

P176*Termite reproductive traits as manifestations of conflict and cooperation***Tamara Hartke**, Boris Baer

The best interests of a termite queen and king should be to maximise their joint fertility, resulting in traits that do not harm each other or that contribute in a positive way to the partner's reproduction. Traits that suggest termite mating systems have evolved along these generally cooperative lines include lack of sclerotized genitalia and reduction in male accessory glands. However, conflicts should still occur when reproductives are not strictly monogamous. Indeed, lower termites, 25-82% of colonies show genetic evidence of contributions from more than a single unrelated king-queen pair. Further, many termite species can generate multiple secondary reproductives, individuals that reproduce within their parent colony but do not complete the alate developmental pathway. These reproductives may be related (full- or part-siblings), but all else being equal, an individual that has made the transition should still prefer to reproduce itself rather than allow a non-clonal sibling to monopolize reproduction. This suggests that sexual conflicts occur regularly within termite colonies, in spite of a 'generally monogamous' mode of colony establishment. These types of conflicts may manifest in structures such as male accessory glands and their secretions, known from other species to produce proteins involved in sexual conflicts and/or produce mating plugs or mating signs to manipulate female mating rates. Reproductive conflicts could also have shaped sperm anatomy and physiology, as sperm competition tends to select for greater sperm motility or more uniform sperm morphology. Little is known about these traits in termites, so we have examined male reproductive structures and sperm across the family tree. Here we provide new data on relative size and morphology of testes and accessory glands and compare variation in sperm morphology within and between kings. This provides a first step toward understanding if and how reproductive conflicts have influenced termite anatomy and physiology in different lineages.