



THREAT FACTORS AND CONSERVATION STATUS OF PROTECTED LICHEN SPECIES IN THE BAKONY REGION (HUNGARY)

Védett zuzmófajok veszélyeztető tényezői, természetvédelmi helyzete a Bakonyban

Mónika Sinigla^{1*}, Erzsébet Szurdoki², László Lőkös³, Dénes Bartha⁴ & Edit Farkas⁵

¹Bakony Museum of the Hung. Nat. Hist. Mus., H-8420 Zirc, Rákóczi tér 3-5; ²Dept. of Nat. Sci., Faculty of Primary and Pre-School Education, Eötvös Loránd Univ., H-1126 Budapest, Kiss János altábornagy u. 40; ³Dept. of Botany, Hung. Nat. Hist. Mus., H-1431 Budapest, Pf. 137; ⁴Institute of Bot. and Nat. Cons., Univ. Sopron, H-9400 Sopron, Bajcsy-Zsilinszky u. 4; ⁵Institute of Ecology and Botany, CER, H-2163 Vácraátót, Alkotmány u. 2-4; *E-mail: sinigla.monika@nhmus.hu

The occurrence, population size, status and habitat characteristics of nine protected lichen species (*Cetraria aculeata*, *C. islandica*, *Cladonia arbuscula*, *Cl. mitis*, *Cl. rangiferina*, *Solorina saccata*, *Peltigera leucophlebia*, *Xanthoparmelia pulvinaris*, *X. pokornyi*) were investigated in 2 m × 2 m field plots. More than half of the 149 field records (82) are part of a Natura 2000 site. 17 sample quadrats were registered in strict specially protected natural areas and 14 in protected natural areas (Balaton-felvidék National Park). The distribution of protected lichen species in the Bakony Region is correlated with areas of conservation value and the joint occurrence of several protected species. The risk of extinction due to disturbance is higher for rare lichen species than for common ones. When disturbance is reduced, lichens appear, as most species reproduce vegetatively. If disturbance is persistent, the cryptobiotic crust is stuck at the early successional stage. The main disturbance factor is the trampling and grazing of animals. Field surveys have shown that animals produce a mass of small thallus fragments, that seems to be advantageous for the spreading of protected lichen species. However, frequent and intense disturbance can cause fragmented thalli that fail to develop. *C. aculeata*, *C. islandica*, *X. pulvinaris* and *X. pokornyi* are exposed to sheep grazing. Trampling and chewing of games predominate in the habitats of the reindeer lichens, *S. saccata* and *P. leucophlebia*. Field experience has shown that if the level of disturbance increases, the number of fruiting bodies decreases and the thalli die out partially or completely. In the case of *S. saccata* thalli, it can be observed that most of the fruiting bodies develop in undisturbed areas. There were some records where the vitality reached 600 and 300 fruiting bodies, but the value around 100 fruiting bodies is also significant. At a weak disturbance value, it is more likely to observe fruiting bodies below 100 (mostly 0 and 50). For the protected lichen species adapted to a site or habitat type, similar conservation management can be proposed, and it is worth planning for their conservation together in the future. This research was funded by the grant NKFI K 124341.