More than an appendix - populations of inner-Alpine steppe species are more divergent (and conservation relevant!) than anticipated

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Winter cold steppes occur mainly in the continental interior of large land masses and on the lee side of high mountain ranges. The steppes of the inner-Alpine valleys and the Eurasian steppes share many animal and plant species. The majority of them are continuously distributed from Central Asia to Eastern Europe, to the west they are restricted to a few, especially continental areas. This suggests that these disjunct steppe occurrences did not develop independently but were once associated with the Eastern European ones, thus ensuring a direct exchange of species. For a long time it was unclear whether steppe species in the alpine dry valleys are relics that were pushed back to the few remaining steppe areas by post-glacial reforestation or whether long-distance dispersal is the main reason for their fragmented area. In my presentation, I present the results of an ongoing research project using Next-Generation Sequencing (RAD sequencing) to elucidate the migration history of representative steppe species. I will highlight the following aspects: (1) What is the link between Alpine populations and other populations from Eurasia? (2) Did the steppe species colonize each valley independently or is there indication for genetic exchange between different inner-Alpine steppe areas? (3) Are the phylogeographic patterns of steppe plants and animals congruent, which would imply that certain communities spread together, or are they individually distinct?