The Importance of Supporting Bumble Bees in The Early Spring

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Bumble bees are critical to terrestrial ecosystem functioning and human food security because of the pollination services they provide. As a group, bumble bees are the most economically important native pollinators in North America and play a vital role in native angiosperm pollination. However, many species and populations of bumble bees have experienced dramatic declines in recent decades. The mechanisms driving these declines remain understudied, but likely involve factors such as changes in land use and increases in pesticide and disease prevalence. While most research and conservation efforts focus on supporting bumble bee colonies in the summer months, the needs of populations during the remaining three-quarters of the year remain relatively understudied and under addressed. Here, I present a combination of fieldwork and lab experiments focused on the basic needs and biology of early spring bumble bee populations, which consist entirely of solitary queens. Early spring queens have higher mortality, lower fecundity, and higher exposure to environmental stressors such as predation and extreme weather events relative to queens in late spring and summer that have workers in the nest. These results underline the importance of supporting bumble bee queens and the habitats on which they depend in the early spring, before many pollinators are visible on the landscape.

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