## Predicting patterns of seed germination in Western Australian *Eucalyptus* L'Her. (Myrtaceae) under global warming

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Seed germination is crucial for persistence in species that rely on seeds for post-disturbance regeneration, and is linked to local environmental conditions. Small increases in temperature during the growing season may threaten populations of some species by altering germination timing and success, further impacting on population dynamics, community composition and species' geographic ranges. Climate forecasts for the Mediterranean-climate ecosystem of southern Western Australia predict temperature increases of up to 6.5°C by 2070, coupled with a 5-60% decline in rainfall and an increase in bushfire risk. *Eucalyptus* (Myrtaceae) is the dominant tree flora in the region. It is a genus with high commercial value as well as of great ecological importance with many species cultivated worldwide for timber, oil, biofuels and ornamental purposes. Using a temperature gradient plate, germination temperature thresholds for 22 endemic species were assessed across a range of constant and fluctuating temperatures. The observed data were subsequently modelled against forecasts of warming for the region that incorporated mean monthly minimum and maximum temperatures for each seed source site. Most species attained high germination levels under a broad range of constant and fluctuating temperatures, often wider and higher than those forecast for 2070. The models tended to predict a longer mean time to germination compared to the observed data. Some inland species were predicted to suffer germination declines, but it would appear that the majority of the study species will be able to maintain high germination levels into the future. However, germination cannot proceed without adequate moisture and forecasts for rainfall declines may render seed highly vulnerable to desiccation in the future. Mean temperatures for optimal germination across the study species were not related to latitude of source populations. Understanding species ability to tolerate new temperature regimes is essential for effective conservation management and ecosystem restoration.

## Hedging your bets: Understanding the dimorphic diaspore syndrome of *Aethionema arabicum*

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The dispersal of seeds and fruits is an essential step in a plants life cycle. An adaptive mechanism for plants to successfully propagate and survive in harsh environments or unfavourable conditions is the production of heteromorphic dispersal units. The annual *Aethionema arabicum* (Brassicaceae) exhibits fruit and seed (diaspore) dimorphism. It has the ability to produce two very distinctive fruit types (large dehiscent and small indehiscent) on the same infructescence with two very different

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# BOOK OF ABSTRACTS

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