

TALL-HERB BOREAL FORESTS ON NORTH URAL

Abstract.

Background. One of the pressing aims of today's natural resource management is its re-orientation to preserving and restoring ecological functions of ecosystems, among which the function of biodiversity maintenance plays an indicator role. The majority of today's forests have not retained their natural appearance as the result of long-standing human impact. In this connection, refugia studies are becoming particularly interesting, as they give us an insight into the natural appearance of forests.

Materials and methods. Studies were performed in dark conifer forests of the Pechora–Ilych reserve, in the lower reaches of the Bol'shaya Porozhnyaya River in 2013 yr. Vegetation data sampling was done at 50 temporary square plots of a fixed size (100 m²) randomly placed within a forest type. A list of plant species with species abundance was made for each forest layer. The overstorey (or tree canopy layer) was denoted by the Latin letter A. The understorey layer (indicated by the letter B) included tree undergrowth and tall shrubs. Ground vegetation was subdivided into the layers C and D. Layer C (field layer) comprised the herbaceous species (herbs, grasses, sedges) and dwarf shrubs together with low shrubs, tree and shrub seedlings. The height of the field layer was defined by the maximal height of the herbaceous species, ferns, and dwarf shrubs; the height varied from several cm to more than 200 cm in the 'tall-herb' forest types. Layer D (bottom layer) included cryptogamic species (bryophytes and lichens). Species abundance in the each layer was usually assessed using the Braun-Blanquet cover scale. The nomenclature used follows Cherepanov's for vascular plants, and Ignatov & Afonina's.

Results. The present article contains descriptions of unique tall-herb boreal forests of European Russia preserved in certain refugia which did not experience prolonged anthropogenic impact or any other catastrophes. Comparative research into species and ecological diversity of typical (anthropogenically transformed) and unique (tall-herb) boreal forests has been conducted. On the basis of the collected field data, a map of the diffuse area for tall-herb boreal forests has been compiled and a set of species characteristic for these forests has been determined. The obtained data fundamentally change our notions of potential vegetation in boreal forests.

Conclusions. Considerable species- and ecological diversity of tall-herb forest flora fundamentally changes our notion of the appearance of European boreal forests and determines their unique role in maintaining the highest possible level of biodiversity. The presence of tall-herb forests in various parts of eastern European taiga together with Eurasian habitats of most tall-herb species lead us to a suggestion that it is exactly this type of forests that represented the prehistoric boreal forests. In this connection, further research into still preserved fragments of tall-herb forests within the boundaries of northern Eurasia acquires huge significance. This research will help put forward systems of forest management aimed at restoring potential biodiversity of boreal forests in general.