

The sources and traits of bacteria and fungi found in the near-surface atmosphere



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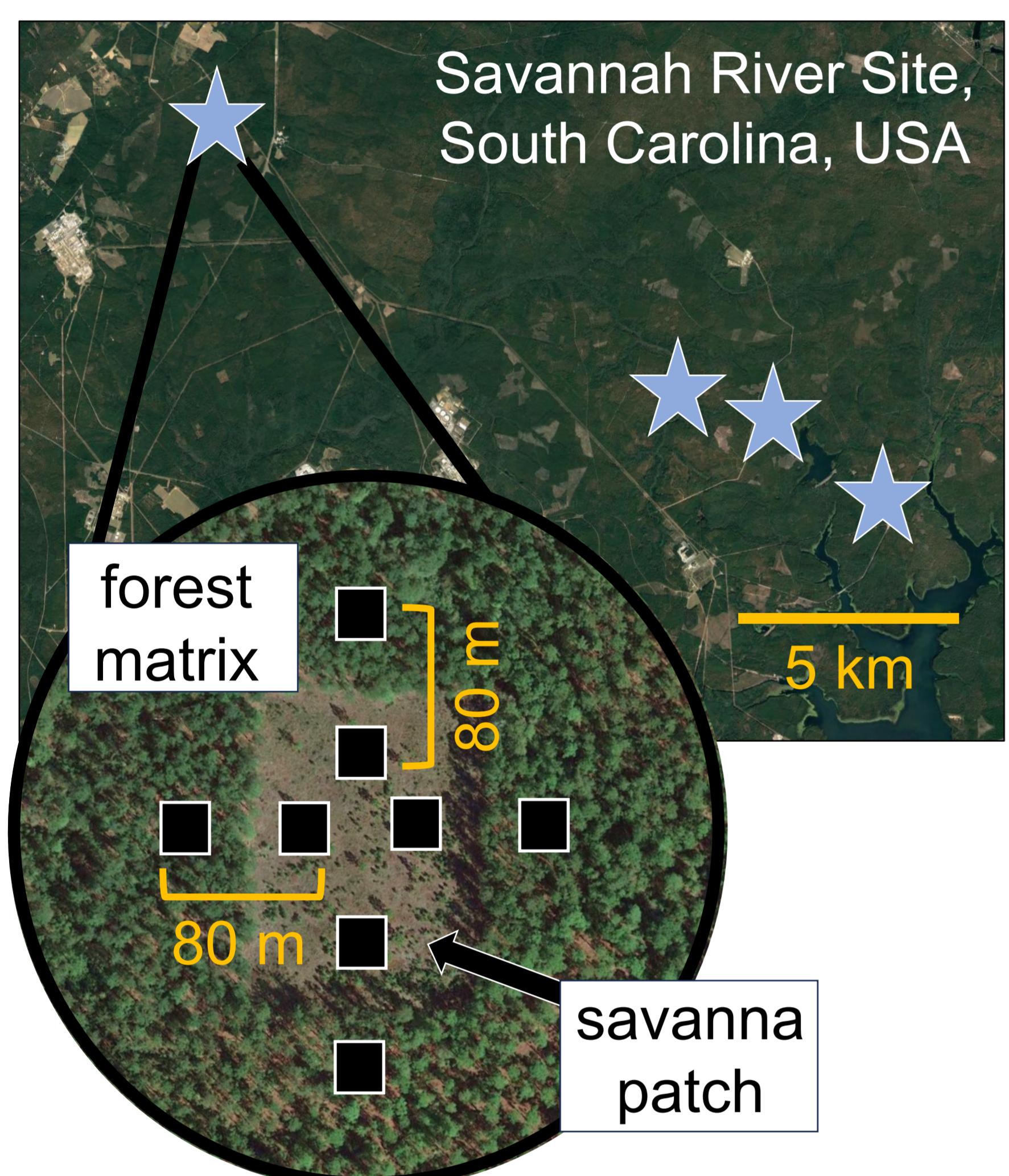
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QUESTIONS

