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The list of plant communities found in the Rohatín Mountain, Strážovské vrchy Mts

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Abstract. This paper gives a list and distribution of the plant communities found out in the Rohatín Mountain (832,4 m above sea level), situated in the central part of Strážovské vrchy Mts. The phytocenological research was held during three vegetation periods in 2000 – 2002. Due to creating of the communities list 107 phytocenological relevés were used. There were 29 syntaxa from 14 classes found out in Rohatín, consisting of 6 forest, 1 shrubby and 22 herbaceous communities. There were 622 taxa found out at the studied locality including 519 species and subspecies of vascular plants, 68 species of bryophytes and 39 species of lichens. Due to the extraordinary high plant diversity as well as diversity of plant communities, Rohatín is considered to become a nature-protected area in the future.

Key words: Strážovké vrchy Mts, Rohatín Mountain, plant communities

Introduction and methods

The Rohatín Mountain (832,4 m above sea level, in some maps it might be found as Rohatá) is located in the central part of the Strážovské vrchy Mts, near the village of Mojtín, in the district of Púchov.

Geologically Rohatín is formed of mesozoic limestones and dolomites (Maheľ 1982). The main soil type are rendzinas, the relatively shallow skeletal biphasic (AC) soils (Šály & Šurina 2002). There is a quite large range of altitudes in this site: from 425 m above sea level at the SSW foot, to the peak of the mountain at an altitude of 832,4 m above sea level.

Rohatín looks like a regular mountain, similar to many others that surround it in the Strážovské vrchy Mts. However, this locality hides extraordinary botanical values. For this reason, Rohatín was designed to become a nature preserve in 1987, at the time when the Protected Landscape Area of the Strážovské vrchy Mts was being established (Kramárik et al. 1987). Unfortunately, this project has not been realised yet.

The area of the studied locality is only 250 hectares. In spite of the size, it has high plant diversity as well as diversity of plant communities. The central part of the Strážovské vrchy Mts is known for being a meeting point of the flora of the Danube River Lowland and flora of the Carpathian Mountains (Fajmonová 1995). It has a great influence on the biodiversity of Rohatín. The Rohatín Mountain is a dynamic complex of rocks, pinnacles, screes, narrow valleys, gorges and slopes with different aspects. The difficult structure of the terrain has enabled developing of many different environments. Besides the dry and sunny sites, there are also cold and humid stands with the typical mountain microclimate. Therefore it is easy to find the thermophilous as well as mountain plant communities in Rohatín.

The paper gives results of the first detail botanical research of Rohatín. Some authors have earlier mentioned the locality in their works (Fajmonová 1972, 1991, 1995; Potůček & Businský 1985; Smatanová 2000) but no complex research was realised so far. The phytocenological research of Rohatín was held during three vegetation periods in 2000 – 2002. The list of the plant communities was created using 107 phytocenological relevés. The relevés were made according to the methodology of the Zűrich – Montpellier school (Braun-Blanquet 1964; Westhoff & van der Maarel 1978). The used syntaxa names were unified according to Mucina, Grabherr & Ellmauer (eds) (1993); Valachovič (ed.) (2001); and Jarolímek, Zaliberová, Mucina & Mochnacký (1997).

Results and discussion

A. List of the plant communities

There were 29 syntaxa from 14 classes found out in Rohatín, consisting of 6 forest, 1 shrubby and 22 herbaceous communities. The list is set up according to the phytocenological classes and physiognomy of the communities, beginning with the forest, continuing with the shrubby and herbaceous communities.

