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ecological theory (1, 2)

further elucidate the relative contributions of intra- and interspecific diversity on community- and ecosystem-level processes.

Our work indicates two mechanisms underlying the relationships among intraspecific genotypic diversity, the diversity of associated consumers, and ecosystem processes. We explicitly showed that the effect of genotypic diversity on arthropods does not occur simply because of increased ANPP in diverse plots. It also arises because of an increase in the diversity of resources available to herbivores. These effects are nonadditive and cascade across trophic levels to structure associated communities. Our results demonstrate the need to incorporate intraspecific variation into current ecological theory that has emphasized the importance of interspecific variation (3, 4, 7, 15, 17, 18) or theory that ignores differences among species (22). Given the focus of conservation efforts on how the loss of species from communities affects ecosystem processes, our work suggests that the loss of genotypes from populations can no longer be overlooked (14, 23–25).

References and Notes

1. Tilman, D., Kareiva, A., & Woodwell, G. 1993. Population dynamics and the spatial ecology of insects. *Ecology* 74:1031–1042.
2. Tilman, D., Kareiva, A., & Woodwell, G. 1993. Population dynamics and the spatial ecology of insects. *Ecology* 74:1031–1042.