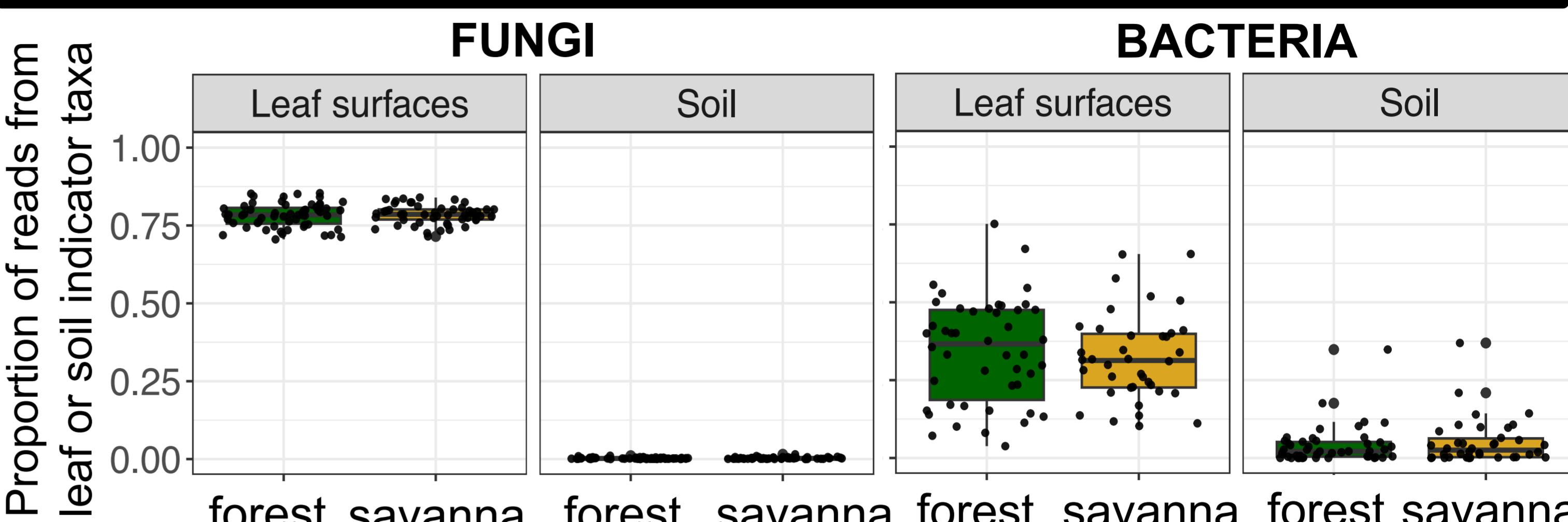
- What are the microbial sources to the air (soil vs. leaf surfaces)?
- Is vegetation type (savanna vs. forest) associated with local-scale air microbiome variation?
- Does the atmosphere select for particular microbial traits?

