



© Kasto - Ljubljana at sunset - Canva pro

HOW TREES REDUCE FLOOD RISKS IN LJUBLJANA ?

In Ljubljana's hilly pre-alpine region, trees do more than create scenic views, they help reduce flooding.

But how much rain can a tree actually catch?



TREES CATCH RAIN... AND BREATHE WATER TOO

Some of the rain is caught by leaves and branches, the rest drips through the canopy and reaches the ground.

Trees also take up water from the soil through their roots and release it through their leaves (transpiration), helping regulate the local water cycle.

Curious how we measure all this?



SCIENCE IN ACTION: WHAT & HOW WE MEASURE

To understand how trees intercept rain, we measure:



Rainfall in open areas and under trees (weather station, rain gauges)



Soil moisture at different depths (sensors)



Transpiration: the tree moving water from roots to leaves (sap flow sensors)

Leaf area, which affects interception and transpiration



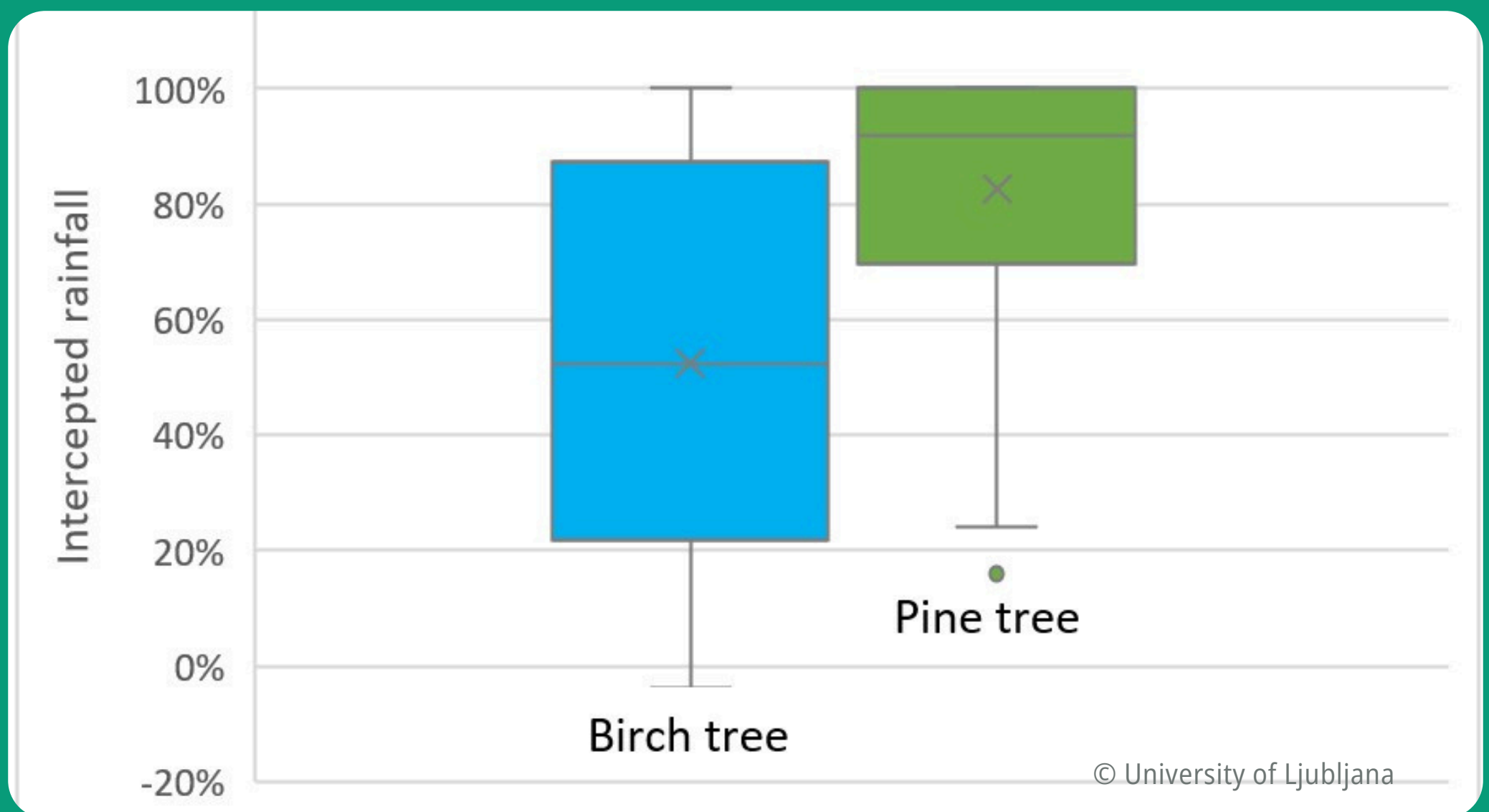
UNEXPECTED VISITORS!



