# From little things big things grow – A review of behaviour change initiatives for weeds management in NSW

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**Summary** This paper reviews progress towards implementing effective behaviour change programs for weeds management in New South Wales (NSW). Supported programs include the application of the community-based social marketing (CBSM) framework to weeds issues and behaviourally effective delivery of information.

**Keywords** Behaviour change, community-based social marketing, CBSM, weeds, training.

## INTRODUCTION

For over two decades, community-based social marketing (CBSM) has been used extensively by government and non-government programs to improve community participation with environmental issues. There are many examples and strategies that are shared worldwide through the Fostering Sustainable Behaviour website (www.cbsm.com).

In 2014 the Invasive Plants and Animals Unit (IPA) in the NSW Department of Primary Industries (DPI) began facilitating the application of CBSM to improve weeds management in NSW (Verbeek *et al*. 2014).

Despite its global adoption there was initial scepticism that CBSM could accommodate the diversity and complexity surrounding weeds issues. The lack of known applications of CBSM in weeds management contexts was also an initial barrier.

Four years on, and a number of weeds-related programs have used CBSM successfully and more programs are being developed.

In addition to facilitating the application of CBSM, training on behaviourally effective communications is enhancing the delivery of weeds management programs.

Most weeds professionals have agricultural or environmental science backgrounds and the use of technical language and scientific styles occurs almost by default. This style is not the most effective for delivering key messages, or for increasing desired behaviours within our target audiences. It is widely accepted that behaviourally effective communication requires a sophisticated approach informed by the behavioural sciences (Hine *et al.* 2014, NSW DPI 2016).

As practitioners we have been guided on these scientific approaches through collaborations with the Invasive Animals Cooperative Research Centre (IA CRC) Community Engagement – Program Four. As a result, engagement efforts in weeds management are evolving through the use of a wider range of behaviour change techniques to improve efficacy of programs.

## CBSM – CAPACITY BUILDING 2014–2018

Community-based social marketing is a structured framework made up of five steps: selecting behaviours; identifying barriers and benefits to the behaviours; developing strategies to encourage the behaviours; piloting the strategies; and broad-scale implementation of successful strategies with evaluation.

A number of IPA staff and regional weeds professionals have been trained in CBSM with founder Dr Doug McKenzie-Mohr (Driver *et al*. 2015, Verbeek *et al.* 2014).

Since the initial introduction of weeds professionals to CBSM a number of support initiatives have been deployed to help interested staff become more behaviourally effective in their programs. These included:

- organisation of CBSM training workshops with founder Dr. McKenzie-Mohr for weeds professionals in NSW-DPI and other partner organisations;
- development of a database to collate a comprehensive set of potential weed management behaviours with a schema of 'sectors' and 'categories' such as site constraints. The database can be accessed by weeds professionals to inform and assist them in the application of CBSM. The intent of the database is also to grow institutional expertise and share results of CBSM projects over time;
- employment of a dedicated staff member to facilitate the application of CBSM by weeds professionals and their organisations;
- collaboration through a Google forum and the DPI Weeds Extranet; and

- sponsoring and assisting weeds professionals to undertake the CBSM Master Class coaching with Doug McKenzie-Mohr, applying the framework in full to practical weeds issues.

COMPLETED MASTER CLASSES

**Tropical soda apple (*Solanum viarum* Dunal) control by landholders in the Clarence Valley** Since its identification in 2010, government authorities have been working with landholders to control tropical soda apple (TSA) on private land in an attempt to eradicate it. TSA is regulated by a Biosecurity Control order (under the *Biosecurity Act 2015*). While some good progress had been made, CBSM was trialled to increase the levels of control undertaken by landholders. The main target audience was landholders with the weed in the Tallawudjah Creek area south of Grafton (van Oosterhout *et al.* 2017).

Six end-state, non-divisible control behaviours (in behaviour chains) were identified. The target audience surveyed and most frequently described barriers to the behaviours were *preference for other methods* and *not convinced of the need*. The most frequent benefits were *stops spread/regrowth* and *see no barriers.*

Informed with this insight, proven social marketing techniques were incorporated into the following strategy that addressed the barriers, and promoted the benefits:

- coaching and call-backs by weeds officers (incorporating goal setting, prompts and feedback loops);
- control cards (incorporating communicating, framing and convenience); and
- signs and maps (incorporating goal-setting, norming and diffusion).

