

# *Pollen Partners: The Symbiotic Microbes of Pinus radiata Pollen*

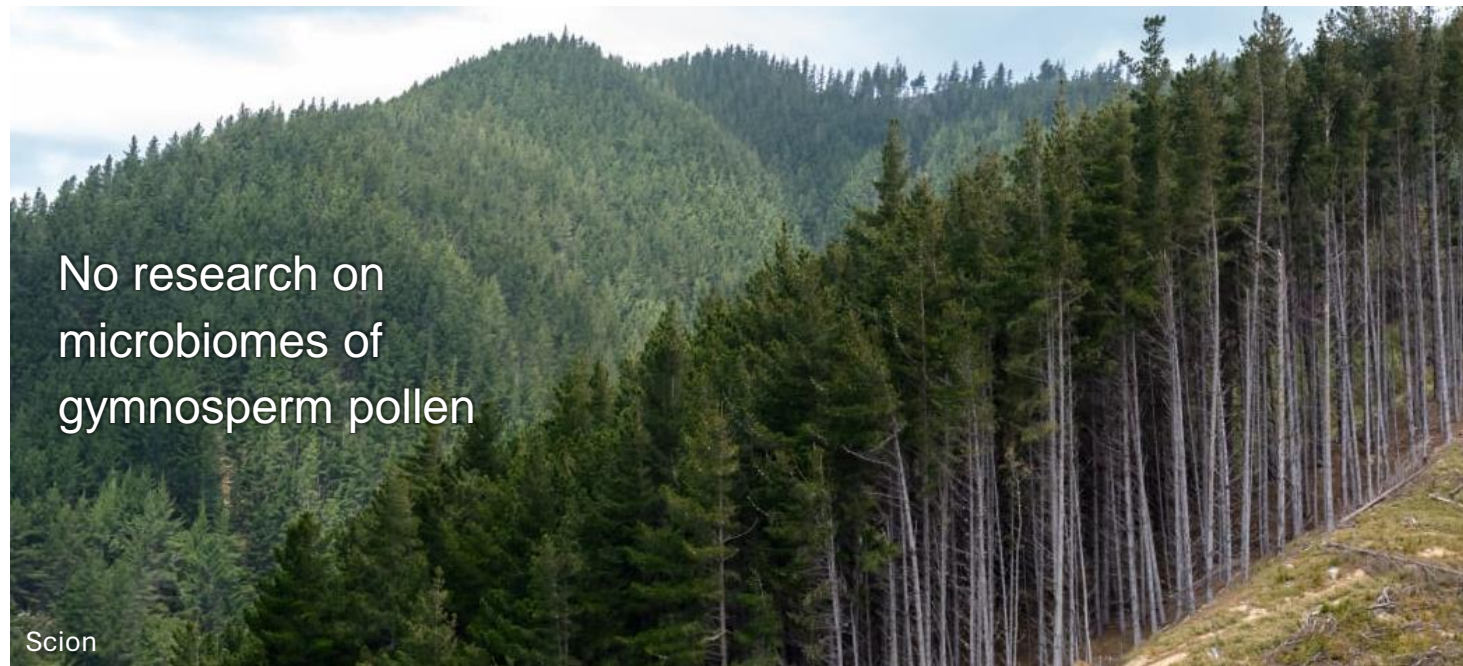
Armstrong C, Ganasamurthy S, Wigley K, Mercier C, Wakelin S





