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DECAY OF PEAT MOSS CUSHIONS ON THE LAKE BENCE-TÓ IN THE NORTHERN PART OF THE GREAT HUNGARIAN PLAIN

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Decay of peat moss cushions has been observed in the *Salici cinereae-Sphagnetum recurvi* association of the lake Bence-tó (northern part of the Great Hungarian Plain) since 8 September, 1994. During these two years 36% of the investigated cushions died. The two *Sphagnum* species composing the cushions decay at the same ratio. The critical cushion size on this lake is 31 cm × 29 cm. Smaller cushions than this have hardly any chance to survive. According to our experiences the main reason of this decay is the insufficient water supply. Due to this the contiguous cushions become more and more divided each year and finally dry out completely. The closed shrub layer contributes to the decrease of vaporization of the peat moss layer and the soil surface. If the foliage of *Salix cinerea*, which forms the shrub layer, is opened, peat moss cushions tend to lose more water, thus have less chance to survive.

Key words: peat moss cushions, *Sphagnum fimbriatum*, *Sphagnum squarrosum*

INTRODUCTION

Peat mosses occur only in wet habitats, which are poor in nutrients and avoid lime. They require a lot of water, therefore usually found in bogs, or in sites where precipitation and moisture content of the air provide sufficient amount of water and create highly acidic soil for them (ORBÁN and VAJDA 1983).

Peat moss cushions of the willow peat bog of the lake Bence-tó (northern part of the Great Hungarian Plain) (Fig. 1) are formed on the "feet" (base of the trunk) of *Salix cinerea* shrubs, and are composed either only of *Sphagnum fimbriatum*, only of *S. squarrosum* or of both species. Changes of the size and the species composition of the cushions were investigated between 8 September, 1994 and 1 September, 1996.

By the middle or the end of summer, after the lake had dried out completely, peat moss cushions tended to dry out entirely, too. As peat moss cushions dried out more and more each year, once large cushions were divided into smaller and smaller ones. Finally the smallest cushions did not regenerate during next year's wet period.

The objective of the study was to determine the critical cushion size on lake Bence-tó by which the cushion had minimum chances to survive. We also wanted to observe which of the two *Sphagnum* species (*S. fimbriatum* or *S. squarrosum*) decay faster.

MATERIALS AND METHODS

Twenty-five peat moss cushions were chosen at the deepest site of the lake Bence-tó, in the *Salici cinereae-Sphagnetum recurvi* association, which was found to be the richest in mosses. The following data of the cushions were re-

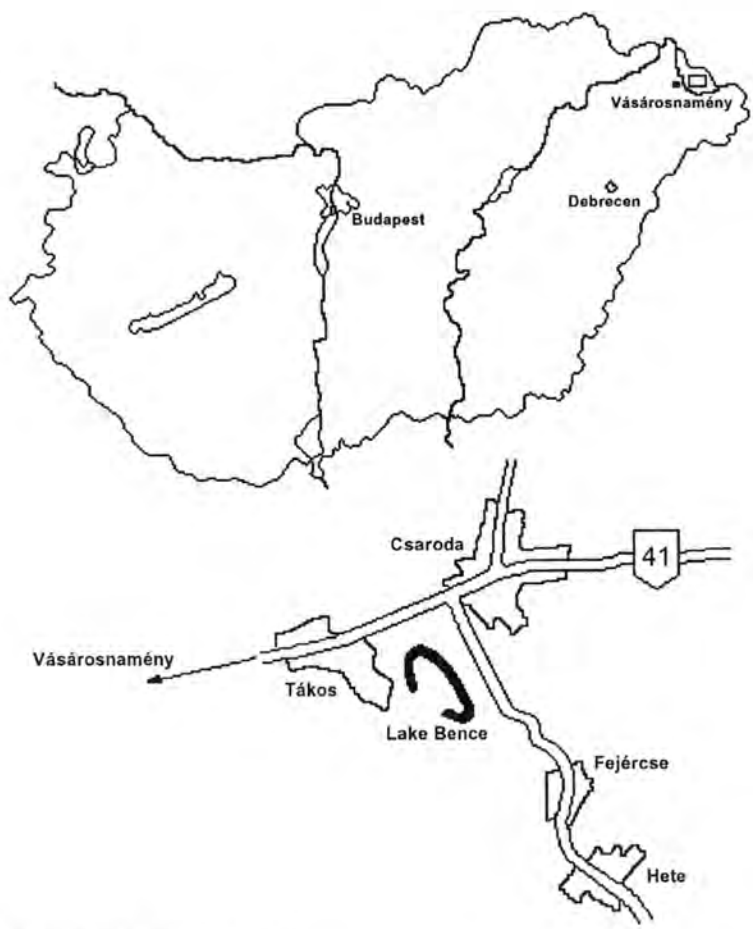


Fig. 1. The location of the studied area

corded during each observation: two characteristic, possibly perpendicular length and direction of the chosen *Sphagnum* cushions, the ratio of *Sphagnum* species to each other.

RESULTS

Out of the 25 investigated cushions 9 died between 8 September, 1994 and 1 September, 1996, which was 36% of the investigated cushions (Fig. 2). The two *Sphagnum* species occurring here decayed at appr. the same ratio. Out of the 7 *Sphagnum fimbriatum* cushions 5, of the 4 *S. squarrosum* cushions 3, while of the 14 mixed cushions 1 died (Fig. 3).

No tendency was recognized in the changes of the relative cover percentage of the two peat moss species, it is 1.6 in average (*S. fimbriatum* / *S. squarrosum*) (Fig. 4).