The strategy was piloted and then implemented in May/June 2017. It was highly successful resulting in a doubling of landholders doing as advised and a decrease by two thirds of landholders doing nothing.

**Lantana (*Lantana camara* L.) control by landholders in Eurobodalla** Lantana presents a serious threat to the biodiversity of the southern part of the Eurobodalla Shire Council area, having recently expanded its range between Narooma and Wallaga Lake, invading riparian zones and other high value forest environments.

CBSM was sought as a way to increase and improve control by landholders (Martin *et al.*2017).

The target audience was interviewed, and collectively across all the behaviours, the most frequently described barriers were *access*, *difficult terrain* and *time poor*, and the most frequently described benefits were *easy/quick, kills it* and *property management.*

These insights resulted in the decision to concentrate on one desirable end-state behaviour – spraying lantana with a gas-powered splatter gun. The strategy developed to address the barriers and maximise the benefits included:

- the Council purchasing and providing splatter guns and herbicides for the initial knockdown of lantana as well as providing instruction on the use of the splatter guns;
- the Council engaging contractors to make access tracks to improve access to difficult to reach lantana infestations on private property;
- weeds officers making follow up visits to review progress by landholders;
- prompts were sent via SMS, email or phone messages advising landholders to splatter-gun their lantana whenever conditions were good; and
- landholders endorsing signs and hanging them on property boundaries publically displaying their commitment to lantana control.

After piloting and evaluating this strategy the results revealed a 53% increase in lantana control. The strategy is now being delivered across all of the Council's lantana control area.

OTHER CBSM PROJECTS

In addition to the two successful Master Class outcomes, other projects have commenced including:

- green cestrum (*Cestrum parqui* L'Hér.) in rural and urban areas in Maitland City Council area;
- African lovegrass (*Eragrostis curvula* (Schrad.) Nees) in Snowy Monaro Regional Council area;
- Chilean needle grass (*Nassella neesiana* (Trin. & Rupr.) Barkworth) in Queanbeyan Palerang Regional Council area;
- preventing spread of hawkweeds (*Hieracium* species) in Kosciusko National Park with National Parks and Wildlife Services;
- gorse (*Ulex europaeus* L.) control in Queanbeyan Palerang Regional Council area;
- alligator weed (*Alternanthera philoxeroides* (Mart.) Griseb.) hygiene and containment in the Hunter Region;
- tropical soda apple control in the New England Weeds Authority area; and
- tropical soda apple control in the Kempsey Shire Council area.

Two state-wide projects informed by the experience gained in applying CBSM to date are now underway: *Barriers and drivers of control of widespread weeds on small acreages* and *Increasing community capacity in using biocontrol for weeds.*

The first project will apply the CBSM framework to 22 widespread weeds across the 11 Local Land

Service (LLS) regions in NSW with a focus on peri-urban areas. The project will begin with a phone survey of 2200 peri-urban landholders as Step 1 of the CBSM framework, and will then move through Steps 2–5 over the next 18 months, drilling down to address 2 specific widespread weed species in each region. From this first step, insights into the motivations of peri-urban audiences in relation to general weed control behaviours including: mowing/slashing; herbicides; pasture improvement; burning; biocontrol; physical removal; and checking and containment, will be gained.

The second project is being delivered in partnership with Landcare groups across NSW. Step 1 in this project incorporates consultation meetings with regional Landcare facilitators, Landcare coordinators, LLS regional weed coordinators and weeds officers to determine the desired behaviours. Step 2 is using online surveys distributed via the Landcare networks to determine the barriers and benefits for using biocontrol both in general terms and specifically for each agent and weed. Four surveys are underway with 305 respondents so far who are members of over 90 Landcare, Coastcare or farming groups surveyed. The collated data will be presented to regional groups to collaboratively develop strategies to address the barriers and benefits for the behaviours relating to biocontrol (Step 3). Desired behaviours include collecting, releasing, monitoring and raising biocontrol agents.

