

### **Associate Editor Comments to the Authors:**

Prezado Dr. Vitor de Oliveira Lunardi,

Nesse momento li os dois pareceres acerca do manuscrito "*Handroanthus impetiginosus* (Bignoniaceae) as an important floral resource for synanthropic birds in the Brazilian semiarid", submetido para a OA. Tendo em vista esses pareceres, creio que o texto esteja muito próximo a ser aceito. Entretanto, penso que algumas sugestões e questionamentos dos revisores podem ajudar a melhorar o texto. À exemplo, a inclusão (ainda que breve) de algo relacionado à dinâmica de floração, ou fenologia poderia deixar o artigo mais rico. Adicionalmente pediria que os autores avaliassem a possibilidade de usar regressões lineares ao invés de correlações. Isso possibilitaria uma melhor visualização dos dados (por uma figura), e possibilitaria uma melhor compreensão da relação entre as variáveis (i.e. visitas x temperatura). Não penso que esta vá ser uma revisão penosa, e creio que o artigo ganharia muito ao incorporar esses comentários.

**Answer of the authors:** Thank you very much by the corrections suggested by the editors. We included aspects of phenology of *Handroanthus impetiginosus* into the manuscript. Also, we realized linear simple regressions and inserted a new figure with these analyses. Below we detail what we have now added to the text of the manuscript, in response to your suggestions.

### **Reviewer 2:**

**General comments:** The Reviewer 2 realized several corrections and suggestions in the text.

**Answer of the authors:** Thank you very much by the corrections suggested. All were accepted all corrections and suggestions.

After accepting these corrections and suggestions (reviewer 2), we started the second evaluation (reviewer 1), as follows.

### **Reviewer 1:**

**Comment [1]:** Only at the peak? Ideally, it would attract all flowering.

**Answer of the authors:** We changed the sentence to "*Handroanthus impetiginosus* (Bignoniaceae) is commonly used in urban afforestation in the Brazilian semiarid, and it attracts native urban fauna during the dry season, when the plants are flowering."

**Comments [2 and 3]:** It is necessary to observe the concept....see below.

In the mass-flowering strategy (or big bang) an individual produces large numbers of new flowers each day over a short period (often less than one week). Does this occur in *H. impetiginosus*? A qualitative and quantitative evaluation of phenology would point this out. However, if it was not done, it is difficult to assume. A plant can bloom in mass in a year. In the other year, it does not produce or bear few flowers

**Answer of the authors:** Thank you very much by the correction. We removed the keyword 'massive-flowering tree', and this concept from the manuscript.

**Comment [4]:** It sounds very strange, perhaps due to the inappropriate use of the semicolon. Rewrite.

**Answer of the authors:** We changed the sentence to "The Brazilian semiarid region is characterized in general by a prolonged dry season, with unpredictable and irregular rainfall, high mean temperature over the year, and shallow and crystalline soils (review: Silva et al. 2010)".

**Comment [5]:** Landscape in the region?

**Answer of the authors:** We changed the sentence to "According to estimates, between 30.4% and 51.7% of the landscape in the region has been altered by human activities, so a considerable portion of the biodiversity of the area might have been lost (Leal et al. 2005)".

**Comment [6]:** This is in a general context, not just in the semiarid. An introduction should go from general to something more specific.

**Answer of the authors:** The sentence "Hummingbirds are known to conduct legitimate visits to access the floral nectary to consume the nectar, using the natural opening of corolla flowers, and potentially contributing to pollination in some plant species in Brazilian semiarid" was removed of the manuscript to avoid misunderstandings.

**Comment [7]:** This is in a general context, not just in the semiarid.

**Answer of the authors:** The sentence "Also, these birds can also access the floral nectary through illegitimate visits, not potentially contributing to pollination in others plant species in this region" was removed of the manuscript to avoid misunderstandings.

**Comment [8]:** nectar? or floral nectar?

**Answer of the authors:** We changed the sentence to "(ii) to register the type of access to floral nectar (legitimate or illegitimate visits) or floral consumption (parts of flowers or flower buds)".

**Comment [9]:** I'm curious to see how this will be discussed!!!

**Answer of the authors:** Please, see the Discussion corrected.

**Comment [10]:** I think that any introduction should go from general to specific. Here everything is very specific, i.e., events about the semiarid. This sounds as if it only occurs in the Caatinga!!!

**Answer of the authors:** Please, see the Introduction corrected.

**Comment [11]:** It just could be, right? After all, the study is in the semiarid!!!

**Answer of the authors:** We changed the sentence to "According to Köppen, the climate of the study area can be classified as BSh (Alvares 2013)".

**Comment [12]:** sampled?

**Answer of the authors:** The word 'analyzed' was changed to "sampled".

**Comment [13 and 14]:** I do not know if that makes much sense ... the urban fauna is increasingly adapted to the presence of man.

I do not understand why this concern. If you had done an experiment, or had used inferential statistics, perhaps you would justify the emphasis. I think this is unnecessary. Still, you should discriminate against the result – em português, está caçando sarna para se coçar...sorry

**Answer of the authors:** The sentence "The observer remained approximately 10 m away from the focal plant to reduce the influence of human presence on the birds. The same observer recorded the animal behavior to avoid data sampling errors" was removed of the manuscript to avoid misunderstandings.

**Comment [15]:** Well, it's important to answer one of the goals. I hope to find meaning in results and conclusions.

**Answer of the authors:** Please, see the Results and the Conclusion corrected.

**Comment [16]:** How were the visits defined? Continuous period of nectar exploitation, regardless of the number of flowers visited.....Clarify this.

**Answer of the authors:** We insert a new sentence to clarify this "(i) visit – continuous period of nectar exploitation in a flower by a bird".

