

Tree trunks take a licking as koalas source water

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Old female koala showing natural drinking behaviour after a rain event in the You Yang Regional Park, Victoria, Australia. Credit: Echidna Walkabout and Koala Clancy Foundation.

Koalas are one of the world's most charismatic animals. But there is a lot

we still don't know about them. For example, how do the marsupials access water in the treetops? Do they only absorb moisture from the gum leaves they eat? Or do they come down from the trees to drink from a waterhole? Until now, no one really knew.

A study published today in *Ethology*, led by a researcher from The University of Sydney, has captured koala drinking behaviour in the wild for the first time. The paper describes how koalas drink by licking [water](#) running down smooth [tree trunks](#) during rain.

The news arrives in time to celebrate Wild Koala Day on Sunday 3 May.

"For a long time, we thought koalas didn't need to drink much at all because they gained the majority of the water they need to survive in the gum leaves they feed on," said Dr. Valentina Mella, in the School of Life and Environmental Sciences. "But now we have observed them licking water from tree trunks. This significantly alters our understanding of how koalas gain water in the wild. It is very exciting."

Survival

Australia is currently suffering the longest dry period ever documented, with severe rainfall deficits and record maximum temperatures. Koalas experience severe heat-stress and mass mortality events in prolonged hot and dry conditions and they spend more time drinking from artificial water stations if rain is scarce.

Further research could investigate when and why koalas from different areas need access to free water—not contained in the leaves as moisture but available freely as liquid, such as rain, river water or puddles—and whether water supplementation is necessary for some populations.

"This type of drinking behaviour—licking tree trunks—relies on koalas

being able to experience regular rainfall to access free water and indicates that they may suffer serious detrimental effects if lack of rain compromises their ability to access free water," Dr. Mella said.

"We know koalas use [trees](#) for all their main needs, including feeding, sheltering and resting. This study shows that koalas rely on trees also to access free water and highlights the importance of retaining trees for the conservation of the species."

Koalas rarely drink water

Each day, wild koalas eat around 510 grams of fresh succulent eucalyptus leaves, and the water in the foliage they feed on is believed to contribute about three quarters of their water intake in both summer and winter.

Among their adaptations to the Australian climate, koalas also possess extraordinary urinary concentrating abilities and have restricted respiratory and cutaneous water loss compared to similar-sized mammals.

In captivity, koalas have been observed to drink water, but this behaviour has often been considered unusual and attributed to disease or to severe heat stress.

However, anecdotal reports suggest that koalas in the wild drink from waterholes in summer when temperatures exceed 40 degrees Celsius.

Koalas have also been observed approaching humans to access free water (in bottles, gardens and swimming pools during drought and after fire. But this is considered an unusual occurrence.

Observing licking behaviour

For this study, Dr. Mella collated observations of koalas drinking in the wild made by citizen scientists and independent ecologists between 2006 and 2019 at the You Yangs Regional Park in Victoria and the Liverpool Plains in NSW. Each observation was koala behaviour noticed by chance and reported to Dr. Mella.

There were 44 observations of free ranging koalas licking water running down a tree trunk during or immediately after rain in the You Yangs Regional Park.

The other two observations of koala drinking behaviour were recorded between the towns of Gunnedah and Mullaley, in the Liverpool Plains. One was an adult female, with a joey, who drank profusely and uninterruptedly for 15 minutes. The other was an adult male who drank at a steady pace for 34 minutes.

"As koalas are nocturnal animals and observation of their behaviour rarely occurs during heavy rainfall, it is likely that their drinking behaviour has gone largely unnoticed and has therefore been underestimated in the past," Dr. Mella said. "Our observations probably only represent a minority of the drinking that normally takes place in trees during rainfall."

Koalas were observed accessing water in trees by licking the wet surfaces of branches and tree trunks during rain across a range of weather conditions, even when free-standing water was available in dams.

"This suggests koalas were [drinking](#) not as a result of heat stress and that this behaviour is likely to represent how [koalas](#) naturally access water," said Dr. Mella.

More information: Valentina S. A. Mella et al, An insight into natural koala drinking behaviour, *Ethology* (2020). [DOI: 10.1111/eth.13032](https://doi.org/10.1111/eth.13032)

Provided by University of Sydney

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