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There are over 20,000 species of bees that have been described. I know of at least another few hundred, but that's only for the groups I know well enough to be able to detect species that have not been described. It would not surprise me if the actual total were well over 25,000. It would likely surprise most people, but perhaps few in this audience, that almost none of these species live in hives, most are solitary and nest in the ground and even many of the social ones are a surprise. Take the bright green *Augochlorella aurata* in which, for one population, the average number of workers per nest was 0.5 – most nests were occupied by solitary females, some had one worker and very few had two. Then there's the seemingly unique *Lasioglossum marginatum* in which queens live for twice as long as most honey bee queens but which are morphologically identical to the workers. Some of the little dull green bees that are so abundant in some parts of North America might have hundreds of nestmates back in their underground nest.

In this talk, I will discuss the taxonomic and ecological diversity of bees, stressing the species with more unusual appearances or unusual ecologies. I will argue that bees should be considered ideal indicators of the state of almost any terrestrial environment on earth (barring Antarctica). This view results from the unusual sex determining mechanism found in bees (and their relatives) which seems to result in a more precipitous decline towards extinction, compared to most other organisms, when populations reach very small numbers. This leads me to suggest that we should be paying a lot more attention to what is happening to our bees and that monitoring of some ecological trait groups might be more productive than others. The impediments to understanding and monitoring our bees are primarily taxonomic. But here too there are some potential solutions, though none of them will be suitable for all people, for all bees, or for all places.

Lastly, I will describe some of the things we can all do to assist bees in urban and other environments. Some of this may not be welcome news for horticulturalists or people who are fastidious gardeners.