After calculating the average size of the 9 cushions died in the year they were last alive, we can say that the critical cushion size on this lake was 31 cm × 29 cm. Smaller cushions than this had much less chance to survive as the size decreased, while larger ones had much more chance as the size increased on the lake Bence-tó.

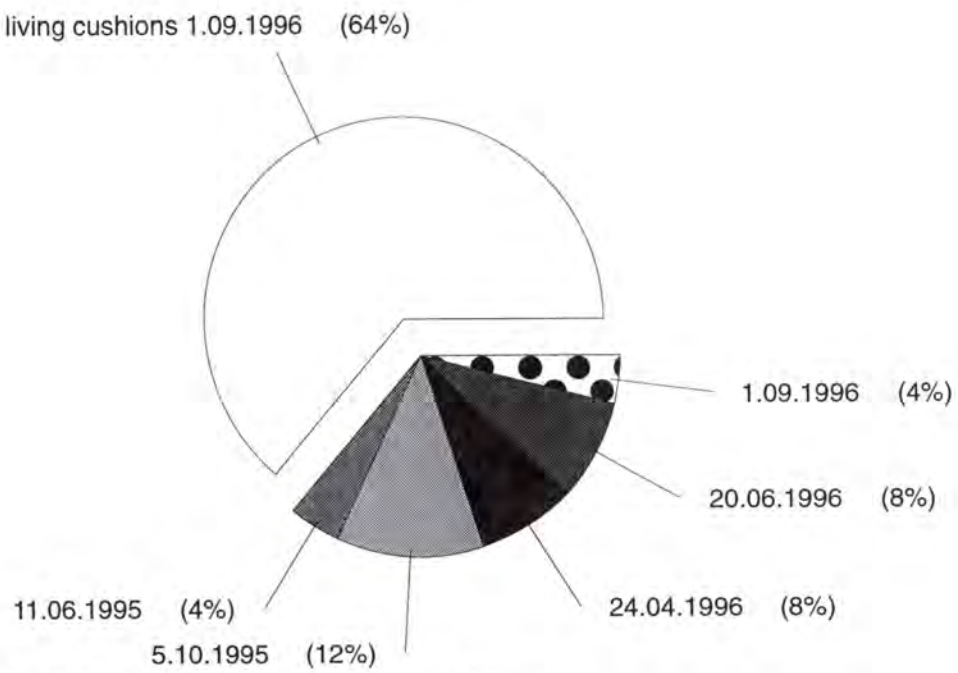
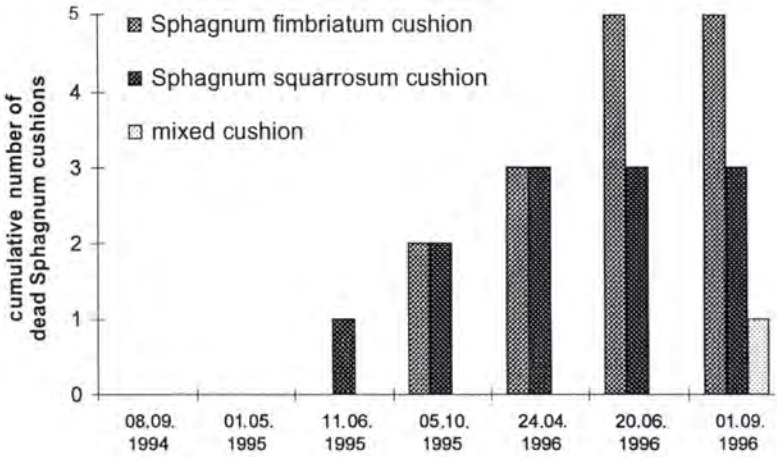


Fig. 2. The percentage of the died *Sphagnum* cushions

Fig. 3. The number and type of the dead *Sphagnum* cushions



DISCUSSION

The size of peat moss cushions usually increases between October and April, when the weather is cool enough and the environment of mosses is wet enough. In case the water supply is sufficient, the cushions can grow over the fallen leaves of *Salix cinerea* shrubs. If moisture is not enough for peat mosses, fallen leaves divide these cushions into smaller and smaller pieces as long as they dry out in the summer drought to such an extent, that they can not revive by becoming wet again.

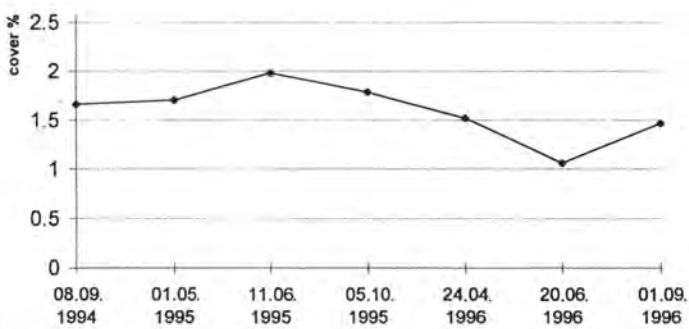


Fig. 4. Cover percentage of *Sphagnum fimbriatum* / cover percentage of *Sphagnum squarrosum* in the investigated cushions

The drying out of the moss layer and the soil surface is considerably decreased by the cover by the tree foliage. However, if the foliage of *Salix cinerea* shrubs is opened for some reason for a longer period, the cushions, which are exposed to direct sunlight, will surely die within a few years probably because of the increased draught stress. On the lake Bence-tó it happens owing to the tracks often used by wild boars (*Sus scrofa*). Cushions, which are divided by the trampling of wild boars, have minimal chance to survive.

REFERENCE

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