mouth the density was 0.1 birds per 1 km of route, or 0.09 pair / sq km (Sosin et al., 1985). In 1987 near Sabetta 10 specimens were counted, extrapolated density – 0.03 pair / sq km (Paskhalnyi 1995), and near Venuiykha River (Venuieuo) mouth according to assessment for a series of years – 0.04 pair / sq km (Ryabitsev 1993).

Middle Ural (68-70 N.L.)

The following information is available on the distribution and number of the RTLO on the Sredniy [Middle] Yamal. Breeding was recorded in the surroundings of large lake systems of Yaroto, Neito, in the floodplain of Seyakha-Zelenaya River (Danilov et al., 1984; Priroda Yamala, 1995).

During the fieldwork on Seyakha-Mutnaya River near its inflow in Mordyyakha River we have discovered distressed birds at 45 km from the sea. In 1988 in 53 sq km of the surveyed territory of the floodplain 1 pair was recorded, in 1989– 2 pairs were observed per 76 sq km, and in 1990 – 1 pair. Respectively, the density was 0.02, 0.03 and 0.01 pair / sq km or, during recalculation per area of lakes, 0.22, 0.17 and 0.08 pair / sq km of water surface. We did not discover RTLOs here or in the watershed tundra (70 sq km). However, on analogous “placor” count plot of the smaller size (21 sq km) and located closer to the seashore, in 1983 a pair was recorded, and in 1988 we observed a pair with a brood. In 1981 and 1989 the RTLOs were not seen here.

In 1984-1986 on the plot of tundra, surrounded by chain of lakes Neito-Yambuto (watershed of Seayakha-Zelenaya and Seyakha-Mutnaya Rivers) 1-2 pairs (0.02-0.03 pairs/sq km) nested annually. Sometimes RTLOs were sighted in the upper parts of Seyakha-Mutnaya River and in the basin of Seyakha-Zelenaya (from Yambuto Lake to Severnoe Tangaptyunto Lake), more often on rivers. On the eastern shore of this part of Yamal peninsula the RTLO brood was discovered at 30 km south of Seyakha settlement in 1983 (0.03 pairs / sq km).

At the end of June-beginning of July 1995 groups of the RTLOs (up to 6 individuals) were registered on Khalevto Lake, to the west of lower parts of Mordyyakha River. On the watershed of basins of Mordyyakha and Yasaveikha Rivers near Yambuto Lake the pairs were registered in 1981 and 1986 (0.02 pair / sq km in each year), in 1984-1985 they were not discovered.

On Yuribei River the majority of records belong to the upper and lower stream. In 1983, 1984 and 1986 pairs, groups and “loners” were counted on “placor” lakes and river in lower parts of Yuribei River near Nyudya-Myarato Lake and Ust-Yuribei factoria. In 1982-1984 different pairs nested in the vicinity of Mengakoto and Nizhnee [Lower] Yunto lakes (sources of Levyi [Left] Yuribei river), that corresponded to density at 0.02 pair / sq km. In 1991 the RTLOs were recorded near eastern bank of Yaroto Pervoe Lake (sources of Pravyi (Right) Yuribei River).

During investigation of the upper parts of the River in July 1997 we constantly observed the displaying and feeding RTLOs not only on the large lakes Yaroto Vtoroe {Second} and Tetanto, but also on the entire river route. The bird density was similar to Levyi {left} and Pravyi [Right] Yuribei – 0.2 birds per 1 km of river-bed. Because all rivers of Yamal are strong and in certain sites the loops approach very closely to each other, it's desirable to report the number of birds in recalculation per 1 km of “straightened” river, which was 0.3 birds. Approximately with the same frequency the loons were sighted on tributaries also – narrow small rivers, their width at certain sites did not exceed 15-20 m. Here 0.3 birds per 1 km of route were observed or 0.4 birds per 1 km of “straightened” river. Taking into account the character of the area, it's possible to say, that overwhelming proportion of loon nests is situated not further than 2 km from a river. Consequently, we assess the species density in this region at 0.04 pair/ sq km.

