

Project Update: November 2015

Field expeditions and outcomes

During my field expeditions I found 26 localities of monkshoods on Chornohora, about 10 of which were new records. On the basis of these new findings combined with my preliminary observations and data observed from herbarium collections, I prepared a database of *Aconitum* localities in Chornohora and consequently I made maps of distribution for each species in QGIS software.

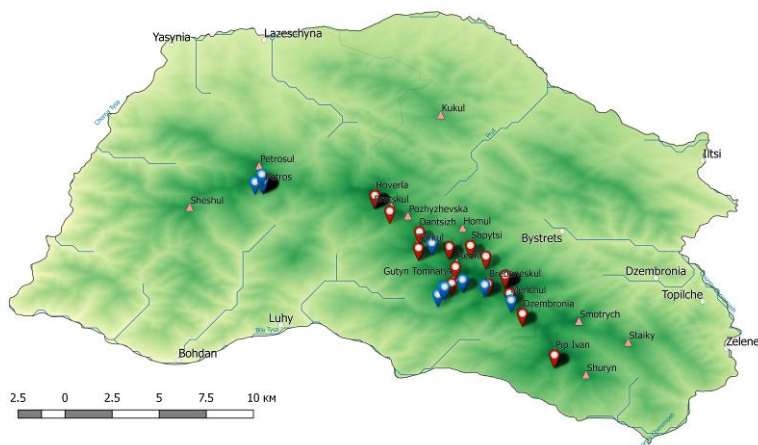


The second task was to evaluate abundance and size of populations. In particular, I analysed the area of these 26 populations, and common condition (bad, normal, good, and very good). I also suggested completing my investigations by analysis of total quantity of plants in each population, their density, and their generative specter. This allowed me to make more accurate decision when I made a choice about IUCN category for *Aconitum* species. Population studies were completed also by evaluation of such pressures as fragmentation, mowing, pasture, trampling, and succession. As a result I

made conclusion that the most influenced is trampling and destruction by tourists.

Environmental conditions were also analyzed for each of studied population. In particular, I analyzed air temperature, air humidity, illumination, soil moisture, soil temperature, and soil pH. Also I completed my studied by analyses on wind speed and illumination. This part of my investigations gave the most interest

results. For example, I ascertained that most of species are dependent from soil pH, superficial soil moisture, and general illumination. It is also important outcome that high-mountain members are affected by wind speed which is the main reason of their dwarfed construction, while other abiotic parameters are not so significant for these plants. Finally, I established that most of analysed monkshoods are acidophilic or near sub-acidophilic, but sometimes they grow in neutral or even basophilic soils. This showed that pH conditions are very useful for delimitation of higher taxa such as subgenera and



sections in genus *Aconitum*. From other side it was strange to find neutral soils on higher elevations where acidic soils are predominantly occurred and no open carbonate outcrops. I summarised that deep carbonates are washing out by water and changes pH of soil along the torrents where monkshoods very often grow.

The last task during my field trips was to describe plant communities in which monkshoods occur. As a result I made relevés by Braun-Blanquet and described 10 new communities which were not mentioned before. Also I described in first time for Ukrainian Carpathians the unique community *Aconitetum firmi* Kraj,

1933. On the base of obtained experimental data I prepared the second combined database which will be used for further analysis.

As a general result of my field expeditions I clarified threat categories for *A. xnanum* (DD → VU), and *A. firmum* subsp. *fussianum* (NT → VU). Also I completed the list of taxa by *A. variegatum* subsp. *variegatum* and *A. variegatum* subsp. *podobnikianum* which were not observed but potentially could be found in lower elevations on Chornohora.