

CONTRIBUTIONS TO THE STUDY OF VEGETATION IN TINOVUL MARE (POIANA STAMPEI – DISTRICT OF SUCEAVA)

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Abstract: We analyze in this paper the association *Vaccinio – Betuletum pubescentis* Libbert 1933 from the class *Vaccinio – Piceetea* Br.-Bl. in Br.-Bl. et al. 1939, from the phytocoenological point of view as well as from the point of view of the bioforms, floristic elements and ecological indices.

Key words: vegetation, bioforms, floristic elements, ecological indices.

Introduction

The phytocoenoses of the association *Vaccinio – Betuletum pubescentis* Libbert 1933 was identified on the territory of the **scientific reservation Tinovul Mare** (Poiana Stampei, district of Suceava). The reservation is located at about 17km south-west from the town Vatra-Dornei, on the terrace at the confluence of the river Dorna with its affluent Dornișoara, at the altitude of 900-910m (where the meridian 27°7' longitude east meets the parallel 47°17' latitude north). The climate is temperate continental, average annual temperatures being low (4.2°C). The average value of rains is over 740 mm/year. The soil is peat, lacking texture and very little aerated. Even though the reserve of organic material is huge (over 500 t/ha), this type of soil is poor in humus and nutritive substances. The soil reaction is very low [1].

The reservation, whose surface is of 681.8 ha, was included by the Romanian Government in the category of Natural reservations and monuments by Law 5/2000.

Material and method

For the study of vegetation we used the method of the phytocoenological school in Zürich – Montpellier, perfected by J. Braun-Blanquet and J. Pavillard. On taking into account several phytocoenological papers of classification [8, 9, 10], the association *Vaccinio – Betuletum pubescentis* Libbert 1933 was classified as follows:

Vaccinio – Piceetea Br.-Bl. in Br.-Bl. et al. 1939

Piceetalia excelsae Pawl. in Pawl. et al. 1928

Betulion pubescentis Lohmeyer et R. Tx. in R. Tx. ex Oberd. 1957

Vaccinio – Betuletum pubescentis Libbert 1933

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Results and discussions

Corology: *Tinovul Mare (Poiana Stampei)*.

Ecology: phytocoenoses of the association *Vaccinio – Betuletum pubescentis* Libbert 1933 were identified in the area of lagg (marginal) of Tinovul Mare in the villager Poiana Stampei, in form of dense clusters (**Photo 1, 2**).

We have to mention the fact that this association was not signalled before on the territory of Moldavia [2]. According to the specialty literature [10, 12], the association *Vaccinio – Betuletum pubescentis* Libbert 1933 was identified in Mohoş and Luci (district of Harghita).

Phytocoenological characterization: *Betula alba* ssp. *glutinosa* is the main species in this association, realizing coverings of 100%. In the tree layer there are also from place to place some species as *Picea abies* and *Pinus sylvestris*. The herbaceous layer is weakly developed, realizing coverings of average 30% - 40%, rarely reaching 50%. We have to notice also the presence of the muscinal layer, formed by different species of *Polytrichum*, *Sphagnum*. The association is poor in species, perfectly natural situation if we take into account the very restrictive stational conditions. The floristic composition of these phytocoenoses is realized by species characteristic to the alliance *Betulion pubescentis* (*Eriophorum vaginatum*, *Oxycoccus palustris*, *Pinus sylvestris*), order *Piceetalia excelsae* (*Dryopteris dilatata*, *Calamagrostis arundinacea*), as well as species characteristic to the class *Vaccinio – Piceetea* (*Campanula abietina*, *Campanula abietina*, *Lycopodium selago*, *Oxalis acetosella*). We have to underline the fact that in these peat phytocoenoses, the species *Vaccinium myrtillus* and *Vaccinium vitis – idaea* have high constancies (**Tab. 1**).