Angiosperm pollen  
hosts plant specific  
microbes

Writes Honey



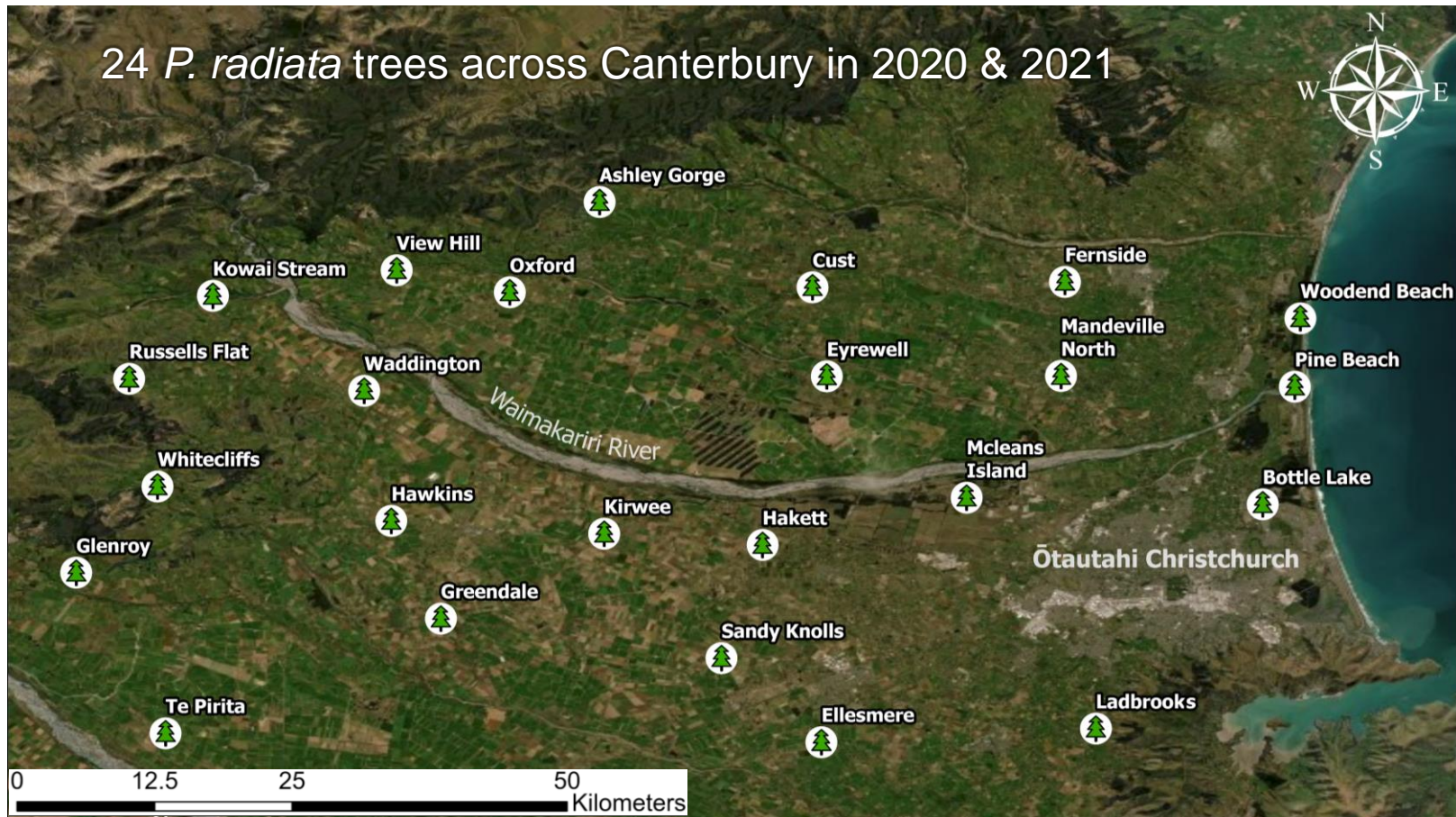
No research on  
microbiomes of  
gymnosperm pollen

Scion



American Loggers Council

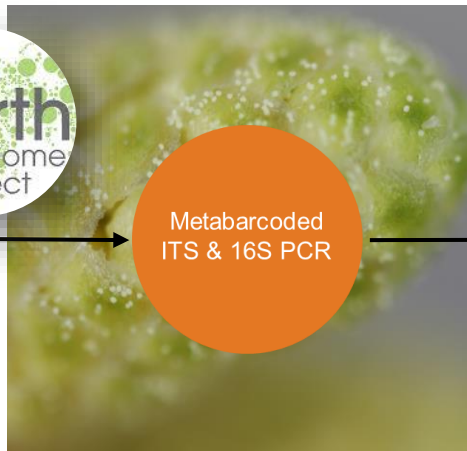
# 24 *P. radiata* trees across Canterbury in 2020 & 2021