On the eastern shore of Yamal in lower parts of Nurma-yakha River in 5 seasons of fieldwork only one pair of RTLOs was recorded, when the Black-throated Divers here were not common (Ryabitshev, 1985). In 1987 groups of Red-throated Loons were registered near Mys Kamennyi settlement, but near Novyi Port settlement these birds were not seen.

To all probability, in all inland parts of Middle and Northern Yamal the RTLOs breeds along river valleys to the north Kheto Lake line (sources of Kheyakha River) – Yaroto Lake. Near large rivers (Yuribei, Mordyyakha) and lake systems (Yaroto, Neito, Yambuto, Syavtoto, Khalevto) the species density is about 0.01-0.04 pair / sq km. On the Northern Yamal the density on average is higher – 0.05-0.15 pair / sq km.

Southern Yamal (67-68 N.L.)

There are data, confirming the RTLO breeding on the shore of Ob' Guba and in the lowest parts of Ob' River. The cases of harvesting young birds in the second half of August in Nakhodka Bay to the south of Novyi Port (Bianki, 1909) and near Salekhard (Kozlova 1947), sightings of just hatched chicks in the first half of August in Shchuch'ya River mouth (Kozlova, 1947) and displaying birds at the end of June in Khadytauyakha River (Danilov et al., 1984) indicate breeding in the area.

According to our multi-year (1970-1997) observations near Yarsala, the RTLO is very rare. In inland regions, on Yadayakhodyakha and Khadytayakha Rivers, annually we have sighted birds during nesting time from 1969 to 1979 (Danilov et al., 1984). Finsch and Brehm (1882), Shukhov (1915) and Panteleev (1958) have recorded the RTLO on Shchuch'ya River. In the northern part of Bolshaya Izluchina [Great bend] of this river, at 5 km to the north of Yunyakha River mouth, one nest was found in the beginning of July 1996 (Morozov, 1997). On the boat routes from upper parts of Shchuch'ya River to its mouth in the beginning of August 1991-1992 and in late June – early July 1993 birds were not observed on the river, and during terrestrial counts one pair was discovered somewhat to the west of the beginning of Bolshaya Izluchina (Yarato Lake).

In the western part of Southern Yamal the RTLO was recorded only on the shore of Baidaratskaya Guba, in the mouth of Enzor-yakha River (Chernichko et al., 1997). Probably, it

nests here, because it is described as a common breeding bird of the east of Bolshezemel'skaya tundra, including forest-tundra, and only in the southern part it is listed as rare (Uspenskiy, 1965). Kalyakin (1986) also mentioned the possibility of RTLO breeding in the area. Further from the shore, at the middle stream of Enzor-yakha (Chernichko et al., 1997) and area between Enzor-yakha and Baidarata Rivers (Kalyakin, 1986) it was not sighted. We have not recorded this loon in 1996-1997 south of the lower parts of Enzor-yakha (along railway).

Foothills of Sub-Polar and Polar Ural (65-67 N.L.)

In the foothills of tundra of eastern slope of the Polar Ural from Shchuch'ya River to Sob' River the RTLO, in spite of many-year observations, was not registered even on the passage (Dobrinskiy, 1965; Danilov, Boikov, 1974; Danilov et al., 1981; Ryzhanovskiy, 1981; Paskhal'nyi, Balakhonov, 1989; Karagodin et al., 1997; Ryabitsev, Tarasov, 1997). The RTLO was also not observed in the neighboring regions of western slope of the Urals: in surroundings of Vorkuta village (Gladkov 1962) and railway station Sivaya Maska (Danilov 1969; But'yev, Kostin, 1997). This is quite understandable, if to take into account, that the landscape of the region is mainly dry tundra, with relatively small number of lakes. Single loons were registered only in depressions with systems of lakes, located nearer to Ob' River floodplain (for example, Vyndyada-Khasyrei near Labytnangi town).

