ACKNOWLEDGMENT OF COUNTRY

The ARC Centre of Excellence for Plant Success in Nature and Agriculture acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.

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Trees and climate change

Prof. Tim Brodribb (UTAS)

Global forest mortality is rapidly increasing

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Tasmania 2024

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Why is Climate Warming killing forests?

We were told that trees love carbon dioxide……

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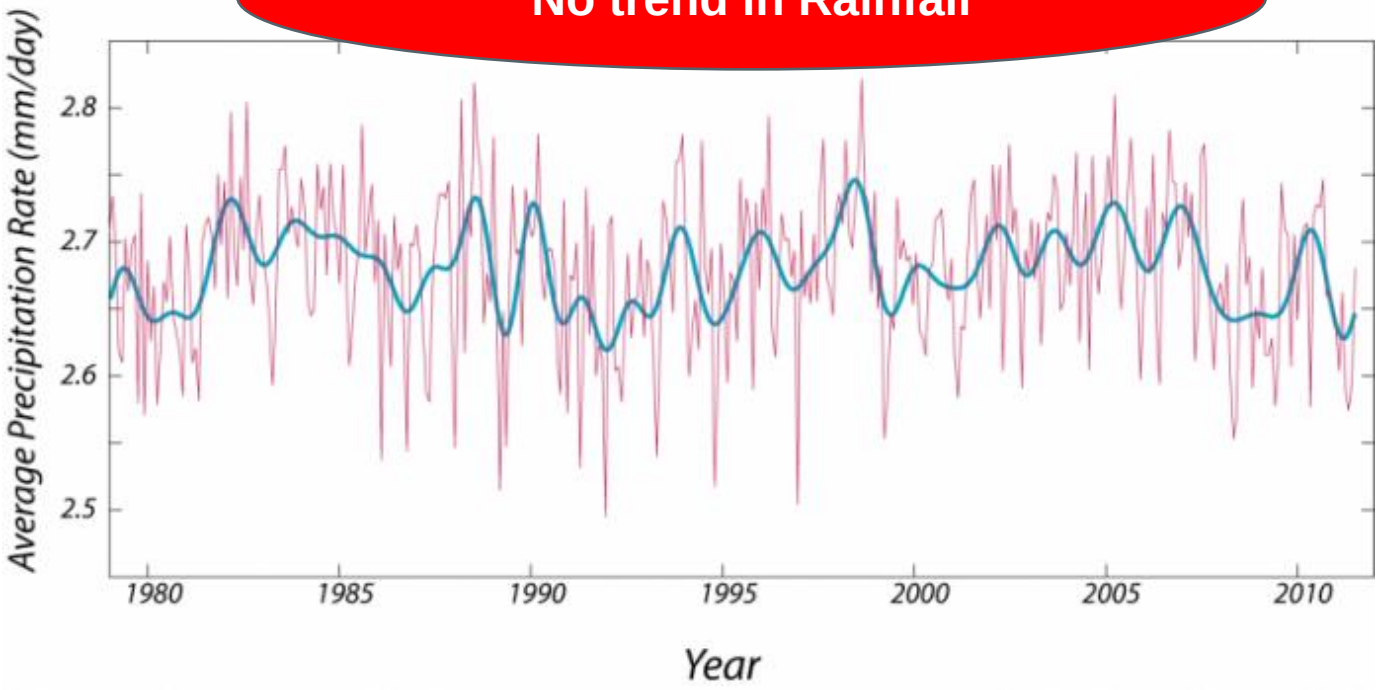
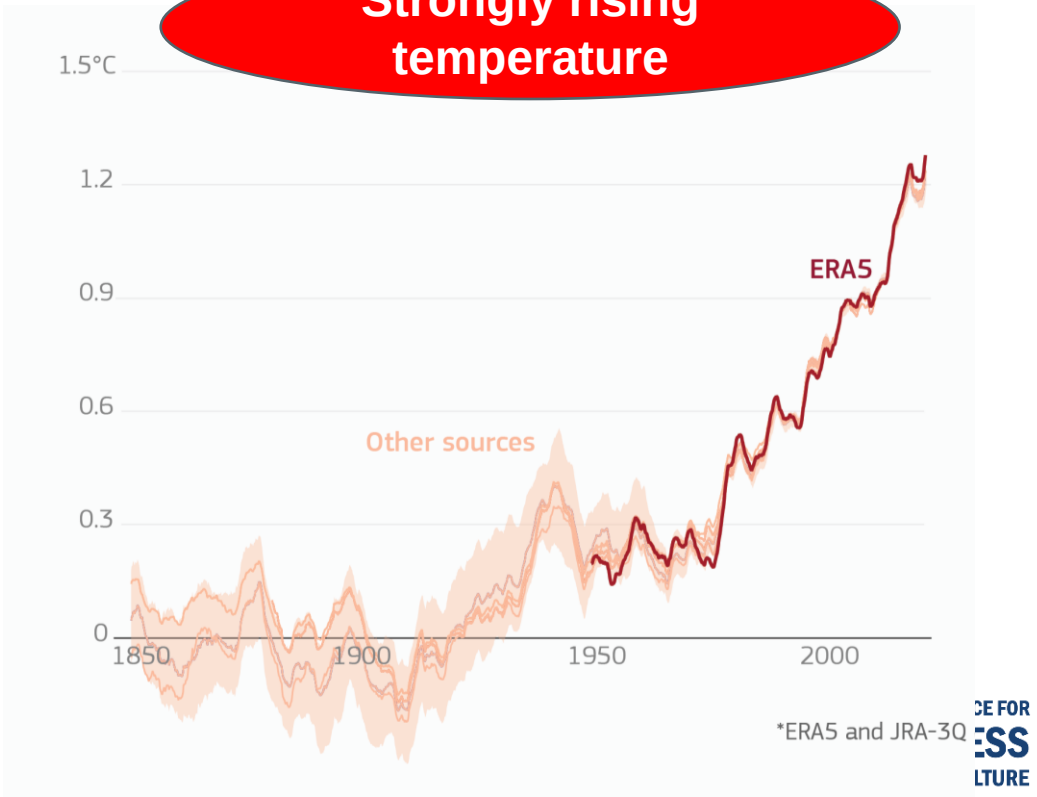
Why is “drought damage” increasing?

