



## **Genes, Brain and Behavior of *Ceratina* Small Carpenter Bees and the Evolution of Early Insect Societies**

Author(s): Sandra Rehan, Sandra Rehan

Institution(s): University of New Hampshire ; University of New Hampshire

Facultatively social bees exhibit behavioral plasticity in response to changes in ecological conditions and social environment, and thus provide a natural experiment to compare solitary and social behaviors in a single species. Such species can therefore provide empirical insights into the evolution of eusociality. The small carpenter bees (genus *Ceratina*) are of special interest because they exhibit rich behavioral plasticity. Species range from solitary to eusocial and benefit from detailed behavioral research and well-established phylogeny. As such, small carpenter bees are poised to further comparative neuroethology studies which emphasize the necessity of molecular phylogeny for understanding the conserved nature of brain transcriptomics underlying social phenotypes and organizational complexity. Here, I present genomic, brain, and behavioral data in bees across the social spectrum, highlighting the importance of simple societies and facultatively social taxa to examine the evolution of social traits.