

## **Closing the gate after the grass has bolted: research to improve future weed management and policy.**

**Michael Douglas<sup>1</sup> and Samantha Setterfield<sup>2</sup>**

Tropical Savannas CRC and

<sup>1</sup>Centre for Tropical Rivers and Coastal Knowledge, Charles Darwin University, Darwin

<sup>2</sup>School of Environmental and Life Sciences, Charles Darwin University, Darwin

Correspondence, email: [Samantha.Setterfield@cdu.edu.au](mailto:Samantha.Setterfield@cdu.edu.au)

There are approximately 160 species of naturalised grasses in northern Australia. Several species have been identified as serious weeds and are emerging as a significant threat to tropical savannas for conservation, Aboriginal, pastoral, mining, and defence land users. Although concerns about the environmental impacts of exotic grasses have been raised since the early 1990's, progress on this issue was hampered by an active campaign of denial and misinformation about their impacts and by a lack of published scientific information evaluating environmental effects. Research supported by the Savannas CRC addressed this knowledge gap and demonstrated that species such as Gamba grass and Mission grass can have major effects of savanna plants, animals and important ecosystem processes including nutrient and water cycling and fire regimes.

The negative impacts documented through this research are likely to become even worse in the future. The current effects may become more widespread as many species occupy only a tiny proportion of their potential range and have the potential to become established across the entire tropical savanna region. The situation is also likely to worsen in currently invaded sites as longer-term effects become apparent. For example, species that increase fuel loads and fire temperatures have the potential to initiate a self-perpetuating cycle of tree loss and habitat degradation. We are only just beginning to see such effects and have only begun to appreciate the consequences for greenhouse gas emissions. In short, without major change in policy and management action, the long-term future looks bleak.

Fortunately, there are signs that a shift in policy are occurring, due in part to growing awareness of the CRC research findings and the projects that have followed from this. Although the research began among a climate of debate and denial re the need to act, in the face of growing research evidence, attitudes have slowly but markedly changed with most people now accepting that exotic grasses can pose a serious environmental and economic problem for a range of stakeholders. The research has been picked up by weed management agencies across Australia and is being used to lobby for action.

The research has grown considerably from the CRC project, but it has retained many of the key features that were fostered by the CRC – a focus on research aimed at influencing policy and on ground action, strong partnership between researchers and managers and collaboration across the region. Building on the foundation of the CRC project, the current program consists of four interconnected projects involving more than 40 people from across Australia and supported by \$2 million of external funding. These projects will address weed management on four fronts: developing a weed risk management system for the NT based on the Australian National Weed

Risk Management Protocols, developing a set of best practice guidelines for the use of exotic grasses, undertaking research on the cost-effectiveness of alternative management approaches, and improved co-ordination and efficiency of weed control methods across northern Australia. This research should ensure better management of the grasses currently in the region and a greatly reduced risk of the widespread use of species that are likely to become serious weeds.