South of Sob' River valley, in Voikar River basin, the RTLO becomes the common breeding species (Golovatin, 1989). Here it breeds on the lake-covered plots of tundra amidst afforested moss bogs, on so-called "nyurma"s. It flies to feed on rivers and large lakes of the "sor" type: Voikar(skiy) sor and Vorchato Lake, where the groups of birds were observed regularly. During 10 years of continuing observations (1988-1997) on the site "nyurma" with 6.64 sq km area a pair of birds nested regularly, only in 1991 another pair was observed. Thus, the nesting density of the RTLO here was quite high – 0.15-0.3 pairs / sq km. Other calculations, based on the results of the river and tundra surveys and taking into account the peculiarities of landscape, give similar assessment - 0.16-0.41 pairs / sq km (in recalculation per area of "nyurm"s). Frequency of observations of loons on river was from 0.07 to 0.70 specimens per 1 km of route.

Ob' River valley (65-67 N.L. and southwards)

There are quite contradictory data on the RTLO distribution in OB' River valley. Deryugin (1898) considered it as a common breeding bird of lower parts of the river, Dobrinskiy (1959) considered it rare. Shukhov (1915) in lower parts of Polui River did not sight it on nest. Boikov (1965) classified it as a common bird. In June 1992 we observed only one loon on the river near Glukharinaya factoria.

Southwards, in the region of so-called Dvuob'ie – between Malaya Ob' and Gornaya Ob Rivers from one side and Bolshaya Ob River from other side – the RTLOs, to all probability, don't breed and occur only during feeding in near-mouth shores of tributaries. In two years of observations Danilov (1965) has sighted nomadic specimens several times in the surroundings of Muzha settlement. The ovary was not developed and there was no indication of the spring increase in its size in the females, harvested in the beginning of June. During our investigation of Dvuobie in the summer 1992 in the depth of flood-plain loons were not discovered at all. Only in Voikar River mouth, in Voikar sor, during series of years the feeding birds were observed constantly. The RTLO is not mentioned by ornithologists who worked in Ob' R. upper floodplain along the stream. Absence of loons can be related to the peculiarities of the water regime of the floodplain lakes, on which considerable decline in water level in "mezhen" [annually repeating seasonal standing of lower level of water in rivers]" goes on.

The following is known on the RTLO distribution on the southern border of its range in Ob' River basin. In the review papers based on summer sightings this border extends near Berezovo settlement (Kozlova 1947; Dement'yev 1951). However Raevskiy (1982) has considered it a rare breeding bird of Malaya Sos'va R. basin that is almost 150 km to the south of Berezovo settlement. Tarunin (1960) found RTLO here as common and more numerous than the Black-throated Loon. In Berezovskoe Zauralie [Trans-Uralia], in the vicinities of Saranpaul, the RTLO was recorded outside of-nesting-period by Portenko (1937). In June 1989 in the same region, in Man'ya R. mouth, RTLO was registered by Shutov (pers. com.) on many occasions. One adult RTLO was trapped in a fish net. Sharonov described the RTLO as a breeding bird of Surgutskiy district, but his earlier papers (cit. by: Danilov 1969) did not mention the RTLO. As on Voikar River, here the RTLO, probably, nests on tundra-like boggy sites with lakes along Ob' R. tributaries.

Species number assessment in the region

Character of the RTLO distribution allows us to assess their numbers on Yamal and in Lower Ob at approximately 7000 specimens. According to available data, collected on Belyi (White) Island (Sosin, Paskhal'nyi 1995), over 73% of the population participates in breeding. Based on this assessment, the total number of breeding individuals will be over 5100 (>2550 pairs). About 60% of the total number (approximately 4100 specimens) occurs in the river mouths and on islands of Severnyi [Northern] and Sredniy [Middle] Yamal, including Belyi Island. On the latter the number of RTLOs, according to Sosin's and Paskhal'nyi's (1995) assessment is 1920-2280 specimens, including 700-1140 pairs with broods; number of young soon after hatching – 1260-2050 specimens. In inland regions of the northern half of the peninsula there are approximately 1300 birds, on western and northern shore – 1250. On the eastern shore and in Southern Yamal there are approximately 120-130 birds, in the Nizhnyaya [Lower] Ob' region, including Severnaya Sos'va R. basin – there are about 100 loons.

