Reardon-Smith, K., **Le Brocque, A.F**. & House, A. (2008) Riparian Woodlands in Crisis? Disturbance ecology on the Condamine floodplain. Eleventh International River Symposium: A Future of Extremes. Brisbane, Australia 1-4 September, 2008. Oral Paper.

RIPARIAN WOODLANDS IN CRISIS? DISTURBANCE ECOLOGY ON THE CONDAMINE FLOODPLAIN

REARDON-SMITH Kathryn[1], LE BROCQUE Andrew[1], HOUSE Alan[2]

Australian Centre for Sustainable Catchments, University of Southern Queensland[1], CSIRO Sustainable Ecosystems[2]

The Condamine River, at the headwaters of the Murray-Darling basin, drains one of the most intensively-farmed landscapes in eastern Australia. Riparian woodland remnants on the floodplain sections of the upper Condamine are widely recognised as being in generally poor condition, with evidence of significant dieback and limited recruitment of canopy species, as well as widespread invasion by the introduced perennial herb *Phyla canescens* (lippia). These communities, in keeping with most remnant ecosystems of agricultural landscapes, are poorly understood in terms of their diversity, function and dynamics (resilience) under altered disturbance regimes. This research investigates the condition (health and function) of *Eucalyptus tereticornis*/*camaldulensis* riparian woodland communities of the Condamine floodplain in relation to selected natural and anthropogenic disturbance factors (e.g. climate variability, changes in land- and wateruse, weed invasion) operating at a range of spatial and temporal scales. The study takes a multi-dimensional approach aimed at developing an integrated understanding of key drivers and mechanisms of ecosystem change in these environments. It also investigates the potential of simple conceptual tools (e.g. State-and-Transition and Bayesian Belief Network approaches) to model system dynamics and predict outcomes of future climate and land and water management scenarios.