Comments to PhD theses by Iveta Husakova: Species diversity, distribution and interspecific and intraspecific variation in performance of dry grassland species

This is an ambitious phd-thesis collecting field data, geographical data and carrying out experiments. Combining the studies it is interesting to see the endeavour to understand the relative importance of different landscape processes, time and space to understand not only species diversity but also species composition. I like the combination of field studies and common garden studies and particularly that you have used several different species in the garden experiments. Three of the four studies have been published in well ranked and well-suited journals. I see no problem in passing this thesis for a doctoral degree.

Although I think the studies are good in tweezing out different effects by time and spatial arrangement for plant populations and performance I have some remarks. The abstract and introduction is hard to read. The abstract and general introduction could do with some editing as it is hard to follow with several grammatical errors and typos. In the abstract I miss location, some basic information on which habitats, species richness, how much change over time etc. Great that you included openings outside the study area to include when measuring connectivity.

Questions:

Why is not plants in the title?

Why did you chose these habitats? Because they are important for conservation (rare) or because they are a valuable model system?

As I have no knowledge of the landscape and the habitats you have studies I need some guidance. Help me understand what kind of habitats are “dry grassland-like forest openings in the forested landscape” “grassland-like openings” Do you see yourself as a grassland ecologist? Why select grassland species in forest openings? How unique is this system, can it be generalised to other habitats.

Please can you explain something on the evolution of these grassland patches. How are these habitat fragmented – habitat destruction, abandonment, encroachment – is the process gradual or quick? How much where there in the 1938 compared to today and what is the magnitude and speed of change. Is the landscape relative stable? If I understand correctly only 27% of the habitat has changed since 1938? But what are the total distribution of the habitat in your landscape. Do they only occur around this mountain ridge or are they common? The focus seems to be on habitat, habitat quality and change but what about the surrounding landscape matrix? Do you think the surrounding habitat can facilitate or impede plant or pollinator dispersal? How?

Adrians et al 2006 and others that did not find an historical effect investigated landscapes with very little grassland left (less than 2%) and were the changes occurred a long time ago (more than 70 years) compared to studies finding an effect of historical landscape structure. Your habitats seems to have increased with more than 100% since 80 years ago to then decrease a bit. How can you relate this change, time and magnitude to the other studies? Do you think there would be a difference if it was grassland habitats or forest habitats?

When I read the thesis I get the feeling that these are naturally open habitats in a naturally and quite stable forest landscapes – how can these habitat become more connected and less isolated? Based on your findings will you be able to generalize to other dry grassland systems? Even
to other types of fragmented habitats (forests, wet grasslands etc). Looking at the maps in paper 1 it seems that it is quite a few openings that appear after 1938 or even after 1973. How did you treat these in your analysis and did they appear (why) or is it more a matter of bad aerial photographs? There seems to be a few quite large and very isolated “new” grasslands (in the middle) might these affect your results?

Can you give any examples of plant metapopulation communities (not theory)? Do you think your system functions as a metapopulation community?

Do mouflon graze or browse? What about the other ungulates?

Based on your findings will you be able to generalize to other dry grassland systems? Even to other types of fragmented habitats (forests, wet grasslands etc). I can really agree that past and historical landscape and habitat distribution is important to understand present day plant distribution but also conservation actions (is this included). How can managers use your results?

Are there any kind of data or experiments that you wish you had and how do you think it could improve or maybe change your results and interpretations?

Small question if time permits

What would be the mechanism of long-lived species in young habitats compared to more shortlived species in older habitats sid 91

Chapter 2 Quite a few species included in the analysis only occurs a few times.

Did you ever think about using field samples from outside your openings to compare them?

Great that you included openings outside the study area to include when measuring connectivity

What is “andesites and dacites” Slower succession in shallow soil habitats?

What does an outbreak of ungulates mean? Is grazing the natural management?

Wouldn’t you expect that importance of local habitat conditions followed by historical effects?

What is a good interconnection between habitats?

Have you or where are you planning to send in chapter 3

Can you summarise the findings on plant performance according to population size or connectivity from paper 3. What are they patterns and can you explain why they have the performance they do?

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