No trend in Rainfall



= faster dehydration of soils

Strongly rising temperature

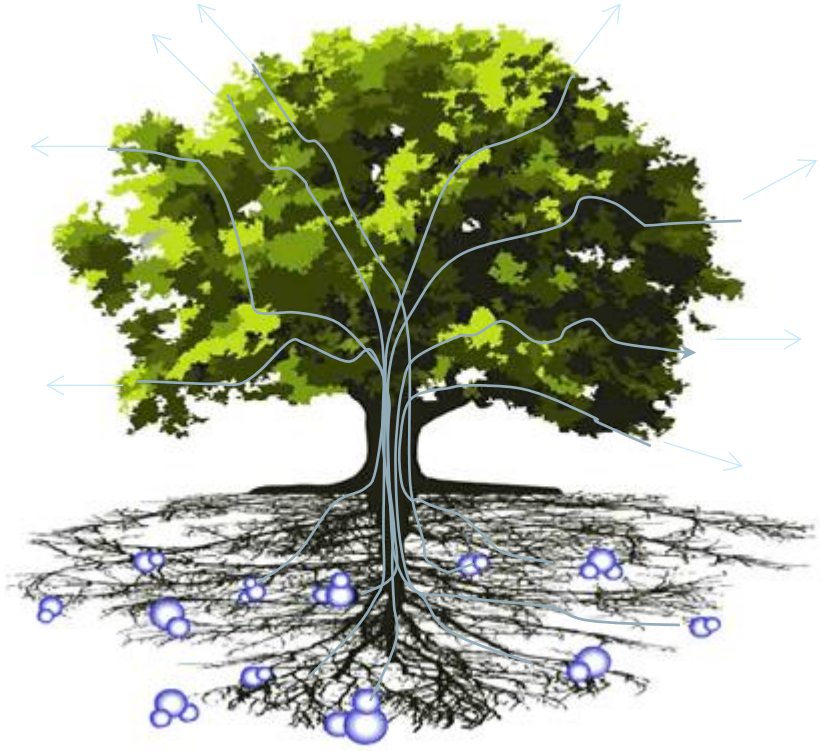


Why are trees dying?

