



# Work or rest?

## Resting of bumblebees in a social context

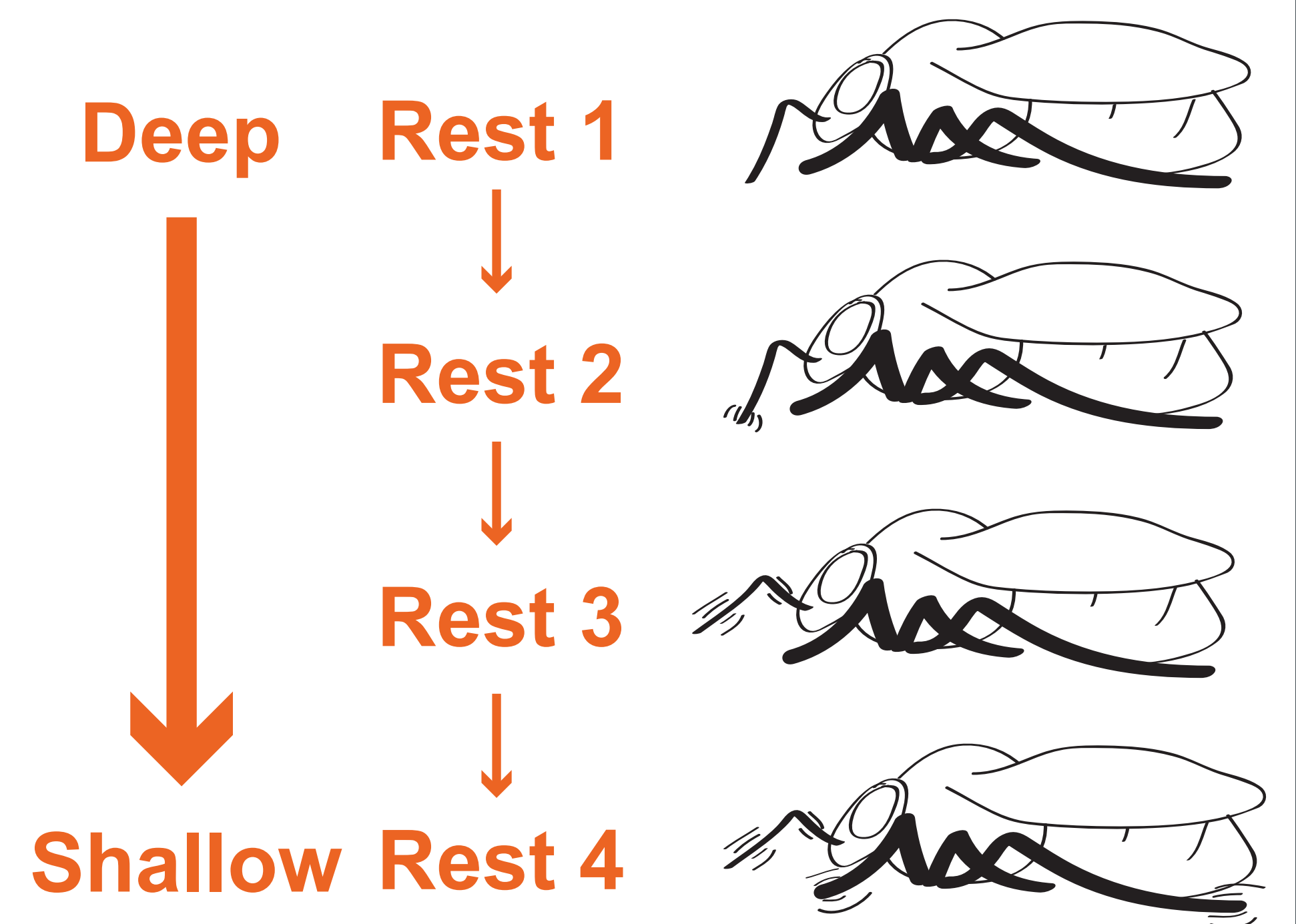
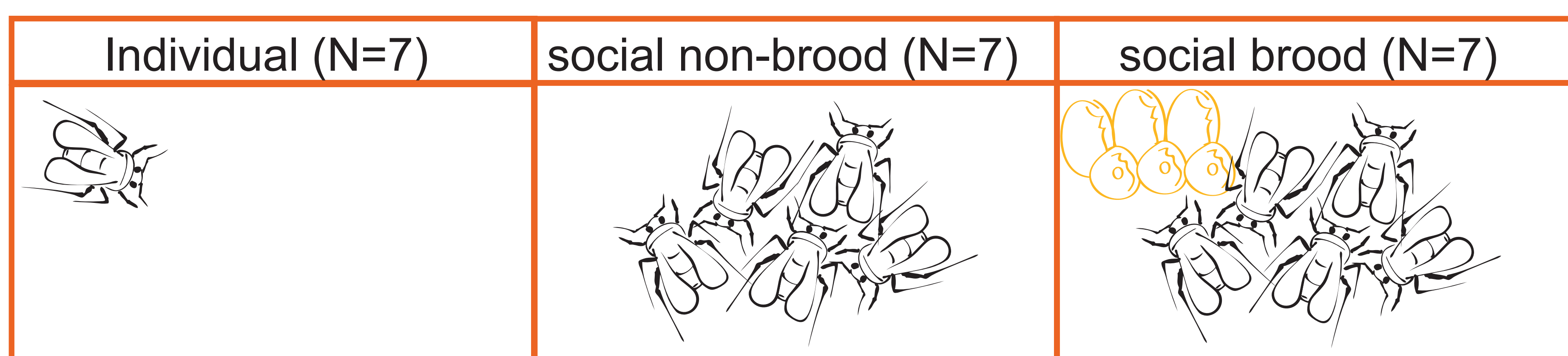
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### Introduction