METHODS

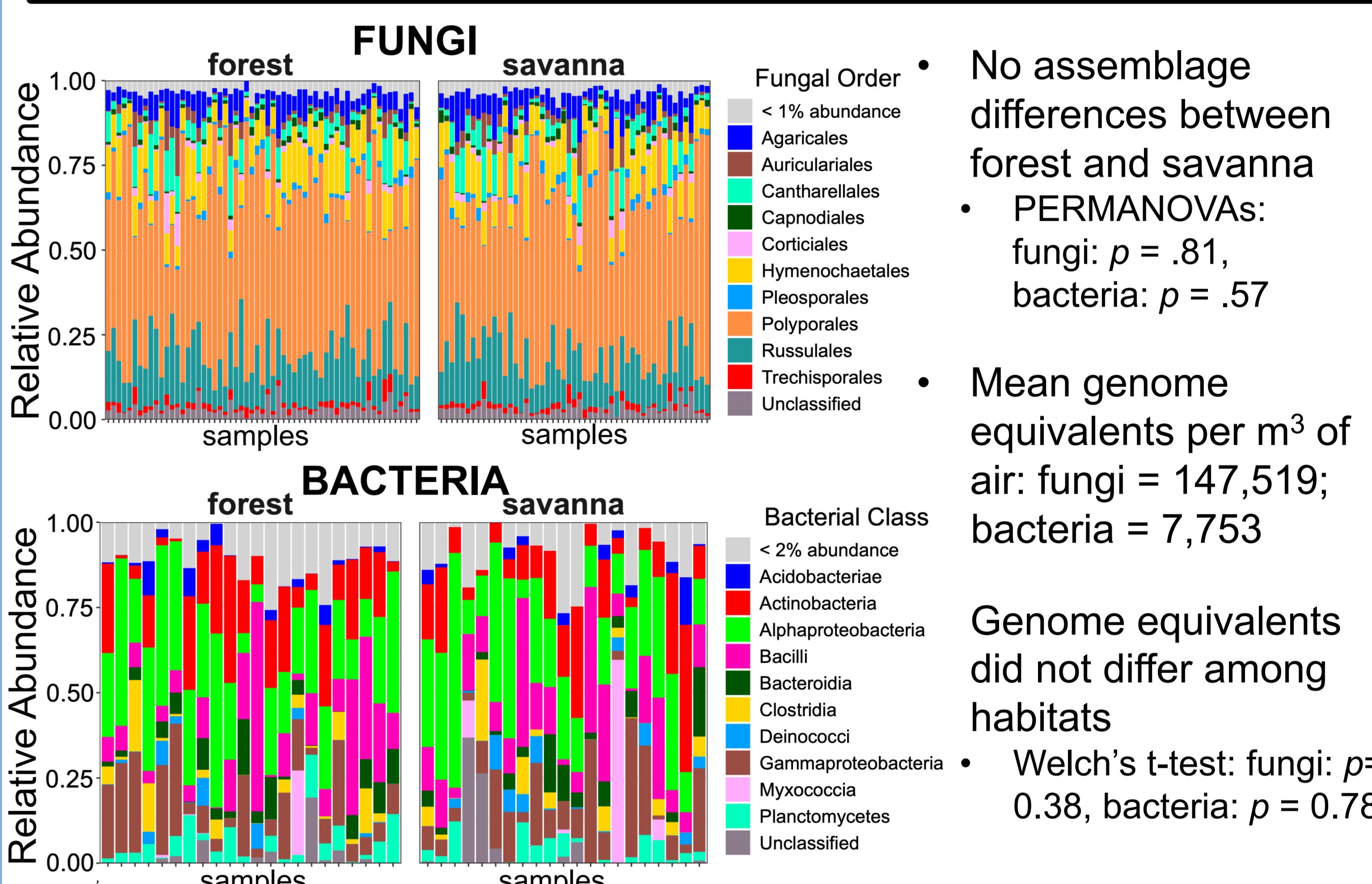


- 8 air samples per day, paired 80 m apart in forest and savanna.
- 4 sites sampled 4 times each for air (2 m height, 24-h duration, 2 L/min).
- 40 soil samples and ~15 leaf samples from dominant plants per site.
- MiSeq sequencing and qPCR for bacteria and fungi.
