



The Balkan Botanical Congress is an international meeting that has been held nearly every three years, since 1997. It brings together botanists from around the world who perform research on plants in the widest sense, as well as scientists who are engaged in the plant sciences and their applications. We were honored to host such an extraordinary scientific event this year in Serbia.

The 7th Balkan Botanical Congress – 7BBC 2018 took place in Novi Sad from September 10th to 14th 2018. The Congress was organized by the University of Novi Sad, Faculty of Sciences, Department of Biology and Ecology and the “Andreas Wolny” Botanical Society, along with the great help of 7 co-organizers and more than 30 supporters and sponsors. It truly was not possible to happen without exceptional help of our co-organizer - the Institute for Nature Conservation of Vojvodina Province who made this congress not only possible, but totally awesome.

7BBC 2018 placed a special emphasis on plants of the Balkan Peninsula and covered various research fields. The Congress was organized into ten sessions: Plant Anatomy and Physiology, Plant Taxonomy and Systematics, Plant Molecular Biology and Genetics, Floristics, Vegetation and Phytogeography, Conservation Botany and Plant Invasions, Phytochemistry and Plant Resources, Agronomy and Forestry, Botanical Collections and History, Ethnobotany and Cryptogam Biology. These topics were elaborated through five plenary lectures given by eminent scientists, as well as in the form of introductory lectures, oral and poster presentations. With an overall number of 387 abstracts presented on the very latest of botanical science, we shared knowledge, expertise and novel ideas. We welcomed nearly 400 scientists to Novi Sad, and we believe that we succeeded in our joint endeavor to make new networks and new connections among botanists. We hope that we contributed to advancements in the wide and beautiful field of botany, ranging from fundamental botanical research to applied botany.

It is our great pleasure to publish this Abstract Book in Botanica Serbica, in the same year that this international journal, a renamed continuation of the Bulletin of the Institute of Botany and Botanical Garden Belgrade, celebrates its 90 year jubilee. On behalf of the Scientific and Organizing committee of 7BBC 2018 we would like to express our gratitude to all contributors, colleagues and sponsors for taking part in the 7th Balkan Botanical Congress, as well as for their efforts and contributions to its successful realization.

Goran Anačkov and Lana Zorić,  
Co-presidents of the Scientific Committee of the 7 BBC  
and guest editors of Botanica Serbica 42 (supplement 1).

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### Sessions:

**The 7th Balkan Botanical Congress consists of plenary lectures, introductory lectures of each session, as well as oral and poster presentations on the following topics:**

**Sessions 1.** Plant Anatomy and Physiology

**Sessions 2.** Plant Taxonomy and Systematics

**Sessions 3.** Plant Molecular Biology and Genetics

**Sessions 4.** Floristics, Vegetation and Phytogeography

**Sessions 5.** Conservation Botany and Plant Invasion

**Sessions 6.** Phytochemistry and Plant Resources

**Sessions 7.** Agronomy and Forestry

**Sessions 8.** Botanical Collections and History

**Sessions 9.** Ethnobotany

**Sessions 10.** Cryptogam Biology

Poster presentation 24 05 38

### CRITICALLY ENDANGERED, ENDANGERED AND VULNERABLE TAXA IN FLORA OF SPECIAL NATURE RESERVE ZASAVICA

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Nature reserve Zasavica is an peat swamp komplex formed by the rivers Drina and Sava in Atlantic faze of holocen and has total area of 1850 ha. Water system of Zasavica today gets its fresh water solely through underground streams of rever Drina. By the past 20 years of floristic reasearch in the Nature reserve Zasavica there was some 657 taxons registered. From 657 plant taxons recorded in the Nature reserve, we separated 45 taxons of the most important vascular flora. By the preliminary red list of flora Serbia and Montenegro in the flora of the reserve there are 27 taxons with the status of critically endangered (CR), endangered (EN), vulnerable (VU) and combined category of endergement : CR-VU (DD), EN-VU (DD), VU-NT (DD), VU-LC (DD). From total of 27 taxon plants, one or 3,7 % is in category of critically endangered (CR) [*Aldrovanda vesiculosa*], eight or 29,6 % is in the category of endangered (EN)[*Cardamine parviflora*, *Hippuris vulgaris*, *Hottonia palustris*, *Lindernia procumbens*, *Potamogeton acutifolius*, *Ranunculus lingua*, *Urtica kioviensis*, *Alisma graminea*], eight or 29,6 % in category vulnerable (VU) [*Dryopteris carthusiana*, *Leucojum aestivum*, *Stratiotes aloides*, *Thelypteris palustris*, *Tripolium pannonicum* subsp. *pannonicum*, *Batrachium aquatilis*, *Hypericum androsaetum*, *Ranunculus flammula*], one or 3,7 % in category CR-VU (DD) [*Schoenoplectus triqueter*], four or 14,8 % in category EN-VU (DD) [*Anacamptis palustris*, *Callitriche palustris*, *Potamogeton trichoides*, *Utricularia australis*], four or 14,8 % in category VU-NT (DD) [*Arum orientale*, *Erysimum cheiranthoides* subsp. *cheiranthoides*, *Hesperis sylvestris* subsp. *sylvestris*, *Thymelaea passerina*], one or 3,7 % in category VU-LC (DD) [*Zannichellia palustris*]. Most important taxon in the reserve is *Aldrovanda vesiculosa* for witch SNR Zasavica is the only habbitat in Serbia. These results clearly indicates national and international importance of this nature area and because of that Zasavica is one of the IPA areas in Serbia and future Natura 2000 and Emerald areas.