Working in urban forests brings surprises. Like the colony of ants we found in a tipping bucket gauge 😏

PRELIMINARY RESULT: SPECIES DIFFER!

Pine trees consistently catch a lot of rain – around 70–100% each year. **Birches are seasonal:** 20% in winter (leafless) and up to 80% in summer (full leaves).

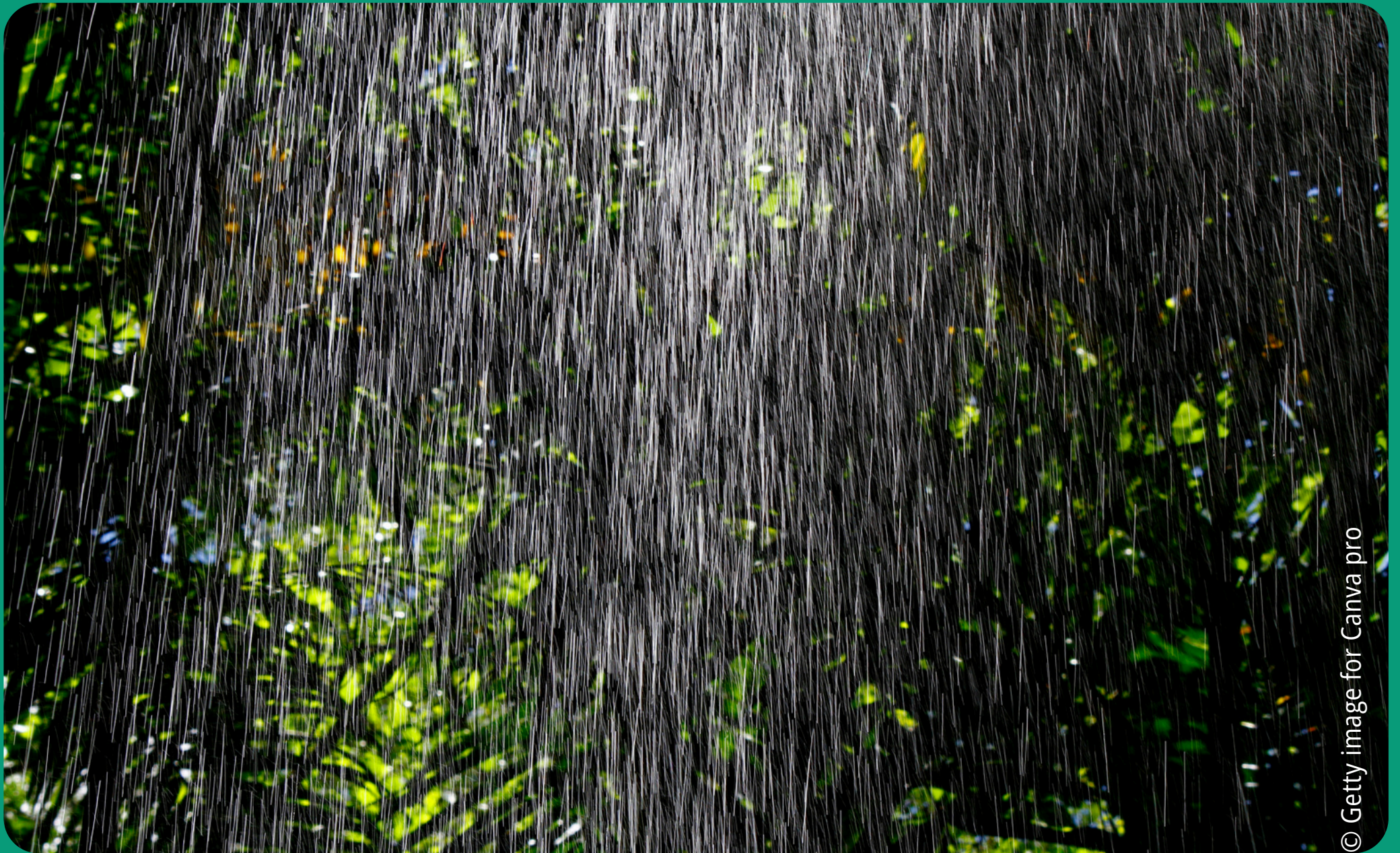


Under birches **soils** wet faster, while under pines it stays drier longer, probably due to needles & resin.

During dry months, pines slow their **transpiration**, while birches keep it steady.



KEY TAKEAWAYS



Trees are **natural 'water managers'**: they slow runoff, regulate soil moisture, and release water back into the air.

Different trees, **different roles** – each helps manage the water cycle in its own way.

Science shows that paying attention to **nuances & diversity** is key for nature-based solutions to really work.