Querco-Fagetea Br.-Bl. et Vlieger in Vlieger 1937
- *Fagetalia* Pawłowski in Pawłowski et al. 1928
  - *Fagion* Luquet 1926
    - *Cephalanthero-Fagenion* R. Tx. in R. Tx. et Oberd. 1958
      - ***Cephalanthero-Fagetum*** Oberd. 1957
    - *Carpinion betuli* Issler 1931 em. Mayer 1937
      - ***Querco petrae-Carpinetum*** Soó et Pócs (1931) 1957
  - *Tilio-Acerion* Klika 1955
    - ***Aceri-Tilietum*** Faber 1936
    - ***Aceri-Carpinetum*** Klika 1941
    - ***Scolopendrio-Fraxinetum*** Schwickerath 1938

Erico-Pinetea Horvat 1959
- *Erico-Pinetalia* Horvat 1959
  - *Pulsatillo slavicae-Pinion* Fajmonová 1978
    - ***Carici humilis-Pinetum*** (Klika 1949) Fajmonová et Šimeková 1972

Alnetea glutinosae Br.-Bl. et R. Tx. ex Westhoff et al. 1946
- *Salicetalia auritae* Doing 1962
  - *Salicion cinereae* T. Műller et Gőrs 1958
    - ***Salicetum cinereae*** Zólyomi 1931

Festuco-Brometea Br.-Bl. et R. Tx. 1943
- *Festucetalia valesiaceae* Br.-Bl. et R. Tx. 1943
  - *Seslerio-Festucion glaucae* Klika 1931 em. Kolbek 1981
    - ***Minuartio langii-Festucetum pallentis*** Sillinger 1930
    - ***Saxifrago paniculatae-Seslerietum calcariae*** Klika 1941

Carici humilis-Seslerietum calcariae Sillinger 1931
Cirsio-Brachypodion pinnati Hadač et Klika in Klika et Hadač 1944
***Brachypodium pinnatum*-community**
Other communities from the class of *Festuco-Brometea*
***Convallaria majalis*-community**
***Calamagrostis varia*-community**

Sedo-Scleranthetea Br.-Bl. 1955
Alysso-Sedetalia Moravec 1967
Alysso alyssoides-Sedion albi Oberd. et T. Műller in T. Műller 1961
Jovibarbo-Sedetum albi Valachovič in Valachovič et al. 1995

Asplenietea trichomanis (Br.-Bl. in Meier et Br.-Bl. 1934) Oberd. 1977
Potentilletalia caulescentis Br.-Bl. in Br.-Bl. et Jenny 1926
Cystopteridion Richard 1972
Cystopteridetum fragilis Oberd. 1938

Thlaspietea rotundifolii Br.-Bl. 1948
Galio-Parietarietalia officinalis Boşcaiu et al. 1966
Stipion calamagrostis Jenny-Lips ex Br.-Bl. et al. 1952
Vincetoxicetum officinalis Kaiser 1926

Trifolio-Geranietea sanguinei T. Műller 1961
***Lembotropis nigricans*-community**

Phragmito-Magnocaricetea Klika in Klika et Novák 1941
Phragmitetalia Koch 1926
Magnocaricion elatae Koch 1926
Caricenion rostratae (Bal.-Tul. 1963) Oberd. et al. 1967
***Carex paniculata*-community**

Scheuchzerio-Caricetea fuscae R. Tx. 1937
Caricetalia davallianae Br. Bl. 1949
Caricion davallianae Klika 1934
Caricetum davallianae Dutoit 1924

Galio-Urticetea Passarge ex Kopecký 1969
Lamio albi-Chenopodietalia boni-henrici Kopecký 1969
Impatienti noli-tangere-Stachyion sylvaticae Gőrs ex Mucina 1993
Urtico-Parietarietum officinalis Segal in Mennema et Segal ex Klotz 1985
Galio-Alliarion (Oberd. 1957) Lohmeyer et Oberd. in Oberd. et al. 1967
***Sambucus ebulus*-community**
Aegopodion podagrariae R. Tx. 1967

Aegopodio-Menthetum longifoliae Hilbig 1972
Other communities from the class of *Galio-Urticetea*
***Urtica dioica*-community**
***Petasites albus*-community**

Molinio-Arrhenatheretea R. Tx. 1937 em. R. Tx. 1970
Molinietalia Koch 1926
Filipendulion (Lohmeyer in Oberd. et al. 1967) Bal.-Tul. 1978
***Geranium palustre*-community**
Plantagini-Prunelletalia Ellmauer et Mucina 1993
Plantagini-Prunellion Eliáš 1980
Prunello-Ranunculetum repentis Winterhoff 1963

