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The emergence of new localities of *Orobanche bartlingii* Griseb. in the Silesian-Cracow Upland as a result of the spreading of *Libanotis pyrenaica* (L.) Bourgh. due to changes in land use

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During the last few decades, many cultivated fields and grazed grasslands have disappeared in the Silesian-Cracow Upland. Therefore, abandoned lands occupy now a large area there. As a result of these changes, some plant species have significantly increased the area of occurrence. *Libanotis pyrenaica* is one of them. In many places it begins to behave like an expansive species.

In the Cracow-Częstochowa Upland *Libanotis pyrenaica* occurred mainly in open rock grasslands. After the cessation of grazing, it spread on slopes of hills and in many places created huge phytocoenoses. It penetrated also fallow lands at the foot of the hills and often formed extensive phytocoenoses there. In the Silesian Upland, *L. pyrenaica* occurred only in mesoregions where Triassic limestones were a substrate. The area of patches with mass share of this plant was usually huge, the largest could be found in the eastern part of the Tarnowskie Góry Ridge, south-east of Katowice Steelworks. They developed here on fallow lands, ungrazed grasslands, railway embankments as well as on roadsides. Recently, *L. pyrenaica* spread also in the central part of the Tarnowskie Góry Ridge, where it especially occupied abandoned fields and sometimes entered xerothermic grasslands.

Orobanche bartlingii parasitized *Libanotis pyrenaica*. The first report of its occurrence in Poland (Ojców National Park) was published in 2001. Then, the next information about the occurrence of this plant in other parts of the Cracow-Częstochowa Upland, the Silesian Upland as well as the Kielce Upland appeared in literature. In recent years, in the area of the Silesian and Cracow-Czestochowa Upland, further stands of *O. bartlingii* were found. This led to the conclusion that currently this parasitic plant was spreading in the Polish Highlands due to frequent and abundant occurrence of *Libanotis*. As an anemochory species, it can spread over long distances.

The relevés made in phytocenoses with the participation of *Libanotis pyrenaica* and *Orobanche bartlingii* (xerothermic grasslands, abandoned fields and roadsides) allowed us to perform their floristic characteristics. The analysis of Ellenberg indicator values showed that patches differed in terms of the share of species with different soil moisture, fertility and pH requirements. The ordination of relevés on the DCA diagram showed that the floristic composition of these phytocoenoses was also determined by differences in local species pool.