

# MICHIGAN STATE UNIVERSITY

To the Editorial Board,

It is my pleasure to submit our manuscript titled “Are they two seeds in a pod? Comparing seed rain recovery using artificial grass carpets versus sticky traps in grasslands” on behalf of my coauthors to Applications in Plant Sciences as an Application Article. We were thrilled that our inquiry about our manuscript to the special issue on “Quantifying plant and fungal dispersal: New methods from multiple discipline” was met with enthusiasm.

Plant community assembly is a critical concept for community ecologists, and the role that competition, resource availability, and herbivory play in structuring communities have been the foci of empirical research for many years. However, the process of seed dispersal still remains vastly understudied as an assembly mechanism compared to these other processes. Much of the difficulty in understanding the role dispersal plays for plant communities, especially in grassland ecosystems where seeds are very small, is the difficulty in capturing and identifying seeds. Here we tested the viability of two methods for measuring seed rain in grasslands, the standard sticky trap method vs the artificial grass carpet method. The artificial grass method is borrowed from the Arctic, where it has been successful at recovering seed rain, but has yet to be implemented broadly in grasslands. We placed known numbers of seeds that varied in mass on both sticky and artificial grass traps at two temperate grassland sites and recovered seeds one week, one month and two months after initial deployment. We found that overall both methods successfully recovered seeds. While we recovered a lower proportion seeds on artificial grass as compared to sticky traps, the artificial grass traps captured seeds over a longer time period, and seeds recovered from the grass traps could be saved for later identification via germination trials. In addition, the artificial grass traps represent effective dispersal, in that seeds recovered from this method are those that have survived consumption and secondary dispersal and are thus likely to germinate in that given area. Therefore, we encourage the use of artificial grass traps as a successful method of measuring seed rain in grasslands broadly.



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Quantifying seed rain is arguably the missing link in understanding plant community assembly because dispersal is an extremely understudied topic compared to other plant community assembly mechanisms. This work will likely be of broad interest to readers because the method is simple to deploy, and can therefore build strong links between plant empiricism and theory.

Thank you for your consideration.

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