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*Economical decision making by* Temnothorax albipennis *ant colonies.*

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Social insect colonies provide some of the richest examples of complex systems in nature. They are an excellent model for experimental investigation into questions of how group decisions are made as they allow direct manipulation of their components and observation of the collective behaviour. *Temnothorax albipennis* colonies are able to allocate the appropriate effort into gathering information regarding new homes in accordance with the quality of the nest where they currently reside. Furthermore we show that when faced with a risky choice they seem to be risk prone and gamble if the expected payoff is positive, i.e. it represents a gain. However, the time it takes colonies to reach a consensus gradually increases when the gain is smaller. Humanity defies certain classical axioms of economic theory and therefore it is intriguing to determine if animals meet these theoretical criteria. Our results suggest that the violation of standard rationality axioms might make animals better tuned to their natural environment. Specifically by taking into account more than just the final expected utility of each outcome, colonies might avoid unnecessary and costly emigrations and only emigrate when the benefits are really substantial. What mechanisms can explain the variability of individual behaviour? By manipulating nest quality and tracking individual ants with specialized software we plan to analyse the effects such manipulations are causing both at the individual and collective level.