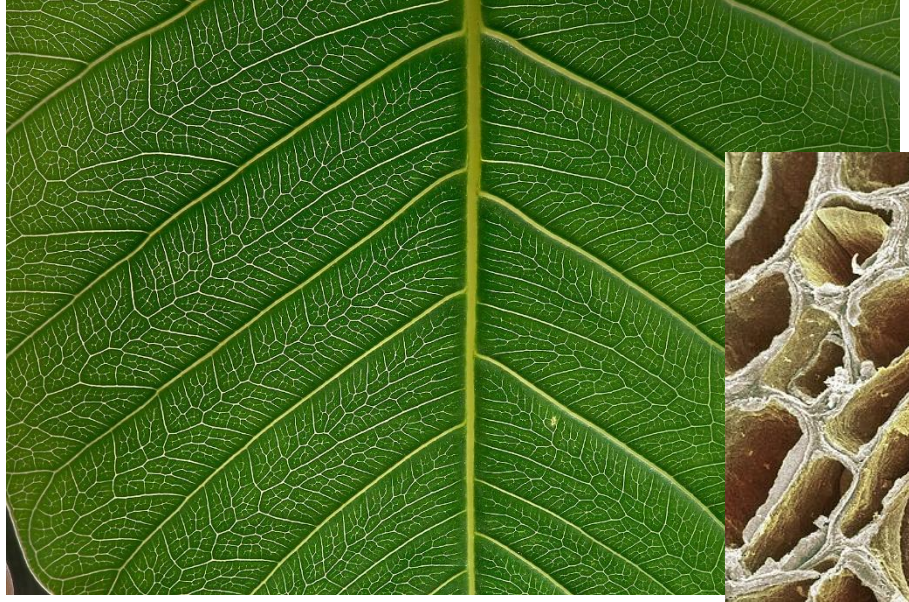
Large Oak tree-

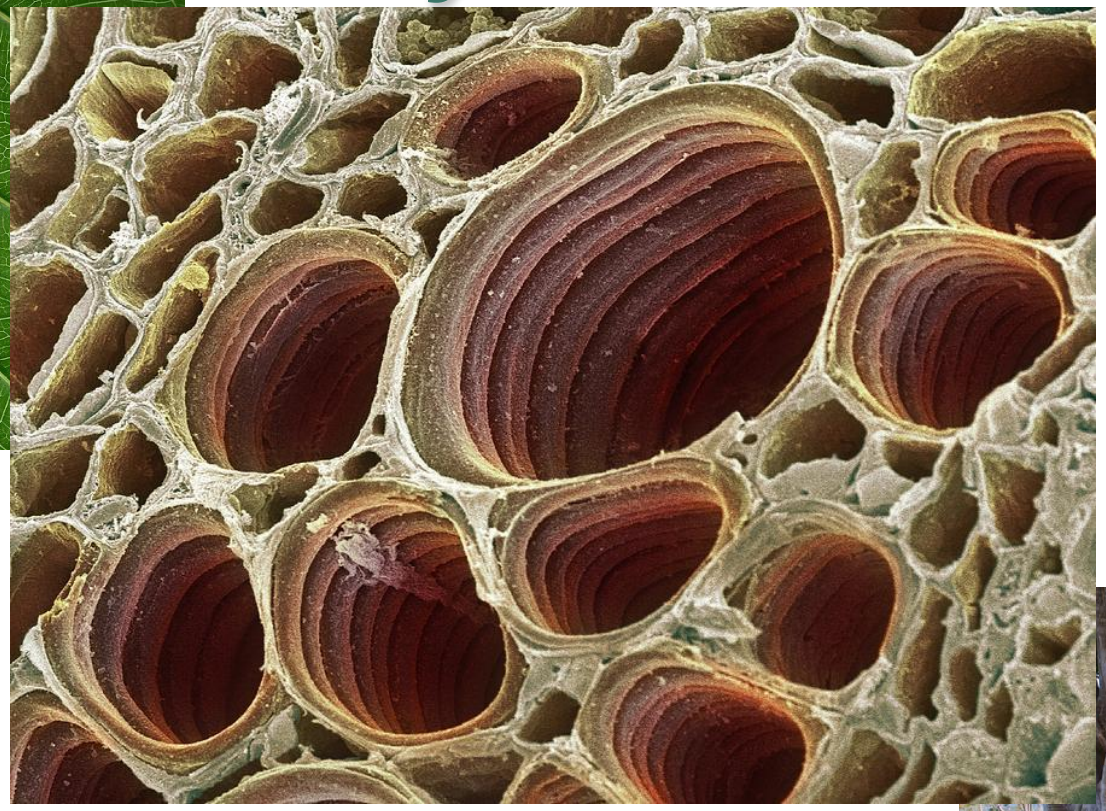
-Lifts water 40m

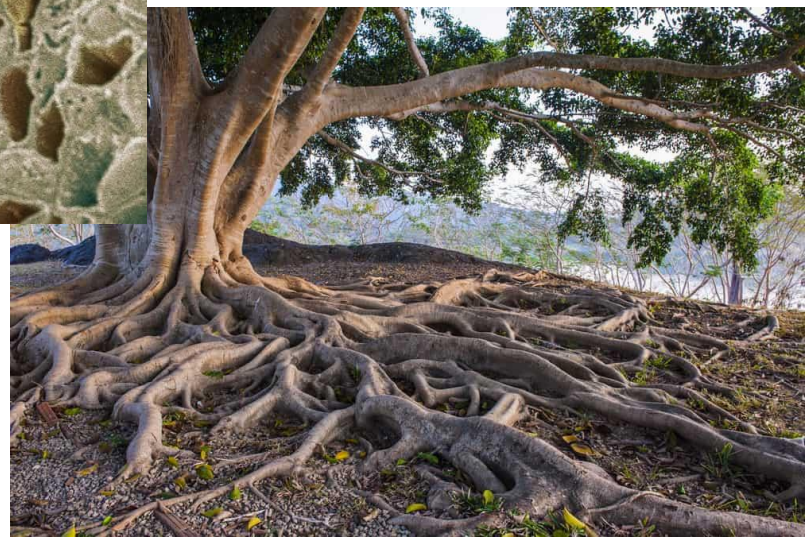
