

# Review of Weed Management in New South Wales

## Submission from the Serrated Tussock Working Party for NSW and the ACT

### Some Guiding Principles

We understand that this review is intended to canvass the best possible ways to manage weeds issues in the future in the context of several other developments. Therefore it is not simply a case of marginal improvement to existing systems. As pointed out in the Issues Paper, '...the "war on weeds" is being lost and...the weed problem is growing worse...'. So reliance on further marginal changes to the existing arrangements cannot be expected to improve the situation.

Weed management strategies around the world are commonly based on the following propositions:

- prevention, including early detection and intervention, is the best management tool
- integrated management of the ecosystem should take precedence over control of the plant
- good understanding of the invaded ecosystem and the initial weed dispersion patterns facilitates good weed control, and
- socio-economic factors frequently play a larger part than ecological factors in plant invasions,

derived from 'An Integrated Approach to the Ecology and Management of Plant Invasions',<sup>1</sup> by Australians R J Hobbs and S E Humphries:

The situation they described (in 1995) has worsened, partly because of the increased unpredictability generated by global changes (changes in the composition of the atmosphere, affecting climate and weather, and changes in the composition and range of biodiversity, including the disproportionate increases in the populations of humans and their supporting plants and animals). A CSIRO study has predicted a worsening weed problem in south-east Australia as a result of climate change, as illustrated in Attachment 2.<sup>2</sup>

The Serrated Tussock Working Party for NSW and the ACT (STWP) accepts that weed management is a shared responsibility, involving:

- understanding that an effective system will integrate weeds management with biosecurity and ecological integrity<sup>3</sup>, all of which are the responsibility of the whole community
- landholders, whether private or public, being responsible for compliance with good practice and the law

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<sup>1</sup> Conservation Biology, Pages 761-770 Volume 9, No. 4, August 1995. Because of the significance of this article, which was based on the work of many researchers around the world, its abstract is reproduced in Attachment 1 to this submission.

<sup>2</sup> JK Scott, KL Batchelor, N Ota and PB Yeoh, *Modelling Climate Change Impacts on Sleeper and Alert Weeds: FINAL REPORT CSIRO 2008*

<sup>3</sup> Ecological integrity: The quality of an ecosystem in which the natural ecological processes sustain the function, composition and structure of the system. Ecosystem: A dynamic system of plants, animals and other organisms, together with the non-living components of the environment.

- landholders bearing the cost of non-compliance, and
- the concept of shared responsibility never being used as a cost shifting device to transfer responsibility and costs from the whole community to individuals.

The STWP welcomes the greater focus on closer relationships between weed management and biosecurity initiatives, and on preventing the arrival of new weeds or eradicating new arrivals into an area. As recognised in the Issues Paper, this emphasis will require much greater attention to weed introduction and dispersion patterns, and much greater involvement of the many interests that contribute to them, or could affect them.

This in no way obviates the need to continue equally great effort on landscape management, weed control and related issues for already established weeds.

### **Some Landholder Perspectives**

From a landholder's point of view, the arrangements for weed control and associated landscape management require the following:

- a **community supported and endorsed program** with primary emphasis on extension and assistance,
- an overall **goal of prevention, containment and control**, (no spread of weeds, a continuous improvement approach, continually diminishing negative impacts of weeds),
- **clarity for landholders about local issues and priorities**, so that they can align their own and local community needs
- **help for every land manager** to find a solution, including attention to motivation, capacity and incentive issues,
- **adequate investment** in public good issues
- **effective partnerships** involving key government agencies from all levels of government, landholder groups, and many others whose actions influence the outcomes, and
- **effective regulatory systems** to be used when landholders (public and private) do not cooperate.

### **New South Wales Fragmentation Problem**

Past studies have indicated the highly fragmented situation in New South Wales, for example, the Review of Progress towards the National Serrated Tussock Strategic Plan (2008 – 2009) noted that: 'Coordination of weed management in NSW is especially difficult given the number of different organisations, jurisdictions and associated boundaries that aren't aligned with each other.' and 'Nor is there a formal mechanism for coordinating the various weed roles and responsibilities.'

This problem is well illustrated by Figure 1 in the Issues Paper, which does not include equally relevant bodies such as Catchment Management Authorities and now Local Land Services, and in the descriptions of the system in the 'Institutional arrangements' section of the Paper. It is also indirectly acknowledged in the State Weeds Action Program that makes clear that success will depend on bringing together a wide range of interests.

The STWP also notes that this fragmentation and failure to deal effectively with weed problems will continue to hinder realisation of many of the aspirations in the State Government's NSW 2021 Plan – see Attachment 3.

Some of the fragmentation of natural resource management is being addressed by current biosecurity and Local Land Services developments. The task now is to integrate weeds issues with these developments, without losing any positive features of current arrangements, such as the operational contributions of local government, and any existing successful partnerships. Attention should also be paid to rectifying some of the negative aspects of the current arrangements as soon as possible, parallel with any other significant changes.

### Some Tests for Success

If the review is successful, the outcome will be a system that:

- **enables improvements in landscape management** that hinder weed incursions and spread, and that contain, reduce or eliminate existing weed problems
- **enables early intervention** in introduction and dispersion pathways, eg plant imports, plant wholesaling and retailing, landscaping and gardening, human and stock movements, degraded land and waterways
- **educates the general public** about weed and related landscape issues
- **integrates weed management issues with other issues**, eg, landscape management, landscape succession programs, ecological integrity, production, and biosecurity issues
- **aligns action required by landholder interests and aspirations**, eg with their usual financial and personal drivers, and with community values
- **encourages and rewards compliance** with good practice and the law by information, assistance, incentive and recognition processes
- **ensures that all land managers participate**, even if they are only incidentally landholders
- **obliges and enables public land managers** to regularly meet environmental land management obligations
- **limits enforcement action** to those whose recalcitrance is frustrating action by others, and to sophisticated entities failing to comply with the law
- **separates enforcement action from assistance**, advice, incentive, reward and information services
- **eliminates the fragmentation** in the current arrangements,
- **facilitates monitoring and reporting** of outcomes, and
- **provides continuing research** capacity.

### The Way Ahead

The Local Land Services Act already comprehends weeds as part of Local Land Services, which is responsible for delivering 'plant and animal pest control and biosecurity' and 'natural resource management'. If the new biosecurity legislation is similar to the Queensland version, which is based on Commonwealth/State/Territory agreements, it will also provide support for weed control activities. If the weeds activities are linked with these new arrangements, the improved audit processes under consideration in the IPART review 'Review of a funding framework for Local Land Services NSW' will apply. As recommended by the Public Accounts Committee, the

*Public Finance and Audit Act 1983* should be amended to ensure that agencies carrying out State functions are included in audit processes.<sup>4</sup>

Over the longer term, the STWP believes that the Noxious Weeds Act needs to be overtaken by the newer natural resource management and biosecurity legislation.