- Microbial traits inferred by matching taxa to databases
 - Aguilar-Trigueros et al. 2023
 - Barberán et al. 2017
 - Madin et al. 2020

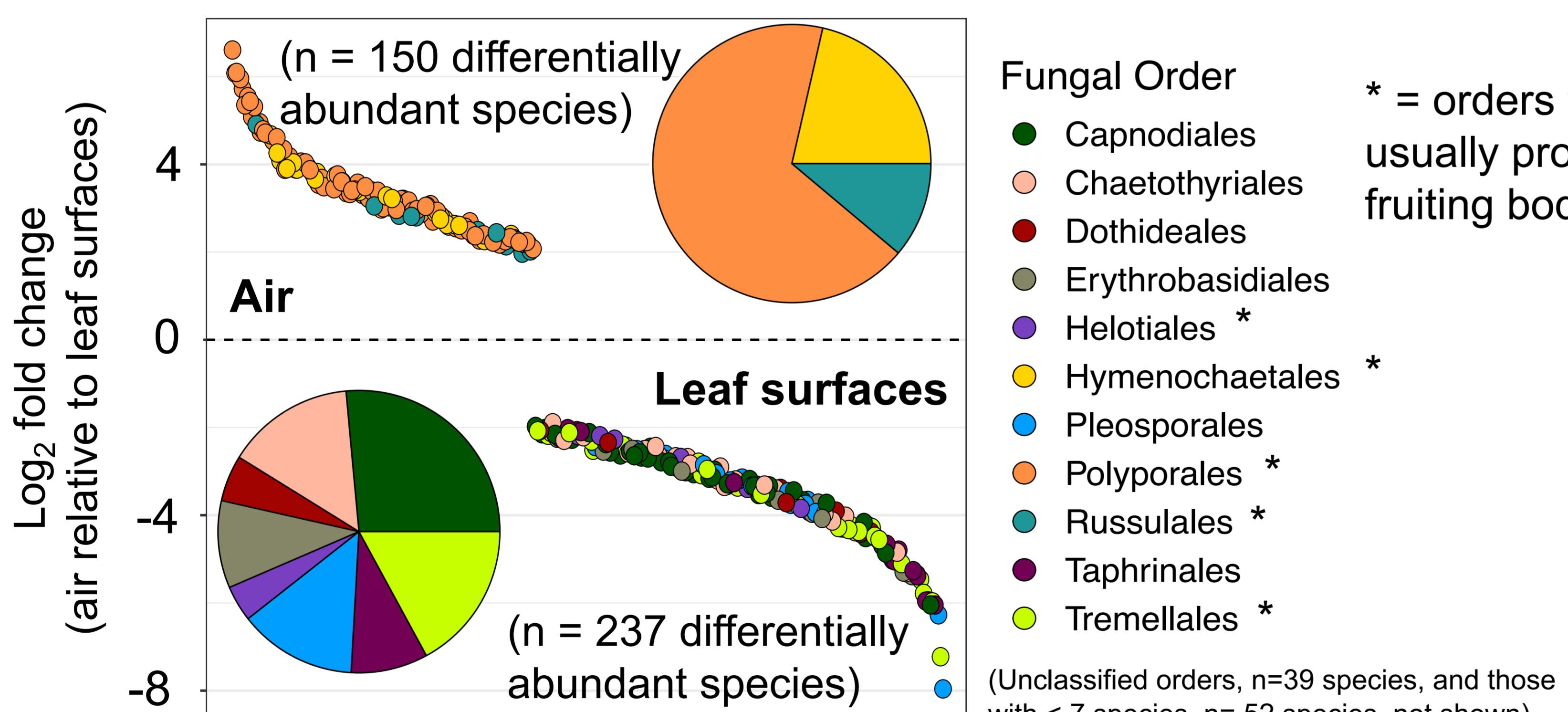
RESULTS: 1) Leaf surfaces, not soil, are the dominant contributor to the air microbiome