Epilobietea angustifolii R. Tx. et Preising in R. Tx. ex von Rochow 1951
Atropetalia Vlieger 1937
Atropion Br.-Bl. ex Aichinger 1933
Eupatorietum cannabini R. Tx.1967
Epilobio-Atropetum bellae-donnae R. Tx. 1931 em. 1950

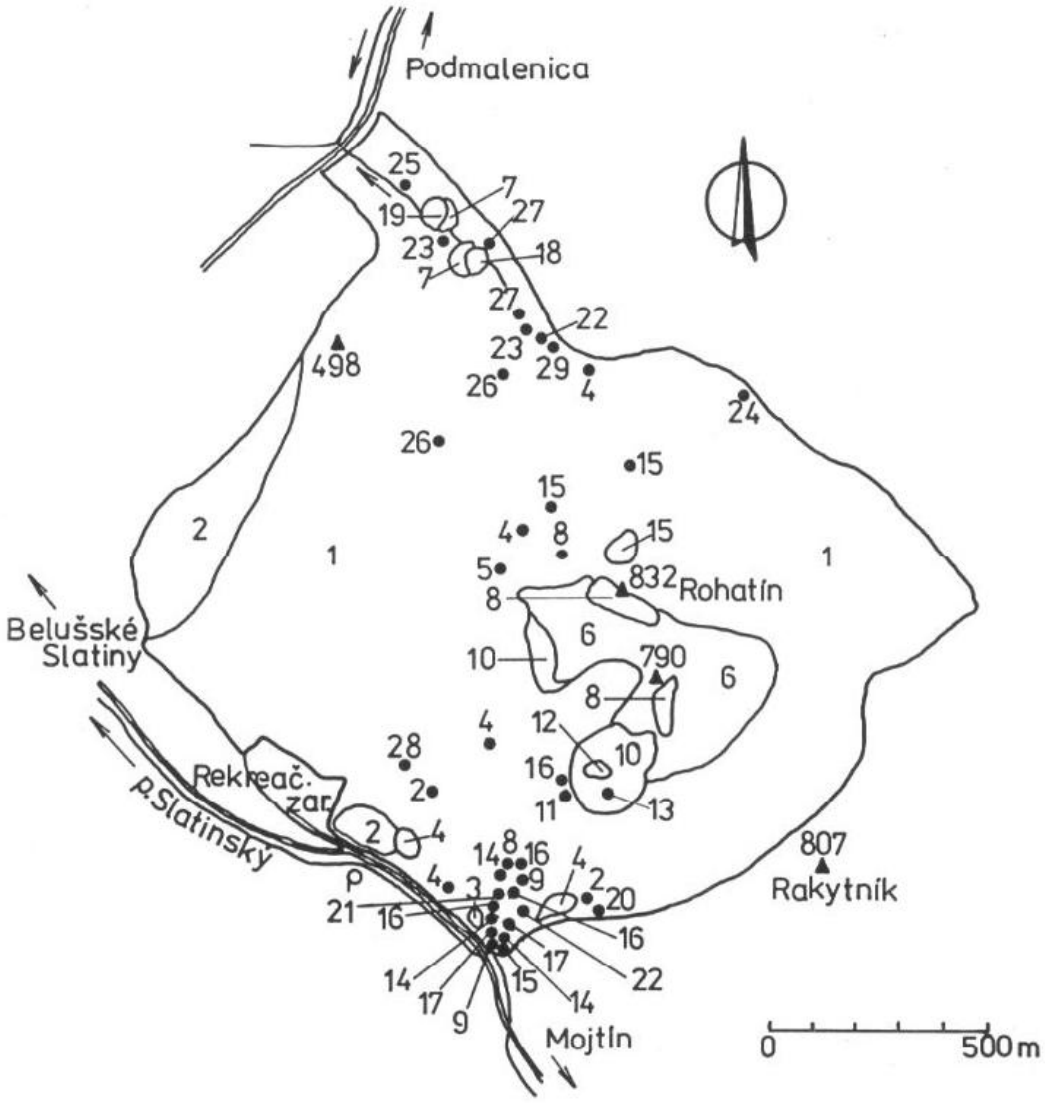
Isoëto-Nanojuncetea Br.-Bl. et R. Tx. ex Westhoff et al. 1946
Nanocyperetalia Klika 1935
Eleocharition soloniensis Philippi 1968
***Cyperus fuscus*-community**