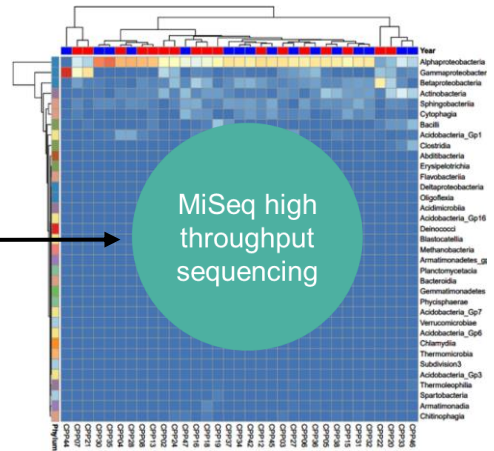
Pollen aseptically collected



DNA Extraction  
Qiagen Power Soil Kit



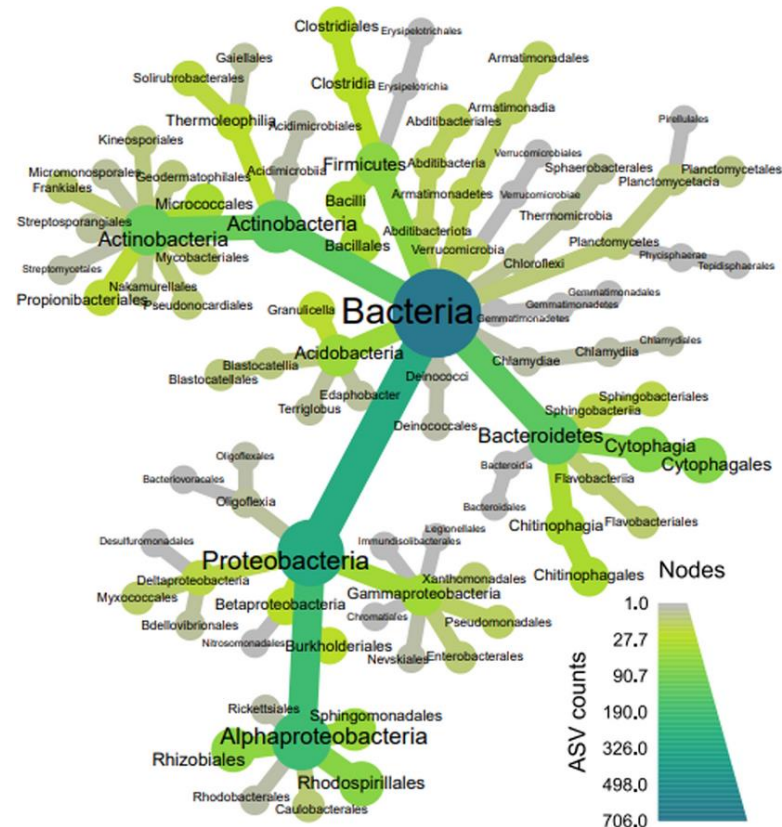
Metabarcoded ITS & 16S PCR



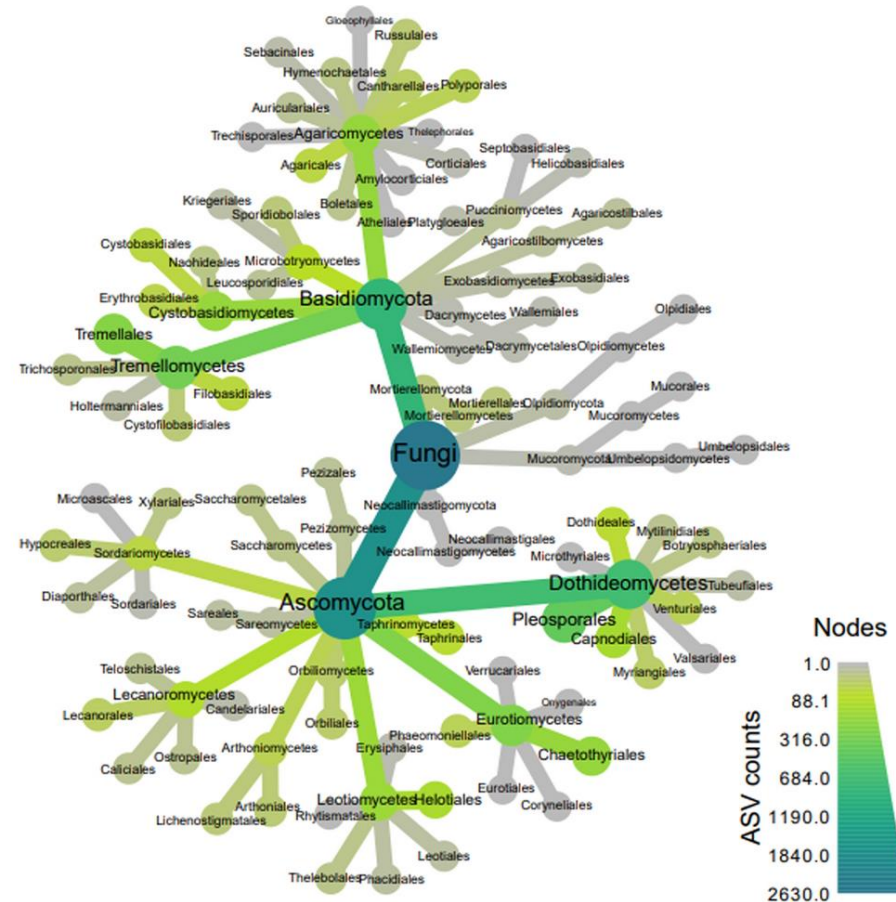
- Year
- Alphaproteobacteria
- Gammaproteobacter
- Betaproteobacteria
- Acidobacteria
- Sphingobacteria
- Cytophaga
- Bacteri
- Acidobacteria\_Gp1
- Clostridia
- Abditobacteria
- Eryspalae72a
- Firmicubacteria
- Deltaproteobacteria
- Oligoflexia
- Acidimantia
- Acidobacteria\_Gp16
- Deinococci
- Bacteroidia
- Methanobacteria
- Armatimonadetes\_g
- Bacteroidia
- Bacteroidia
- Gemmatimonadetes
- Phytophthora
- Acidobacteria\_Gp7
- Verrucomicrobiae
- Acidobacteria\_Gp8
- Chlamydia
- Thermomicrobia
- Subdivision3
- Acidobacteria\_Gp3
- Thermomicrobia
- Spartobacteria
- Armatimonadetes
- Chloroflexia

