

Long Term Bee Monitoring Reveals Little Change in Bee Species Richness in Response to Restoration of Intermountain Grassland Sites

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Restoration of reference plant communities is often a proximate goal of ecological restoration, and land managers may expect mobile organisms such as birds, mammals, and other vertebrates and invertebrates to respond to restoration efforts by recolonizing from nearby habitats. As diverse plant communities become established during the restoration process, there is evidence that native bee communities respond with increasing species richness over time. The objective of this study was to assess if efforts to restore grassland plant communities at former agricultural sites affected species richness of native bee communities. We analyzed a long-term dataset of bee captures from across a 6,000-ha intermountain grassland location in western Montana and found that rarified bee species richness was consistently lower in restoration sites compared to other habitats. Importantly, and contrary to expectations, bee richness did not increase in restoration sites across the 7-year sampling period. The reduced bee species richness at restoration sites was particularly pronounced in early season when surrounding reference habitats typically have high bee species richness and high flowering richness. Since many early-blooming native plant species common in intermountain grasslands are not commercially available or are difficult to establish, they are rarely included in restoration seed mixes, including at our restoration sites. This finding suggests that native seed selection likely plays a role in limiting bee community richness in restoration projects.