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Social parasites as tools to examine the evolution of eusociality

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The evolution of eusociality is thought to be tightly bound with the evolution of traits that align the interests of multiple individuals, promoting cooperative over antagonistic behaviour. A fruitful method of examining such traits is through studying cases in which eusocial colonies are exploited by individuals with non-aligned interests. Examining how conspecifics, closely related species and more distantly related social parasites have evolved to exploit insect societies can give valuable insights into how these societies became cooperative in the first place. Here I will give a brief overview of how and to what extent these different types of social parasites can shed light on some of the open questions in understanding eusocial evolution, using microgynes of *Myrmica rubra*, the ant social parasite *Acromyrmex insinuator* and butterflies in the family Lycaenidae as examples. In particular, I will concentrate on how genomics and next-generation sequencing techniques currently, or soon will, allow us to examine evolutionary changes associated with transitions from cooperation to exploitation.