December 2, 2020

Dear Editor:

Please consider our paper, entitled "Spatial and temporal shifts in photoperiod with climate change," for publication in *New Phytologist*. This manuscript is a revision of an earlier submission (NPH-R-2020-34081). We include a point-by-point response to reviewer comments.

As you may recall, our manuscript addresses an urgent question in plant biology: What are the implications of the altered photoperiod that plants experience with climate change-induced shifts in their ranges and seasonal activities? The two most-observed biological impacts of climate change are shifts in space (range shifts) and time (phenological shifts). Both alter experienced photoperiod, which could dramatically affect performance and fitness. However, the magnitude of effects from shifts in photoperiod with climate change are unknown or unquantified for most species.

All of the reviewers were enthusiastic about the previous version of the manuscript, noting that it was "well written" with "beautiful figures." They also offered suggestions for improvement, including some expansion to the manuscript; for example adding a broader context, including discussion of how our points relate to autumn phenological shifts, and incorporating a supplemental figure into the main text. The reviewers also suggested changes to make figures and figure legends more understandable to readers.

We greatly appreciate the suggestions of the reviewers and editor, and have revised our manuscript to address their comments. In addition to numerous smaller changes throughout the text we have: (1) moved the suggested figure to the main text, (2) revised the figures and figure legends as suggested, and (3) added a new paragraph on the relevance of phenological shifts to autumn phenology. We feel that our revised manuscript is greatly improved, and hope you will find it suitable for publication in *New Phytologist*.

Sincerely,

Ailene Ettinger
Quantitative Ecologist, The Nature Conservancy- Washington Field Office
Visiting Fellow, Arnold Arboretum of Harvard University