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Impact on native bees from utility-scale solar development in the Mojave and western Sonoran Deserts

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We determined the bee species presence, abundance, and diversity at utility-scale ground-mounted solar development (USS) to assess the impact on desert pollinators and the services they provide to the plants in the communities in which they live, specifically, in the Mojave and Colorado Desert regions. We used a matched transect control design to test whether pollinator populations have changed due to solar utility scale installations. Sixty to 90% of flowering plants require animal pollinators. The Mojave Desert represents a hotspot of bee biodiversity corresponding to its rich botanical diversity of 1512 species. Our study found 113 species in a severe drought year after five drought years (2011-2015). 42% were oligoleges, 10% were polylectic and 29% of the lacked data on their floral diets. Included were 5 undescribed species in the families Apidae (*Tetraloniella*, *Anthophora* -*Anthophoroides*, *Anthophorula*,) and Halictidae (*Lasioglossum* [*Dialictus*]). In our transect study we found lower abundance, diversity and richness inside the solar installations. However, we did not find a significant effect of distance from solar installation at 2K for our one year study. The BVT traps represented 16% of the collected specimens and 58 species and cup traps represented 83% of traps, and captured 46.7% of the total specimens and 66 species. Of the total bees species captured and identified, 76% are ground-nesting species.