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Pollen foraging by bumblebees in the evening

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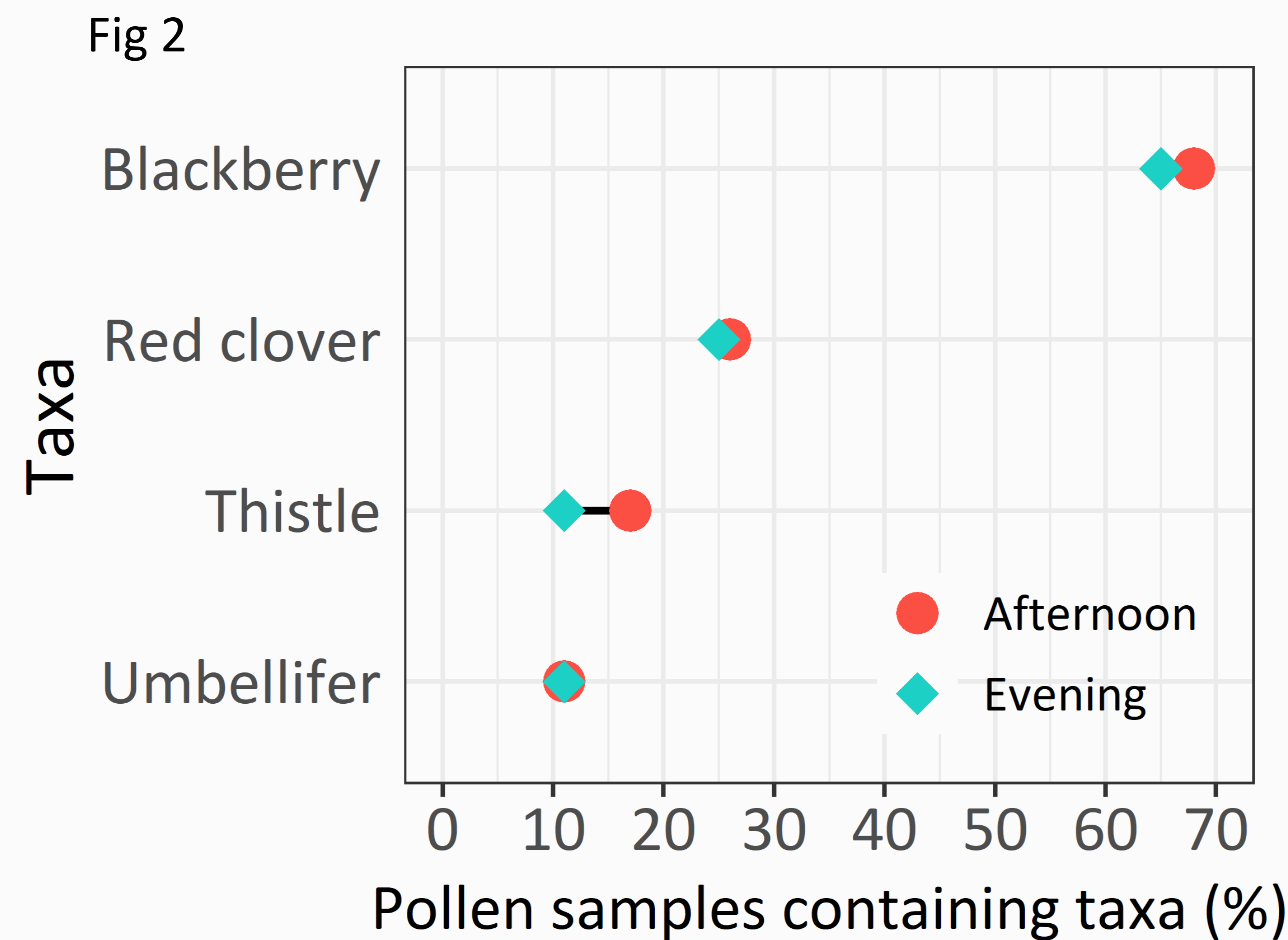
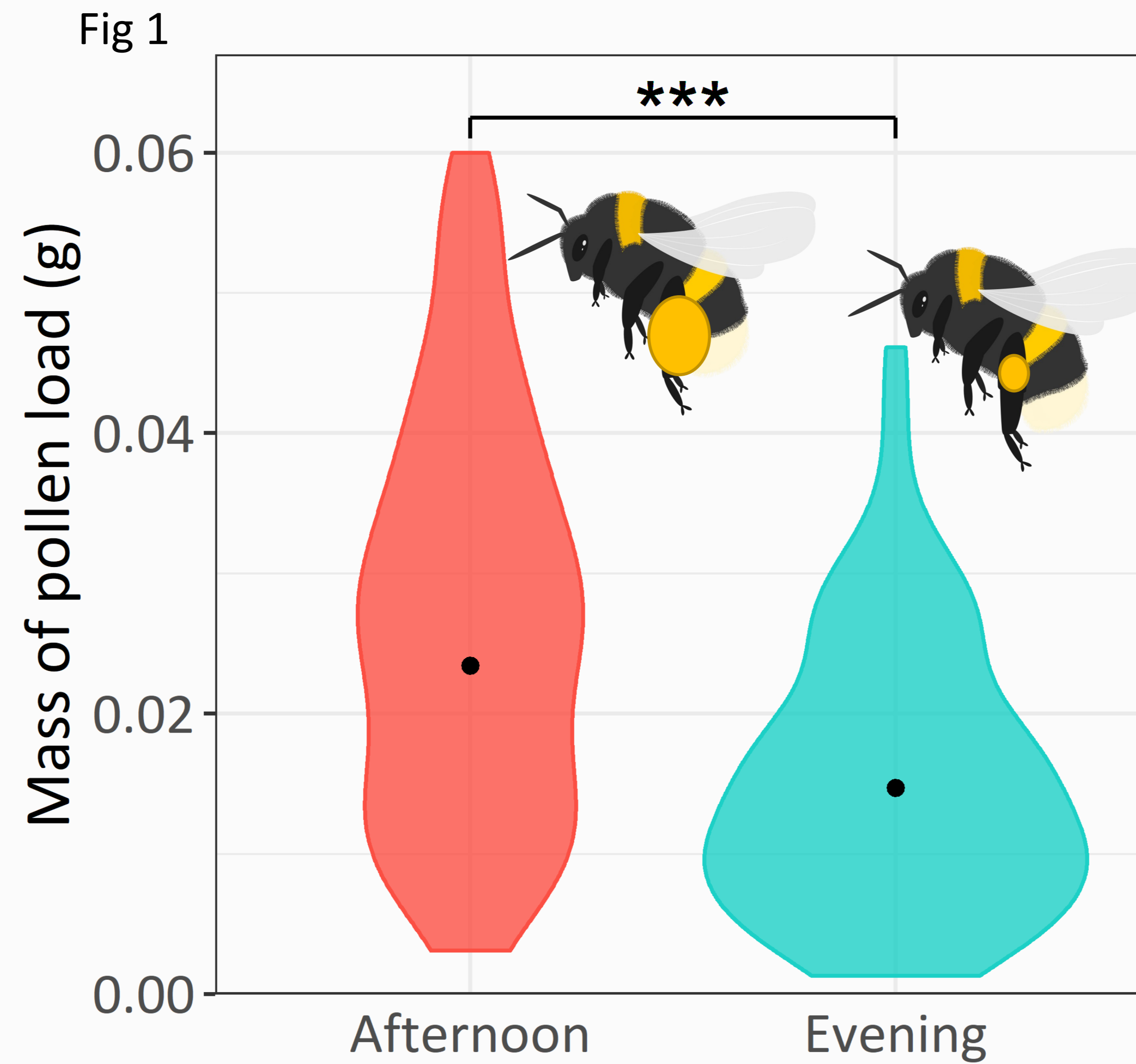
Is evening foraging costly?

- Diurnal species are exposed to a changing light environment daily in the approach to sunset
- Declining visibility could increase foraging costs
- Daytime pollen collection could reduce evening availability
- Which flowers do evening foragers choose to visit, and are foraging trips as profitable in dim light?

Method

-  -A field experiment comparing an hour in the afternoon with an hour before sunset
-  -Monitored activity at the colony entrance
-  -Collected pollen from returning foragers
- Identified pollen types by microscopy

Results



-Individuals carried **less pollen in the evenings** than in the afternoons (Fig. 1)

-Bees returning in **lower light** had **smaller loads**

-Colony activity was **lower** in the evenings

-Foragers returned at a **range of low light levels**

-The bees foraged on the **same flower species** in the afternoon and the evening

-We found 19 total pollen species; **blackberry was predominant** (Fig 2)



Conclusions

- Lower activity and smaller pollen sacs than the daytime suggest **evening foraging is costly**
- Foragers exploit the **flowers they already know**, but these may have less pollen available
- Decreasing light levels may **motivate individuals to return home** before a full load is collected