In the short term, integration of functions could be facilitated by making Local Land Services responsible for the Weeds Action Program, the Noxious Weeds Act, and their funding. This would need to be done without losing the practical benefits there are now from the involvement of local government, but the inefficiencies of the current arrangements should be attended to at the same time.

The STWP supports the continuation of an enforcement function, and recommends that formal compliance processes, eg prosecutions, be separated from the weed education and inspection functions, with the latter being local or regional in operation, while reporting to the State body as part of a universal, consistent system.

In every situation there are many practical matters requiring attention if agreed approaches are to be effective. Several of these are canvassed in the STWP responses to Issues Paper questions and many others are canvassed in the comprehensive STWP action plan (see Attachment 4), most of which apply to all serious weed situations.

Particular attention is needed for planning and development processes, as their outcomes can too easily frustrate positive landscape management or perpetuate problems.

## Responses to specific questions

### Page 6: Community Ownership

- What do you consider good practice for encouraging community-based weed management and changing landholder practices?

As pointed out by Hobbs and Humphries, attention needs to be given to receiving ecosystems, and so the public awareness needs to relate to these as much as to the narrower question of 'weed control'.

The community and landholders need to understand the problems and how they can respond to them. They need to understand the importance of weed control and the cost to the community as a whole if it is not done.

Achieving this will require constant publicity, guidance to landholders on how to understand their own situation and how to deal with it, using incentive/reward systems, and recognising that different groups will have different motivations and require different approaches. All of these processes need to ground the weed issues in the broader contexts of the whole landscape and patterns of human activity.

There is an example of an effective approach at Attachment 5, from another jurisdiction. There have been successful efforts in New South Wales, but they have been dependent on goodwill among the parties, and so are the exception rather than the rule.

- Do you feel that the current education/awareness programs are working? Why? Why not?

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<sup>4</sup> Report on the efficiency and effectiveness of the Audit Office of New South Wales / Legislative Assembly, Public Accounts Committee. [Sydney, N.S.W.]: the Committee, 2013. 87 pages ; 30 cm. (Report no. 11/55 Public Accounts Committee)

We know they are not, because weed problems are increasing, not decreasing. As pointed out elsewhere in the Issues Paper, ‘...the “war on weeds” is being lost and...the weed problem is growing worse...’. What happens now is too haphazard and inconsistent. It is not given high enough priority and resources.

- What are possible means for improving incentives for collaborative actions or penalising non-involvement/requiring involvement?

The need is to align desired action with the economic drivers and values of the actors. These will be different for different groups, eg, some commercial farm businesses will be very profit driven, some others will be more interested in lifestyle and nature conservation. There needs to be a financial incentive for those who undertake superior landscape management, including weed control, and a financial disincentive for those who don't. For example, differential land rating systems, and rebate systems for positive behaviour, will help.

There is already discussion in one Local Land Services area about the use of voluntary continuous improvement systems as a basis for reward and recognition. The document at Attachment 6 refers to this system, for another current weed management program organised by a landcare group.

Now environmental degradation, including weed problems, stay with the land. It would be preferable if it followed the landholder, who would retain responsibility after sale of the land.

In some cases, public investment will be needed, eg, where a landholder cannot, for acceptable reasons, pursue the necessary activities, or cannot do so in a required timeframe. This may also be necessary where action is required on land that will never be productive, or otherwise considered useful or valuable.

- How can we improve community ownership of weed management?

Through constant education and publicity, emphasising the value for all, whether landholders or not, eg, amenity and the ecosystem services flowing from maintaining ecological integrity, and by investing in relevant work where a landholder, for acceptable reasons, cannot do it, either at all, or not in a sensible time frame.

Government or similar education and ‘call to arms’ campaigns work best when done in partnership with local community organisations, such as landcare, farming system and industry groups.

- At what scale (local, regional, state) are awareness-raising programs most effective?

Depends on the particular issue and audiences, but invariably local action is needed, as well as awareness raising with those who influence outcomes, eg, the Commonwealth (landholder in New South Wales, national responsibilities), neighbouring States and the ACT (weeds and bioregions do not respect political borders), and many non-rural industries. Some awareness programs need to be aimed at a very wide audience, eg, ‘grey nomads’ and others who travel all over the country, potentially spreading weeds. These programs need to be led from State and regional levels to ensure consistency.

## **Page 10: Policy & regulatory framework**

The STWP welcomes the proposed link with the Biosecurity Reform Process and the proposed Biosecurity Act, and with pest animal and disease matters. It also welcomes the recognition in the

Issues Paper that a policing/enforcement approach does not work for weeds management, consistent with research worldwide on environmental management generally.<sup>5</sup>

The STWP strongly endorses the need for all landholders to be active participants in good land management and weed control. This will require approaches that recognise that there are many categories of landholders with differing motivations, that land ownership changes occur regularly regardless of scale or area, that there is often a great variety of land uses in a region, and that everywhere land use change is common. It is unfortunate that the Issues Paper obscures these significant points by singling out rural-urban fringe landholders as a special problem.

- What works well with the current policy and regulatory arrangements?

There are many relevant arrangements at the moment. The New South Wales arrangements are highly fragmented. Many will argue that these factors result in uncertain and uneven outcomes. As research indicates, any that are based on information, assistance, reward and incentive arrangements and 'whole of landscape' management can be expected to produce the best results. Where changes to the system are made, it is important that accumulated knowledge and skills are not lost.

- Are current regulations appropriate and effective for managing emerging and widespread weeds?

No. They are not based on the propositions set out above. The enforcement provisions are not applied in so many areas. The Noxious Weeds Act is applied with varying degrees of interpretation and enthusiasm and in some cases the enforcement side is not pursued, with focus purely on extension activities. As a result, there is a gross inconsistency in resourcing and effectiveness of weed control outcomes across the State.

- What are the opportunities for greater alignment of regulation and policy?

If 'regulation' means enforcement and policing, then there is no need to align it with policy, which should instead focus on research, community and landholder engagement and assistance. If 'regulation' is simply a reference to laws that relate to the landscape, then weeds issues should become just one element covered by local land services and biosecurity law, and by some other laws, eg, in relation to mining.

The introduction of Local Land Services provides an opportunity to have State-wide policy implemented and administered consistently at a regional level and delivered locally. It will facilitate the development of performance standards and auditing systems applicable to all involved in landscape and related weed programs. The emphasis in auditing needs to be on outcomes rather than outputs.

