

## Eliciting stakeholder perceptions to help improve national weed management programs

Bo M. Raphael and Jeanine Baker

Bureau of Rural Sciences, GPO Box 858, Canberra, ACT 2601, Australia

Corresponding author: [jeanine.baker@brs.gov.au](mailto:jeanine.baker@brs.gov.au)

**Summary** The Bureau of Rural Sciences collated 208 detailed telephone responses from across specified Natural Resource Management regions known to have one or more Weeds of National Significance (WoNS) species present and 75 written responses from people known to have an interest in a specific WoNS species. Respondents' perceptions of the most significant changes and benefits resulting from the WoNS program can be used to identify options for improving national programs. The findings indicate that the WoNS program is generally addressing respondents' perceptions about the goals of national weed programs. However, respondents felt that prioritisation of programs and projects, from national to regional levels, was important and that priority weed species required long-term commitment. This suggests that increasing stakeholder understanding about roles and responsibilities in weed management and the application of transparent, structured decision making processes for prioritisation at all levels are an important part of national weed programs.

**Keywords** WoNS, stakeholder perceptions, national weed management.

### INTRODUCTION

Weeds have been estimated to cost Australian agriculture a total of about \$4 billion annually in control activities and production losses. The additional cost to control weeds in natural environments, on public and indigenous lands and to fund research into control has been estimated at over \$100 million annually (Sindel *et al.* 2004). It has long been recognised that successful weed management requires a strategic approach and ongoing commitment and coordination among affected stakeholders. In 1997, the Commonwealth, state and territory governments finalised the National Weeds Strategy, which aimed to encourage and improve coordination between stakeholders in order to reduce the environmental, economic and social impacts of weeds (Thorp and Lynch 2000).

One of the objectives under the Strategy was to develop a process for determining and ranking weed problems of national significance. In 1999, the Australian Government announced a list of WoNS, which identified 20 high risk species because of their

invasiveness, effects on agriculture and the environment, potential to spread and socioeconomic effects. The WoNS program is a national collaborative arrangement between the Australian Government and relevant state and territory governments.

In June 2009, as a result of Australian Weeds Committee's (AWC) agreement to the terms of reference and process for the WoNS review, the Department of Agriculture, Fisheries and Forestry (DAFF) commissioned the Bureau of Rural Sciences (BRS) to assess stakeholder views on the WoNS program and its progress against the strategic plans for each of the 20 WoNS species.

The project involved contacting a range of stakeholders, including landholders, land management agencies, regional Landcare groups and industry organisations, to determine common themes in opinions on: benefits of the WoNS program so far; perceived progress towards achieving the objectives of the national strategies for WoNS species; and any suggested improvements for the development and implementation of the WoNS program. These opinions and perceptions about the WoNS program formed part of a review to improve the WoNS program and provide information to improve the implementation of future national weed management strategies.

### MATERIALS AND METHODS

A 'mixed-methods' approach was used to gather data. Semi-structured interviews and written questionnaires formed the qualitative component, which led into the design of a more quantitative element—structured phone surveys of landholders around Australia. Creswell and Plano Clark (2007) suggest that such mixed methods research allows researchers across many disciplines to analyse rich data using a rigorous approach to answer their research questions. No background information on the WoNS program was supplied to any of the respondents.

**Phone interviews** Fifty-eight semi-structured phone interviews lasting approximately 15 min were conducted with stakeholders who responded to a flyer sent out to all natural resource management (NRM) organisations and Catchment Management Authorities

(CMAs) in Australia, industry groups and various other interested groups. Interviewees in this group included staff of CMAs/NRM organisations, landholders, environment agency staff, staff and members of industry organisations, local government officers and community groups. The interviews were recorded, transcribed and uploaded into Nvivo 8 software.