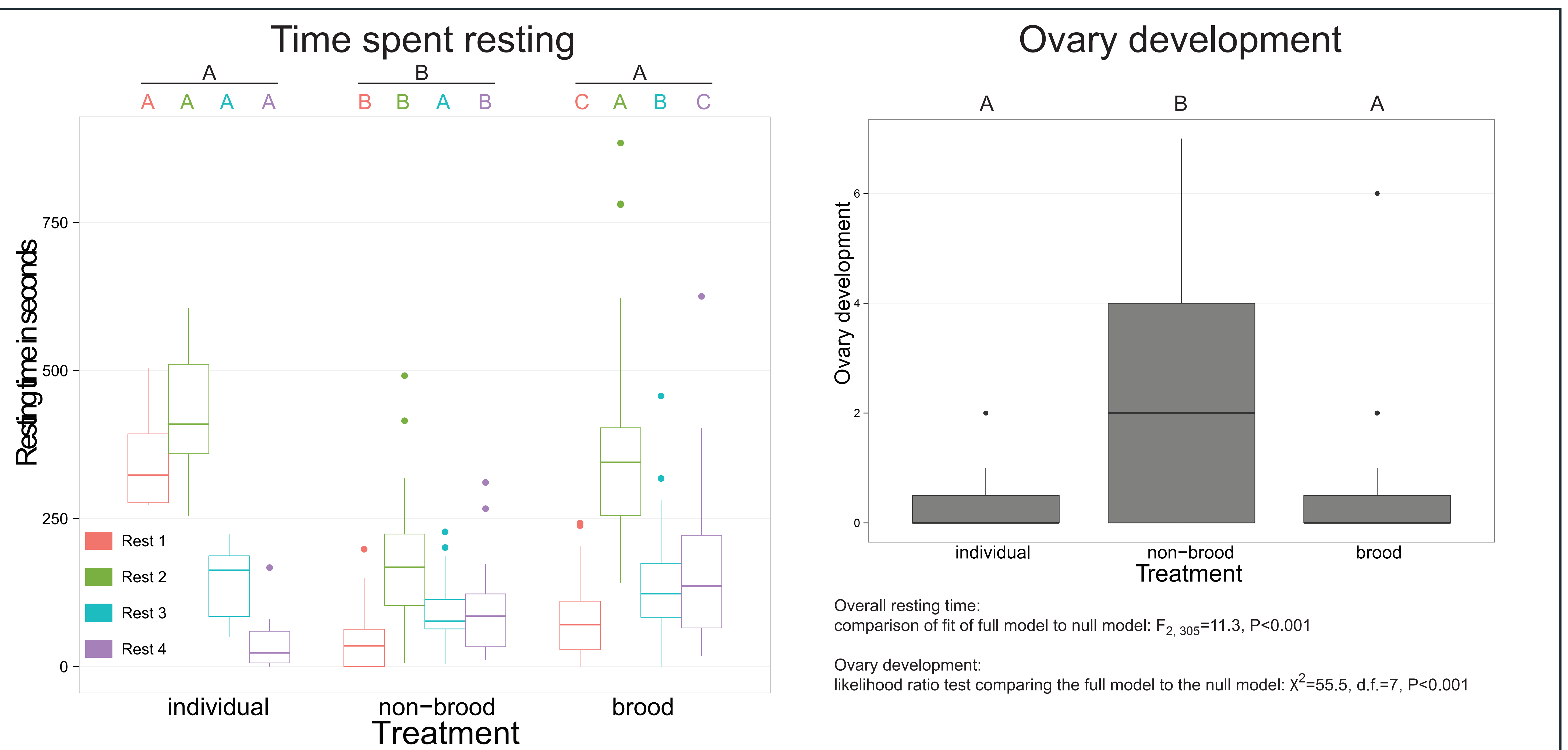
Sleep in vertebrates is essential, however very little is known about resting behaviours in invertebrates<sup>1,2</sup>. Social insects constitute an especially interesting case as there should be a trade-off between the optimal individual resting time at the individual and at the colony level. Whilst the individual should optimize its regeneration the colony should optimize its efficiency. To test this hypothesis we set up bumblebees (*Bombus terrestris*) in different social contexts and observed their resting behaviours along with their ovary development.

### Setup

- three treatment groups in separate cages
- resting behaviour of each bee was scored for 1min on 5 occasions
- after three weeks ovary development was scored



### Results



### Conclusion

- Bees in groups without brood show the least resting behaviour.
- The deepest form of rest (Rest 1, where bees rest on the substrate with no bodypart moving) is performed almost exclusively by isolated bees.
- Bees without brood have the most developed ovaries, whilst bees in isolation or bees with brood show hardly any ovary development.
- It seems resting behaviour has a social component whereby colony functioning is traded off against individual regeneration

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#### References

- 1) Sauer, S., et al. "The dynamics of sleep-like behaviour in honey bees." *Journal of Comparative Physiology A* 189.8 (2003): 599-607.
- 2) Klein, B.A., T.D. Seeley. "Work or sleep? Honeybee foragers opportunistically nap during the day when forage is not available." *Animal Behaviour* 82.1 (2011): 77-83.