**KEYWORDS:** Zasavica, critically endangered, endangered, vulnerable taxa, flora

Poster presentation 25 05 10

### GERMINATION OF GYMNADENIA CONOPSEA MATURE SEEDS (L.) R.BR. BY ASIMBIOTIC CULTURE IN VITRO

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Although family *Orchidaceae* contributes 10% to the total number of flowering plants, approximately quarter of established species are endangered, as a consequence of habitat loss, plant smuggling, pervasive impact of global climate change as well as overexploitation for horticultural purposes. In this manner, *in vitro* propagation techniques play an irreplaceable role in their conservation. Efficiency of this technique depends of many factors which must be adjusted to each species. The aim of this study was to establish asymbiotic germination protocol for the purpose of *ex situ* conservation of endangered orchid species *Gymnadenia conopsea* (L.) R.Br. Influence of two basal media - Knudson C (KC) and Malmgren (MM) – and organic additives - coconut water (CW) pineapple juice (PJ), peptone (PE), L-glutamine with folic acid (A) and casein hydrolysate (CA) (for KC medium) – were tested. All tested media consisted of 2% sucrose, 7% agar and 1% activated charcoal, while the pH for all media was adjusted to 5,8±0,02 before autoclaving at 121 °C for 20 min. Influence of illumination was tested by placing the Petri dishes with seeds under two different light conditions: 16/8 light/dark and 0/24 light/dark (continuous darkness). The results showed that MM medium was more effective than KC medium for germination, protocorm, shoot and rhizoid formation. All organic supplements accelerated protocorm formation, while the highest germination efficiency was observed on MM-CW medium. Rapid germination, growth, and development occurred in continual darkness, contrary to 16/8 light/dark which promoted only swelling of the embryo.

**KEYWORDS:** *ex situ*, conservation, orchids, terrestrial, germination

Poster presentation 26 05 30

### TESTING THE SEED GERMINATION OF OXYTROPIS PILOSA (L.) DC. 1802 (FABACEAE)

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*Oxytropis pilosa* (L.) DC. is a species which is widely distributed in Central and East Europe, with populations found in the Balkans. It is one of the rarest species with the Pontic distribution type. Due to intensive habitat loss, it is classified as an endangered species. As most species of the Fabaceae family, *O. pilosa* expresses a physical type of seed dormancy. In order to break this dormancy, seeds must be exposed to a specific combination of ecological factors, which induce changes in the seeds and trigger their germination. The objective of this research was to show under which circumstances seeds of this species successfully germinate. In this paper, we tested the germination of the species' seeds after applying three treatments to break their dormancy. These treatments were: scarification by boiling water, scarification by sulphuric acid and mechanical scarification. The effects of these treatments were compared to germination success in the control group (without treatment). Also, in order to test the seed germination, we formed three experimental groups, on which top-of-paper method of seed germination was performed. Two of these experimental groups were made of seeds which weren't mechanically scarified; One group was kept exposed to daylight, while the other was kept in the dark. The third experimental group was made of seeds, which were mechanically scarified and kept in daylight. Seeds, which were mechanically scarified showed the highest level of germination, what could serve as a proof of physical dormancy type of this species' seeds. Seeds in the control group also successfully germinated, despite their dormancy. This can imply that this species' seeds would not need any specific ecological circumstances to germinate in situ. Seeds, which were treated with boiling water and sulphuric acid showed very low germination rates, which could be a result of embryo damage. We conclude that the application of mechanical scarification could be an effective method to induce seed germination in future conservational research of this species. The endangered conservation status of *O. pilosa* may not be the result of seed dormancy, but a consequence of habitat destruction.

**KEYWORDS:** endangered species, germination, Leguminosae, seed dormancy, seed scarification

Poster presentation 27 05 12

### VALUES FOR NATURE CONSERVATION: LOCALS' VIEWS ON THE IMPACTS OF TRADITIONAL PIG HERDING ON FLOODPLAIN FORESTS ALONG THE SAVA RIVER

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The Bosut forest, with its exceptional biodiversity depending partly on traditional livestock farming, is a model site of European importance. It could show how the new nature protection paradigm based on cooperation and knowledge co-production with local inhabitants can be more effective than the previous „fortress” model. In 2017, 14 semi-structured interviews were conducted with pig herders and local foresters to reconstruct the changes in the grazing regime and the ecosystem services gained from traditional pig keeping in the Bosut forest, and 8 interviews were made with pig herders to document their knowledge of forest and marsh plants and habitats. Locals knew more than 150 plant species, and had a deep understanding of the pigs' foraging preferences (e.g., by species and by season). We learnt that locals had rights to graze pigs in the forests since time immemorial. Main regulatory rules of forest grazing have not changed in the last decades. Many locals prefer forest-reared piglets during family festivities because it is, as they argue, more healthy and tasty. They emphasized that forest pigs can utilize the acorn production and also the plants of the herb layer and convert it to meat for human consumption. Most locals argued that pig grazing is beneficial to the forest. For example, pigs eat up larvae of pests thus decreasing their impact on trees, especially oaks. Pigs loosen the soil thus help infiltration of the water, so the forest floor is less dry in summer. Their opinion is that pig grazing is a natural phenomenon, so it is good for Nature. Local foresters and herders perceived no negative impact of grazing on the natural values in marshes or in forests. Herders argued that pigs keep the marshes free of bushes and prevent their closure by *Phragmites*, *Carex* spp. and *Glyceria maxima*. The practices and knowledge of pig grazing in the Bosut forest is an intangible cultural heritage of European importance. This is one of the very last places in Europe where the previously wide-spread forest pig keeping survived and can be protected and studied by botanists and conservationists. The related traditional ecological and vegetational knowledge is a valuable knowledge bank (analogue to a gene bank).

**KEYWORDS:** floodplain forests, pig grazing, local culture, ecosystem services, conservation