The recommendation from the public Accounts Committee that "...the Public Finance and Audit Act 1983 be amended to enable the Auditor-General to 'follow the dollar' by being able to directly audit functions performed by local government entities on behalf of the State in the delivery of government programs" (Recommendation 10) should be implemented. Such a reform will facilitate effective outcomes from integration of weed management functions with other natural resource management and biosecurity functions.

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<sup>5</sup>For example, see Leroy C Paddock, The George Washington University Law School, *Beyond Compliance: Compliance and Enforcement in the Context of Sustainable Development* 2012, C Demmke, The Jean Monnet Center for International and Regional Economic Law and Justice *New Approaches in Implementing and Enforcing Environmental Policy and Law – Administrative Reform and Innovation in Environmental Law and Policy*, 2001 and G Bates *A Duty of Care for the Protection of Biodiversity on Land*, a consultancy report for the Productivity Commission 2001

- What are your views on the appropriateness of current compliance and enforcement arrangements? How can compliance and enforcement be more effective?

Compliance flows from successful assistance/reward/incentive activities. An outline of a successful approach along these lines from another jurisdiction is at Attachment 5. There is room for 'enforcement', eg, to deal with recalcitrants whose action or inaction is frustrating action by others, and for dealing with sophisticated entities failing to comply with the law. Any such action should be carried out by authorities not involved in the compliance activities.

There needs to be consistency of administration across all land tenures.

- Should public land managers be held accountable to the same extent as private landholders? If so, how?

Yes. Public lands should be managed with the goal of ecological integrity, which involves weed control, to the same extent as private land should be.

Significant problems arise from organisations whose primary functions do not relate to land management, but who incidentally use or control land, or, when they do act, do so relatively inefficiently and ineffectively. Where they are commercial entities whatever laws apply to private landholders should apply to them.

Private landholders that join public lands should not have to put up with ineffective or non-compliant land management on their boundaries, compounding their weed and biosecurity work loads and costs.

Not to have a tenure blind approach to weed control will undermine future landscape management and weed control strategies and render future efforts less effective and will leave the Government open to charges of being disingenuous in its stated intentions to implement an effective weed control strategy in the State.

In some cases, eg, parks, the managers cannot be expected to do this adequately unless and until they are adequately funded to carry out all the necessary programs. Unlike private landholders, they are not in control of their agendas, and cannot raise resources in the same unfettered way. In these cases, it is Government Ministers, not the managers, who should be accountable.

The State needs to ensure that any rules and practices relating to local government bodies allow them to give high enough priority to adequate management of their substantial lands.

Some public land is Commonwealth land. The State needs to consult with the Commonwealth agencies to ensure that their environmental management systems encompass weed and related issues adequately, and that they act on them satisfactorily.

- What would be a more appropriate and effective weed listing approach?

Local Land Service boards should routinely include weeds in their strategies and plans. Well written biosecurity legislation combined with the State-wide LLS management system will enable determination of State-wide issues. So long as community consultation processes are used, there should be no need to maintain complicated and expensive separate systems.

This way, in each region, planning and programs would include elements relating to:

- Weeds of National Significance
- weeds determined to be of State-wide significance by Local Land Services, ie, the State level body, because they affect several regions, or, for some other reason such as potentially significant impact if allowed to spread beyond one locality, eg Sydney gardens, and
- pest plants of local negative significance.



## Page 12: Institutional arrangements

- What works well with the current institutional arrangements?

They are cumbersome, complicated and not respected, so not much. Resourcing from the local government rates base and the accumulated knowledge of local staff has been useful.

- What do you believe is the appropriate scale (state, regional, local) for delivery of key weed management activities, including strategic planning, enforcement, education and extension services?

There are issues at all these scales. If Local Land Services boards become the major natural resource management agencies, then the weeds part of natural resource management logically becomes their responsibility, and therefore comprehended in their planning, education and extension services. These bodies will be bound by any State-wide policies. They should not be distracted by 'enforcement' issues.

- What changes to current institutional arrangements would you propose?

Replacement of all existing arrangements by the logical step of including weeds as just another component of natural resources management. This can relatively easily be done as part of implementing new biosecurity arrangements and the Local Land Services system. It would not be difficult to make immediate arrangements to integrate the current limited weed matters dealt with under the Noxious Weeds Act and by local government with the Local Land Services system, without losing the practical benefits claimed for the involvement of local government.

This integration of functions could be done initially by making Local Land Services responsible for the Weeds Action Program, the Noxious Weeds Act, and their funding. An initial practical outcome would be joint efforts by Local Land Services agronomists, conservationists and planners with existing weeds staff and local government to provide the varying suite of services and support arrangements needed to assist landholders to identify their problems and deal with them. This kind of outcome has been one of the Government's goals since the announcement of the process that led to the establishment of the Local Land Services system. Such an arrangement would also help overcome the current problem of the people whose task is to encourage landholders to deal with weeds also being charged with policing and enforcement action.

These changes need to be supported by other changes, eg, see the proposals in the STWP action plan on matters such as notification of weeds status as part of the land title transfer system.

- How can strategic and coordinated planning for weed management be improved?

Weeds management should be included in natural resource management and biosecurity planning as a normal component. Planning processes should be based on State policies and strategies providing the framework for regional strategies and management plans with committed funding and resourcing from State, regional and local levels.

- How can accountability and performance within the management system be improved?

Better monitoring and reporting as a normal part of 'state of the environment' activities, and by performance auditing emphasising outcomes rather than outputs.

## Page 13: Evidence-based decision making

- What are examples of effective weed management information and mapping systems?

The STWP is aware that there are several different platforms for collecting spatial data related to weeds and that different organisations have developed their own rationale and approach to data



gathering. For simplicity and usefulness it would be best if all used the same system that then would make State-wide data readily available without costly processing to align datasets.

With this in mind, there needs to be a survey of what is currently done and what is most effective and useful but with a keen eye on the governments Location Intelligence Strategy of which one aim is to *'Coordinate and maintain current, accurate and authoritative location-based data for NSW.'*<sup>6</sup>

- Are you aware of any examples of standardised monitoring, evaluation and reporting processes that may also be effective for weed management?

Ideally, weed management monitoring and mapping should be fully integrated with that required for Local Land Services, with its reporting and auditing applying.

- What tools are you aware of that should be considered for state-wide weed monitoring?

As already indicated, a full review should be undertaken to determine the most useful approach.

One option, the new Landscape Observation Process, can be used to overcome many past problems, and link on ground landholder monitoring to centralised systems is being considered for use in a current landcare weed management program(see Attachment 6).

