

Environmental Changes and Biological Assessment III

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Recommended citation:

Author(s) of the contribution, 2006: Title of the contribution, pp. xx-xy. In: Kočárek P., Plášek V. & Malachová K. (eds), 2006: Environmental changes and biological assessment III. Scripta Facultatis Rerum Naturalium Universitatis Ostraviensis Nr. 163, Ostrava, 355 pp.

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ISBN: 80-7368-201-X

Small witnesses of air quality improvement

Oldřich MOTYKA & Vítězslav PLÁŠEK

Abstract: Survey of epiphytic mosses in Meandry Lučiny Reserve was carried out during 2004-2005 within the frame of the first author's bachelor thesis. A total of 6 *Orthotrichum* species were observed there (*O. affine*, *O. anomalum*, *O. diaphanum*, *O. pumilum*, *O. pallens* & *O. stramineum*). The ecological data of the mosses was collected (e.g. habitat, tree species, height-position at the trunk, size of moss cover, exposition, inclination of substrate, moisture and shadow conditions & fertility of the plants).

Key words: *Orthotrichum*, Meandry Lučiny Reserve, bioindicators

Bioindicative abilities of epiphytic bryophytes are generally known and are used for assessment of the air quality impacts (e.g. Falla et al. 2000). According both of literature data and herbarium collections, the *Orthotrichum* taxa were more frequented before massive increasing of industrialization in the region in 1950's. Owing to worseness of air quality the abundance of their populations was declined and the species became rare and threatened there. Since 1990's the air quality has improved and that is why the epiphytic mosses within the *Orthotrichaceae* family have been recolonizing the former habitats. The authors focused on the studying of ecological requirements of the recovering epiphytic species.

Methods

Study site, Meandry Lučiny Reserve, is situated in the SW edge of Havířov town (NE Silesia, Czech Republic). The major part of the Reserve forms Lučina river, non-regulated meandering flow with belts wild-growing by natural or semi-natural vegetation on the banks. Among the dominant phorophytes can be regarded *Salix* sp. div., *Fraxinus excelsior* and *Sambucus nigra*.

Results

Survey of epiphytic mosses was carried out during 2004-2005 within the frame of the first author's bachelor thesis. All recorded specimens were located by GPS and moreover ecological data of them was collected (e.g. habitat, tree species, height-position at the trunk, size of moss cover, exposition, inclination of substrate, moisture and shadow conditions & fertility of the plants).

A total of 6 *Orthotrichum* species were observed there (*O. affine*, *O. anomalum*, *O. diaphanum*, *O. pumilum*, *O. pallens* & *O. stramineum*). All collected ecological data was analyzed using statistical methods. According to the analyses, the observed moss cushions showed a significantly preference for colonizing of S and SE sides of trunks (mainly they grew on *Salix fragilis*, *Salix alba* and *Sambucus nigra*). The fact can be explained in relation to more opened meshing of the vegetation there and thus easier spores input from the sides. But any relation between moss population size and its position above ground was not verified there.

References

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