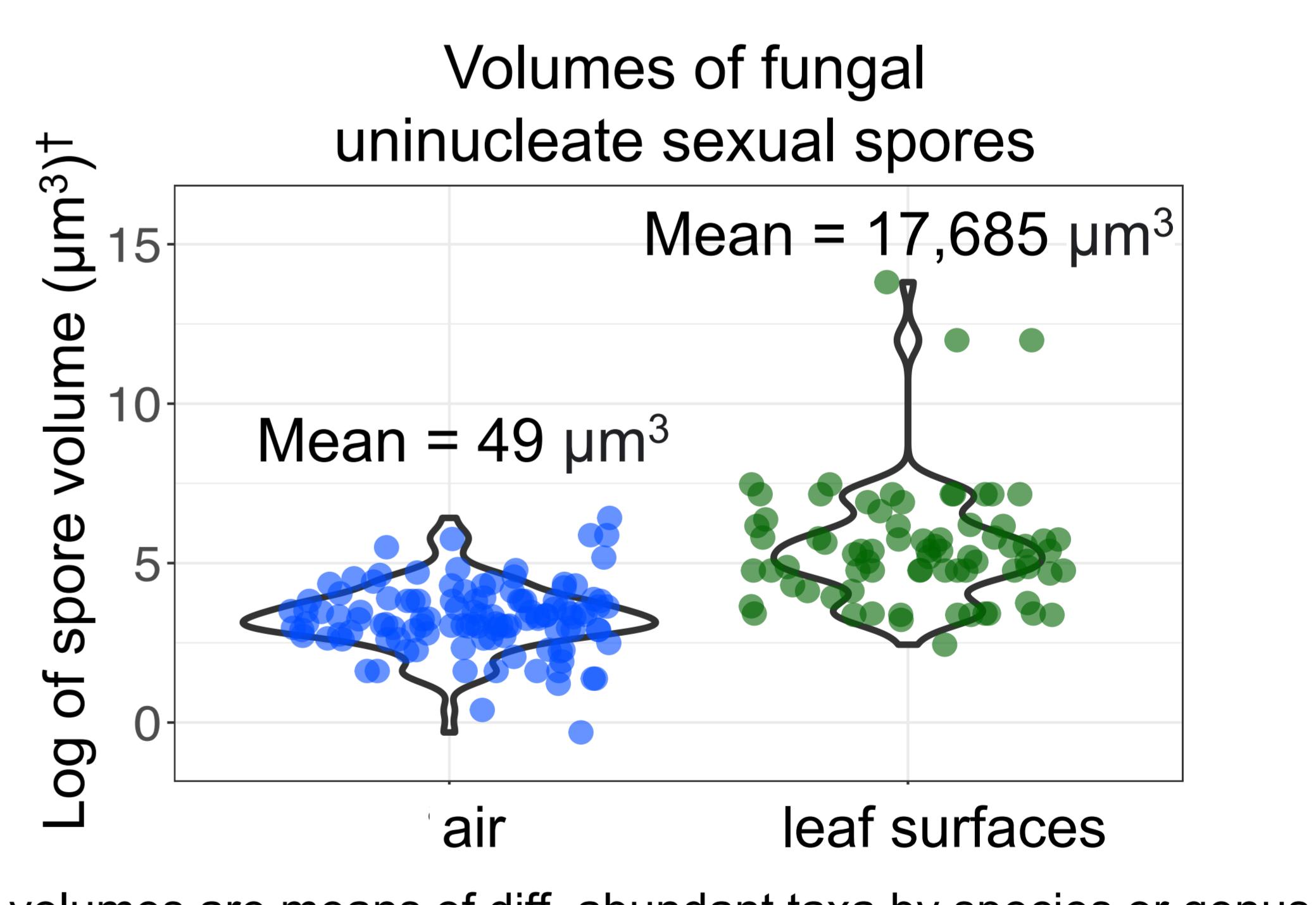
RESULTS: 2) Air above forest and savanna does not differ compositionally or in biomass



