

Variability of Site Conditions of Meadows of the *Arrhenatheretum elatioris* Association and Their Natural-Use Values

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SUMMARY

The paper presents results of investigations on the impact of variations in site conditions on the development of ryegrass meadows differing with regard to their floristic composition providing a basis for the identification of lower phytosociological units. Patches of *Arrhenatheretum elatioris* described with the assistance of phytosociological surveys taken using the Braun-Blanquet method were subjected to a multifaceted, natural evaluation and, on this basis, phytosociological and botanical structure, geographical-historic spectrum, structure of live groups of the identified floristic types as well as natural values by the Oświt method (2000) and sward use value according to Filipek (1973) were determined. In order to establish causes of the floristic variability, the following site conditions were determined: moisture content (F), soil reaction (R) and nitrogen content (N) using Ellenberg's method and the content of potassium, phosphorus and magnesium in soil by the commonly applied laboratory methods (Ellenberg *et al.*, 1992). *Arrhenatheretum elatioris* phytocenoses growing in a moderately moist site: F=5.4; soil reaction R=6.6; concentrations of: nitrogen N=5.3; potassium – about 60 mg K kg⁻¹, magnesium – about 100 mg Mg kg⁻¹ developed in a typical form of low natural values. On the other hand, patches of ryegrass meadows occurring in sites periodically more wet: F=6.0; soil reaction R=6.9; concentrations of: nitrogen N=6.1; potassium – about 70 mg K kg⁻¹, magnesium – about 135 mg Mg kg⁻¹ were found similar to *Alopecuretum pratensis* of moderate natural value and good use value. In sites with lower moisture content, where F=5.0, ryegrass meadows with high proportions of high-yielding cultivated grasses and the presence of species characteristic for xerothermal swards from the *Koelerio glauca-Corynephoretea canescentis* class developed. Among causes which contributed to the development of species-poor phytocenoses of the lowest natural value but good sward use value, high content in soil of nitrogen – N index=6.2; potassium - about 128 mg K kg⁻¹ and magnesium – about 120 mg Mg kg⁻¹ should be mentioned.

Keywords: *Arrhenatheretum elatioris*, habitat, trophic status of the site, natural valorisation

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