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Ecology of Red-throated Loon on Russian Zavorot Peninsula

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Translated from Russian by Oksana Lane

Russian Zavorot Peninsula is a vast region of Malozyemel'skaya tundra. It is characterized by rich species diversity and high density of nesting waterfowl species. The highest density and species diversity is found in the seaside tundra. This is a poorly studied peninsula, and presently the only information available is on species composition. The information on the reproduction, ranges and other aspects of bird biology and life history is lacking.

In 1993-96 we conducted a study to characterize nesting, abundance, range and distribution of Red-throated Loon in one region of North-eastern Russia.

Study Area

The peninsula is located North of Pechora River delta approximately between N 68°14'-68°59' and E52°45' - 54°55'. This peninsula is part of the 440,000 ha "Nenetskiy" Wildlife Refuge, established in December 1985 for the protection of bird- and plant-life. The area is characterized by lowland tundra with many lakes, streams and rivers. Many lakes are connected by streams with Korovinskii, Kyznetskii, Kolokolkobii, and Pechorskii bays. There are many types of well-developed marshes/swamps. Soils are mainly sandy, peat, clay, and peat-clay. Vegetation includes willows (*Salix* spp.), Dwarf birch (*Betula nana*), grasses (*Festuca rubra*, etc.), *Carex aguaticus* and others, and in the lowlands-*Eriophorum* sp., *Hippuris vulgaris*. In the marshes we found mosses (*Spanum* sp.), *Carex* sp. and *Ledum palustre*. On the upland tundra there are lichens (*Cladonia* sp.) and various small shrubs (*Vaccinium myrtillus*, *Empetrum nigrum*, *Rubus chamaemorus*).

In the study area there is a combination of complex system of lakes and streams of various sizes, swampy lowlands and small plots of dry upland tundra. Several larger lakes have high (up to 3m) sandy banks. The highest bird density is found in the 5-10 km band of seaside tundra.

Chayachii Island (1.3 sq. km) is swampy and covered with grass-like vegetation and has a complex system of calm, shallow lakes with mucky bottom. The lakes are connected between each other and with the sea by streams.

The weather conditions varied during the study years. The weather influenced nesting chronology and success. Arctic fox numbers were low and did not affect nesting, however gulls were major egg predators.

Methods

Fieldwork was conducted between 14-27 July and 27-25 August in 1993, 20 July- 5 September in 1994, 15 July- 19 August in 1995, 22 June-10 August In 1996

Bird censuses were conducted on foot and in canoes. Bird behavior and habitat were recorded. Nest search was also carried out. We measured vegetation type and height, water-bodies' size and depth, and elevation.

Nests/young were counted upon encountering. During migration the number of individuals, times, direction, and elevation of flight were recorded.

Results

Red-throated Loons nest throughout the Russian Zavorot Peninsula but their distribution is not uniform and depends on many conditions. The highest density is found near Korovinskii Bay, declining to the north. The high

loon density is related to the presence of shallow waters that warm up fast and support a high fish density, providing loons with a food supply.

On Chayachii Island we found a colony of 40-45 nesting and 20-30 non-nesting territorial pairs. We also observed other nesting waterbirds on the island. The nests were found in the south end of the island because the loons were unable to nest on the north end due to late ice-off.

We conducted detailed observations of 18 nests. Three incomplete nests (out of 18) were abandoned due to drop in water levels; three nests were predated by gulls (in 2 of these one egg survived).

One nest found on 22 July was on a lake of 40-60m diameter.

For nesting sites RTLOs prefer small lowland lakes (0.01-0.1 ha) in seaside tundra. Lake depth was not more than 50-60 cm; their foraging was independent of nesting. Throughout the whole nesting season loons flew to forage to larger lakes and to the sea. Many lakes where RTLO nest are connected to larger water bodies or the sea. Nests were found on the lakeshore, on peninsulas (5), on small islands (2) and creeks (1). Nests are built within 6-30 cm from the water, in moist sites, rarely on dry tundra. In 2 cases the nest was built 1.2-1.8 m from water's edge.

Usually nests have one path to the water but in 4 cases there were 2.

On Chayachii Island RTLO nest density is high, forming a loose colony. On one lake (2.5 km circumference) we found 6 nests, on another small lake-4. Nests were located at different distances from each other, the closest being 30m. It is possible that RTLO build extra nests. Two nests were found within 7m from each other and one was empty.

Nests are made from a mixture of aquatic vegetation, sedge and mud.

Nest dimensions are (n=16): diameter= 350-480, mean=407.7 mm; base diameter=505-760, mean=600.1mm; dish diameter=190-300, mean=268.2 mm; nest height=43-120, mean 85 mm; dish depth=23-54 mm, mean=33.9 mm. One nest had a triangular shape. Egg laying period was stretched out. The majority of nests at the end of June had weakly incubated eggs. In July 1988 a clutch was discovered with newly laid eggs. Most egg laying occurs between third week of June and first week of July. Clutches have 1-2 eggs, 58.8% were 2 egg clutches. In 1996 mean clutch size was 1.63 eggs. Egg size (n=24) was 66.4-83.2 x 42.5-46.8 mm, mean=74.37 x 44.95.

Eggshell color is dark green with brown spots. One nest had atypical pale-green without the spots eggs. Hatching is also spread out. The mass hatch occurs 16-28 July. Adults feed the young until fledging. During the first 2 weeks one of the adults flies to seaside waters, rivers and deeper lakes to get small fish to feed the young. As the chicks mature, both adults fly away to forage and catch food. As humans approach a family, the adult with chicks allows them to get near (15-25 m), the second bird flies around the lake vocalizing, faking landing but not landing on the lake. Young fledge at the end of August, often in early September. The number of RTLO has high annual variation from 0.27 in 1991/km² to 1.71 in 1993. In the fall, RTLO migrate alone or in small flocks of up to 12 individuals. First migrating RTLOs were recorded on September 8 and regular fall migration begins 13-14 September.

Conclusions

Red-throated Loons nest throughout Russian Zavorot peninsula. Chayachii Island is a unique place and has a RTLO colony on it. The number of birds relative to 1975 almost doubled. The success of RTLO on the island is a result of symbiotic relationship with Herring Gulls, who aggressively protect the colony from polar (arctic) fox, ermine, and feathered predators. This together with the proximity of rich food supply is one of the main conditions for RTLO population growth on Chayachii Island. The other ecological conditions (lowlands, swampy terrain, grassy vegetation creating protective cover) are the basis for successful nesting of loons. On the Russian Zavorot Peninsula the main nesting habitat for RTLO is along the seaside lowland tundra.

We observed a general tendency towards increasing numbers of RTLO, however its population density to the North and inland of the mainland is declining.

Literature Cited