The bioforms spectrum shows the predominance of hemicryptophytes (H – 40%), but also relatively high percentage of fanerophytes (Ph) and camephytes (Ch): 26.67% each. The only geophyte species among these phytocoenoses is *Equisetum sylvaticum* (**Fig. 1**).

The analysis of geoelements underlines the net dominance of the circumpolar element (Circ. – 60%), followed at big distance by the Euro-Asian element (Euras. – 13.33%). Equal percentages (6.67%) realize the central element – European, Carpathian – Balkan and endemic, these elements being represented by one single individual (**Fig. 2**).

The analysis of ecological indices underlines the fact that 53.33% among the species of these phytocoenoses there are plants of light, which do not stand the shadow, 13% are plants of full shadow, and 33.33% are plants of demi-shadow. 66.67% of the total number of species are not related to the thermal factor, and 46.67% are plants adapted to excessive humidity. As for the preference for the soil reaction, the analysis of the ecological indices shows that 60% among the species prefer the soils with acidity varying from very acid to moderately – low acid, 40% among species being tolerant to water from this point of view. Most of the species are developed on an under – layer with low to moderate content in mineral nitrogen (**Fig. 3**).

Conclusions

The phytocoenological characterization shows that this association is poor in species, perfectly natural situation if we take into account the very restrictive stational conditions. The analysis of bioforms, of geoelements and of ecological indices shows that our results are according with specialty literature [4, 5, 6].

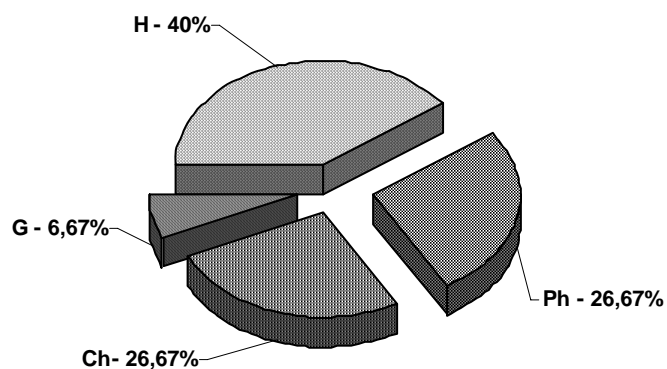


Fig. 1. The bioforms spectrum – ass. *Vaccinio – Betuletum pubescentis* Libbert 1933
(Ph – fanerophytes; H – hemicryptophytes; Ch – camephytes; G – geophytes)

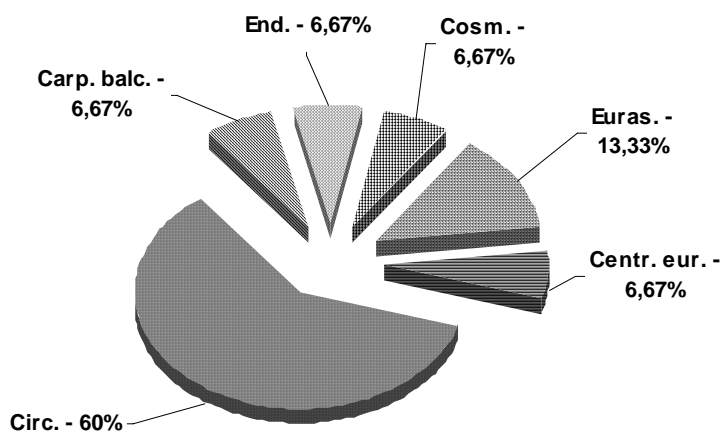


Fig. 2 The floristic elements spectrum – ass. *Vaccinio – Betuletum pubescentis*
Libbert 1933 (Circ. – circumpolar; Euras. – European-Asian; Centr. eur. – Central European; Carp.
balc. – Carpathian-Balkan; End. – Endemic; Cosm. – cosmopolite)

