

Some desert plants more heatwave-resistant than others

Researchers have identified a wide variation in thermal tolerances of desert plants, meaning some species may be more vulnerable than others in a heatwave.



Credit: Georgie Sharp

Environmental scientists from the University of Technology Sydney (UTS) have developed a new protocol to better understand how native Australian plant species respond to high temperatures and recover from extreme temperature events such as heat waves.

The research, published recently in the journal [Oecologia](#), has the potential to improve predictions about plant species' vulnerability under a changing climate and help to guide and focus management and conservation efforts around particular species and regions.

'Heat waves are expected to increase in both frequency and magnitude but, unlike animals, plants can't simply migrate to cooler places,' says PhD candidate and the paper's lead author, Ellen Curtis.

'We don't really have a good understanding of how plant species respond physiologically to changes in temperature or the ability of species to recover from thermal stress.

'In particular, little research has focused on understanding how desert species vary and respond to high temperature stress and even less is known about Australian desert species. Heat stress studies are mainly confined to agricultural crops.'

The research team grew 41 plant species at the Australian Arid Lands Botanical Garden in Port Augusta, South Australia, developing a novel method to investigate the photosynthetic impact of short duration heat stress, as well as recovery processes. The technique enabled a large number of species to be compared in a relatively short timeframe.

‘The results were quite exciting because whilst we expected some variation among species we didn’t expect such a range of thermal tolerances to be observed among species living in one location, in a single region,’ Ms Curtis says.

‘The research highlights that some species may be more vulnerable than others even though they are all found throughout arid Australia.

‘Similarly species that might seem resilient in 50 degree heat in summer may not survive a heat wave out of season.’

Future research will explore thermal damage thresholds among species seasonally to better understand thermal acclimation.

Source: UTS

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