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Book of Abstracts

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Huge flower color polymorphism in *Iris pumila* L: previous studies and current research

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Huge flower color polymorphism found in natural populations of *Iris pumila*, endangered species inhabiting the Natural reserve of Deliblato Sand, Serbia, enables the identification of genetically distinct clones and makes this species a superb object for genetic polymorphism studies. Evolutionary biology studies of the dwarf bearded iris were conducted and published by the researchers from our department in the last four decades with special emphasis on evolutionary ecology and ecological genetics. However, these studies had several important limitations. Subjectivity in visual identification led to inconsistencies in defining color morphs. In our current research, variability in flower color is precisely accessed by reflectance UV-enhanced spectroscopy in the field, removing subjectivity in visual identification and influence of surrounding light conditions. Those specters reveal both discrete and continuous variation and will be followed by pigment HPLC analysis providing insights into the biochemical basis of flower color polymorphism. Limitations of previous studies also included smaller samples restricted to the flowering peak. Therefore, we are now also conducting a long-term study of the dynamics of color-morph frequencies using digital photography (including ones taken by drone), involving several complete flowering seasons on selected spots (covering over 4000 square meters and including tens of thousands of flowers) in undisturbed *I.pumila* natural population. This approach could reveal how precisely determined color-morph frequencies change both temporally and spatially in their natural habitat in the face of changing environments and vegetative succession and in perspective the role of natural selection vs. random events in maintaining flower-color polymorphism.

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Becoming pale in the city: a strategy of the European garden spider to adapt to city life?

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Urbanization can impose strong selection pressures on living organisms. One of these pressures is the increased environmental temperature due to human construction, habitat fragmentation, loss of vegetation and alteration of the water cycle in urban areas (Heat island effect). A way to reduce heating consists of changing the body temperature by adjusting body colouration. Darker surfaces absorb more light energy, that gets transformed into heat, than lighter surfaces, and thereby allow organisms to adapt to the suboptimal higher temperatures, or inversely to heat up faster in cold environments. We tested the hypothesis that the European garden spider, *Araneus diadematus,* is adapting