

**CHARACTERISTICS OF NUTRITIONAL STATUS OF SCOTS  
PINE TREE-STANDS IN THE BAIKAL NATURAL TERRITORY**

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**SUMMARY**

The purpose of the study was the research of the main nutritional status characteristics of background Scots pine (*Pinus sylvestris*) forests within the Baikal Natural Territory (BNT) characterized by unique forest resources. Scots pine forests in BNT are widely distributed and represented in the subtaiga, partially-wooded steppe, and mountain-taiga associations. The investigation of the forests was carried out in 2013—2014 in the Prebaikalia National Park, Baikal-Lenskiy State Reserve, Kotchergat reserved area, Krasniy Yar reserved area and some other background areas. Scots pine tree-stands were investigated on experimental plots, which were set in accordance with the standard methods and taking into account ICP Forests Manual. At each experimental plot the main parameters of pine tree-stands were determined: forest-taxation indices, geobotanical description, crown defoliation level, etc. Studies of the soils were conducted using the soil section method with examination the genetic horizon's features. The samples of pine needle, forest litter, and soil were collected at each experimental plot for further analysis a content the macro- and microelements in laboratory conditions. Element composition in plant and soil samples was determined by generally accepted methods of atomic adsorption spectrophotometry, flame photometry, photocolometry with use instruments of the Baikal Analytic Center. Statistical processing of the data obtained was performed with software «Statistical computing environment R», version 3.1.1. Within the background areas it was found that mainly herb and rhododendron pine forests were distributed, but rarely-grass, lichen, bushes-green-lichen, and steppe pine forests were lesser distributed. The prevailing type of mineral nutrition of Scots pine was calcium-nitric, although in some cases potassium-nitric type takes place (lichen and steppe pine forests). The pine tree-stands were characterized as close to the optimal quota of nitrogen and potassium, and the greater quota of phosphorus in 25—65 % according to the balance of the main nutrients (N : P : K) evaluated by their portions in the dry needles. Comparison of the data obtained with optimal of macro- and microelement content showed that, within the BNT regardless of the forest type, content of phosphorus, magnesium, iron, zinc in needles was in accordance with the optimal level; content of calcium was over the optimum; content of nitrogen and potassium was below the optimum. It was shown that the Scots pine forests had a favourable soil conditions. In the main soil types (grey-forest, turf-sod, mountain-meadow) high levels of humus, organic nitrogen, exchanged forms calcium, magnesium, potassium within upper soil horizons were found. According to these data, the soils had a high level of fertility and buffer power. The most productive and stabile Scots pine tree-stands were revealed on grey-forest soil with great organic litter. A high level of correlation between nutritional status tree-stand and soil was calculated taking into consideration the elements amount in these ecosystem components.

**Keywords:** Baikal natural territory (BNT), Scots pine (*Pinus sylvestris*) tree-stands, nutritional status, macro- and microelements, needles, soil horizons.