



Sharing the best in Gardening



# Optimising urban plants' water management to support the provision of multiple ecosystem services

**Sarah Kemp, Dr Tijana Blanusa, Prof Paul Hadley**

Green roofs provide insulation and rainfall attenuation



Plants provide many simultaneous services.

PLANTS DIFFER IN THE EXTENT OF SERVICES' PROVISION!

Green walls help provide insulation

- Air temperatures/building insulation
- Pollutant trapping
- Rainfall capture
- Carbon capture
- BVOCs emissions
- ...

Trees help with air cooling, pollutant trapping, carbon sequestration and rainfall attenuation



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## Rainfall Experiments



- Rainfall capture and retention
- Restoration of substrate water-holding capacity
- *Canopy structure, root size, ETp rate*

## Greywater Experiments



- Runoff water quality improvement
- Plant tolerance to greywater
- *Leaf stomatal conductance, element uptake, runoff composition*





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# Species ranking

- Stormwater management
  - Salvia, Stachys, Sedum/Heuchera*
- Greywater
  - No adverse affect on any species
  - Limited evidence of runoff water quality improvement with any species

*SO*

*Greater LAI and root system, greater volume of canopy, higher ETp rates correlate with better provision*