-500kg water/day



Xylem

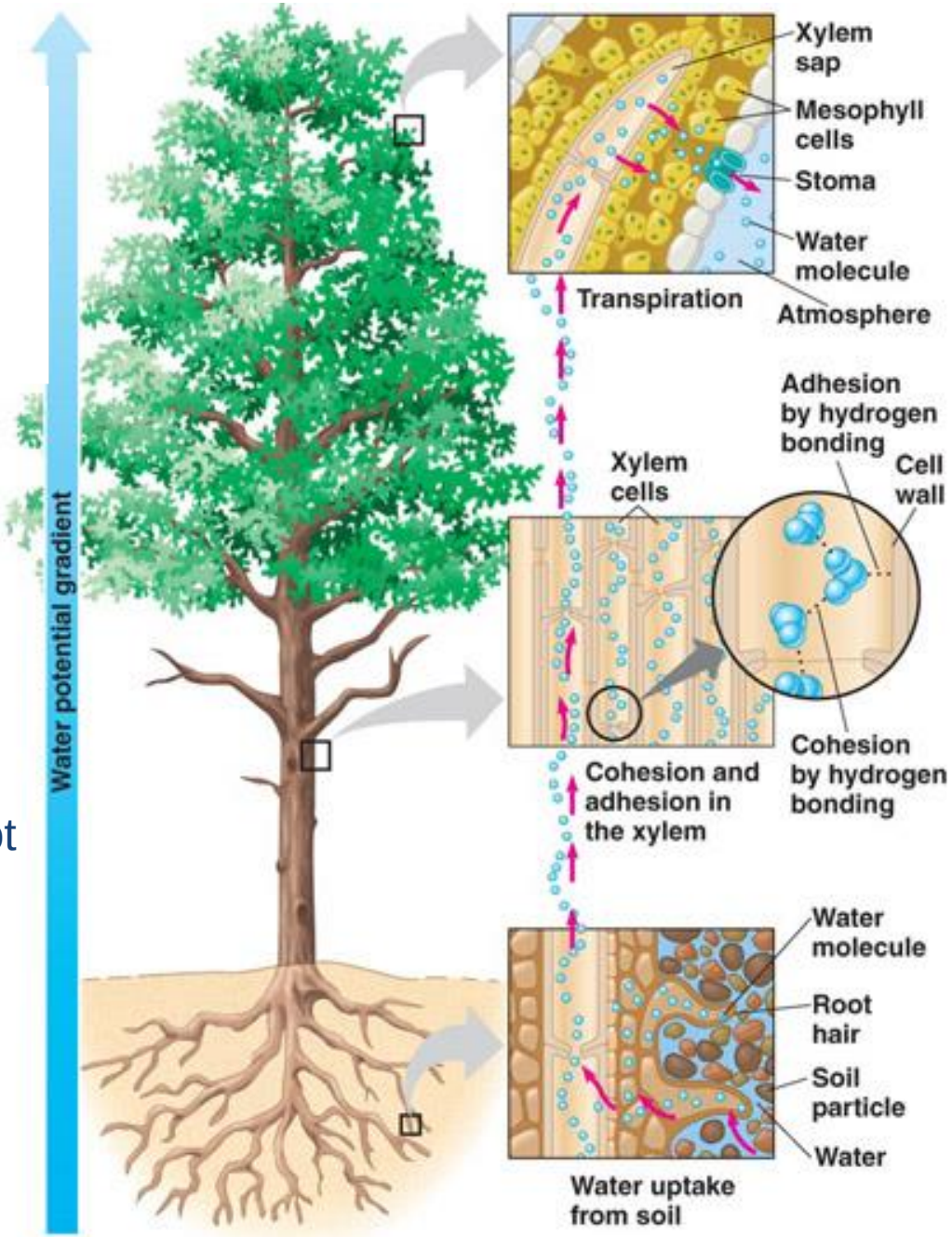






As water is evaporated from leaves

