

## Ecosphere

The dominant plant species *Solidago canadensis* structures multiple trophic levels in an old-field ecosystem

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## Appendix S2

What is the effect of *S. canadensis* on the plant community in this system relative to the effect of other dominant plant species in other systems? To address this, we turned to a recent meta-analysis (Avolio et al. 2019). In that study, the authors quantified the effect size of dominant plant species removal on plant diversity and biomass by taking the natural log of mean plant diversity and biomass in dominant species removal plots divided by mean diversity and plant biomass in plots where dominant plants were present. They found that the effect size of dominant species removal on total plant biomass across 49 studies was -0.27 and the effect size of dominant species removal on plant species richness across 45 studies was 0.24, meaning that plant biomass was lower but plant species richness was higher when the dominant plant species was removed (Avolio et al. 2019). In our study, if we calculate the effect size of *S. canadensis* on total plant biomass and diversity with the five plots with the most *S. canadensis* biomass and the five plots with the least *S. canadensis* biomass using the same methods as Avolio et al. 2019, we can similarly quantify the effect of *S. canadensis* on plant diversity and biomass. We find that the effect size of *S. canadensis* on total plant biomass is -0.17 and the effect size of *S. canadensis* on plant species richness is 0.32, meaning that total plant biomass is lower and plant richness is higher when *S. canadensis* biomass is lower. We show here that *S. canadensis* has a comparable

effect on total plant biomass and plant species richness relative to the effect of other dominant plant species on plant biomass and diversity.

#### References

Avolio, M. L., E. J. Forrestel, C. C. Chang, K. J. La Pierre, K. T. Burghardt, and M. D. Smith.

"Demystifying dominant species." *New Phytologist* 223, no. 3 (2019): 1106-1126.