

Exploitation of the beech forest and effects of grazing in the forst

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na, *Lilium martagon*, *Viola mirabilis*. A high constancy (of 4—10) show, besides, the following species: *Anemone nemorosa*, *Arabis hirsuta*, *Astragalus glycyphyllos*, *Asarum europaeum*, *Campanula persicifolia*, *C. trachelium*, *Carex digitata*, *Cephalanthera alba*, *Chrysanthemum corymbosum*, *Convallaria majalis*, *Galium silvaticum*, *Hepatica triloba*, *Hypericum hirsutum*, *Lamium luteum*, *Melampyrum nemorosum*, *Melica nutans*, *Mercurialis perennis*, *Poa nemoralis*, *Primula officinalis*, *Pulmonaria obscura*, and *Stellaria holostea*. Many other beech elements (*Actaea spicata*, *Dentaria bulbifera*, *Impatiens noli tangere*, *Symphytum tuberosum*, etc.) are occasional, *Asperula odorata*, the most faithful beech species, however, is missing, wherein there is a very important distinction from the beech forests proper.

Also, the mixed oak forests and hornbeam woods of the most southern Slovakia, where we usually find sociations very similar to those of the beech forests (even *Caricetum pilosae*), are destitute of *Asperula odorata*.

XVII. Exploitation of the beech forest and effects of grazing in the forest.

The far-reaching influence of forest culture on habitat and growth, I described in detail elsewhere (1). In the historical countries of our republic its influence is far more prominent than in the Carpathian region, since in the former, the original forest growths went through a radical change due to forest culture, whereby beech and mixed forests, especially, were involved.

Clear felling and regular culture of young trees of the same age have a bad influence on undergrowth and on natural regeneration even if the original tree species were retained. By the effects of forest culture, light and soil conditions were changed and we often observe a deterioration of soil inasmuch as the mould is gradually changing into acid raw humus and the podzolation of the soil is steadily progressing. Artificial coniferous forests, of course, destroy the beech undergrowth much more than any other factor.

In the Carpathian beech forests, we often have to reckon with grazing in the forest as a further destructive factor. Its effects vary according to circumstances; often it causes deterioration of soil, decrease of beech elements and invasion of foreign species into the

beech undergrowth. A classic example of this kind I have published (4, p. 22) from Subcarpathian Russia, where there exists along the upper forest limit a strip of forest protected by law but where grazing is permitted. These uppermost beech forests possess normally a very rich and typical undergrowth that can be, however, completely destroyed by cattle grazing. So we find, for instance, near the creek Svidovec between Sterešora and the shepherd settlement, Dragobrat, at an altitude of 1200 meters, on the northern side, a pure beech forest where on the ground stamped by cattle, the following species are growing:

<i>Anemone nemorosa</i> (scat.)	* <i>Fragaria vesca</i> (scat.)
* <i>Aposeris foetida</i> (v. ab.!)	<i>Luzula silvatica</i> (only scat.)
* <i>Brunella vulgaris</i> (scat.)	* <i>Myosotis palustris</i> (scat.)
* <i>Caltha laeta</i> (scat.)	<i>Oxalis acetosella</i> (scat.)
<i>Carex silvatica</i> (rather ab., loc. also greg.)	* <i>Parnassia palustris</i> (scat.)
<i>Daphne mezereum</i> (scat.)	* <i>Poa annua</i> (ab. scat.)
<i>Dentaria bulbifera</i> (scat.)	<i>Polystichum Braunii</i> (rarely)
<i>Dryopteris pulchella</i> (loc.)	<i>Rubus idaeus</i> (rarely)
<i>Epilobium montanum</i> (only scat.)	<i>Senecio nemorensis</i> (scat.)
	* <i>Vaccinium myrtyllus</i> (scat.)
	* <i>Veronica officinalis</i> (scat.)

It is obvious that the beech undergrowth underwent a radical change, the most faithful species accompanying the adjoining beech forests are missing, whereas a good many new species (marked with an asterick) made their appearance, among which there is an increasing number of hygrophylous species. This remarkable fact can be explained by the loamy soil, trodden on and trampled by cattle and thus deprived of humus and of a leaf carpet, and consequently becoming considerably more humid.

XVIII. Succession.

As a climax forest community, the beech forests do not undergo, at present, a further succession and I do not know of a single case in which a beech forest gave way, without human influence, to a spruce forest or on the contrary a spruce forest yielded to a beech forest. It is true, that in forests where beech and coniferous trees are mixed, the mutual relation of woody plants during a few gene-