

BOTANICAL EXAMINATION OF WILD BOAR HABITATS (PRELIMINARY REPORT)

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Botanical evaluations were carried out in three different wild boar parks in Hungary. The survey was made in Csongrád, Fejér and Tolna counties.

According to the results remarkable proportion of species tolerant for disturbance and degradation was found in the vegetation of all the examined habitats both on turf and shrub level. It confirm only that the wild boar parks are established on worthless and featureless lands of secondary associations which are not important from the aspect of nature conservation, but the deteriorative effect of the wild boars was not proved. The density of wild boars in the parks is not more than 1 animal/hectare, so their damage on vegetation is not significant.

Key words: wild boar, habitat, vegetation, hunting ground

To broaden the choice of hunting facilities and for the reduction of damages by game animals in the last decades several game animal parks were established most of them for wild boars (*Sus scrofa*) (Booth, 1995) and some for miscellaneous games (red deer (*Cervus elaphus*), fallow deer (*Dama dama*), mouflon (*Ovis musimon*), etc.). Creating such parks is possible only with the permission conservation authorities with the observance of strict regulations. Conservationists often strike this kind of parks. In their opinion the plants and the soil of the habitats are suffering from the wild boars feeding behaviour (Cocca et al., 2007).

The wild boars have a preference for the most secure habitat (Cargnelutti, et al., 1995). The presence of wild boar impact and affect many ecosystem components e.g. species abundance, species richness, soil chemistry and food webs (Massei and Genos, 2004). Damages in the vegetation could be so serious, that four years are not sufficient for complete recovery (Vittoz and Hainard, 2002).

MATERIAL AND METHOD

The evaluation of vegetation was carried out on twelve habitat plots of three different wild boar parks (Ásotthalom, Csibrák, Nádasladány), where the geographical facilities, the climate, the flora and fauna differ from each other.

The relative density and composition of herbs, trees and bushes was studied by the surface coverage of plants. Samples were taken and data were collected from 20 m

x 20 m squares in tree associations and 2 m x 2 m squares in herb associations (Hortobágyi and Simon, 1981).

Data were analyzed by means of descriptive statistic (central tendency and dispersion measures). Results were expressed as proportions and percentages of the analyzed sample with SPSS software.

RESULTS AND DISCUSSIONS

Habitat plots in Ásotthalom

The soil in the silviculture (*Robinia pseudo-acacia*) is sandy with black mould. The shroud level has 5-8 m height and it is closed in 30-40 %. The shrub level is pleaded by sporadic *Sambucus nigra*. On the ground level in early summer aspect *Bromus*, *Holoschoenus* and *Koeleria* species were found. Some nitrophil and invasive species are present in significant proportion: e.g. *Ambrosia*, *Erigeron*, *Asclepias*, *Cannabis* and *Stenactis* species.

Poplar silviculture on mouldy sand soil with non-specific grass level. The shroud level closed in 60 % at 8-15 m height. *Robinia pseudo-acacia* creates a secondary shroud level beside the poplar tree. Acacia sprouts, *Prunus cerasifera* and *Acer negundo* take place in the bush level. The grass level consist of *Bromus* and *Festuca* species. The presence of invasive and xerophil *Asclepias* species are multitudinous. There are some *Ambrosia*, *Cannabis* and *Urtica* plant on the green plots. The majority of species indicate disturbance in the ecosystem due to the intensive agricultural technics.

Pine silviculture on dry, warm and sandy soil. The *Pinus nigra* forest mixed with *Pinus silvestris* sporadically. The forest is closed in 50-60 % with deciduous trees (*Populus*, *Robinia*, *Ulmus*, *Amorpha*, *Ailanthus*, *Gleditschia*) on the edges and glades. The grass level plant composition is poor with the aggregation of invasive *Asclepias*.

Featureless, firmly weedy ecosystem. Deep land site on the shores of a periodic stream. The Northern part of the study area gradually goes through sandy pasture-land. Close to the channel *Carex* species compose association with *Solidago*, *Asclepias*, *Cannabis* and *Equisetum* species. A The vegetation of sandy pastures appears on the higher areas.

Large mosaic-like green marshland with weeds and shrubs. Degradation is indicated by appearing shrubs (*Acer*, *Sambucus*, *Crataegus*, *Celtis*), the proportion of natural disturbance tolerant plants is high (*Pastinaca*, *Daucus*, *Carex*, *Trifolium*, *Medicago*, *Coronilla*), and *Agropyron repens* and *Dactylis glomerata* among grasses, too. The marshland origin is confirmed by presence of *Agrostis stolonifera* and *Molinia coerulea*. *Chrysopogon* (*Pollinia*) *gryllus* occurs in larger plots, and the spreading of weeds is indicated by *Rumex*, *Cirsium*, *Asclepias* species.

