

How does complexity impact foraging decisions in ants?



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Ant foraging choice can be mediated by structural complexity, potentially due to:

- Variation in ant species' size
- Recruitment behaviour
- Habitat preferences

How can we effectively replicate structural complexity in the natural environment?

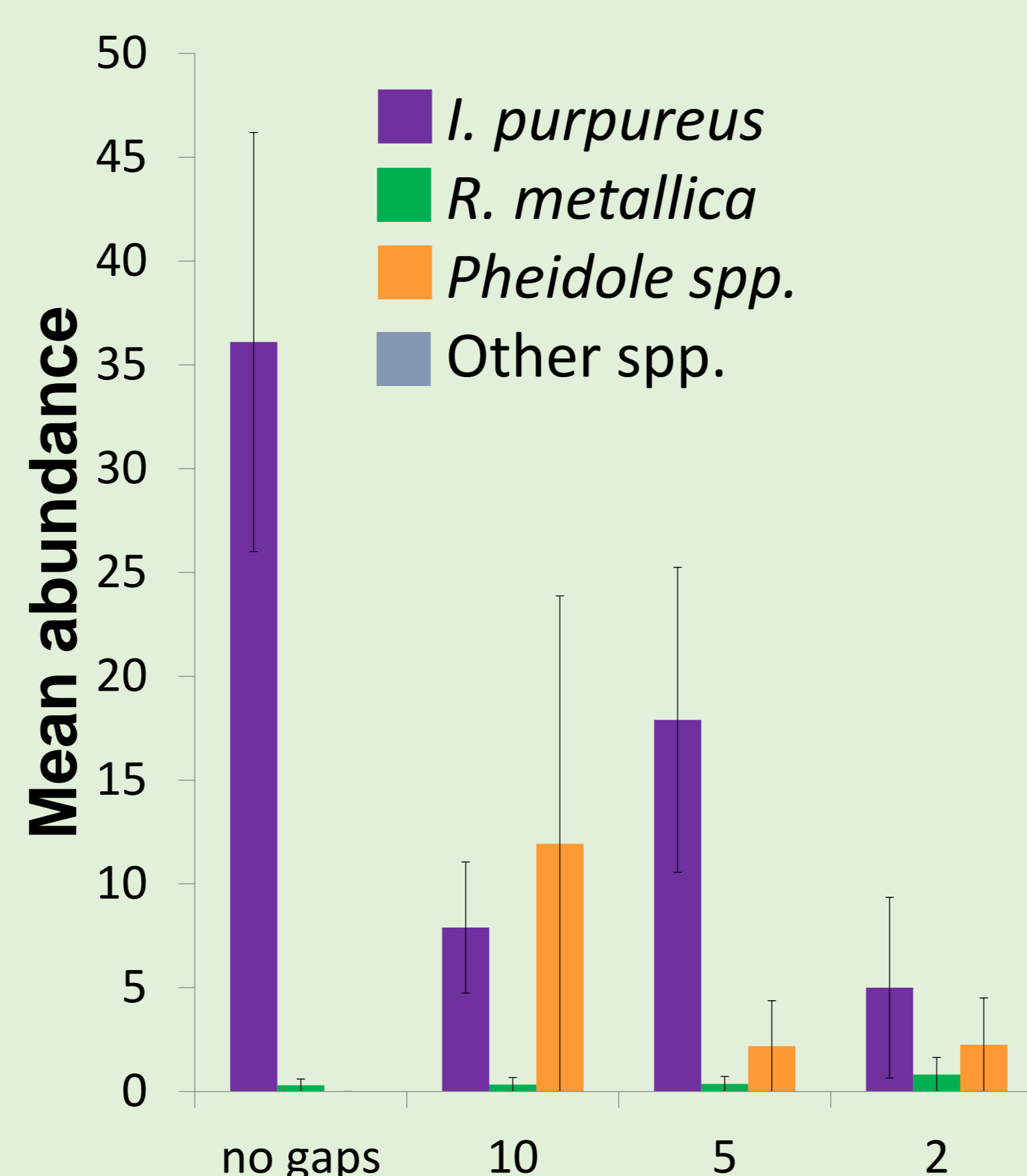
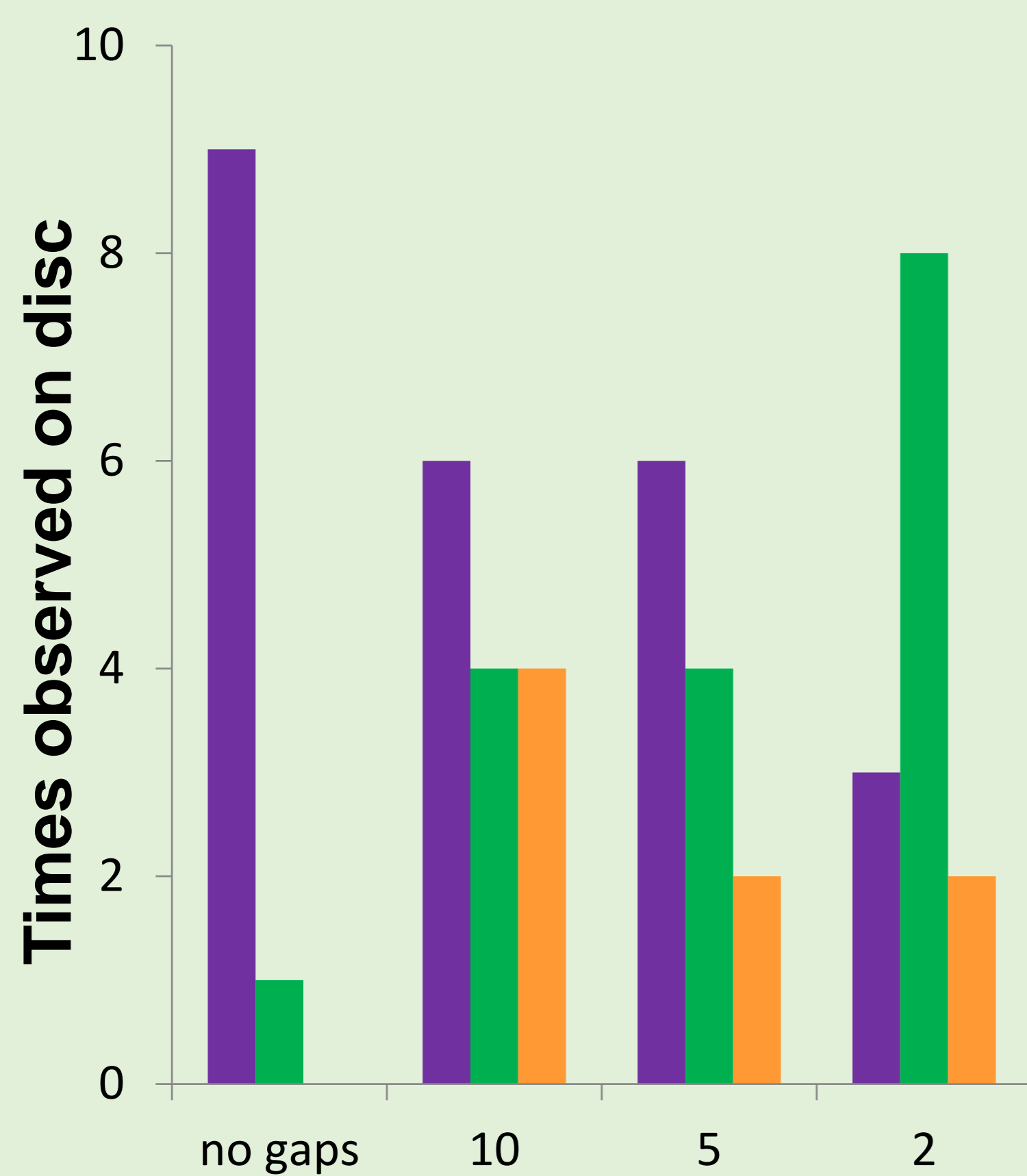
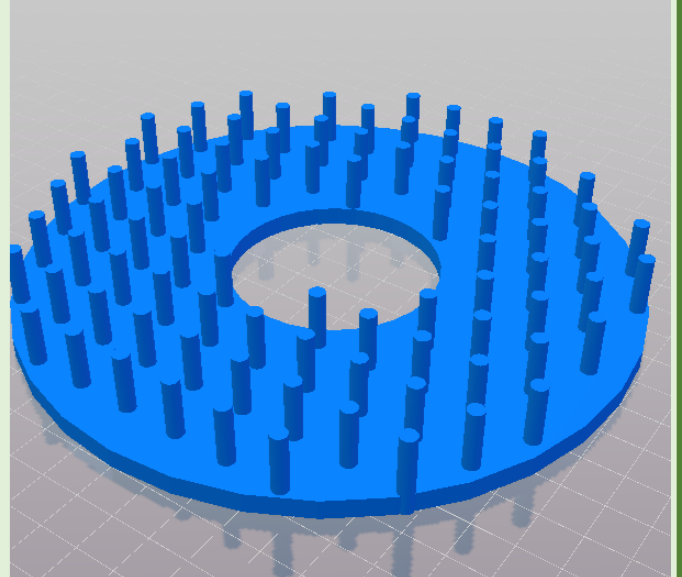
How does complexity impact foraging choice in ant species?