- Do you feel that management decisions (i.e. which actions to take and where) are currently evidence-based?

Management decisions will vary from time to time and place to place. For the future, however, integration of weed issues with Local Land Services and other biosecurity issues should lead to informed decision making driven by regular planning activities and State-wide guidance.

- Who is best placed to make evidence-based decisions regarding the management approach for weeds (i.e. eradicate, contain, do nothing)?

Local Land Services in consultation with other local interests, as weeds are simply a component of the landscape that is the subject of Local Land Service planning. The planning system will also ensure that any such decisions are based on consultative processes. These Local Land Service approaches would be within the context of any State-wide or national requirements.

#### **Page 14: Research & development**

Research and development are key components of natural resource management strategies and programs. A good plan will identify barriers to successful action, including knowledge or innovation (ie, the application of existing available knowledge and technology) gaps, and a means of addressing these gaps, ie, a research agenda.

- Is the current investment in research sufficient (e.g. amount of funding, time scale of funding)?

Absolutely not. The STWP supports the conclusion in the Issues Paper that *'...funding for weeds research generally is insecure and too short-term to be fully effective'*.

- How can available research dollars be used more effectively, better prioritised and coordinated and/or better leverage additional investment?

By relating them to action plans. Then all the parties concerned with the action agenda will have an interest in success, and will be more likely to contribute to the projects.

A useful approach would be establishment of a research advisory group by the State Local Land Services organisation, including weeds in wider natural resource management agendas.

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<sup>6</sup> See <http://engage.haveyoursay.nsw.gov.au/document/show/1052>

- Are you are aware of any additional barriers to effective implementation of weed research outcomes?

There has been a failure to understand and act on public good issues related to environmental issues, including weeds, with the result that there is often a disconnect between what landholders are expected to do and what the community as a whole should do to support them. This can mean a failure to disseminate research outcomes to relevant audiences.

Industry research programs will understandably concentrate on sector production and profit issues. Any failure to bring them all together will result in some relevant audiences missing out on opportunities to apply research outcomes useful for them.

Many research programs have been over short periods, eg, two to three years. They need to run for five or seven years or more, to accommodate such variable factors as seasonal conditions.

- How can the dissemination of research results and the adoption of new controls and technologies be improved?

The STWP has proposed holding regular workshops or similar activities, eg, every two years, to provide updates about research activities, help disseminate research outcomes, and promote new and continuing research. It has also proposed holding similar events on the theme 'What Works' involving people from different interests, eg, biosecurity, pest animals, pest plants, community groups, and industry.

- What roles and responsibilities should research and development corporations have with respect to weeds?

Inevitably R&D corporations involved with particular industries will continue to pursue research activities interfering with production and profits.

There is also a need to revive a national weeds research activity to:

- provide a central repository for research outcomes affecting weeds issues, whether generated specifically about weeds or not
- highlight knowledge and innovation gaps hindering progress
- encourage other research communities to include weeds issues in their activities
- organise events and promotional activities
- disseminate research outcomes, and
- produce practical action material based on research outcomes.

As weeds and related natural resource management issues transcend State and Territory borders, this national effort would best be done as a joint Commonwealth-State-Territory activity. Then New South Wales would automatically be involved and be assured of access to and influence on the research activities.

Meanwhile, the State needs to increase its own research efforts, influenced by the National Weeds and Research Program R&D Plan 2010 to 2015, as well as any related State weeds, natural resource management and biosecurity sources. The State agencies need to become deeply involved with national research projects, eg, such as TERN – Terrestrial Ecosystem Research Network – see the website at: <http://www.ecosystemscienceplan.org.au/> An example from it is <http://www.tern.org.au/Newsletter-2013-July-NE-Victoria-pg26550.html> which illustrates research integrating weeds issues with other natural resource management and production issues.

**Abstract for *An Integrated Approach to the Ecology and Management of Plant Invasions***

R J Hobbs and S E Humphries, *Conservation Biology*, Pages 761-770 Volume 9, No. 4, August 1995

Plant invasions are a serious threat to natural and managed ecosystems worldwide. The number of species involved and the extent of existing invasions renders the problem virtually intractable, and it is likely to worsen as more species are introduced to new habitats and more existing invaders move into a phase of rapid spread.

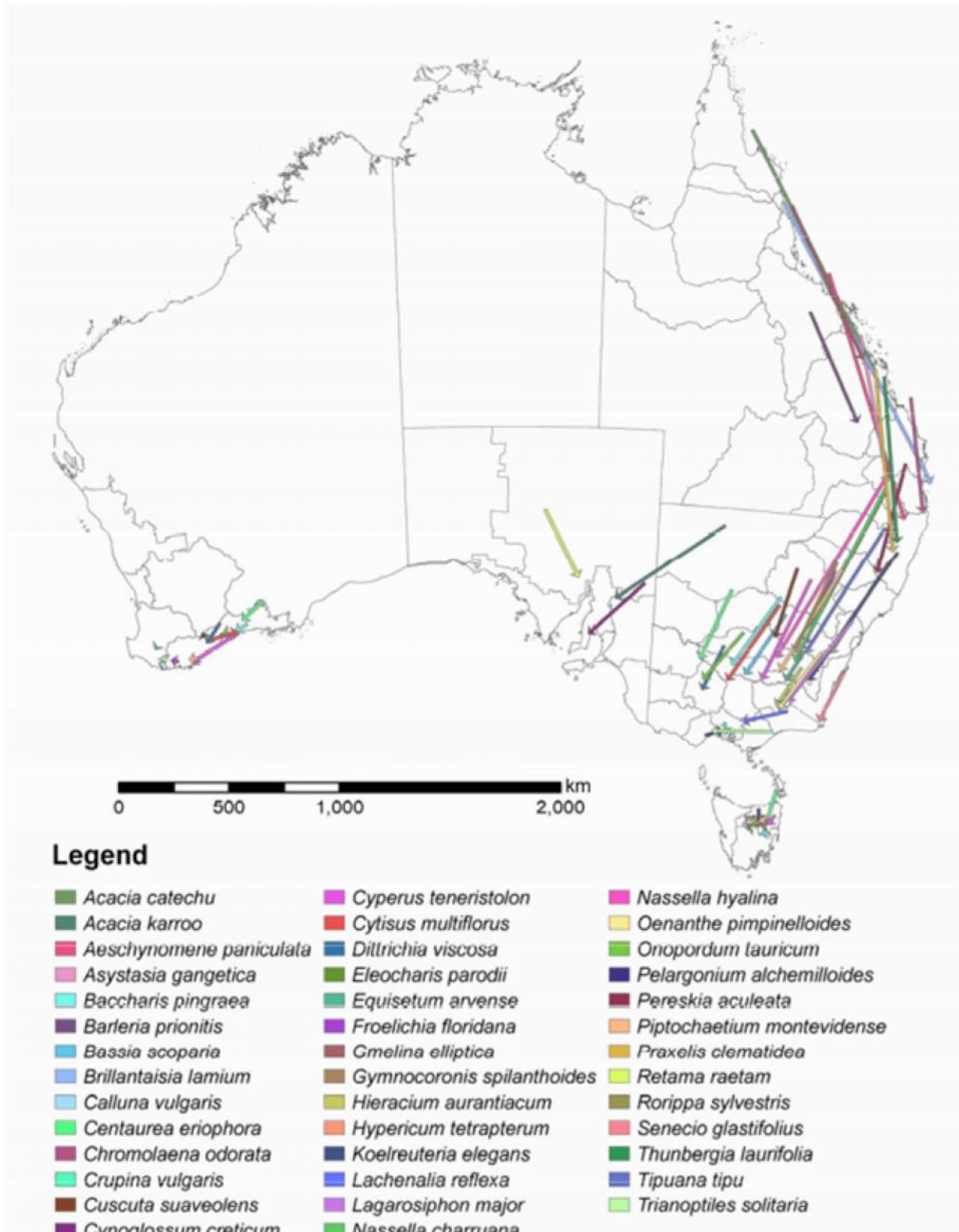
We contend that current research and management approaches are inadequate to tackle the problem. The current focus is mostly on the characteristics and control of individual invading species. Much can be gained, however, by considering other important components of the invasion problem. Patterns of weed spread indicate that many species have a long phase following introduction before they spread explosively.