**Written questionnaires** One hundred and sixty semi-structured written questionnaires were sent out to weed management stakeholders around Australia. These questionnaires allowed free form text responses to the questions. Contact details for this group were provided via lists collated by the National Weeds Management Facilitator. Using these lists meant a smaller sample size of potential stakeholders from which to select the respondents for each WoNS species. Stakeholders were selected randomly from each of the lists and sent a one-page questionnaire by email, with the aim of obtaining eight responses for each of the 20 WoNS. They included representatives from state and territory governments, local government, research organisations, staff of NRM organisations, and some landholders were included for their close involvement in programs, projects and initiatives involving WoNS. A total of 75 responses were received and these were uploaded into Nvivo 8.

**Nvivo analysis** Nvivo was used to analyse the phone interview transcripts and written questionnaire responses. The data were grouped into broad themes based on the key project questions and recurring opinions. Based on respondent demographics and attributes, patterns in the themes were explored and compared across the phone interviews and questionnaires and with the results from the structured survey results.

**Structured phone survey** A random sample, stratified by state, of 150 structured phone surveys was also collected. The sampling frame was constructed from a number of sources including Australia on Disk, the White Pages, the Yellow Pages and electoral rolls. This sampling method ensured that the number of interviews done in each state was representative of regional resident populations.

The question and answer categories were based on information gained from the semi-structured phone interviews. A similar methodology was utilised by D'Emden *et al.* (2004) who commissioned an independent company to conduct phone surveys of rural landholders in south-west Western Australia about attitudes to managing declared weeds.

Demographic information collected in the phone surveys included property/production type and size,

NRM region and state/postcode. Data from the structured phone survey were analysed using Microsoft Excel.

## RESULTS

The effective response rate was 47% for the written questionnaires. For the structured phone surveys, response rate was defined as the proportion of people who completed the survey (i.e. excluding people who refused to participate or were screened out because they did not manage weeds). The average national response rate was 72% (ranging from 62% in Victoria to 80% in the Northern Territory). A response rate for the telephone interviews could not be calculated because they were based on interested parties requesting participation.

**Phone interviews** These results represent the views and perceptions of people involved in weed management who were interested in participating in the interviews. Respondents were involved in various roles in weed management including: coordination or policy role (53% of responses), involvement in on-ground weed management activities (44%) and research (3%).

All of the top 20 WoNS species were mentioned, with the exception of prickly acacia. Some respondents were involved in research and/or management of more than one of these WoNS. In general, responses about the benefits of a national WoNS program clustered around: raised awareness, collaboration, prioritisation for control and information availability. There were some minor differences in the importance of these themes within stakeholder groups, but all stakeholder groups were of the opinion that raising awareness was a primary benefit of the WoNS program.

Negative perceptions of the WoNS program related to conflicts with regional priorities and uncertainty or equity issues about funding.

**Written questionnaires** These results represent people who were involved with the WoNS program. When discussing role types and activities, 70% of responses indicated that respondents were working in coordination or policy roles, 9% indicated involvement in on-ground activities and 20% said they were working in primarily research roles. Five respondents were working in more than one area (e.g. coordination and on-ground activities) and listed both.

There were 134 responses discussing the general benefits and significant changes associated with a national program. These discussed the benefits of collaborative activities, awareness raising, availability of information and prioritisation for activity, with one respondent strongly emphasising that having a national

coordinator was a significant benefit for achieving these goals. Opinions were relatively consistent across people from the various role types.

When discussing significant changes achieved by the WoNS program, there were only five negative comments about the WoNS program. These comments focused on the need for transparent national level planning, investment inequities, the need for targeted extension material and the need for a body that focused entirely on coordinating weed activities (from research through to engaging community participation). Comments highlighted the fact that weed management programs are long term in nature and there was a need to develop strategies that maximise effective management over extended time periods.

