

# Veg Futures

Australia's national vegetation conference | 08

Proceedings - Abstract and Paper



CONVENED BY



PLATINUM SPONSOR



CARING  
FOR  
OUR  
COUNTRY

## Climate change and weed spread

**John K. Scott**

**CSIRO Climate Adaptation Flagship and CSIRO Entomology, Private Bag 5, PO Wembley, WA 6913, Australia**

Forty-one alert and sleeper weed species listed nationally were assessed for their change of potential distribution due to climate change. The potential distribution of each species was modelled using CLIMEX, a process model computer program that uses temperature and moisture parameters to develop a growth index, then applies various stress factors to determine an ecoclimatic index, of suitability for survival of the species to determine a predicted distribution in Australia under current climatic conditions.

The potential distribution of all sleeper and alert weeds combined was made for the whole of Australia, showing the south east and south west regions to be most at risk from these species collectively. Under climate change there is a general shift southwards for most weed species, with the shift greatest for wet tropical species (over 1000 km), and much less for south coastal species (because of the lack of landmass). The Natural Resource Management Regions most at threat from alert and sleeper species, under the current climate, and under climate change was shown to south east Australia, and to a lesser extent, south west Australia. The weed species studied in this project are examples of a wide range of biology and are found in climates throughout Australia, thus their response to climate change could be representative of weeds in general and of the native vegetation.

The most urgent recommendation from this work is that a new set of sleeper weed species needs to be identified for the north of Australia because of the vacuum that will be created by the displacement of species southwards, both native and introduced. Secondly, the predicted displacement of species under climate change enables the identification of management strategies for each species. This could include developing east-west quarantine barriers along potential migration routes. While some of the alert and sleeper species are evidently of low threat, the analysis of potential distribution identifies certain species, such as *Acacia karroo*, *Retama raetam* and *Equisetum arvense*, that could become major problems under any climate scenario and should be managed accordingly.