Early detection and treatment of invasions before explosive spread occurs will prevent many future problems.

Similarly, a focus on the invaded ecosystem and its management, rather than on the invader, is likely to be more effective. Identification of the causal factors enhancing ecosystem invasibility should lead to more effective integrated control programs. An assessment of the value of particular sites and their degree of disturbance would allow the setting of management priorities for protection and control.

Socioeconomic factors frequently play a larger part than ecological factors in plant invasions. Changes in human activities in terms of plant introduction and use, land use, and timing of control measures are all required before the plant invasion problem can be tackled adequately.

Dealing with plant invasions is an urgent task that will require difficult decisions about land use and management priorities. These decisions have to be made if we want to conserve biodiversity worldwide.



Direction of predicted movement of species under the climate change scenario of ECHAM3 from the prediction distribution of today to the future distribution in 2070.

From *Modelling Climate Change Impacts on Sleeper and Alert Weeds*, CSIRO 2008

## Extracts from NSW 2021 Plan and Goals

### GOAL 3 Drive Economic Growth in Regional NSW

Target ~Protect strategic agricultural land and improve agricultural productivity

Action Reduce the impact of noxious weeds to restore and enhance productivity of prime agricultural land through the delivery of weed control grants and support for additional research and development.

### GOAL 22 Protect our natural environment

Target ~Protect and conserve land, biodiversity and native vegetation

Action ~ Establish voluntary arrangements with landowners over the next decade to bring —an average 20,000 hectares per year of private land under conservation management —an average 300,000 hectares per year of private land being improved for sustainable management

### Goal 23 Increase opportunities for people to look after their own neighbourhoods and environments

Actions ~

- Develop a tailored action plan for the expenditure of \$500,000 per year for four years on Landcare in consultation with Landcare, Catchment Management Authorities and Primary Industries
- Increase the number of volunteer-based local groups undertaking bush regeneration projects for their local communities, including members belonging to Landcare groups in NSW by 15% by 2015
- Facilitate community and government collaboration and input to develop 13 upgraded Catchment Action Plans by March 2013
- Through expert training, build the capacity of Catchment Management Authorities and agencies to undertake the Catchment Action Plan upgrades based on best practice natural resource management strategic planning, and against the Statewide natural resource management target
- Continue to provide investment funding for natural resource management under Catchment Action NSW.

### Goal 28 Maintain preparedness to deal with biosecurity threats

Actions

- Develop a nationally consistent plant and animal biosecurity legislation and implement by 2015
- Expand the National Livestock Identification Scheme and other traceability systems to cover 95% of NSW livestock industries
- Increase awareness of the benefits, and adoption of, on-farm biosecurity plans by NSW producers
- Build capacity within local government, community groups and landholders to effectively manage invasive species

**Improving Serrated Tussock Control**  
**Serrated Tussock Working Party for New South Wales**  
**and the ACT**

**The Weed**

Serrated tussock is a weed of regional and national significance because of its invasiveness, destruction of pastures, negative impacts on biodiversity, and difficulty of control. So long as there is any serrated tussock, its continuing spread and damage is guaranteed because of its dispersion patterns.

For farmers, there are production losses and the cost burdens of control activity. For the general public, there is a loss of amenity and of benefits of biodiversity, and the costs of control activities on public land. The long term consequences of inadequate action will be severe for the community, and dire for those directly affected-like rabbit and prickly pear devastation in the past.

**The Problem**

Although the serrated tussock problem is well recognized, the weed continues to spread. Climate change scenarios suggest that the potential range will continue to increase.

There are State and regional plans, but no clear and definite aim flows from them and their administration. There is no reliable measure of weed control outcomes.

Weed control budgets, including for public lands, are insufficient to achieve continuing effective results. The potential force of the formal regulatory system is rarely used.

The poor outcomes cost land managers a lot of money, generate frustration, continue reliance on residual chemicals, jeopardise biosecurity in native and productive ecosystems, and jeopardise grazing industries. There is a lack of respect and credibility for authorities. Good action by a land manager is pointless if neighbours don't act too. This is manifestly unfair.

**The Serrated Tussock Working Party for New South Wales and the ACT (STWP)**

The STWP is a landholder based group formed in 2006 in response to public concern at the potential for increasing the adverse effects of serrated tussock for the environment and agricultural production in New South Wales and the ACT.

There has been some progress since then at a policy level. There is a new draft National Serrated Tussock Strategic Plan (Revised update) 2010 to 2015, the Best Practice Manual has been published, and at least in some areas, widely distributed. The comprehensive guide to identification and management of serrated tussock published by the Department of Primary Industries (Serrated Tussock - a Weed of National Significance) was revised in 2010.

The New South Wales Government is funding a project aimed at achieving effective coordinaton and strategic management of serrated tussock across the State.

Several elements of the New South Wales Government's NSW 2021 Plan and associated Goals are consistent with pursuit of better outcomes with serrated tussock control, for example,

- in relation to economic growth in regional New South Wales,
- protection of the natural environment,
- increased opportunities for people to look after their own neighbourhoods and environments, and
- maintaining preparedness to deal with biosecurity threats (including building capacity within local government, community groups and landholders to manage invasive species effectively).

