A Weed Risk Management System for the NT

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Summary A weed risk management (WRM) process is recognised internationally as a useful tool to assist land managers to address the often controversial issue of exotic plant management. A WRM process is currently being developed for use in the NT. The proposed WRM framework includes a weed risk assessment process modified from the South Australian and Queensland WRA systems. The NT system will include a two stage process: (a) an initial assessment of weed risk candidates using a list of questions about the species biology, invasiveness and negative impacts based on the South Australian model, and (b) a more detailed assessment of costs and benefits (based on the Queensland WRA system) for those species with low to moderate risk which are considered to have substantial benefit to some land users. The modified systems include questions particularly relevant for northern Australia. Stakeholders have been involved in the development and implementation stages, through engagement in workshops, community forums and representation on committees undertaking policy development, technical development of the WRA tool and its implementation.

Keywords weed risk management, Northern Territory, stakeholder engagement.

INTRODUCTION

In Australia, there is a recognition that invasive plants represent a serious threat to biodiversity conservation, ecosystems services, agricultural production, infrastructure and human health; This is evidenced by the scientific literature (e.g. Humphries *et al.* 1991a; Cook *et al.* 1996; Groves 2002;Smith 2002), policy and planning documents (ANZECC & ARMCANZ 1999; CALM 1999) and decision support tools (Pheloung *et al.* 1999; Kriticos and Randall 2001; Crossman 2002; Ferdinands *et al.* 2005).

One response to the threat posed by invasive plants has been the development of decision support tools/ management systems to assess the risk posed and to inform management responses.

Weed risk assessment (WRA) is one type of decision support tool developed to assist with the management of invasive plants. It has been developed to provide quantitative estimates of both the likelihoods and magnitudes of threats posed by non-indigenous plants, and draws on biological and ecological information, the geographical origins of plants and their previous history of introduction (Groves *et al.* 2001). Weed risk assessment can be considered a part of the study of invasion ecology and risk assessment.

NT Weed Risk Management

The Northern Territory is largely dominated by native vegetation but declared weeds and ecological invasive plants are a major threat to its biodiversity (Landcare Council of the Northern Territory, 2005) and threaten sustainability of rural primary industries (Pastoral Land Board 2003). There are currently 65 declared weeds in the NT, but the declaration list is in the process of being reviewed. This review comes amid concerns that there are several currently unlisted exotic plants in the NT that should be declared and claims that some currently-declared species do not warrant listing. Furthermore, there are many species that are not yet recorded in the NT but which are already recognised as weeds in other Australian states or climatically similar regions overseas. . Therefore there is a need to develop and implement tools that can objectively and transparently assess weed risk to identify potential weeds and restrict their entry to the NT , or to assist managers to prioritise management actions for exotic plants already present in the NT. Weed risk assessment (WRA), within a weed risk management (WRM) process, is recognised internationally as useful tool to achieve these aims and to assist land managers to address the often controversial issue of exotic plant management (Groves et al. 2001; Virtue et al. 2006). Nationally, the need for a weed risk management process has been addressed by the development of the National Post-Border Weed Risk Management Protocol (Virtue et al. 2006), and in the NT the need to implement a WRM process has been recognised and identified for funding by the Natural Resource Management Strategy

(Landcare Council of the Northern Territory, 2005). Charles Darwin University, the NT Government, Tropical Savannas CRC and Weed Management CRC have been working towards a WRM process that will be appropriate for the NT and be consistent with the standards established by the National Protocol (Virtue et al. 2006). The WRM for the NT is currently in the early stages of development.

THE WRM DEVELOPMENT PROCESS

The collaborators on the development of the NT WRM established early on that two things were critical to the development and implementation of an effective process in the most efficient and cost-effective way: (1) ensuring broad stakeholder involvement, and (2) drawing on as much expertise and knowledge from interstate experts and borrowing where possible from tried and tested systems. To this end, three workshops and involving stakeholders (primarily pastoral production, conservation, indigenous organisation representatives, defence, and horticulture) and interstate experts have been held to progress the development of WRM in the NT. The first two workshops sought and received support for development of a WRM from the NT government and key stakeholder groups. The third workshop, held in September 2005, aimed to compare interstate models and select the most appropriate (if any) for use in the NT. At this workshop, stakeholders were invited to review models from South Australia (presented by J. Virtue), Victoria (J. Weiss) and Queensland (S. Cshures) and the AQIS model developed by Paul Pheloung (presented by J. Virtue). The workshop also considered the broader policy frameworks that each system was applied within.