B. Distribution of the plant communities

Forests cover the major part of the Rohatín Mountain. There are mostly the calciphilous beech forests of ***Cephalanthero-Fagetum*** Oberd. 1957 on the W, N, E, and SE slopes (Map 1). The ground cover layer is very thin, because the permanent shade of the tree canopy does not allow the herbs to grow. There are locally the hornbeam forests of ***Querco petrae-Carpinetum*** Soó et Pócs (1931) 1957 at the foot of Rohatín at the altitudes of 450 – 520 m above sea level. Mixed maple-lime-ash woods belonging to the *Tilio-Acerion* Klika 1955 occur on stony slopes and screes. There were 3 scree forest communities found out: thermophilous ***Aceri-Tilietum*** Faber 1936, mezophilous ***Aceri-Carpinetum*** Klika 1941 and submontane ***Scolopendrio-Fraxinetum*** Schwickerath 1938. There grows the rare fern species of *Phyllitis scolopendrium* in the *Scolopendrio-Fraxinetum.*

There are the relict pine forests of ***Carici humilis-Pinetum*** (Klika 1949) Fajmonová et Šimeková 1972 at the altitudes of 670 – 830 m above sea level. This community occurs at the hard-accessible sites on the limestone rocks. It has helped the environment to keep its original character and plant species structure over the centuries. Four endemic species grow in this habitat: *Thymus pulcherrimus* subsp. *sudeticus*, *Knautia kitaibelii*, *Soldanella carpatica,* and *Pulsatilla subslavica*.

Besides the relict pine forests, there occur also less valuable planted pine woods near the top of the mountain. In this kind of woods the trees are even-aged and *Pinus sylvestris* grows together with non native species of *Pinus nigra*. Because of the non-natural character, no relevés were carried out in this kind of forest.



Map 1. The situation map of the plant communities distribution

Legend: 1. *Cephalanthero-Fagetum,* **2.** *Querco petrae-Carpinetum,* **3.** *Aceri-Tilietum*, **4.** *Aceri-Carpinetum*, **5.** *Scolopendrio-Fraxinetum*, **6.** *Carici humilis-Pinetum*, **7.** *Salicetum cinereae,* **8.** *Minuartio langii-Festucetum pallentis,* **9.** *Saxifrago paniculatae-Seslerietum calcariae*, **10.** *Carici humilis-Seslerietum calcariae*, **11.** *Brachypodium pinnatum*-community, **12.** *Convallaria majalis*-community, **13.** *Calamagrostis varia*-community, **14.** *Jovibarbo-Sedetum albi,* **15.** *Cystopteridetum fragilis*, **16.** *Vincetoxicetum officinalis*, **17.** *Lembotropis nigricans*-community, **18.** *Carex paniculata*-community, **19.** *Caricetum davallianae,* **20.** *Urtico-Parietarietum officinalis*, **21.** *Sambucus ebulus*-community, **22.** *Aegopodio-Menthetum longifoliae*, **23.** *Urtica dioica*-community, **24.** *Petasites albus*-community, **25.** *Geranium palustre*-community, **26.** *Prunello-Ranunculetum repentis*,

27. *Eupatorietum cannabini,* **28.** *Epilobio-Atropetum bellae-donnae,* **29.** *Cyperus fuscus*-community

Large calcareous xerothermophilous grassland of ***Carici humilis-Seslerietum calcariae*** Sillinger 1931 occurs on the hottest S and SW slopes of Rohatín. They belong to the most valuable habitats of the studied locality. There grow the solitary oak trees of *Quercus pubescens* in this environment. Rohatín is one of a few localities in the central part of the Strážovské vrchy Mts, where *Quercus pubescens* grows on the northern border of its distribution in the territory of Slovakia.