The New South Wales Minister for Primary Industries has advised that weeds and feral pests have always been a top priority for her, and will continue to be so. She indicated that not enough had been done in the past. She has asked the Noxious Weeds Advisory Committee to assess the feasibility of legal options regarding the disclosure of weeds information for prospective land buyers.

None of this heightened interest has much changed the on-ground situation, but it has increased awareness and set the stage for accelerated progress.

The STWP seeks to generate sustained action by all interested parties, including local, State and Commonwealth governments to deliver policies and committed action to reduce the impact of serrated tussock (and other weeds) on the environment, economic activities and public amenity.

The STWP's vision for serrated tussock is:

*The continuous suppression and destruction of serrated tussock on arable land, the identification and destruction of serrated tussock where dealing with it is beyond the capacity of the landholder, the stopping of the expansion of the weed's range and the stopping of seed rain everywhere.*

### **The Needed Action**

The STWP believes that meaningful progress requires several things:

1. Revision of the administrative arrangements for weed control, with three clear and separate operation centres:
  - local or regional education, inspection and monitoring,
  - a prosecution service acting on advice from the local or regional bodies, and
  - a State wide oversight agency to ensure a strategic and unified approach across the State and a basis for accountability and policy and program review (leadership and administration).
2. Increased funding over the long term for all aspects of weed control, and accurate and verifiable mapping (resources and knowledge).
3. Engaging all landholders, public and private, in the effort (engaging landholders).
4. Establishing and maintaining effective communications strategies by all interested parties (communications).



As well as removing serrated tussock from the landscape, the needed action involves landscape regeneration and continuing management that will inhibit or prevent the return of serrated tussock.

Success with serrated tussock suppression will inevitably bring multiple benefits:

- suppression of other weeds,
- better overall landscape management,
- more profitable farming systems,
- environmental improvements, and
- greater public amenity.

### **Planning and Acting for Improvement**

The STWP believes that effective action should involve at least the steps below. All interested parties can play a role, even though in most cases one of them will need to play a central role, in many cases the State Government. Other parties may be able to add more steps that could be needed or taken to increase the chances of success.

### **Leadership and Administration**

Governments at all levels have responsibilities related to weed management, including landscape, ecological sustainability, biosecurity, funding, direct land management and regulatory systems.

Weeds have a major economic impact on many industries in addition to agriculture and livestock, including forestry, nursery, landscaping, fishing, aquaculture, transport and tourism. Industry organisations have an interest in weed control because of its significance for industry profitability and quality.

Weed problems, including serrated tussock, will not be dealt with satisfactorily now and in the future unless all landholders, public and private, actively participate in continuing control and management programs. Therefore landholder organisations with a focus on the environment, such as the Landcare movement, are critical for success.

Transport, landscape and farming contractors, gardens and waterways are important sources of weeds, including serrated tussock. Therefore those involved in these must become part of the solution.

The real estate, legal, insurance, commodity trading, rural supplies and rural and gardening advising industries all may contribute to worsening or improving the weeds position, depending on how they carry out their functions.

Because of their land and water management responsibilities, State and Territory Governments have the primary responsibility for weed management.

In New South Wales the current arrangements affecting weed management are highly fragmented.

The Review of Progress towards the National Serrated Tussock Strategic Plan (2008 – 2009) noted that: "Coordination of weed management in NSW is especially difficult given the number of different organisations, jurisdictions and associated boundaries that aren't aligned with each other." and "Nor is there a formal mechanism for coordinating the various weed roles and responsibilities." This situation inhibits effective cooperative action with the ACT

and with Commonwealth government landholders in New South Wales, and productive participation in national programs. It also inhibits effective cooperation among the many interested parties in New South Wales.

There is currently no agency charged with or undertaking overall 'audit' or monitoring functions, and there are doubts about the capacity of the Auditor-General to undertake useful performance audits where local government is involved.

The Commonwealth Government can foster more and better action through criteria for grants programs, establishment of a permanent, adequately funded weeds research function, and through exemplary management of the extensive lands it controls. For example, Defence alone manages millions of hectares in Australia, including land in New South Wales and the ACT in the serrated tussock areas.

The desirable action includes:

#### **A. State Government and Minister for Primary Industries**

1. Continue to make clear statements on commitment to improved weeds management, and act on the specific items proposed below.
2. Require catchment management authorities to include weed control as a continuing priority, and to include weed issues in all property planning processes.
3. Separate the weed education and inspection functions from formal compliance, eg prosecutions, with the former being local or regional in operation, while reporting to a State body as part of a universal, consistent system.
4. Apply the following criteria in reviewing the location of a weed control function:
  - alignment with other activities relating to rural, environmental and landscape management
  - links with functions related to integrated land management, ecological integrity and long term landscape improvement
  - alignment of boundaries of organisations with related functions
  - avoidance of any conflicts of interest
  - potential for combining resources of the organization with others, for mutual or common benefit
  - availability of adequate and certain funding
  - links policy, education and inspection functions.
5. Ensure that environment prosecutions are dealt with in a specialised court, and that the judiciary has adequate training and information on environmental issues available to it.

6. Establish mechanisms for continuous and productive interaction among all interested parties, emphasising the need to generate long term commitment and maintain strategies that provide sustained weed control action and avoid failure and frustration. These parties include:
  - NSW agencies ( eg Department of Primary Industries, Department of Premier and Cabinet [Office of Environment and Heritage, National Parks, Division of Local Government] Noxious Weeds Advisory Committee, Department of Finance and Services, Department of Attorney General and Justice),
  - local government (urban and rural),
  - all other State land managers and bodies affecting land management, Livestock Health and Pest Animal Authorities, regional weeds committees, catchment management authorities, Natural Resource Commission,
  - Commonwealth government land managers,
  - Australian Rail Track Corporation,
  - all service easement managers, and
  - community: Landcare and catchment groups, primary industry groups, and associated service industries, including real estate, legal, insurance, rural supplies, rural contractors, commodity traders, rural and garden advisers,
7. Determine clear goals and targets for (annual and long term) improvement in serrated tussock control, as a first step in achieving a universal State wide approach and an effective monitoring and accountability approach.
8. Establish a State wide 'audit' and monitoring function, encompassing private as well as public functions, and involving community collaboration, and clarify the capacity of the Auditor-General to undertake useful performance audits of all activities under the Noxious Weeds Act, including by local control authorities that coincidentally are local government Councils.
9. Achieve uniformity or at least compatibility of technology used in weed control processes.
10. In collaboration with interested parties, consider the relevance of the principles, laws and practices underlying contaminated land management to improved weed control.