**Structured phone surveys** This group represented a random sample of landholders around Australia. Respondents who did not know about the WoNS program or were not knowingly managing a WoNS species (90/150) believed that the primary benefits of a national program should be: increased access to advice about controlling or stopping the spread of a WoNS/weeds; coordinated approaches and partnerships at regional and national levels to eradicate, control and regulate a specific weed; and an increase in the awareness of weed problems, particularly in relation to economic impact and loss of productivity. Suggested goals for a national weed program were: development of long-term management strategies; production of extension materials outlining the problems (economic and environmental) a WoNS/weed could cause; coordination of a combined approach across all stakeholders (not leaving it just to farmers); and ensuring efficient use of funding.

Respondents who knew about the WoNS program and were involved in managing one or more WoNS species (17/150) believed the most significant changes associated with specific WoNS or the program as a whole were: increased awareness of the weed problem; eradication attempts; long-term partnerships; and increased coordination. Twelve of these respondents were aware of the specific WoNS strategic plans. Opinions expressed by this group included the importance of: ensuring long term management commitment; increasing awareness about the problems weeds cause; maintaining eradication as a goal; increasing coordination efforts; and finding ways to achieve long term goals. Only one person believed the program was fine as it is. Suggested improvements from this group of respondents were: developing long-term management options; increasing the awareness of problems caused by specific WoNS; and increasing coordination for eradication activities.

## DISCUSSION

Overall, common themes across all groups emerged as general principles about a national program. These were that such programs should: increase awareness about the impact of a weed, provide up-to-date information about management, increase coordination and encourage the development of long-term partnerships. Common concerns were that regional priorities were also important and conflict between regional and national priorities needed to be resolved equitably. Respondents also expressed the opinion that program prioritisation should be coordinated efficiently and fairly for all stakeholders. This indicates that decisions about which weeds and which programs are undertaken will be complex and should address both national and regional priorities, using a transparent prioritisation process.

These findings concur with earlier studies on weed management and the WoNS program. For example, Bellamy *et al.* (2005) reported some specific findings related to the WoNS program, including the belief that a balance needs to be found between national, state and regional management priorities, while still working towards national goals at the regional level. These authors (Bellamy *et al.* 2005) also found that the monitoring of weeds has lacked long term commitment, so that control activities tend to be undertaken on an opportunistic basis that lacks coordination and a strategic focus.

Similarly, Martin and van Klinken (2006) reviewed the almost \$25 million of Australian Government funding that had been invested in projects specifically targeting WoNS occurring in the rangelands (14 species). The authors stated that they were able to identify several areas that could result in increased effectiveness of weed management efforts, including: addressing discrepancies between jurisdictions in terms of commitment to weed management; resolving conflicts between stakeholders regarding cost-benefits of non-native pasture grasses; supporting projects that consider the broader NRM context of weeds; and detecting and managing weeds in the early stages of establishment in a new area.

At the 15th Australian Weeds Conference in Adelaide in 2006, a number of speakers presented in a session entitled 'National Initiatives'. Among other things, these speakers discussed initiatives of the WoNS program, containment and eradication zones, and development of best practice manuals. Holland Clift *et al.* (2006) reported that national and regional management groups have had significant achievements by providing a coordinated focus, increasing public awareness, facilitating information exchange and fostering long-term partnerships. The opinions

of respondents in the present BRS study support this observation.

In summary, respondents in this study believed that the primary goals of a national weed management program should be to raise awareness through the production of extension materials, increased project coordination, developing long-term partnerships, fostering research for improved control methods and providing reputable up-to-date information. Respondents also believed that the WoNS program is achieving these goals. Future difficulties for the WoNS program (or any national weed program) will be addressing the complex mix of national, state and regional management priorities, whilst developing long-term commitment and strategies for established weeds. This was one area where respondents expressed several negative opinions about the progress and future of the WoNS program.

This suggests stakeholder understanding about roles and responsibilities in weed management can be improved and that transparent, structured decision-making processes for prioritisation are an important part of developing national (or regional) programs, as are the development of strategies that encourage long term participation in management programs.

*'We cannot fix in 3 years a problem that has been in the making for 40 years'. [Questionnaire respondent]*

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