



Typology and Structure of Wetland Bird and Grouse Habitats in the Olekminsky Natural Reserve

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ABSTRACT

The Olekminsky Natural Reserve is composed of four types of lake land, six types of river land and two types of wetlands. The wetlands can be classified into four types of spatial complexes. The main types of forest habitats may be incorporated into six types of land. Forest complex functional forms in the reserve are characterized by four types. In accordance with the predominance of land types and typological complexes, the territory can be divided into four areas.

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Introduction

The territory of the Olekminsky State Natural Reserve represents a typical middle taiga area in conjunction with the mountain taiga complex. The outlook of the primary part of the reserve fully corresponds to the current zonal factors. Zonal factors activity clearly affects the outlook of the azonal entities that can be found in the Amginsky Mountain Ridge. This determines the limitations of wetlands, the low prevalence of lacustrine habitats and absolute dominance of forest lands.

Studies of the territory and annual field work in the reserve and adjacent areas began in 1985. Estimates of population numbers were carried out mainly in relation to wetland birds and grouse, as these groups of birds are the most extensively studied and are regularly observed. Surveys were carried out using various methods: spring/summer, autumn and winter surveys of grouse; spring/autumn and summer surveys of wetland birds; and their habitats were studied as well (Kuzyakin, 1965; Kumari, 1979; Ravkin and Chelintsev, 1990). The collection and processing of the field observations were recorded in the "Chronicles of Nature" (conducted continuously since 1985). Additionally, analysis of population samples from outside of the protected area is conducted regularly.

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Results

The Main Types of Wetland Habitats

Water sites are habitats for birds adapted to living in watered landscapes. As such, the existing water bodies form a complex with the surrounding unwatered landscape elements. Wetland habitats in the observed area are characterized into four types of lacustrine lands, six types of river lands, and two types of wetlands.

Lacustrine habitat: “bayou in the valley of a small or medium river” (typological features: full-flowing, deep, narrow, stretched out, often U-shaped parts of river arms in the river valleys, 10–15% covered with quagmire). In most lakes of this type in the reserve, fish are absent, and only a few lakes are inhabited by lake minnow. This type of lake is common for the river valleys of the Amga and the Tuolba.

“Bayou in the major river valley”: (typological features: typical oxbow transformed into lakes, 5–10% covered with quagmires with a border of surface sedge and horsetail thicket). These areas have favorable feeding and protection conditions, and 70–80% of these lakes are populated with fish (river perch, northern pike and lake minnow). All of the lakes of this type are in the Olekma River Valley, and during spring migration, they become stopping places for waterbirds.

Quagmire Lake

These areas are always riverside (less often intralacustrine) with quagmires that cover 50% of the water area. The basin has a deep lake and marshy meadows. This typological group includes erosion and karst lakes of the middle and late developmental stages. This lake type is common for the Amga, Olekma and Tuolba valleys.

Cave-In Lake

The hollow is occupied with deep lake, and at its sides, there are outcroppings of rocks or flooded forest. In these areas, riverine aquatic vegetation is absent and shallow water areas with a depth of 1 m are less than 1% of the lake area. These include karst and thermokarst lakes in the initial stages of development. Due to scarce food resources, cave-in lakes are typically of little use for waterbirds (Degtyarev, 2007). Within the reserve, this type of lake is extremely rare (only in the basins of the Tuolba and Chuga Rivers). They are combined with systems of streams and apparently attract environmentally plastic duck species for nesting (mallard, teal, and tufted duck) (Vorobyov, 1963).

Riverine Habitat

These lands are represented by “large semi-mountain river”, “medium or small semi-mountain river”, “medium or small mountain river” and “semi-mountain or mountain brook”. Typological differences are the flow velocity, the shape of the longitudinal profile of the channel and valleys, and the composition of the rock lining.

Large Semi-Mountain River

The river valley of a “large semi-mountain river” reaches 1 km wide on the bottom and the valley walls are 50–70 m. The riverbed is moderately sinuous, chisley, rocky, unramified, and typically 300–500 m wide. Riverbanks are steep, bosky and dumouse. The valley is one-sided, high and 150–200 m wide. The Olekma River, the main seasonal flight route of the waterbirds (reaching 135 km long on the reserve territory), can be referred to as this type.

Medium Semi-Mountain River

The river valley of a “medium semi-mountain river” is trapezoid, asymmetric, and up to 4 km wide. The valley is 2–3 km wide, occasionally covered with lakes. The riverbed is moderately sinuous, or meandering, chisley and rocky. The banks of the river are overgrown with sedge and rare bulrush. River bars alternate with stretches, averaging 1 km. Spring drift ice is accompanied by blocked ice. In such river valleys, whooper swan and bean goose can be found.

Small Semi-Mountain River

The valley of a “small semi-mountain river” is wide (from 2 to 3 km) and swamped. The riverbed is pebble and very curved. There are many short bars and long stretches. The overall length is between 15 and 70 km. This type of river is represented by the stream tributaries of the Olekma and Tuolba Rivers and the left tributaries of the Amga River.

Medium Mountain River

Terrain adjacent to “medium mountain rivers” is mountainous with elevations of 200–250 m. Valleys are trapezoidal, asymmetric, and up to 0.8 km wide. The riverbed is sinuous with boulder-pebble bars. In the wintertime, ice blisters are formed in the river bed, and in the spring, there are blocks on the bars. This type of river is the main habitat for harlequin duck.

Small Mountain River

This type of river is common for the Amga and Olekma basins (right tributaries). The length of such a river is 25 to 60 km. Necked in the upper reaches of the river, the valley gradually expands to 1–2 km in the embouchure. Below the holdfasts, the valley expands slightly and then narrows again, forming turbulent flows, often in a large boulder riverbed. In wintertime, the rifts freeze up and the water flows over the ice, and in the spring, blocks are formed in these parts of the river.

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