Themeda triandra Kangaroo Grass



Themeda triandra – Kangaroo Grass Photograph: Rosemary Stapleton

You would think that a plant with a name like *Kangaroo grass* would almost certainly be uniquely Australian. Not so. While it is native to Australia, where it is



Themeda triandra Kangaroo Grass Photograph: Emma Sumner (WSU)

found throughout all parts of the continent, *Themeda triandra* also dominates savanna grasslands across Asia, Africa and parts of Oceania. The genus name (*Themeda*) comes from the Arabic word *thaemed*, meaning **little water**. It is a tough, resilient, perennial grass which grows in tussocks up to 1.5 metres tall, and flowers in summer when it produces characteristic reddish-brown spikelets on long stems.

Kangaroo Grass thrives in a wide range of ecosystems, particularly grasslands and open woodlands where it grows well on many soil types. It has significant economic and ecological importance because it is relatively palatable for both grazing livestock and for native herbivores. It is well adapted to fire, but intolerant of overgrazing.

Savanna grasslands take up about 20% of the world's land area and are extremely productive biomes. In tropical and subtropical regions, savannas are

dominated by a group termed C_4 grasses', which displaced the more abundant C_3 grasses' about 3.8 Mya when the Earth became both drier and warmer from the



World distribution modified from Royal Botanic Gardens Kew, Plants of the World Online: <u>https://powo.science.kew.org/taxon/urn:lsid:ipni.org:na</u> mes:424213-1

Late Miocene to the Pliocene. The rapid expansion of

tropical savanna grasslands has been related to increased fire frequency and grazing by herbivores.



Photograph: Emma Sumner (WSU)

Themeda triandra evolved relatively recently in Asia, about 1.5 Mya and possibly less. This is considerably later than the expansion of savanna grasslands across the globe. It migrated to Australia about 1.3 Mya and to eastern and southern Africa about 0.5 mya, where it spread rapidly single very and now this species dominates successful grasslands across Africa. Madagascar, the middle East, SE Asia, Australia and Oceania.

So how did it travel across three continents? Not by wind, as most seeds land less than two metres from their parent plant. Instead, the awns (barbed or bristle–like appendages) on the flower spikelets enable attachment to fur or feathers and facilitate dispersal over very long distances. Awns of *Themeda* are hygroscopic, and twist and turn in response to changes in humidity, allowing the awn to corkscrew into the soil at the ultimate destination. *Themeda triandra* is tall and grows rapidly, enabling it to outcompete neighbouring species for light, water and nutrients. It is highly flammable, but its survival also depends upon fire.



Kangaroo grass is the model species of the *Australian Grasslands Initiative*, specifically looking at how plants collected at sites stretching from Darwin to Hobart respond to heat and cold and drought. The phylogeny (how all the Kangaroo grass specimens from across the Australian continent are related) and DNA sequence of the genome are currently being prepared for publication in a collaboration between the Atwell Laboratory at Macquarie University, University of Tasmania and the National Botanic Gardens of Victoria.

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Distribution map modified from Royal Botanic Gardens Kew, Plants of the World Online: <u>https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:424213-1</u>

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Australian Grasslands Initiative: https://bioplatforms.com/projects/australian-grasslands/



Themeda triandra spikelets Photograph: Rosemary Stapleton



Savanna grasslands, Botswana. Photograph: Leo Schuler