## BEHAVIOURALLY EFFECTIVE COMMUNICATION

The delivery and framing of messages for target audiences can have a big impact on how they are received.

In the world of advertising to sell products or services, this is everyday business. Millions of dollars are spent on pitches designed to appeal to various characteristics of the target audiences.

Weeds professionals are not in the business of selling products, but we are in the business of selling ideas and most of the same principles apply and have been developed in the field of social marketing (B. Howie pers. comm.).

The application and facilitation of this approach in the weeds space has manifested in a new training short course, and efforts to improve weeds information, as follows:

**Training**   As part of their lead role in the IA CRC Vocational Education Training *Training packages on Strategic Pest Management* Project, the IPA unit has collaborated with Bruce Howie to develop a two day accredited course 'Community Engagement – Moving people towards action' (BSBPMG418 Apply project stakeholder engagement techniques, training.gov.au).

The course was piloted and refined in consultation with invasive species professionals in NSW, Victoria, Western Australia and Queensland, and is supported by three key publications *Behaviourally effective communications for invasive animals management: A practical guide* (Hine *et al.* 2015); the online *Invasive Action Tool* (Pestsmart 2018); and *How to use persuasion skills to enhance community engagement* (Howie 2017).

The course provides structured hands-on training to trigger practitioners to think differently about how they design communication material to gain audience attention as well as developing a planned approach to community engagement. In NSW alone this course has been delivered to over 90 invasive species professionals with excellent feedback.

An example of how this short course has influenced the approach taken to deliver weeds messages includes the design of Control Cards used in the tropical soda apple CBSM strategy.

Positive motivational messaging and imagery was used as the most prominent content on the Control Cards appealing to the values of the landholders in the Clarence Valley. Text minimisation and plain language were used to describe the desired behaviours, decrease barriers and promote benefits. A total of 75% of landholders found the control cards made a difference to their control efforts, and 80% of landholders described them as *great*, *helpful* and *informative*.

**Plain language and improvements to digital delivery of weeds information**   A recent audit of the behavioural effectiveness of weeds content (NSW DPI 2016) made recommendation to improve aspects of digitally delivered information. In collaboration with Dan Kaufman, a custom-built content toolkit was developed to guide the writing style for the information in NSW WeedWise, and other DPI weeds publications (NSW DPI 2017). It guides the structure of the information, giving priority to how the reader is directly affected by the information, writing headings in the first person, and clearly stating the main reason why the reader would want, or need to know about a weed. It calls for a style that helps readers (rather than talks down to them); thinks from the reader's perspective; avoids unnecessary information and repetition; uses bullet points wherever possible; and above all uses plain language, avoiding confusing terms and industry and government jargon.

## DISCUSSION

The evolution of how we deliver weed management programs in NSW has occurred over decades. Increased knowledge about behaviour change informed

by the social and behavioural sciences and the field of social marketing is further enabling weeds professionals to improve their current approaches. The IPA unit is providing strong leadership in this area and is addressing the recommendations made by the Natural Resources Commission that the NSW government should ensure that regional plans *'promote behavioural change and adoption of integrated land management practices'* (NRC 2014).

The uptake of behaviour change is becoming more evident at a strategic and planning level in NSW. The Regional Strategic Weed Management Plans include promoting behavioural change as a strategy in Goal 1. Behaviour change including CBSM is incorporated into the NSW Weeds Action Program and Invasive Species Plans. Further to this the performance audit on LLS communications made the following recommendation *'Design communication programs from the outset to drive behavioural change'* (NRC 2016).

Interest and engagement from the industry is strong, indicated by the voluntary access to the NSW Weeds Extranet *Behaviour change* pages and the associated links provided on this page. Since March 2016, 843 weeds professionals have visited the online content. Also, 102 weeds professionals have engaged with the interactive Prezi presentation *'Roadmap through behaviour change initiatives for weeds in NSW'* (NSW DPI 2018) over the last six months. With increasing experience in the application of behaviour change techniques there is no going back. We can no longer sit comfortably with the assumption that the provision of information and education alone leads our target audiences to undertake our desired weed control and management activities.

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