Dear Dr. Fayle and reviewers,

we would like to thank you all for your comments. We find them very useful and highly insightful and they enabled us to greatly improve the quality of our manuscript.

We addressed all your comments, especially we clarified what was considered as sample during the data analysis and how we filtered out the effect of geographic regions.

In the following pages are our point-by-point responses to each of the comments of the reviewers.

Best regards,

Pavel Jakubec and Jan Růžička

01-May-2015

Dear Mr. Jakubec:

Manuscript ID EJE-15-038 entitled "Is the soil type an important ecological factor for occurrence of carrion beetles (Coleoptera: Silphidae)?" which you submitted to the European Journal of Entomology, has been reviewed. The comments of the reviewers and the editor are included at the bottom of this letter.

The reviewers have recommended publication, but also suggest some minor revisions to your manuscript. Therefore, I invite you to respond to the reviewers' comments and revise your manuscript. The reviewers both agree that the manuscript is both of interest, and is well-executed. Both make a number of more minor points, which will need to be addressed, but there are two major points which must be clarified. First, was the influence of geographic region included in the analysis? If not, then this should be done, and if so, then this needs to be explained properly. Second, there needs to be clarification of the way that samples were pooled before analysis.

To revise your manuscript, log into https://mc.manuscriptcentral.com/eurjentomol and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewers and the editor in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewers.

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the European Journal of Entomology, your revised manuscript should be uploaded within 6 months. If it is not possible for you to submit your revision within that time, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the European Journal of Entomology and I look forward to receiving your revision.

Sincerely,

Dr. Tom Fayle

Associate Editor, European Journal of Entomology

tmfayle@gmail.com

Reviewer: 1

Comments to the Author

Your paper makes the statement that four species of carrion beetles (three of which are listed in Czech Republic) are more likely to be associated with a particular type of soil. You suggest that soil type could be an important consideration in conservation programs. You also suggest that the findings could be of use in forensic entomology.

The study is really interesting, but needs a few points to be clarified.

My biggest criticism is that your sampling technique, more specifically - how you pooled samples for analysis are not clearly enough explained. In line 138, you state that 444 intact samples were collected. By looking at Table one, I see it’s 200 observations in cherno and 244 observations in fluvo. What makes an sample intact? How does completeness vary between different time periods? How complete did a sample have to be in order to be included in your analyses? This needs to be clarified explicitly. Instead of using abundance data, maybe you could use: (mean abundance/cup) on a site specific basis.

There also seems to be inconsistencies between the number of individuals reported in your abstract, and the number of individuals given in Table 1. I would make sure those are all double checked.

There was no discussion about the landscape which surrounds the sampling points, which could have a very strong effect on the abundance and diversity of carrion beetles you find (see Gibbs and Stanton 2001). There is also no mention of the effect agricultural management might have between the different crop types, ie: application of chemical insecticides. This is also worth mentioning in greater detail in the discussion.

Introduction: First paragraph is a little bit unclear. Are there any examples where carrion beetles wouldn’t be obligate feeders on vertebrate corpses? Perhaps ‘Most members of the silphidae are obligate carrion feeders.

You haven’t mentioned that the larvae develop in the soil during the introduction, or the burial activity of the corpse (Is this completely specific to Nicrophorus spp.?). These are important reasons why species might have particular preferences for different soil types, and it should be stated more explicitly.

I don’t understand why the paragraph starting on L54 is included in the introduction. Perhaps this might be more appropriate in the discussion. It doesn’t seem necessary to stage your particular research questions.

I would either flesh out why these findings are useful for forensics in greater detail, or completely drop it as one of the key take-home messages. This wasn't immediately clear when reading the paper.

Materials and Methods:

As mentioned earlier, you need to be more clear about what a ‘complete sample’ was. Did it include all three collection periods? Did it mean all five traps were intact? How did you select study sites using Cenia 2015, when the sampling took place in 2009. I suppose this was an earlier version of the program?

Data Analysis:

I want to disclose that I am not experienced with multivariate statistics, and that others would have a better understanding of reviewing this work.

Results: It seems strange that each of your factors came out with identical p-values for significance. Might be worth double checking to see if something strange is going on there.

Because N. humator is the only species with a preference for fluvisols, and its status is comparatively stable – perhaps it might be better to frame the paper as selecting conservation sites having chernozem soils, as they support larger communities of rare necrophagous beetles?

Typos that jumped out:

Line 117: Please change ‘fallowing’ to ‘following’

L118: Please change ‘worm’ to ‘warm’.

L133: It would be helpful to have justification of why you chose Brillouin rather than an alternative diversity index.

L161+163: These lines seem to be saying the same thing. Would be useful to see mean values of beetles captured, or overall abundance.

L279: Unsure how carrion beetles could be classified as umbrella species. Their requirements seem pretty limited. Could you please elaborate?

L282: The last part beginning with ‘and we are obliged…’ doesn’t seem to fit with the rest of the paper.

Reviewer: 2

Comments to the Author

The authors studied relationship between the occurrence of carrion beetles and soil type by pitfall trapping on chernozems and fluvisols. The paper is generally well written and the results are well supported by statistical analysis and discussed in context of the current knowledge.

I have one general comment and some minor suggestions.

General comment:

From the paper is not clear, if the authors tested also the influence of geographic region (the three studied areas) on the composition of carrion beetles assemblages? Southern Moravian localities laying in Pannonia opened to large steppes, but the two Bohemian areas are rather isolated. I recommend testing this potential influence on the results, or if the authors really tested that, clearly present the results of the statistics.

Minor suggestions (line numbers according to pdf):

Page 1, line 11-12 – the first sentence is a filling sentence, it is general statement valid for almost any group. I recommend reformulate or delete.

Page 1, line 11-13 – which pests authors mean? This is too general and confusing, cf. Page 2, line 27.

Page 2, line 33; Page 3, line 66 – why subgenus and not genus? The other subgenera are not mentioned, as well as nominotypic one. I recommend improve the sentence “ All studied species of burying beetles from the genus Nicrophorus…. The information about the rest subgenera are not available (according to my knowledge), but it seems to be similar.

Page 6, line 122 - …for each location and region… - authors mean geographical or climatic regions? It needs to be specified.

Page 6, line 35 – correct the order of citations in brackets according to order of the programs

Page 6, line 138 – 39 locations with samples mean, that the rest from total amount of 66 trapping sites not contained silphids? This difference is not explained.

Page 6, line 143 – (> 63%) means % of total abundance?

Page 7, line 158 and elsewhere - ...(0.1884)… uniform rounding to the same number of decimal places (3?) is needed.

Page 9, lines 209-212 – the authors did not tested the influence of climatic regions on the distribution of carrion beetles, while all studied sites were warm sites. Entire paragraph is speculative and I recommend to omit it.

Page 24 – Fig 5 – axis y showing the total number of collected specimens or specimens per trap/site? Insert unites.