

ILLYRIAN SPECIES IN THE MEADOWS OF KARST POLJES IN SLOVENIA

Andrej SELISKAR¹

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Abstract:

In this paper are discussed some ecologic and vegetation informations of small karst poljes in Slovenia with special regard to illyrian species and phytogeographical distribution.

Beside well known large karst poljes Cerknisko jezero and Planinsko polje, there are some smaller karst poljes or so called lakes laying southly from Postojna, namely Petelinsko, Palsko, Drskovsko, Kalsko, Parsko jezero and some other. The main phenomena is exhausted water. It appears when the hydrologic conditons in the river Pivka are extremely high. The duration of floods is unstable and alternate from few days to half a year in various lakes and has important influence on the development of vegetation (Habic 1975). All these lakes are more or less under different kinds of human influence.

Observations in the field have shown some differences in vegetation structure between several lakes. The most important factors are soil deepness and water conditions and there exist correlations between them. The soil is carried away from the slopes of poljes and is normally deposited at the bottom. Deep brown earth and brown calcareous soil have been found frequently but glayed brown soil are very scarce developed.

The most frequent community is a poor by developed *DESCHAMPSIO-PLANTAGINETUM ALTISSIMAE* Ilijanic 1979 in various stages that could be defined more as variants and in some cases as subassociations. A very few number of species is significant for optimal developed communities in researched area and this is much more noticeable for these one with ecological restrictions such as long duration of floods or shallow soil. The number of species does not exceed 30, very often is only 10 per relevé. The stability of species composition is relatively high, higher differences are first of all in group of random and companion species.

From group *MOLINION* and *MOLINETALIA* must be mentioned *Inula salicina*, *Allium angulosum*, *Carex panicea*, *Genista tinctoria*, *Serratula tinctoria*, for *MOLINIO-ARRHENATHERETEA* are the most common *Centaurea jacea*, *Ranunculus acris*, *Achillea millefolium*, *Prunella vulgaris* and *Lotus corniculatus*. A long dry period in the summer caused the formation of group of species from class *FESTUCO-BROMETEA* such as *Galium verum*, *Koeleria pyramidata*, *Pimpinella saxifraga*, *Trifolium montanum*, *Filipendula vulgaris*, *Dorycnium germanicum* and others.

Preliminary investigations on Petelinsko jezero has shown differentiation which leads to more long standing stages of community *DESCHAMPSIO-PLANTAGINETUM ALTISSIMAE* and these variants are named upon dominant species such as *Pimpinella saxifraga*, *Peucedanum coriaceum*, *Carex panicea*, *Rorippa sylvestris*, *Ranunculus repens*, *Lysimachia vulgaris*, *Allium angulosum* or *Viola elatior*. Between these variants exist more or less distinct boundaries. The most important factor is duration of overflow.

Interesting is a community similiar to *MOLINIO-GLADIOLETUM* Horvat (1931) 1949 on Drskovsko jezero with characteristic species *Molinia arundinacea*, *Gladiolus illyricus* and *Carex montana* on deep brown soil and entirely another *Molinia arundinacea* rich community with *Satureja subspicata* and *Thymus effusus* on extremely skeletal soil.

On some places *ARRHENATHERETUM ELATIORIS* has been found, too, and only once *FESTUCETUM RUPICOLAE*.

1 The Jovan Hadži Institute of Biology Center of Scientific research
of the Slovene Academy of Sciences and Arts
Novi trg 5, Ljubljana
YUGOSLAVIA

Presence list of taxons:

