LURP Review

* Discuss the importance of the topic/scope of the review
* Assess the originality of the review
* Comment on the author's representation of the most relevant recent advances in the field; specifically, determine whether the references are relevant to the topic and cover both historical literature and more recent developments
* Offer comments on the writing, organization, tables and figures of the manuscript
* Comment on the author's interpretation of the results

The paper describes the outcome of research conducted to characterize and better understand the diversity and compositional novelty of urban habitats with respect to their plant, fungal and bacterial communities. Although many studies have explored plant diversity associated with different habitats, this study is original in its investigation of the composition, diversity and relative novelty of not only plant communities, but also the soil microbiome in a range of urban habitats. The composition of these urban habitats is compared with remnant forest and meadow sites in the study region. Although there are relatively few investigations of bacterial and fungal community composition, the authors do cite other relevant work in the field. The authors also noted the motivation and significance of the work to urban restoration efforts in the introduction and returned to discuss their results in the light of restoration and rewilding in the discussion section.

Most of the methods used in data acquisition and statistical analyses are appropriate to the investigation and results are reported clearly in the text and in the figures. The one exception is the lack of description of methods used to determine “Naturalness”, as noted below.

The manuscript is quite well written. I found very few errors and had only a few questions after reading the article, as noted below.

1. Do you think that you were able to sample a sufficiently large number of replicates for each habitat type that you are approaching an understanding of the actual alpha diversity of these habitats (i.e., where are you on the species-area curve with respect to sampling the urban habitats you have chosen to study? What might you be able to discern from your data about the potential number of species that might be found if additional sampling had been conducted?
2. The methods used to determine the level of “Naturalness” of each habitat are not described. In Figure 1, I am confused by the assignment of Industrial habitats to “high naturalness” as well as “high novelty”. While these habitats were species rich, they were rich in exotic and invasive species as well as native species. This seems to me to be a state of lower naturalness, despite the high diversity. Please clarify the methods used to estimate the “degree of ecosystem self-organization” , at the very least, cite other works whose methods you are using to determine “naturalness”.

The authors’ Interpretation of the results is succinct, clear, and seems appropriate given the results presented.

Minor comments:

1. Page 18 line 6 – Use “As” rather than “Like” to start the sentence.
2. I was taught that sentences should not begin with an acronym, such as sentences beginning with “NMDS…” or “DNA …” . However, I realize that in recent times, fewer journals seem to be adhering to this grammatical rule. I will defer to the editor to determine whether the authors should revise their sentences to avoid having to begin sentences with an acronym.
3. Figure 4 A. The color for the Residential box in the box plot seems to be incorrect, at least it does not match the color scheme in the other figures- shouldn’t it be teal blue and not purple?
4. Line 5-6 on page 14- To improve clarity, revise this sentence to : “As previously indicated by PCA, organic matter was the only soil property with a clear pattern of variation by habitat: a decrease from pre-urban to urban habitats (Figure 2B).