▲ 3D printed discs - 4 treatments, from simple to complex, baited with tuna

▲ Ant visitors to baits counted, collected and identified

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Iridomyrmex purpureus

- Increased presence (GLM $z=-2.47$, $p=0.1351$) and abundance (ANOVA, $f(1,38)=8.82$, $p=0.005$) with **decreased** complexity
- Persisted on all discs they were found on

Rhytidoponera metallica

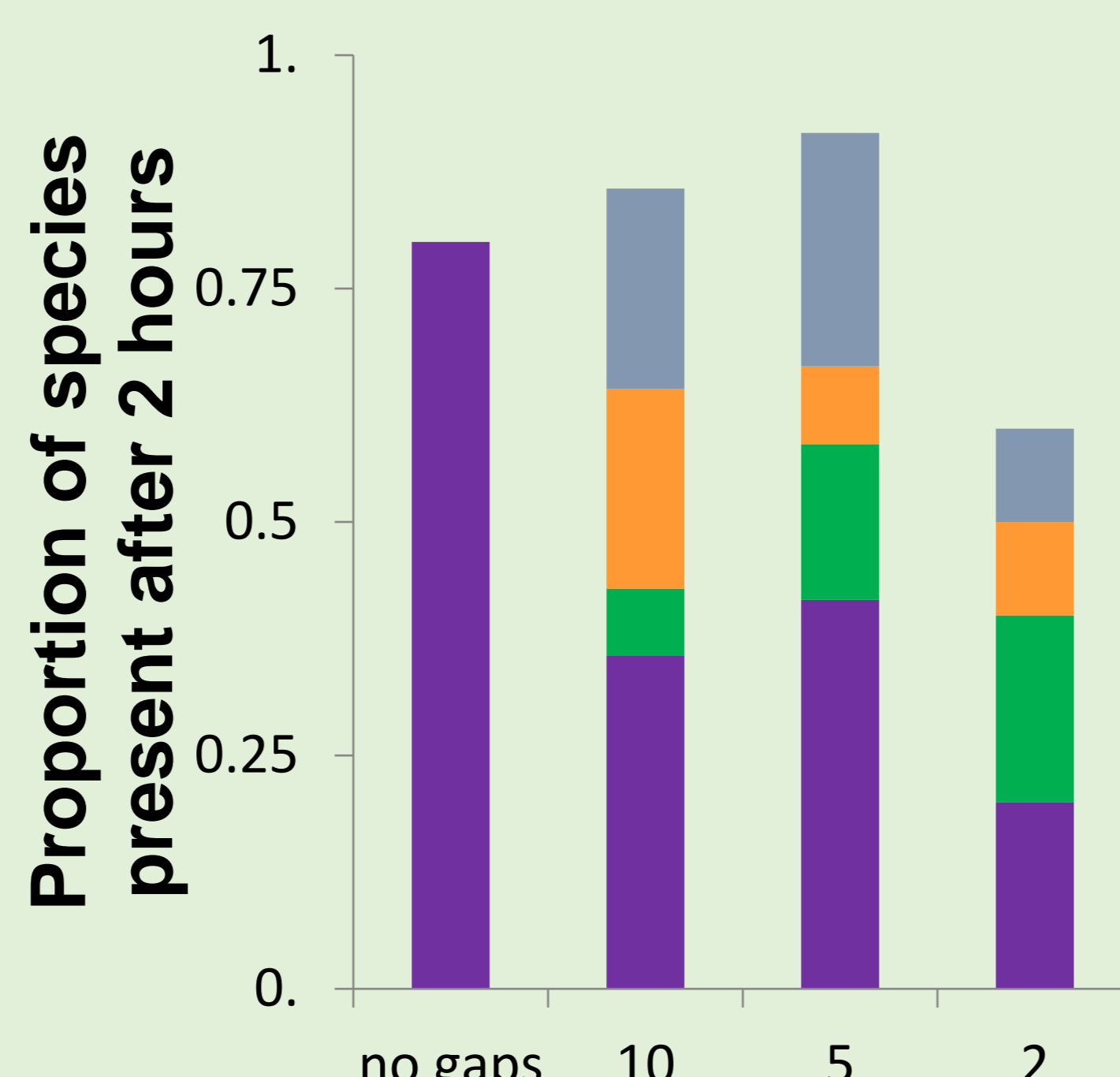
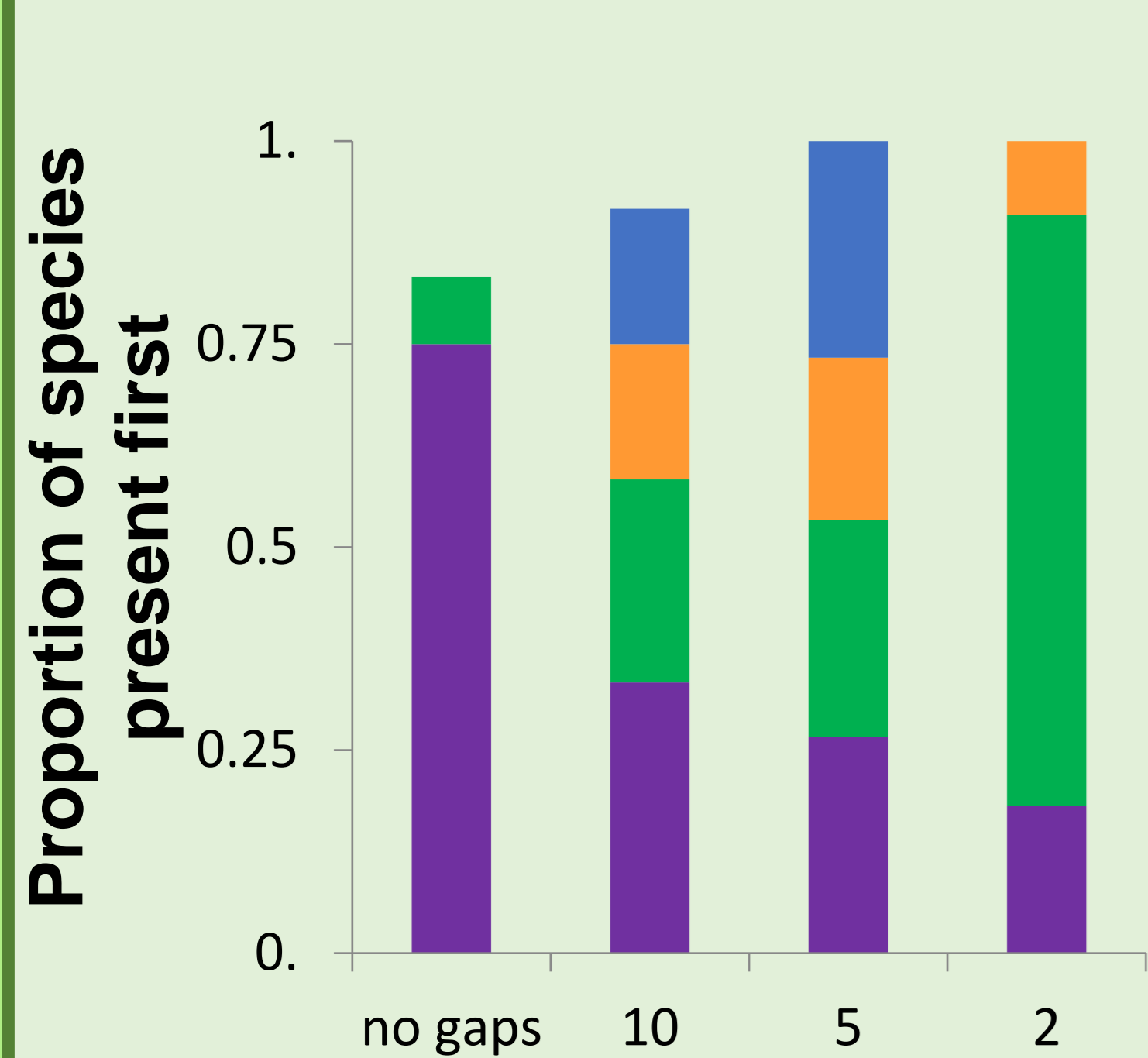
- Increased presence (GLM, $z=2.91$, $p=0.0037$) and abundance (ANOVA, $f(1,38)=10.93$, $p=0.002$) with **increased** complexity
- Did not persist on complex treatments

Pheidole spp.

- Intermediary response to complexity in terms of abundance (ANOVA $f(1,38)=0.03$, $p=0.869$) and presence (GLM $z=1.83$, $p=0.0667$)

A non-linear effect on species richness was seen

Recruitment mechanisms and dominance behaviour (not size of ants) are likely drivers of foraging choice in complex environments



Gap size (mm)



Iridomyrmex purpureus



Rhytidoponera metallica



Pheidole spp.

Speed Talk:
 November 27th
 Track 4: Drought impacts and thermal tolerance
 13:30-13:35