and is replaced by water entering the root



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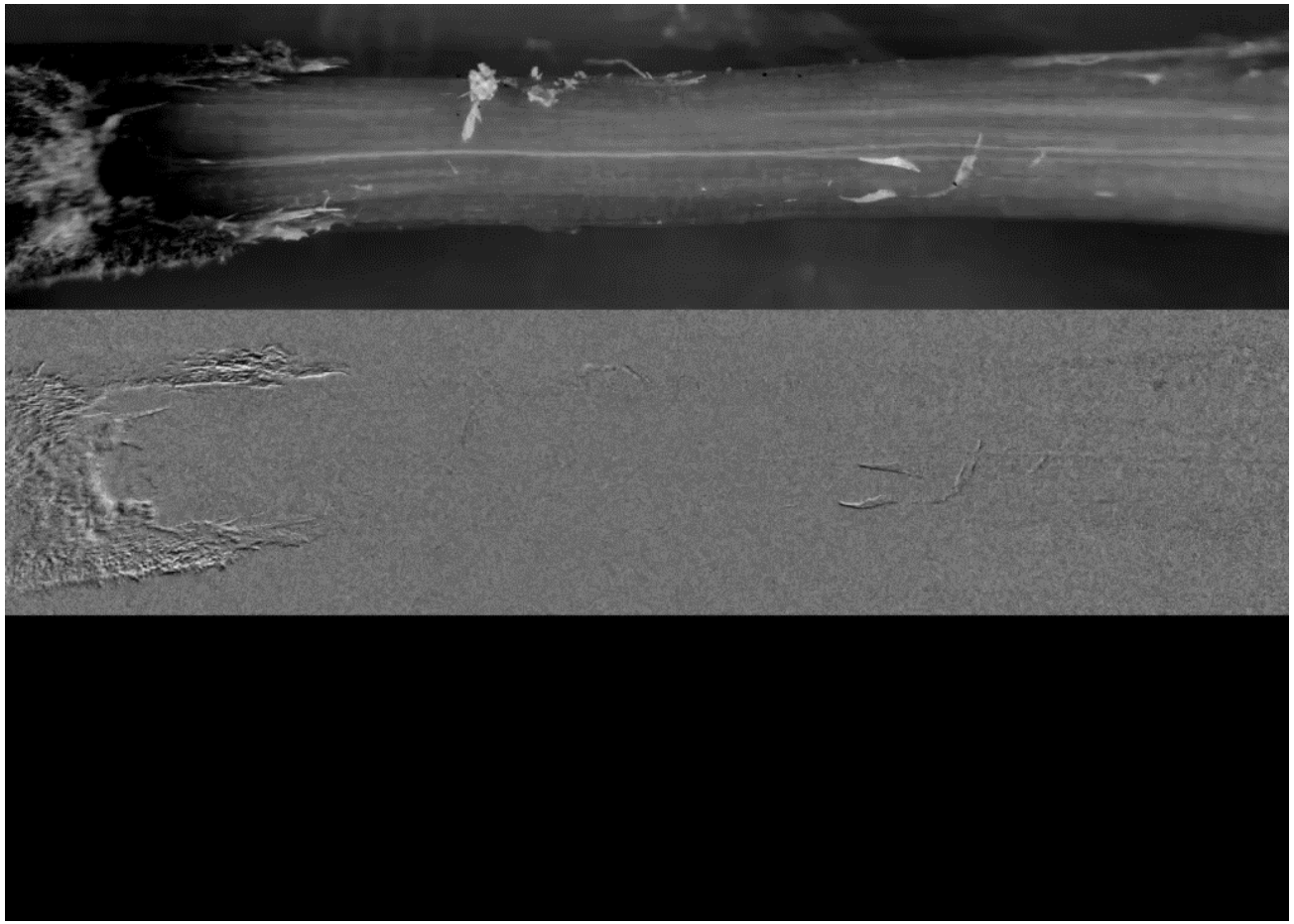
Plant Plumbing.