- Microbial species present on the pollen are spatially and temporally stable
- Pine pollen hosts a different microbiome from angiosperm pollen
- Stability and unique composition indicate an important role of the microbiome

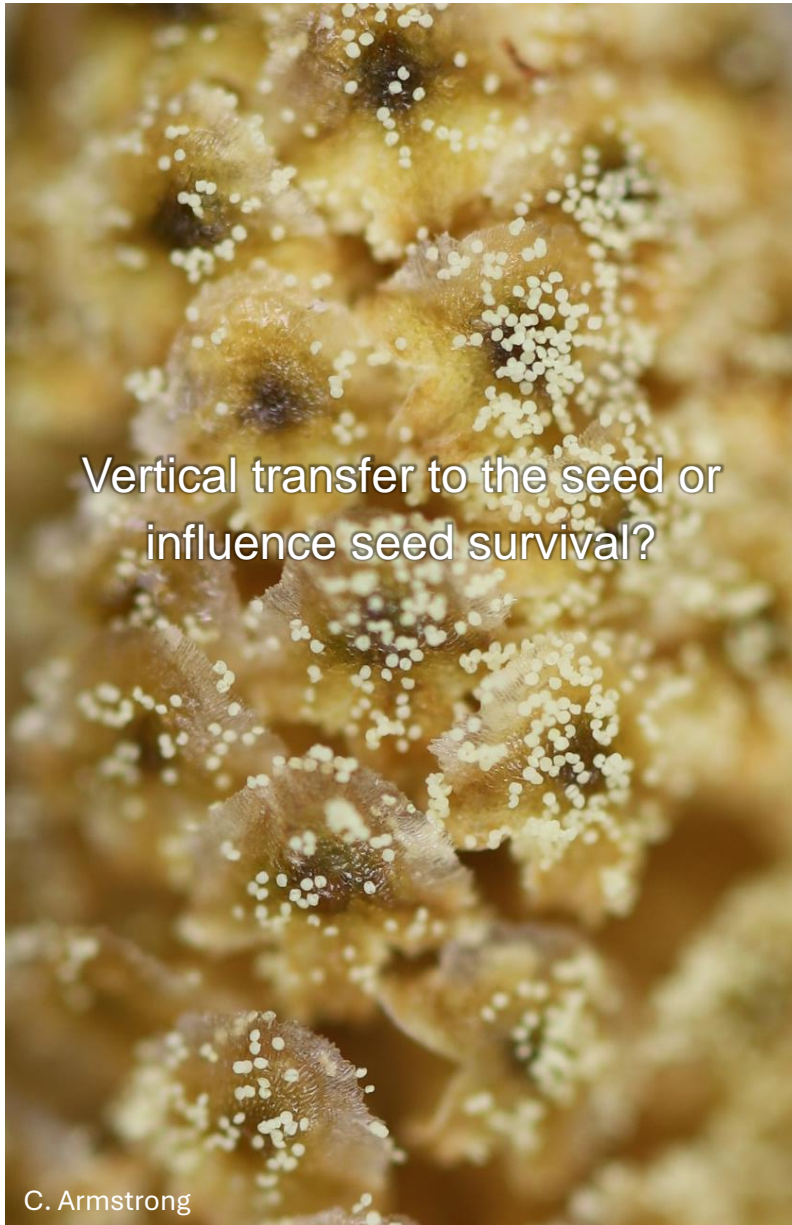
(A) Bacteria



(B) Fungi



# What's the impact on the wider ecology?

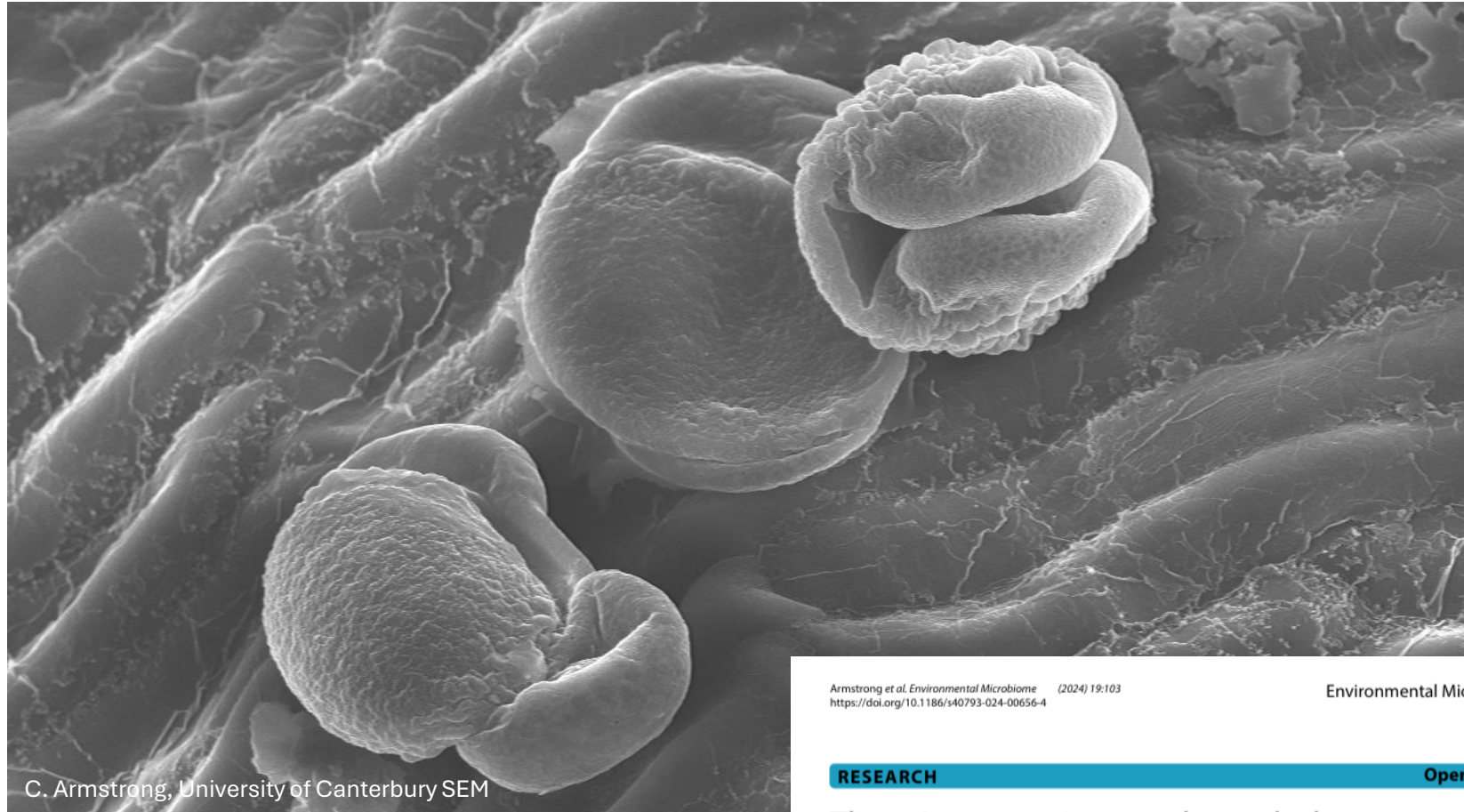


# Thank you for listening

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& Steve Wakelin



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Environmental Microbiome

RESEARCH

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The microorganisms and metabolome  
of *Pinus radiata* Pollen

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