

Dear Editor,

We are submitting for your consideration a manuscript entitled “A temperature-driven model of phenological mismatch provides insights into the potential impacts of climate change on consumer-resource interactions” to be published in *Journal of Animal Ecology*.

Our work proposes a theoretical model that determines the synchrony or mismatch between phenological stages of two interacting species according to temperature. The main focus of this study is the potential effects of climate change on resource-consumer phenological synchrony or mismatch. This approach is quite general as it is applicable to different resource-consumer systems for which species phenology is driven by temperatures.

The manuscript first introduces the theoretical framework that leads to general conclusions. Then, the framework is tested on a case study: the spruce budworm and its host tree in eastern Canada.

Our model proposes mechanistic methods to determine the end of the resting period, and how this event may shift in time in a context of climate change. A growing body of literature has shown that many species exhibit a shift in phenology, which may affect species interactions. The novelty of our approach is to provide a mechanistic understanding of the effects of a change in temperature regime on the phenological mismatch between species and species interactions.

We believe that our approach will be of great interest to a wide range of researchers in ecology, and among them those that focus on resource-consumer interactions, species phenology, and effects of climate change.

Therefore, we hope that you will find our manuscript of interest to *Journal of Animal Ecology*.

Should the manuscript be accepted, the code used to implement the model will be stored in a public depository (Zenodo). The manuscript also uses climate data that are publicly available for free. However, the tree model was calibrated with phenology data (balsam fir) that authors do not own. Phenology data can be made available on request to Dr. J. Régnière (Natural Resources Canada).

Looking forward to hearing from you,

Sincerely yours,

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