Geophysical Research Abstracts
Vol. 12, EGU2010-7559, 2010
EGU General Assembly 2010

Managing water stress in a groundwater dependent ecosystem subjected to groundwater extraction.

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Unsympathetic groundwater abstraction practices have had adverse impacts on groundwater dependent ecosystems throughout Australia. In Western Australia, the largest single supply of drinking water for the city of Perth is a sandy surface aquifer known as the Gnangara mound, located over an area of approximately 2200 km2 within and to the north of the city on the Swan coastal plain. Much of the mound is overlain by phreatophytic Banksia woodland that is susceptible to drought stress and death if separated from the unconfined aquifer for prolonged periods over the hot, dry Mediterranean summer. Over the past three to four decades drought stress has been exacerbated by declining groundwater levels resulting from diminished rainfall in a changing climate regime.
This paper presents results from a project designed to assess vegetation stress along a transect away from a production bore subsequent to a winter pumping trial. The objective is to determine whether a sustainable pumping regime can be developed that allows water extraction while maintaining a healthy ecosystem.