## **B. Community Groups and Industry Organisations**

1. Recognise weed problems in their aims, strategies and programs, and facilitate participation by their members and supporters in weed control activities.
2. Lobby local, State, Territory, and Commonwealth Governments to strengthen their commitments and programs for positive, continuing action on weed problems.

3. Develop partnerships with others to strengthen weed control programs.

### **C. Industries Supporting or Interacting with Land Managers**

1. Adopt practices and programs enhancing rather than weakening weed control activities.

#### **Resources and Knowledge**

There is general agreement by interested parties that the existing inspection and compliance regime is underfunded. Some public land managers, eg National Parks, apparently lack the resources necessary for effective weed control. There are mother lode areas beyond the capacity of landholders (whether public or private) to deal with.

There is the special problem of identifying, mapping and rapidly dealing with new outbreaks.

Accurate and verifiable mapping is needed to generate better understanding of the spread of the weed, to facilitate targeted control action, and as a basis for monitoring action.

There are already several readily available information sources dealing specifically with serrated tussock that land managers can use, eg the National Best Practice Manual, Serrated Tussock – A Weed of National Significance (NSW DPI) and The Serrated Tussock Managers' Factpack. There are also useful publications about weeds generally, such as Introductory Weed Management Manual (CRC for Weed Management) and Weed Detection and Control on Small Farms (Sindel and Coleman).

One issue for weed control, including serrated tussock, is ensuring that available information is up to date, and that new research does not duplicate previous work. An associated problem is that there is still no permanent national weed research program to foster research to help overcome knowledge gaps as they are identified, to generate interest among research organisations and researchers in contributing to weed research programs, and to undertake synthesis, analysis and promulgation of research outcomes from multiple sources.

All involved can increase the available workforce for serrated tussock (and other weed control) by use of volunteer or similar sources, for example, Landcare volunteers, environmental service organisations such as Conservation Volunteers Australia and Greening Australia, other community service organisations such as Rotary, farming system groups, wwoofers (willing workers on organic farms), and teams established from time to time under Government training or unemployment relief programs. These approaches will also assist with engaging landholders and with communication strategies.

The desirable action includes:

#### **A. State Government and Minister for Primary Industries**

1. Increase funding for the inspection – control system as soon as possible, and review the basis of allocation to ensure that it is based on risk assessment and not primarily on historic expenditure patterns.

2. Widen training for weed control staff to include education techniques, landscape management and farming systems.
3. Ensure that State land managers are adequately funded to carry out their weed control responsibilities.
4. Establish and fund task forces to seek out, map and suppress new outbreaks, and as a basis for developing predictive models to assist with tracking serrated tussock dispersion.
5. Coordinate all interested parties, including volunteer groups, to develop ground-up mapping leading to a uniform baseline 'ground truth', ensuring that privacy laws are accommodated so that they do not inhibit or frustrate this action.
6. Investigate, develop and fund a large scale remote sensing mapping program.
7. Establish a system for regular monitoring and publicising of change against mapped baselines.
8. In collaboration with interested parties, review rating and taxing arrangements to enhance weed control action, including ensuring that good managers pay less than problem managers.
9. Review environmental offset arrangements
  - so that those who benefit from them are directed to areas of environmental need, and
  - delete the requirement for offsets to be close-by the development.
10. Identify and publicise potential funding sources, including public and private grant systems, for improved weed control.
11. Increase funding for weeds research.
12. Expand the activity of seeking transfer of successful management and technical practices of other jurisdictions.

## **B. State and Territory Governments**

1. In collaboration with the Commonwealth government, provide funding for control of serrated tussock problem areas beyond the capacity of landholders to deal with successfully in a reasonable time frame.
2. Seek Commonwealth funding to support serrated tussock control activities contributing to national aims, or benefiting Commonwealth land or activities.
3. Indicate willingness to contribute to any national weeds research activities established by the Commonwealth Government.

4. Collaborate with the Serrated Tussock Working Party for NSW and the ACT to arrange biennial reviews of experience with control programs and of research outcomes, and use the outcomes to revise programs and available information sources, beginning in 2012.

### **C. Commonwealth Government**

1. Establish a permanent research facility for dealing with weeds problems, including the relationship between weeds and environmental and farming system issues.

### **D. All Interested Parties**

1. Review the possibilities for productive collaborative action with others, including private land managers.
2. Participate in and actively support the proposed STWP - ALM Group 'What Works' Workshop supported by RIRDC.
3. Seek RIRDC support for weed control activities that fall within RIRDC criteria for funding support.
4. Seek to influence the programs and spending of catchment management authorities, Landcare and industry groups to contribute to serrated tussock (and other weed) control as elements in their normal activities.
5. Encourage the use of volunteer or similar sources of assistance in serrated control activities.

### **Engaging Landholders**

The serrated tussock problem can be overcome only if all landholders with the weed, and those who may become affected, participate in control programs and in identifying new outbreaks.

The problem is compounded because prospective purchasers of land are allowed to buy land without any warning about the weed problems existing on the land they are interested in purchasing or the region within which such land is situated. The purchaser can buy a problem, and those who came before who profit from the transaction escape responsibility. Another manifestly unfair situation.

Continuity of effort over the long term and across generations is necessary. Therefore public and private interests need continuing interaction to ensure the necessary continuity and continuing pressure on landholders and others whose actions can help or hinder. Peer pressure based on strong local environmental efforts can sway otherwise uninterested individuals in the right direction. The Landcare movement is most important in this context. Farming system groups and other service organisations can also contribute.

There will also be advantages to landholders and the system as a whole if landholders use management systems that facilitate monitoring over time and the sharing of information, noting that in Australia these approaches are accepted only if they are voluntary and are not based on 'one size fits all' or on the needs of non landholders. Some landholders, for example, Commonwealth agencies, already use such systems.

Adoption of several of the proposed actions above would assist with engaging landholders. Other desirable action includes:

#### **A. State and Territory Governments**

1. Make subdivision and other land development approval conditional on a prior environmental report, including weeds inspection, with approval withheld until any required remedial work has been carried out.
2. Introduce a legal requirement that land dealings disclose any outstanding section 18 notice, or weed management or other land management plans, to be included in a vendor provided environmental report available to all prospective purchasers
3. Ensure that all government land managers, including local government and corporatised bodies, should have the same weed control obligations as private landholders, preferably through legislative requirements, and take up with the Commonwealth government the need for similar action by Commonwealth land managers and by bodies such as the Australian Rail Track Corporation.
4. Endorse and promote the concept of a voluntary land management system incorporating weeds that can be uniquely tailored to the needs, aspirations and resources of individual landholders and the community as a basis for 'regulation' and for participation in catchment management authority programs.