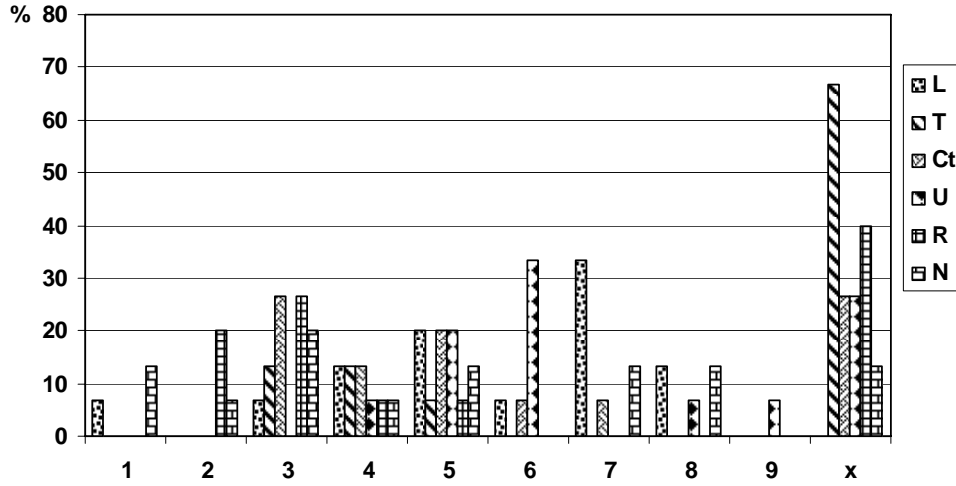


Fig. 3. The ecological indices spectrum – ass. *Vaccinio – Betuletum pubescentis* Libbert 1933

(L – light; T – temperature; Ct – continent; U – humidity; R – soil reaction; N – nitrogen)

Table 1 As. *Vaccinio – Betuletum pubescentis* Libbert 1933

Relevé number	1	2	3	4	5	
Altitude (m)	902	902	902	902	902	
Covering of tree layer (%)	100	100	100	100	100	
Covering of the herbaceous and sub-tree layer (%)	35	50	30	40	40	
Covering of muscinal layer (%)	40	30	45	30	30	
Surface of relevé (m ²)	400	400	400	400	400	
Number of species	15	12	11	14	13	K
Caract. as.						
<i>Betula alba</i> ssp. <i>glutinosa</i>	5	5	5	5	5	V
<i>Betulion pubescentis</i>						
<i>Eriophorum vaginatum</i>	+	-	+	-	+	III
<i>Oxycoccus palustris</i>	+	+	-	+	+	IV
<i>Pinus sylvestris</i>	+	+	-	+	+	IV
<i>Piceetalia excelsae</i>						
<i>Dryopteris dilatata</i>	+	-	+	-	+	III
<i>Calamagrostis arundinacea</i>	+	+	-	+	+	IV
<i>Vaccinio – Piceetea</i>						
<i>Campanula abietina</i>	-	+	-	+	-	II
<i>Equisetum sylvaticum</i>	1	1	1	+	1	V
<i>Lycopodium selago</i>	+	-	+	-	-	II
<i>Oxalis acetosella</i>	-	+	-	+	-	II
<i>Picea abies</i>	+	+	+	+	+	V
<i>Vaccinium myrtillus</i>	2	2	1	3	2	V
<i>Vaccinium vitis – idaea</i>	+	1	1	+	1	V
<i>Variae syntaxa</i>						
<i>Chamaerion angustifolium</i>	+	-	+	+	-	III
<i>Rubus idaeus</i>	+	-	-	+	+	III
<i>Polytrichum</i> sp.	+	+	1	+	+	V
<i>Sphagnum</i> sp.	3	3	2	3	3	V

Place and date of the relevés: 1 – Tinovul Mare (Poiana Stampei), (27.07.2006); 2-5 – Tinovul Mare (Poiana Stampei), (19.08.2006)



Photo 1. Phytocoenoses of the association *Vaccinio – Betuletum pubescentis* Libbert 1933



Photo 2. Phytocoenoses of the association *Vaccinio – Betuletum pubescentis* Libbert 1933

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