Workshop attendees considered the pros and cons of each system for their potential application within the NT, based on their resource requirements, information requirements and major applications within their state. The workshop produced a draft NT WRM Framework that was endorsed by the attendees. The Framework includes guiding principles such as ensuring transparency and accountability, and ongoing stakeholder interaction. The Framework includes a two-stage assessment process: (a) an initial assessment of weed risk and feasibility of control for all candidate species using questions modified from the South Australian model, and (b) a more detailed assessment of costs and benefits (based on the Queensland WRA system) for those species with low risk which are considered to have substantial benefit to some land users. It was agreed that the broader WRM framework would be guided by a Steering committee, and the WRA tool would be developed and tested by a Technical committee. .

DEVELOPMENT OF THE WRA TOOL

Progress on WRM in the NT since the development of the Framework has primarily been focussed on the weed risk assessment tool. A Technical Committee was formed which includes representatives from: the NT Department of Natural Resources, Environment and the Arts; NT Department of Primary Industries, Fisheries and Mining; AQIS; Charles Darwin University and Tropical Savannas CRC. Representatives are based in Darwin and Alice Springs to ensure representation across the Territory. The focus has been on modifying questions on the three criteria for determining weed risk (invasiveness, impacts and potential distribution) from the South Australian WRM model (also described in Virtue 2006) to suit the NT environment and land use systems, on deleting questions where they are inappropriate, and on adding questions that were considered more appropriate for the NT. The basic scoring system remains the same as described in the SA model, and the final weed risk score is determined by multiplying the three criteria scores (Virtue et al. 2006).

The main reason for modifying questions from the SA model for use in the NT was due to differences in the extent of land modification and the types of land uses. A feature of the NT environment is the relatively intact native vegetation with its rich biodiversity which provides the basis for its extensive land uses (pastoralism, conservation, tourism, defence). The NT has only small areas of intensive production. By comparison, SA has highly modified landscapes with extensive areas of intensive production. Therefore, wording of questions and their interpretation as described in the SA WRA guide (Virtue 2005) required modification for the NT. In addition, the South Australian model assesses species separately for different land use types. After extensive discussion, it was decided that this was not appropriate for the NT, and that a single broad land use was defined, namely, the broader landscape with its relatively intact native vegetation.

To date, 25 candidate species have been identified and a preliminary weed risk score has been determined for 15 of these. To ensure transparency

and accountability, a detailed species assessment document is prepared for each weed risk candidate. These documents cite the sources of information, from literature or expert personal observation, that were used to answer each question that was used to determine the weed risk score. The final score for each question is reached by consensus by the Technical Committee. When the WRA development is completed and the Technical Committee recommends a weed risk score, the species assessment documents will be available for all interested parties to scrutinise for support or appeal, and to provide additional information if available. In 2007, a web site will be developed where all species assessments will be posted for open access.

FUTURE PROGRESS

A recent stakeholder feedback meeting was held in April 2007. This meeting confirmed strong support for the development of the WRM process and identified key Government departments and stakeholder groups that should be represented on the WRM Steering Committee. The Steering Committee will guide the ongoing development of the WRM framework, its implementation, integration with Government policy and consultation with the broader stakeholder community.

In recognition of its importance to weed management in the NT, over $200,000 has been made available in the NHT Natural Resource Management fund for development and implementation of the NT WRM and for the development and implementation of guidelines for the use of exotic grasses in pastoral production. This funding will support continuing stakeholder involvement through engagement in workshops and community forums in Darwin, Katherine and Alice Springs, and representation on committees guiding the technical development of the WRA tool and its implementation.

We envisage that a fully developed and tested WRM system will be implemented in the NT within the next two years and this system will result in substantial improvements in weed management in the NT. Our ability to efficiently develop and implement an effective WRM system is largely due to the excellent developments at the national level and by other states, and the willingness of interstate colleagues to share their knowledge and experiences.

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