

In Carpathians there are three diploid ox-eye daisy species: *Leucanthemum vulgare*, *L. rotundifolium*, and *L. gaudinii*. They are occupying different altitudes and habitats but they ranges overlap sympatrically. Namely *L. rotundifolium* which prefers shady and moist habitats associated mostly with montane pine forests is overlapping with *L. gaudinii* distributed in alpine zone, and *L. vulgare* distributed in the lowland meadows. All three taxa have potential to hybridize and hybrids between them were noted previously. Therefore there are forming an interesting group to study hybridization where potentially many factors may be involved that shape the maintenance of species barriers, hybrid establishment and hybrid survival. Furthermore studies on *L. rotundifolium* which is a Carpathian subendemic may reveal broader biogeographical patterns for the whole Carpathian Mountains. Another interesting feature in phylogeography of *L. rotundifolium* is that its range is comprised from several populations throughout the Carpathians that are isolated geographically from each other to a varying degree.

To investigate the phylogeography of *L. rotundifolium* chloroplast markers will be sequenced and the same individuals will be genotyped using microsatellites and Methyl-Sensitive Amplification Polymorphism (MSAP). In addition to study the hybridization among three species plants will be gathered in an altitudinal gradients and genotyped using the same techniques as for phylogeography. However only one chloroplast marker will be used since its purpose will be only to reveal species that was an egg donor. Additionally cytogenetical studies will be performed to detect any changes at the nucleus level as changes in the number or structure or arrangement of chromosomes. Studies on hybridization will be conducted partially in the common garden. Project will involve collecting of material throughout the Carpathians to gather necessary plant samples for DNA extraction and morphological studies.

Phylogeography of *L. rotundifolium* have a potential to provide broader insights into biogeographic patterns in Carpathians, which are rarely included in the detailed studies. Furthermore as one of the only 12 Carpathian subendemic plants it is a species worth to study. Regarding climate change it is also important do document current biodiversity since mountainous species will be likely one of the plant groups that would surely suffer its effects. Studies on hybridization are equally important and interesting. Such groups comprising altitudinal vicariants that are able to hybridize are generally rare and there is no much data about such systems around the world. Knowing more about that hybrids and hybrid zones may lead to a better understanding of speciation and other evolutionary processes.