<i>Achillea millefolium</i>	<i>Galium mollugo</i>	<i>Poa pratensis</i>
<i>Achillea roseo-alba</i>	<i>Galium palustre</i>	<i>Poa trivialis</i>
<i>Agropyron repens</i>	<i>Galium verum</i>	<i>Polygala comosa</i>
<i>Agrostis canina</i>	<i>Genista tinctoria</i>	<i>Polygala vulgaris</i>
<i>Agrostis stolonifera</i>	<i>Gentiana asclepiadea</i>	<i>Potentilla erecta</i>
<i>Allium angulosum</i>	<i>Gentiana pneumonanthe</i>	<i>Potentilla reptans</i>
<i>Allium carinatum</i>	<i>Gladiolus illyricus</i>	<i>Prunella vulgaris</i>
<i>Angelica sylvestris</i>	<i>Hieracium pilosella</i>	<i>Prunus mahaleb</i>
<i>Anthoxanthum odoratum</i>	<i>Holcus lanatus</i>	<i>Pseudolysimachion longisolum</i>
<i>Anthyllis vulneraria</i>	<i>Hypericum perforatum</i>	<i>Ranunculus acris</i>
<i>Arrhenatherum elatius</i>	<i>Inula salicina</i>	<i>Ranunculus bulbosus</i>
<i>Asperula cynanchica</i>	<i>Knautia arvensis</i>	<i>Ranunculus repens</i>
<i>Betonica officinalis</i>	<i>Koeleria pyramidata</i>	<i>Rhamnus cathartica</i>
<i>Brachypodium rupestre</i>	<i>Leontodon autumnalis</i>	<i>Rhinanthus minor</i>
<i>Briza media</i>	<i>Leontodon hispidus</i>	<i>Rorippa sylvestris</i>
<i>Campanula glomerata</i>	<i>Leontodon hispidus glabratus</i>	<i>Rosa canina</i>
<i>Campanula patula</i>	<i>Leucanthemum ircutianum</i>	<i>Rubus caesius</i>
<i>Carex hirta</i>	<i>Leucanthemum vulgare</i>	<i>Rumex acetosa</i>
<i>Carex montana</i>	<i>Linum catharticum</i>	<i>Rumex crispus</i>
<i>Carex panicea</i>	<i>Lolium perenne</i>	<i>Salvia pratensis</i>
<i>Carlina acaulis</i>	<i>Lotus corniculatus corn.</i>	<i>Sanguisorba minor</i>
<i>Centaurea jacea</i>	<i>Lotus corniculatus hirs.</i>	<i>Scilla litardieri</i>
<i>Cerastium holostroides</i>	<i>Lotus uliginosus</i>	<i>Sedum sexangulare</i>
<i>Cichorium intybus</i>	<i>Lysimachia punctata</i>	<i>Serratula tinctoria</i>
<i>Cirsium arvense</i>	<i>Lysimachia vulgaris</i>	<i>Stellaria graminea</i>
<i>Clematis integrifolia</i>	<i>Medicago lupulina</i>	<i>Stenactis annua</i>
<i>Clematis recta</i>	<i>Medicago sativa</i>	<i>Taraxacum officinale</i>
<i>Convolvulus arvensis</i>	<i>Melampyrum cristatum</i>	<i>Thalictrum flavum</i>
<i>Cornus sanguinea</i>	<i>Melilotus officinalis</i>	<i>Thalictrum lucidum</i>
<i>Crataegus laevigata</i>	<i>Mentha aquatica</i>	<i>Thalictrum minus</i>
<i>Crataegus monogyna</i>	<i>Mentha pulegium</i>	<i>Thymus effusus</i>
<i>Crepis biennis</i>	<i>Molinia arundinacea</i>	<i>Thymus longicaulis</i>
<i>Crepis hieracioides</i>	<i>Molinia coerulea</i>	<i>Tragopogon orientalis</i>
<i>Dactylis glomerata</i>	<i>Ononis spinosa</i>	<i>Trifolium campestre</i>
<i>Danthonia calycina</i>	<i>Orobanche vulgaris</i>	<i>Trifolium hybridum</i>
<i>Daucus carota</i>	<i>Pastinaca sativa</i>	<i>Trifolium montanum</i>
<i>Deschampsia caespitosa</i>	<i>Peucedanum coriaceum ssp. pospischalii</i>	<i>Trifolium pratense</i>
<i>Dorycnium herbaceum</i>	<i>Peucedanum palustre</i>	<i>Trifolium repens</i>
<i>Dorycnium germanicum</i>	<i>Phleum pratense</i>	<i>Trisetum flavescens</i>
<i>Euphorbia annua</i>	<i>Phyteuma orbiculare</i>	<i>Valeriana officinalis</i>
<i>Euphrasia rostkoviana</i>	<i>Pimpinella major</i>	<i>Veronica chamaedrys</i>
<i>Festuca pseudovina</i>	<i>Pimpinella saxifraga</i>	<i>Vicia cracca</i>
<i>Festuca rupicola</i>	<i>Pinus sylvestris</i>	<i>Vicia hirsuta</i>
<i>Filipendula ulmaria</i>	<i>Plantago altissima</i>	<i>Vincetoxicum hirundinaria</i>
<i>Filipendula vulgaris</i>	<i>Plantago lanceolata</i>	<i>Viola canina</i>
<i>Frangula alnus</i>	<i>Plantago major</i>	<i>Viola elatior</i>
<i>Galium boreale</i>	<i>Poa compressa</i>	<i>Viola hirsuta</i>

Initial overgrowing in the form of small islands begins with *Pinus sylvestris*, *Rosa canina*, *Crataegus monogyna* and *C. laevigata*, *Rhamnus cathartica*, *Cornus sanguinea*, *Prunus mahaleb*, *Rubus caesius* or *Salix purpurea*.

The presence list includes 156 taxa. From this list can be stated that in fact there are a few illyrian species. More or less in the whole list we can find two or three such species and that *Peucedanum coriaceum* subsp. *pospischalii*, *Scilla litardieri* (founded on Planinsko polje) and partially *Iris illyrica*, *Gladiolus illyricus* and *Plantago altissima* are more extended but central habitats are undoubtedly in the illyrian floral province.

Which factors are responsible for the absence of many illyrian species in our Slovene poljes compared to central illyrian ones? Geographic, climatologic, hydrologic as well as chorologic, genetic and other facts and processes play evidently the most important role.

For conclusion could be stated that Slovene poljes belong in vegetation sense to illyrian or dinaric region but the true illyrian species appeared scarcely contrary to central illyrian poljes where could be found beside before mentioned still *Edraianthus dahamicus*, *Succisella petteri* and *Lathyrus pannonicus* (RITTER-STUDNICKA, 1954, 1974). Compared to dry habitats, what is well known, wet and alternately wet and dry habitats have less endemits and similar specialists and from that point of view is Slovene illyrian flora on karst poljes and lakes relatively rich and we think that here is more or less the western boundary of such habitats.

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Autor(en)/Author(s): Seliskar Andrej

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