The other xerophilous communities from the class of *Festuco-Brometea* (***Minuartio langii-Festucetum pallentis*** Sillinger 1930 and ***Saxifrago paniculatae-Seslerietum calcariae*** Klika 1941) are possible to find on the rocks with a very thin and discontinuous soil layer. Some of the authors classify the community of *Minuartio langii-Festucetum pallentis* into the class of *Elyno-Seslerietea*. We have decided to include this community to the *Festuco-Brometea*, because of the absence of the mountain species that are typical for *Elyno-Seslerietea.* On the other hand, there are many species from *Festuco-Brometea* present in the community.

The mezophilous ***Brachypodium pinnatum*-community, *Convallaria majalis*-community**, and ***Calamagrostis varia*-community** occur locally in the relatively humid soil on the S slope of Rohatín, under the solitary trees or at the forest edge. The solitary trees that are growing on this hottest slope of Rohatín change the microclimate of the site they are growing in and cause that the xerophilous community of *Carici humilis-Seslerietum calcariae* turns into the three mentioned mezophilous communities in the process of succession.

The scree communities of ***Jovibarbo-Sedetum albi*** Valachovič in Valachovič et al. 1995, ***Vincetoxicetum officinalis*** Kaiser 1926, and ***Lembotropis nigricans*-community** occur in the gorge at the S foot of Rohatín in the Slatinský potok Creek Valley.

Cystopteridetum fragilis Oberd. 1938 has been recorded on the steep wet rocks with the northern aspect at the higher altitudes. This rock cleft community is typical for the abundance of ferns and bryophytes.

***Geranium palustre*-community** occurs in the ecoton conditions at the edge of a forest and a meadow in the NNW part of studied locality.

There are ***Caricetum davallianae*** Dutoit 1924, ***Carex paniculata*-community**, and shrubbery ***Salicetum cinereae*** Zólyomi 1931 present on the two boggy meadows in the NNW part of studied locality. According to Ružičková (1986) and Hájek & Háberová (2001), the succession might be occuring in such type of vegetation. Indeed, the *Carex paniculata*-community turns gradually into *Caricetum davallianae* Dutoit 1924 and finally to *Salicetum cinereae* Zólyomi 1931 in the succession steps.

Synantropic, nitrophylous, and semi-natural communities from the classes of Galio-Urticetea, Molinio-Arrhenatheretea and Epilobietea angustifolii occur locally at the N and NW foot of Rohatín. Especially ***Aegopodio-Menthetum longifoliae*** Hilbig 1972, ***Urtica dioica*-community**, and ***Eupatorietum cannabini*** R. Tx.1967 can be easily found on a meadow and an area used for timber wood leave-over in the N part of the studied locality. We have recorded the glade community of ***Epilobio-***

Atropetum bellae-donnae R. Tx. 1931 em. 1950 at a forest clearing. ***Prunello-Ranunculetum repentis*** Winterhoff 1963 occurs on the wood-paths at the NW foot of Rohatín. The wetland ***Cyperus fuscus*-community** has been also surprisingly found in a puddle on the wood-path

Conclusions

The high diversity of plant communities indicates also high number of plant species growing at the studied locality. There were 622 taxa of vascular plants, bryophytes and lichens recorded in Rohatín. It includes 519 species and subspecies of vascular plants, 68 species of bryophytes and 39 species of lichens. 41 species are threatened and rare, 28 species are protected by act and 6 species are endemic (according to Feráková, Maglocký & Marhold 1998).

From the botanical point of view, Rohatín is a very valuable and relatively undamaged locality. In the Strážovské vrchy Mts it belongs to the group of localities with the highest diversity of plant communities and plant species. Based on the extraordinary high diversity, it is necessary to protect the nature of the Rohatín Mountain. The Strážovské vrchy Mts Protected Landscape Area Administration Office is preparing The Rohatín Mt. to be declared a protected area (nature preserve (PR) or national nature preserve (NPR).

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