

## ABSTRACT

All species of orchids are sensitive plants and records of their distribution are rare. Their rarity is related to their complex biology and their sensitivity to changes in the environment. It is necessary to pay attention to these threatened species, so that we could preserve them from extinction. For their effective protection we need to know the main causes of extinction of their localities. It is also useful to know the factors, which determine their distribution, so that we could find new localities, where they occur. In this thesis I analyzed some climatic, geographic and ecological factors in the Jeseníky mountains and their surroundings. First, I visited localities of orchids, which were registered in large databases of their presence in the past. The four most numerous species were analyzed using the program MaxEnt.

Based on the revisions, existence of 2/3 of the revised localities was confirmed, 8% of the revised localities became extinct because of overgrowth or due to human intervention in the landscape. From the MaxEnt results it is clear, that for all species the most important factor at the 50 × 50 m scale, is the type of biotope and heterogeneity of the countryside. The most suitable biotopes are floodplain and wetland forests, mesophile meadows, natural scrubs, peat bogs and springs, wetlands and coastal vegetation, alpine meadows and alluvial and humid meadows. The effect of the climatic factors is important only for *Dactylorhiza fuchsii*, whose probability of occurrence increases with the number of freezing days in the year, and also for *Platanthera bifolia*, whose probability of occurrence decreases with the amount of solar radiation. The reactivity of the bedrock is important for the distribution of *Dactylorhiza fuchsii* and of *Dactylorhiza majalis*. The effect of altitude was significant only in the case of the distribution of *Gymnadenia conopsea*.

Maps of potential distribution created by MaxEnt show, that even though most of potential sites are predicted inside of the protected landscape area of the Jeseníky mountains, it is also possible to find places with suitable condition for occurrence of orchids beyond its borders. For example, the area of Kralický Sněžník, Rychlebské hory, Staré Město, Hanušovicko or Žulovsko seems to be also appropriate for the occurrence of orchids.