#### **B. All Parties**

1. Encourage-Landcare groups, farming system groups, and service organisations to embrace the weed control cause.
2. Encourage industry groups to acknowledge the value of weed control for profitable production, and to include it in their strategies and programs.
3. Adopt or promote the concept of voluntary land management systems.

#### **Communication**

Success with any long term program requiring sustained and continuing action depends on good communication strategies and programs, to ensure all who can or should contribute are constantly reminded and kept up to date with new developments, and to build pressure from the general public on decision-makers and landholders.

Political decision-makers and agency administrators need to be well informed about the problem, and about the severe long-term consequences of inadequate action.



Desirable action to contribute to effective communications includes:

**A. State and Territory Governments**

1. Publicise and distribute the existing documents on serrated tussock control (see 'Resources and Knowledge' above), using State and Territory agencies, local government, rural service providers and contractors, catchment management authorities and volunteer groups.

**B. All Interested Parties**

1. Develop and maintain communications programs so that the issues get constant publicity.

**C. Serrated Tussock Working Party**

1. Arrange field day or similar activities for the benefit of politicians and senior agency personnel, to increase their understanding and appreciation of the problem.

## South Burnett Regional Council Pest Management Program

(See a longer description of the program in Small FARMS October 2013. Local government in Queensland has extensive natural resource management and biosecurity responsibilities, and so for the purposes here, its New South Wales equivalent is Local Land Services.)

The South Burnett Regional Council in Queensland has a Pest Management Program based on collaboration, assistance, management planning, rewards, and community involvement. It incorporates fire regimes and biodiversity. In Queensland local government has substantial environmental responsibilities, akin to those vested in Local Land Services in New South Wales.

The program was developed a few years ago to replace the more common 'enforcement of environmental legislation' approach, which was not producing the needed results.

A big problem with pest management, including for weeds, is engaging landholders and other relevant parties, eg, agricultural contractors and transport operators, in sufficient numbers and over a sufficient length of time.

The Council approach involves:

- **Council commitment** the Council has a Natural Resources Management and Parks Division
- **Example** eg, carry out weed control on roadsides and Council land where a program is to start
- **Contact** letter to all the landholders in the relevant area advising about the intended program and available support, talking to them as necessary
- **Assistance** the Council can provide information and advice (including relating to relevant whole of farm issues), and, if landholders are willing to agree to a minimum three year plan, free hire of equipment
- **'Public good'** in a highest priority situation, herbicide may be provided, and in an isolated, high priority situation, matching resources, eg, three hours for each landholder ten hours, may be provided
- **Last resort** recourse to enforcement action
- **Continuing community involvement** Council support for establishment of a Pest Advisory Committee
- **Rewards** the Council is part of the Burnett District Pest Management Group that has an annual award for 'a South Burnett landholder or community member for their efforts towards pest management awareness and activities'.

So far the process has been successful, with high participation and a buildup of peer pressure. The approach has meant community support if any enforcement action is taken.

The base funding for the program comes from normal Council rates, ie, the whole community accepts responsibility. There is also an Environmental Levy of \$25 a ratepayer. The town ratepayers are urged to see the program as benefiting them too because of the strengthening of the local economy, and the freeing of resources that can be spent in the towns.

An important outcome is that the system is more efficient, ie greater outcomes for the same investment. There is a leveraging effect, eg, the Council has a \$1.6 million Caring for our Country grant from the Biodiversity Fund.



## Wallaroo War on Weeds

The Wallaroo War on Weeds program, a local community project involving the Ginninderra Catchment Group and some Caring for our Country funding, will be most successful if we can be systematic and persistent and be able to measure and broadcast our achievements to the wider world.

To make this easier, we can use the well established the Certified Land Management (CLM) system as the basis for planning and management on properties, and can trial the Land Observation Partnership system for reliable data collection, monitoring and reporting.

## Certified Land Management

CLM is a user friendly land management system designed for landholders to improve environmental outcomes in ways that enable their achievements and their support organisations to be recognised and rewarded. It takes account of the capabilities and aspirations of individual landholders, enables creativity and sustained commitment, and meets the community's requirement to have measurable improvement in environmental and animal welfare performance.

CLM has a unique combination of features. It is whole-of-property so that it can cover all activities on the property. It is landscape linked because each property is not an island, and because some activities, such as weed control, are most effectively managed as part of a whole of landscape scenario. Properties could link together so that only one plan is needed for several landholders.

The CLM support for biodiversity makes it particularly suitable where weed control is the emphasis. It is also used for managing animal welfare.

CLM can be used for broader purposes, eg, marketing products, as it can be externally audited, complies with the internationally recognised ISO14001 management standard, and so it is credible and enables local, national and even international recognition.

The system is managed by the not-for-profit ALM Group, and CLM landholders have access to specially designed web-based software. This tool improves the effectiveness of land management and dramatically reduces the time and cost of developing, implementing and auditing management plans. Landholders are assisted by ALM Group accredited trainers.

## Monitoring

The initial part of the planning process will involve a rough indication of weed problems and any related landscape features using the means most suited to the landholder and adviser. This will be sufficient to make a start with planning and on ground action.

If we want to get greatest value from the project, in terms of personal satisfaction, improved landscapes, community recognition, efficient and effective weed control and more profitable enterprises, we need a consistent and credible monitoring system that will endure over many years, and will continue to apply regardless of changes of ownership, land use, management practices or priorities.

The Land Observation Partnership (LOP) links land managers, trained conservation volunteers, scientists and community groups in building enduring capability for consistent, reliable field data collection, monitoring and reporting about the effects of the landscape interventions in the project.

The system is based on a set of national standards, protocols and methods to record and measure landscape condition and changes over time.

A key objective of the LOP initiative is to create the *Land Diary of Australia*. The diary will be underpinned by a process for repeatable and shared photo-monitoring that can provide a public platform for environmental stewardship across Australia. A photo at a known location, archived in perpetuity, is inherently valuable. Such photographs, repeated over time can build a visual image library of a vast land of droughts and flooding rains and also the impacts of invasive species and other threats (e.g. land degradation). Observations and photographs provide a tangible record for the success or otherwise of various land management interventions over time, e.g. fencing, revegetation, weed control etc; enabling tracking of condition.

The system meets the needs for a simple, consistent, affordable, repeatable and cost effective process for collecting landscape information, for supporting landholders and enabling recognition for their efforts, and for establishing a national information database of environmental condition.

This system complements CLM and is easily integrated with it.



July 2008



April 2010



May 2012