**Comment [17]:** Does this suggest that temperature can also promote legitimate visits? I think not. This depends more on visitor behavior. I'm trying to find a meaning in this!!!!

**Answer of the authors:** We have corrected the type of statistical analysis to be employed in the data analysis, as suggested by the associated editor. Thanks very much for this correction. "We used simple linear regression (Zar 1999) to evaluate the relationship between the total numbers of visits and the average air temperature, and between the total numbers of agonistic interactions and the average air temperature, in each 30-min. interval, throughout the study period. The coefficient of determination,  $r^2$ , and the F statistic were used to test the significance of the regression (Zar 1999).

**Comment [18]:** It would be better to designate as family, not order.

**Answer of the authors:** Done.

**Comment [19]:** I think what should be emphasized is the pattern of visitation. All visits were illegitimate.

**Answer of the authors:** We insert a new sentence to clarify this "We recorded four species of birds visiting *H. impetiginosus* flowers: *Eupetomena macroura*, *Chlorostilbon lucidus* (Trochilidae), *Icterus pyrrhopterus* (family Icteridae) and *Tangara sayaca* (family Thraupidae). **All the bird visits registered were illegitimate visits**".

**Comment [20]:** I made many observations of this bird visiting *H. impetiginosus* flowers. Abscissions are made to access the nectar. I think this should be emphasized.

**Answer of the authors:** We inset this information in the sentence: "*Icterus pyrrhopterus* and *T. sayaca* fed on parts of the flower or flower buds of *H. impetiginosus*, generally promoting the flower abscission to access the nectar".

**Comment [21]:** Visited the plant for what then?

**Answer of the authors:** The sentence "*Coereba flaveola* and *P. domesticus* were not registered feeding on floral resources of *H. impetiginosus* trees" was removed. It is not relevant.

**Comment [22]:** I would show these results in a graph, diagram.... figures say more than texts !!!

**Answer of the authors:** We not include these results in a new figure, because there are already four figures in the manuscript (type: short communication).

**Comment [23]:** Is it not because the nectar volume, sugar concentration or availability of calorie are more consistent factors that result in aggressions, defenses ...?

**Answer of the authors:** These information were insert in a sentence of the last paragraph: "Other parameters, as the properties of nectar (volume, sugar concentration, and calories), should be considered in addition to temperature to provide a better explanation of patterns of bird visits and agonistic encounters in *H. impetiginosus* (see Wolf et al. 1975, López-Segoviano et al. 2018).

**Comment [24]:** I do not know if I understood very well here. Would it be habitat segregation enhanced by competition? In this case, would urbanization be basic to this purpose?

**Answer of the authors:** The sentence was changed to "In addition, this could be evidence of greater foraging opportunities in urban areas due to the reduced competition for resources from other nectarivorous birds – such as *H. squamosus* and *C. mosquitus*, which were absent in the urban study area, but forage in *H. impetiginosus* in forest remnants at Brazilian semiarid (see Las-Casas et al. 2012)".

**Comment [25]:** He did not even visit the flowers for nectar getting, did he?

**Answer of the authors:** No. The species *C. flaveola* was removed of this sentence.

**Comment [26]:** The properties of nectar (volume, concentration, calories) can provide a better explanation for patterns of visits.

**Answer of the authors:** These information were insert in this point of the text (reviewer comment 26): "The properties of nectar (volume, sugar concentration, and calories) can provide a better explanation of patterns of visits (see also, Wolf et al. 1975)". Such as, in a sentence of the last paragraph: "Other parameters, as the properties of nectar (volume, sugar concentration, and calories), should be considered in addition to temperature to provide a better explanation of patterns of bird visits and agonistic encounters in *H. impetiginosus* (see Wolf et al. 1975, López-Segoviano et al. 2018)."

**Comment [27]:** What are the consequences of the intense theft of nectar in this plant? You could discuss this. The stealing of nectar was so representative.

**Answer of the authors:** A new sentence was included in the Discussion of the manuscript: "The intense nectar robbing by *X. frontalis* and birds in *H. impetiginosus* in urban areas can reduce the nectar available to legitimate pollinators and, consequently, to seed production (e.g. Castro et al. 2009)".

**Comment [28]:** I do not understand now. Was that the purpose of the job? Where are these results? Or would it be based on literature? This conclusion has no consistency here.

**Answer of the authors:** The sentence was reformulated to: "The community of visiting birds at *H. impetiginosus* in the studied urban area differed in behavior and species composition when compared to those in a remaining forest in the Brazilian semiarid, Serra do Pará (Las-Casas et al. 2012)."

**Comment [29]:** I'm not comfortable with that conclusion. First, they are dealing with a non-ornithophilous plant. Second, other parameters should be considered in addition to temperature. I particularly think that the attributes of nectar are elementary and should have been evaluated.

**Answer of the authors:** To avoid misunderstandings, the sentence "Some species exhibited less foraging activity in at a higher temperature of the day, and others not present this pattern, indicating temporal partition in the use of the floral resource" was reduced to "Some species exhibited less foraging and aggressive activities in at a higher temperature of the day, and others not present this pattern".

**Comment [30]:** If it has mass flowering, this occurs in a short period. In this regards, *H. impetiginosus* is indeed so important?

**Answer of the authors:** the information 'mass flowering' was incorrect and it was removed of the manuscript.

**Comment [31]:** This conclusion is already more relevant. A further theoretical framework should have been offered in the introduction.

**Answer of the authors:** A new sentence was included in the Introduction: "Bird pollinators that respond positively to urbanization can play an essential role in the reproduction of many plants and there is great interest in incorporating these species into habitat restoration plans (see Menz et al., 2011)".