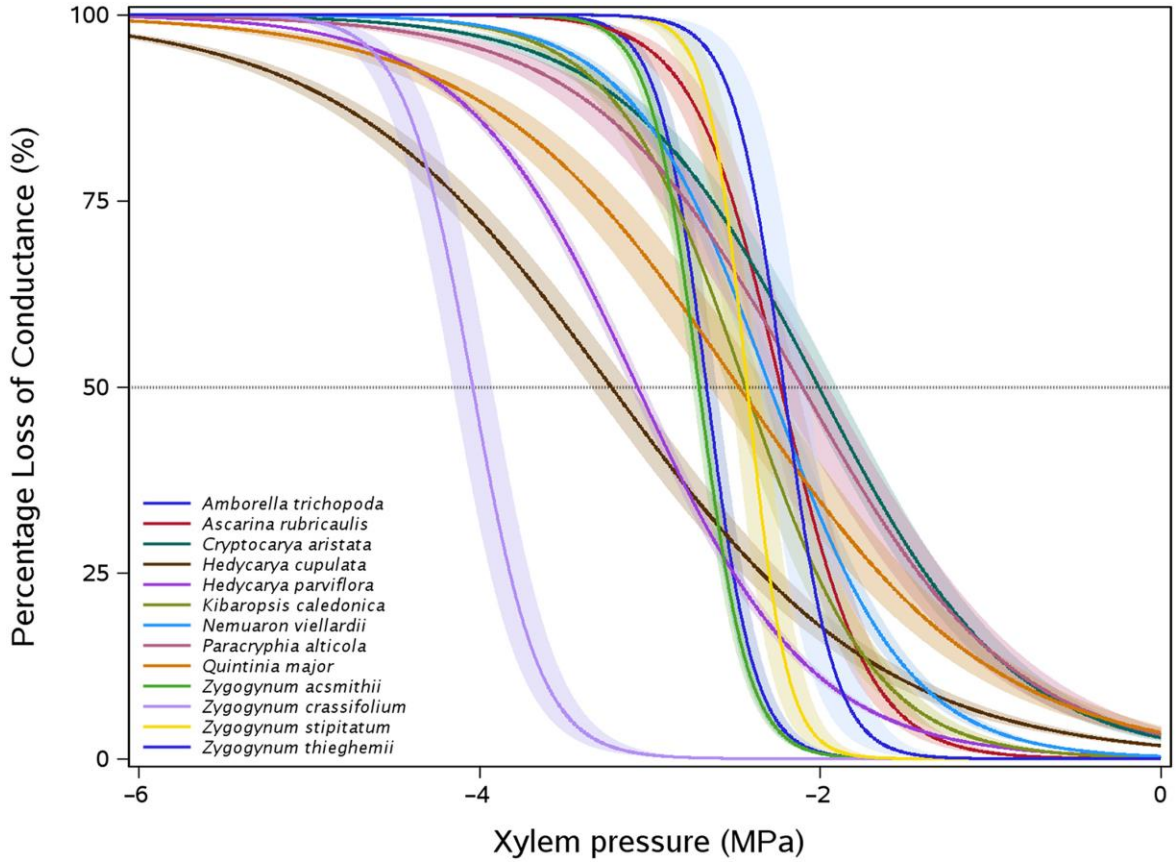
A great idea for moving water cheaply—

-- NO HEART REQUIRED

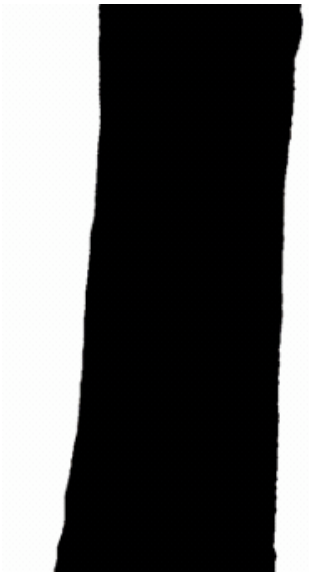
How does the system fail?