Migration

The dates of the RTLO presence in the study region are the following. In the spring the first birds appear near Tyumen' at the beginning of May (Slovtssov, 1892), on Voikar (our data) from 17 May (1989 and 1992) to 28 May (1994), in the south of Yamal, in Khadytayakha R. mouth (Danilov et al., 1984) from 22 May (1973) to 10 June (1979), in the upper parts of Yadayakhodyyakha 1 June (1976), in the region of Mys Kamennyi (Danilov et al., 1984) 2 June (1975) – 10 June (1974), on Belyi Island (Tyulin 1938) first appearance was 8 June, the mass arrival 16-20 June (1936).

Departure from Yamal ends by 25 September (Danilov et al., 1984), near Tyumen and Yalutorovsk at the end of September (Slovtssov 1892) or beginning of October (Danilov 1969). There is no clearly expressed migration of the RTLO in the study area, but they appear in the spring and autumn by single specimens and friable flocks of up to 10-20 birds. Data by Tarunin (1928) about heavy migration of loons in Tobol'sk district is in contrast to observations of the rest of ornithologists, who worked in the area between Yamal and Kazakhstan.

Breeding

The nesting microhabitats are quite typical – these are small lakes with clearly expressed shore without vegetation within border of the taiga and forest-tundra zone and with near-water vegetation banks in the tundra zone.

During the fieldwork from 1981 to 1997 on Yamal and Belyi Island 6 nests were investigated. Two clutches contained 1 egg, 4 clutches – 2 eggs, average size of clutch 1.67 egg. Two nests were

situated on shallow waters (depth 10-15 cm) near bank amidst thickets of sedge, two – on small islands amidst water vegetation and one – on wet sphagnum-sedge low bank near water. Another two nests could not be investigated. One of them was situated on an island distant from the bank, the other – on impassable “splavine” (dead or old floating vegetation). At 3 m from the nest on the lake bank (probably, a re-nest – see further), the new empty nest was discovered. Near the nest on the island an old nest was found.

Nests were constructed from half-rotten and green parts of surrounding plants (sedge, arctophila, mosses). Sizes of nests in mm: diameter from 520-540 to 640-645, diameter of cup from 205-215 to 270, depth of cup 20-46. Floating nests were raised above water at 48-77 mm.

The chicks hatch on Belyi Island approximately 1-4 August (Tyulin, 1938; Sosin, Paskhal'nyi, 1995). The latest discovery of clutches – 26 July 1981 in lower parts of Syador-yakha River (Northern Yamal), 2 August 1985 near Neito Lake on the Middle Yamal (1 egg, re-nest?) and 3-4 August 1981 on the southern edge of Belyi Island (1 and 2 eggs). The earliest sighting of a brood was on 18 July 1989 in the area between Seyakha-Mutnaya and Mordyyakha Rivers (1 chick).

We observed a total of 15 RTLO broods (13 of them were on the White Sea) during the period of fieldwork in the region. Three broods had one chick each, the rest had two chicks each (average size of brood was 1.8 chicks). This can be the evidence of the high survival rate of chicks, at least in the first days after hatching, because the chick mortality in other parts of RTLO range is quite high (Bundy 1976; Booth 1982; Schamel, Tracy 1985; Douglas, Reimchen 1988a).

At least the individual loons that stay in groups are non-breeding specimens. Two loons in a flock of 6 birds, trapped at the end of June 1995 in the fishing net on Khalevto Lake, were females with undeveloped ovaries.

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