This five habitats have mutual characteristics: they have borders with two important protected areas: turf pit in Átokháza and the forest of Süveg-Magyari with the elements of the original flora and fauna of woody pastures (17 protected plants and several protected animal species).

Habitat plots in Csibrák

Planted oak forest in hilly area. The foliage cover of *Quercus cerris* in 15-18 m height is closed in 70-80 %. The shrub layer is consist of the seedlings of *Quercus cerris*, *Ulmus* and *Carpinus*, and especially in the quadrates at the edges of the forest the immigrant *Crategus*, *Prunus*, *Ligustrum*, *Rosa* and *Pyrus* species. The grass layer is poor.

Opening of a planted acacia forest. The extension of shrubland is indicated by acacia sprouts and *Rosa canina*. The grass layer consists of tolerant *Bromus tectorum*, *Dactylis* and *Agropyron* species. The continuous disturbance is indicated by immigrant weeds: *Erigeron canadensis*, *Ambrosia artemisifolia*, *Urtica dioica*, *Carduus acanthoides*.

Planted acacia forest with some *Fraxinus*. The foliage cover of acacia in 10 m height is 50 %. The shrub layer consists of *Rosa* (xerophil), *Crategus* and the invasive *Acer negundo*. The grass layer consists of *Bromus sterilis* and *Dactylis glomerata* which tolerates shadow. The typical weeds are *Erigeron canadensis*, *Solidago canadensis* and *Urtica dioica*.

Non typical weed association in the neighbourhood of the willow. The shrub layer is consisting of some *Juglans regia* and *Robinia*. *Prunus cerasifera* occurs sporadically, its fruits willingly consumed by the wild boars. The shrub layer in green areas full with *Sambucus ebulus*, and in dry areas the *Crategus monogyna* is typical. In open areas the following weeds are representative: *Urtica*, *Artemisia*, *Xanthium*, *Ambrosia*, *Erigeron*, *Cannabis*, *Arctium* and *Rumex* species.

Habitat plots in Nádasladány

It is an ash-elm planted forest. The higher shroud level is composed from *Fraxinus angustifolia* trees in 8-15 m height. *Celtis occidentalis* and *Acer campestre* are create a secondary shroud level in 5-8 m height. *Celtis* is frequent and *Crategus*, *Cornus* and *Populus* are take place sporadically in the shrub level. The grass level is composed from *Brachypodium* and *Poa* species with dense weeds (*Erigeron* and *Solidago* sp.).

A run-down planted ash forest. The late forest was composed from *Fraxinus angustifolia*, but a lot of tree was perished until now. The close of the shroud is only 10-15 %. The surface is covered by bushes significantly (40-50 %). The shrub level is consist of *Crategus*, *Cornus*, *Ligustrum* and *Fraxinus angustifolia* plants. The grass level is composed from *Deschampsia* and *Calamagrostis* species. *Solidago canadensis* és az *Eupatorium cannabinum* are mass weeds.

The location is reedy, featureless, secondary marshland which dries up intermittently. The spread of shrubs is indicated by some *Frangula alnus* plant. The *Deschampsia*, *Phragmites*, *Schoenoplectus*, *Calamagrostis* species create abundant vegetation. The incidence of the following weeds: *Solidago*, *Bidens*, *Cirsium* and *Lythrum* species are frequent.

CONCLUSIONS

The introduced forests in the wild boar parks are featureless and valueless from the aspect of natural conservation. According to the results on all 12 habitat plots was evenly typical the remarkable proportion of species tolerant for disturbance and degradation was found in the vegetation on turf and shrub level. It confirm only that the wild boar parks are established on worthless lands of secondary associations which are not important from the aspect of protection, but the deteriorative effect of the wild boars was not proved. The density of wild boars in the parks is not more than 1 animal/hectare, so their damage on vegetation is not significant.

The park in Ásotthalom is partly an exemption, because there are some worthy plots are fenced.

The different level of degradation is indicated by the multitudinous appearance of the invasive weeds (*Acer negundo*, *Ailanthus*, *Celtis*, *Ambrosia*, *Solidago*, *Erigeron*, *Asclepias*, *Phytolacca*, *Cannabis*, *Artemisia*, *Chenopodium*, *Carduus*, *Cirsium*, *Urtica*, etc.). Their spread also depends on the edaphical and hydrological facilities of the land.

The causes and effects need further study: whether the wild boar parks were established on worthless lands or the degradation was gradually caused by the wallowing and food-seeking activity of the wild boars.

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