



Faculty of Science, Charles University

*Assessment of the PhD thesis of Mgr. Andrea Kučerová*

The thesis deals with the ecology of peatland ecosystems characterized by the occurrence of bog pine *Pinus rotundata*; both the species and the ecosystems are areally limited and under a severe threat of extinction. The candidate has chosen to examine i) the hydrological behaviour and water budget of a *P. rotundata* bog, and the contribution of the bog pine stand to the water budget, and ii) the effects of different common disturbances on *P. rotundata* bogs, especially their vegetation and soil water quality. All four studies included have been published as refereed articles. The synthesis (summary part) focuses on the potential reasons behind the recent dramatic decline of *P. rotundata* in its earlier key area, South Bohemia.

The task is big, and the choices have most likely been partly dictated by resource availability, as is common in science. Shortage of resources is reflected as some potentially serious gaps in the data sets; however, the candidate compensates for these with a thorough logical analysis of previously published results. The thesis contains no major faults or errors. As a whole, the thesis clearly fulfils the requirements for the PhD degree: it demonstrates that the candidate has trained to and now possesses the capacity of carrying out scientific research in an adequate manner.

Questions:

How do you define "peatland"? What, in turn, is a "peatbog"? Are there, correspondingly, "peatfens"?

What are the physiognomic parts of a raised bog complex? In which of these parts would *P. rotundata* most commonly occur and why?

How well does the peatland water table depth represent changes in peatland water storage? What are the most obvious caveats? How can one deal with those?

How are the nutrient concentrations in soil water correlated with total peat nutrient concentrations? What main factors does this depend on?

What were the three most important lessons that you learned while working on your PhD project (with some motivation)?

What is the most important *novel* conclusion of your work?

Could you suggest some practical measures for protecting the future occurrence of *P. rotundata* and the peatland ecosystem(s) characterized by this species?

Helsinki, 2.11.11

Raija Laiho