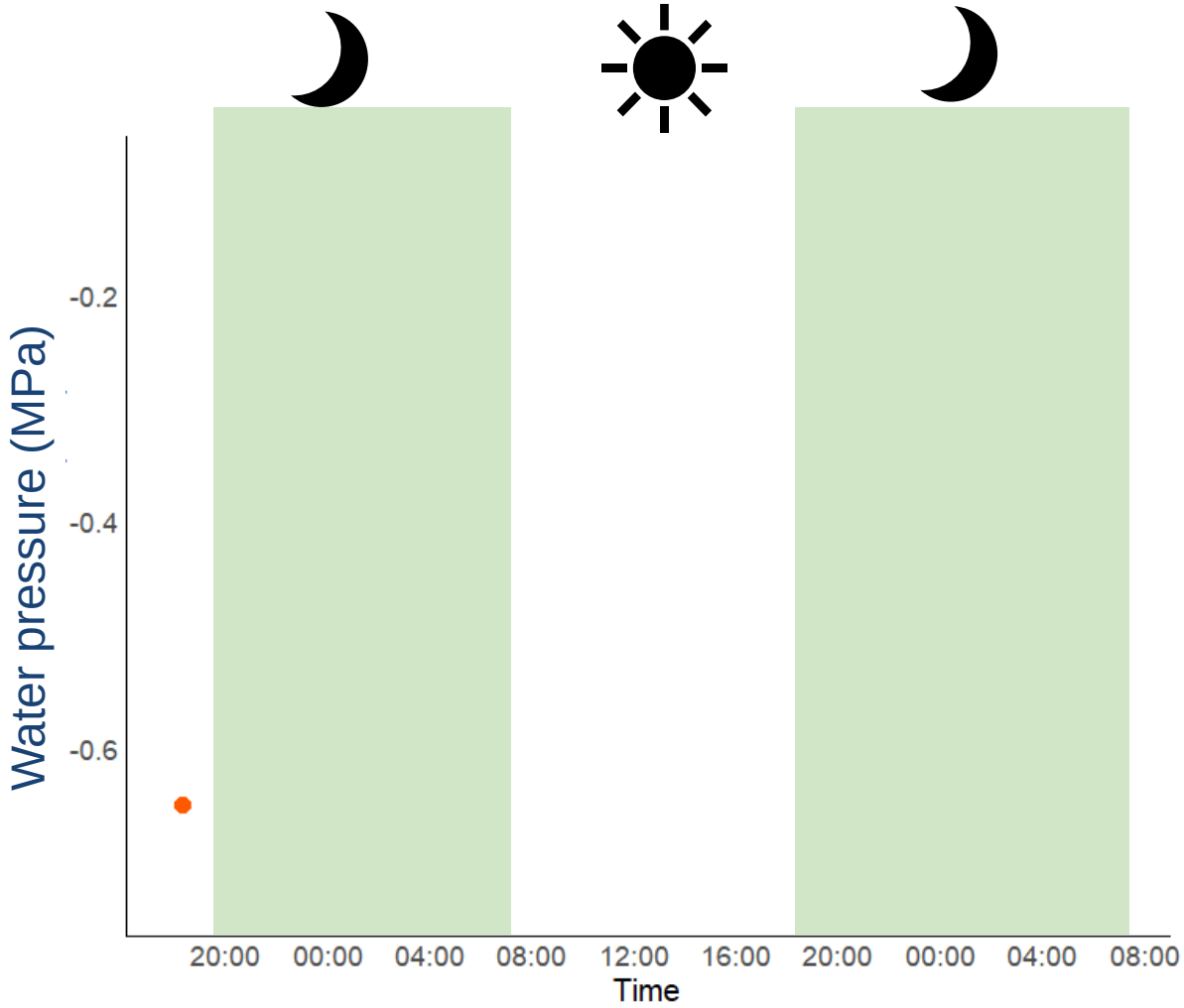
We can see cavitation and quantify species vulnerability