RESULTS: 3) Air enriched in fungi that form fruiting bodies and 4) that have smaller spores

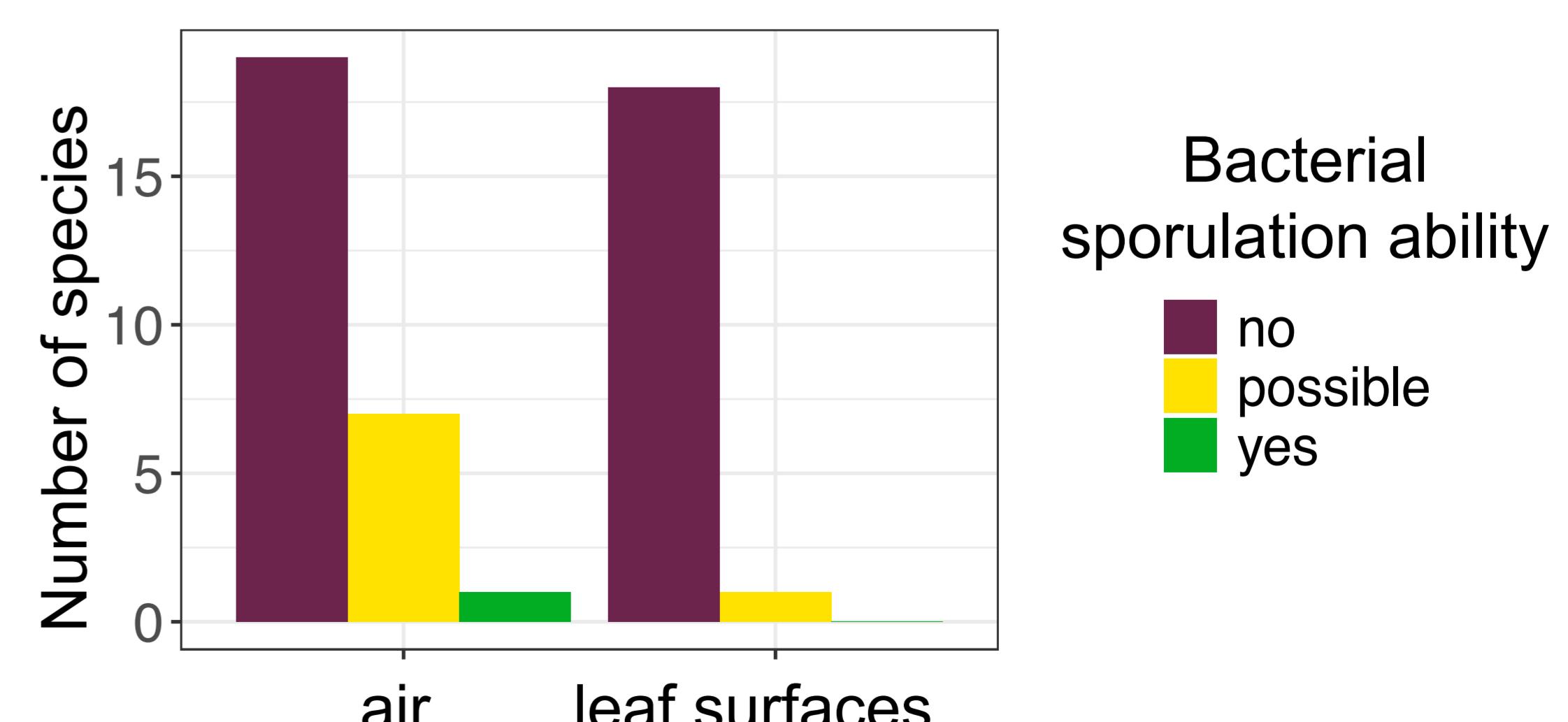
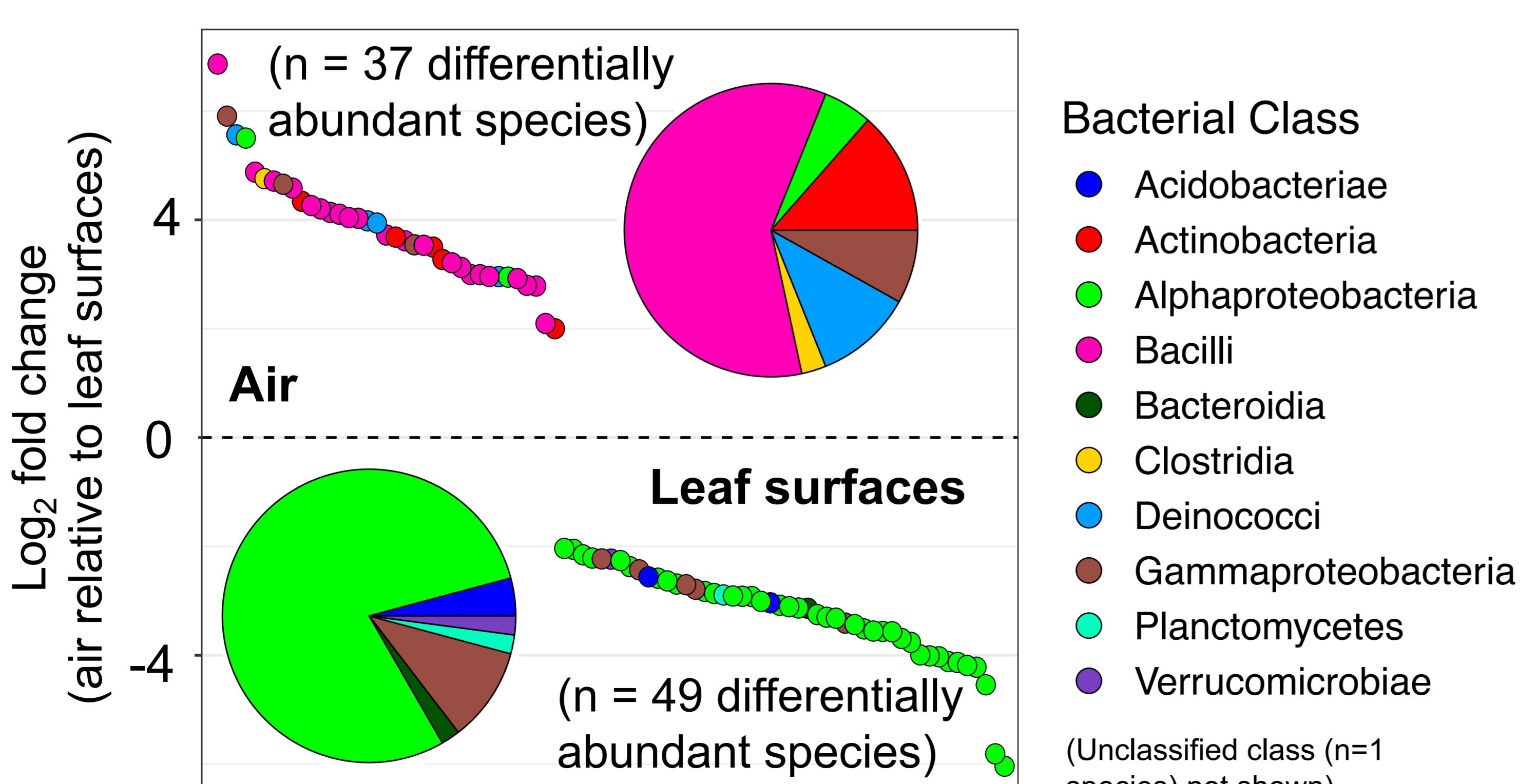


* = orders that usually produce fruiting bodies



[†] volumes are means of diff. abundant taxa by species or genus

RESULTS: 5) Air enriched in bacteria that likely produce spores



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