

Tropical savannas cover over 20% of land surface. They sustain a high diversity of mammalian herbivores and promote frequent fires, both of which are dependent on the underlying grass composition. These habitats are typically dominated by relatively few taxa, and the evolutionary origins of the dominant grass species are largely unknown. Here, we trace the origins of the genus *Themeda*, which contains a number of widespread grass species dominating tropical savannas. Complete chloroplast genomes were assembled for seven samples and supplemented with chloroplast and nuclear ITS markers for 71 samples representing 18 of the 27 *Themeda* species. Phylogenetic analysis supports a South Asian origin for both the genus and the widespread dominant *T. triandra*. This species emerged ~1.5 Ma from a group that had lived in the savannas of Asia for several million years. It migrated to Australia ~1.3 Ma and to mainland Africa ~0.5 Ma, where it rapidly spread in pre-existing savannas and displaced other species. *Themeda quadrivalvis*, the second most widespread *Themeda* species, is nested within *T. triandra* based on whole chloroplast genomes, and may represent a recent evolution of an annual growth form that is otherwise almost indistinguishable from *T. triandra*. The recent spread and modern-day dominance of *T. triandra* highlight the dynamism of tropical grassy biomes over millennial time-scales that has not been appreciated, with dramatic shifts in species dominance in recent evolutionary times. The ensuing species replacements likely had profound effects on fire and herbivore regimes across tropical savannas.