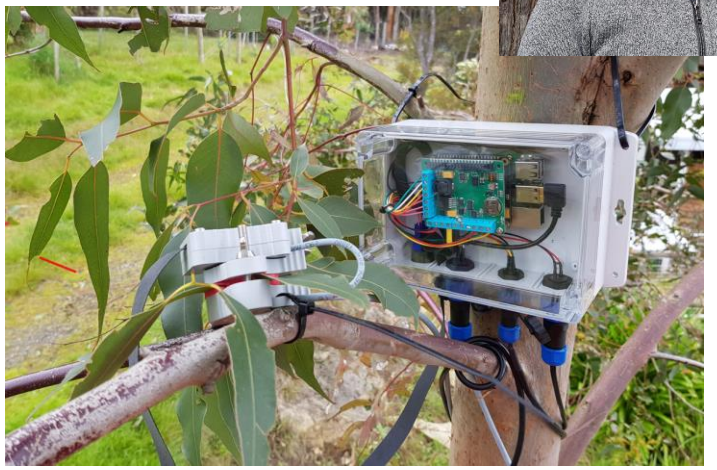


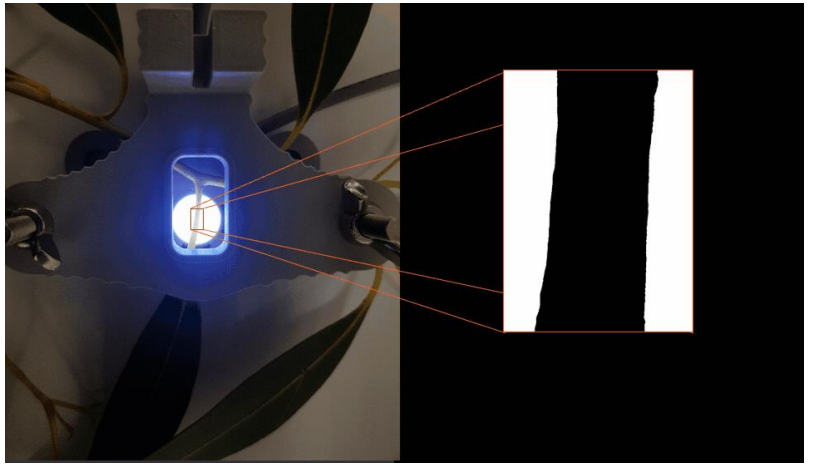
Predicting death

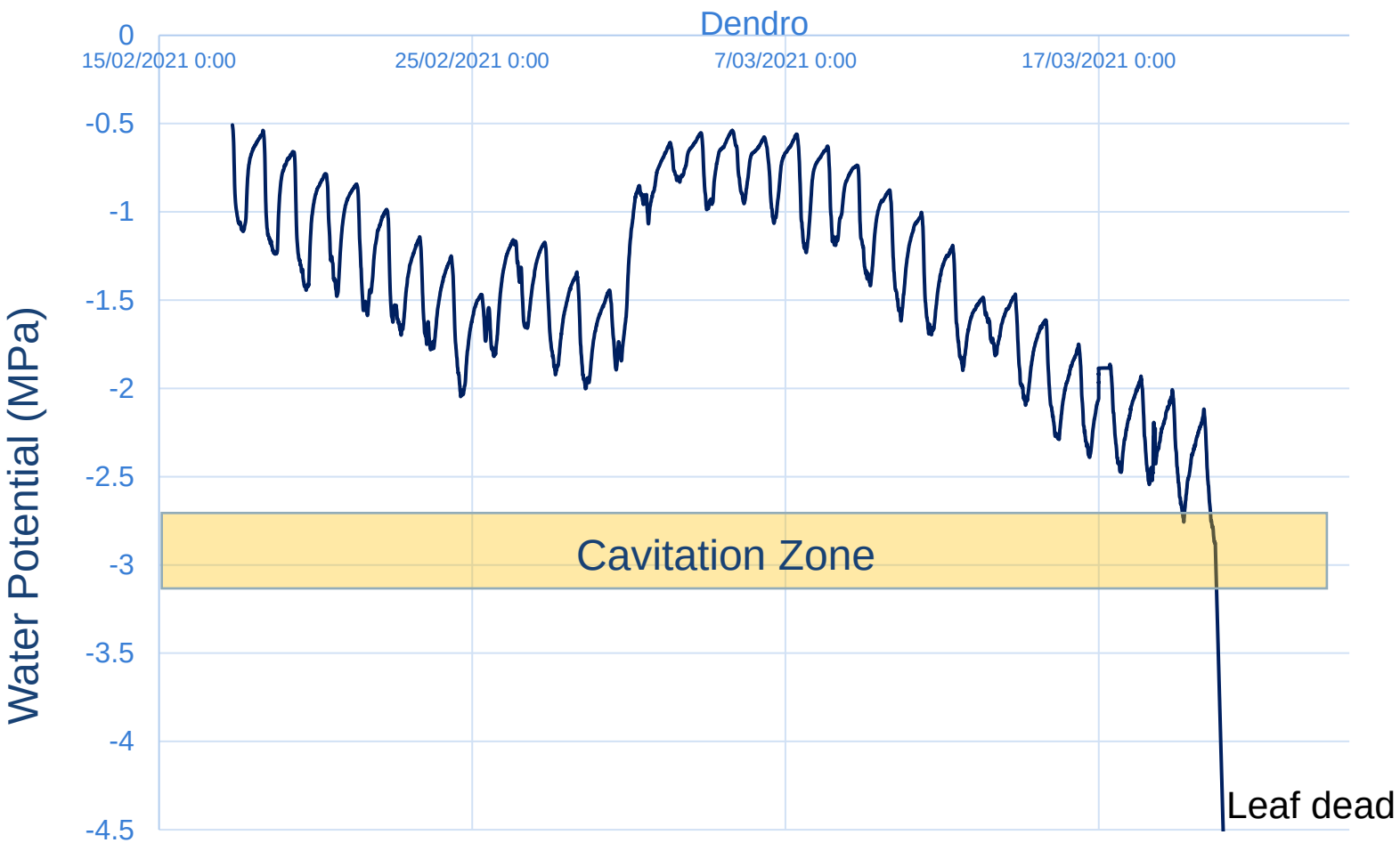




Optical dendrometers show when drought leads to death







Predicting Tree Vulnerability

1- We can measure xylem vulnerability in tree species/varieties

IDENTIFY resilient species and genotypes

2- We can monitor tree water stress directly

PREDICT damaging conditions

3. We can track tree water stress over multiple seasons

EVALUATE effectiveness of interventions

Acknowledgements

Dr Ibrahim Bourbia, Dr. Chris Lucani- CAVICAM research