

Integration of Biocontrol Prioritisation Tool into a National WRM Framework

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LWA Managing Weeds : Maximising Knowledge of Recent Research – March 2009

Background

Aim: Develop a scheme for prioritising weeds as targets for biological control within Australia

- Review existing systems
- ID criteria for prioritisation
- Workshop with expert stakeholders
 - Feedback on proposed scheme
- Guidelines for use
- Preliminary biological control priority list
 - Based on WONS candidate list
 - Existing AWC priority lists
- Recommendations for implementation



Paynter et al
2009

Issue

- Two prioritisation systems
 - WRM & Biological control
- Both potentially useful for ID biological control targets
- Significant overlap in criteria used
- But....good potential to link two systems
 - Better target prioritisation
 - Better chance adoption
 - Less duplication



Biological control targets

- Biological control prioritisation workshop (Nov 2008)
- National post-border WRM Protocol (2006)
- State's / Territories WRM systems
- Discussion paper (Dec 08)
- Paynter et al 2008 (earlier presentation)

Biocontrol prioritisation

Biological control targets

- Prioritisation framework comprising 3 modules
- #1: Weed importance and desirability of biological control (WONS score)
 - Native?
 - Conflicts of interest likely?
 - Importance of the weed
- #2: Effort required to develop agent (50-4)
 - Agent elsewhere?
 - Ease of working in native range
 - Natural enemies well known (literature)
 - Phylogeny (relatedness to natives)



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Biological control targets

- #3: Impact of agent / probability of success (100-20)
 - Overseas success/failure (precedent)
 - Novel (no precedent)
 - Habitat (aquatic/terrestrial')
 - Life-cycle (annual v biennial / perennial)
 - Reproduction (seed/spore v vegetative)
 - Weed in native range
 - Multiple species / congeners
 - Environmental v agricultural weed
 - Native / valued congener



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*literature indicates higher probability of success

Biological control targets

Calculating priority score

Priority = Importance x Effort x 1/Impact

For 112 WONS candidate and AWC priority list spp:

- Maximum score: 1370 *Salvinia molesta*
- Minimum score: 0 *Annona glabra* (horticulture conflict)



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Weed Risk Management

The template for WRM

National Post-Border
WRM protocol
(Standards Aust/NZ & CRC WM 2006)

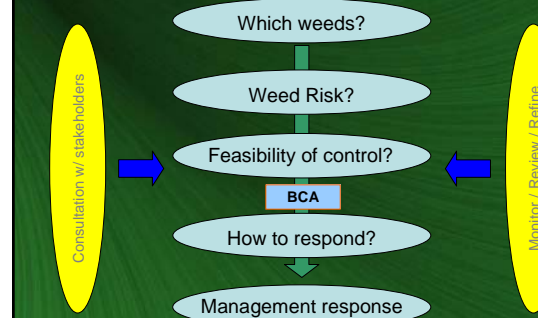
- best practice weed management principles
- incorporating risk management principles

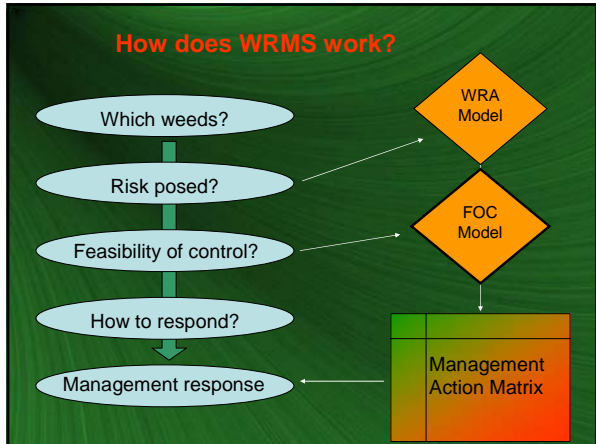


WRM: What and Why ?

- A logical framework and decision support tools
- Need to prioritise management actions
- There are limited resources for control
- Weeds differ in their impacts and feasibility of control
- Need to foster prevention or early intervention against new weeds
- Need to make decisions objectively (evidence based)
- Transparent process (defensible)

A WRM system



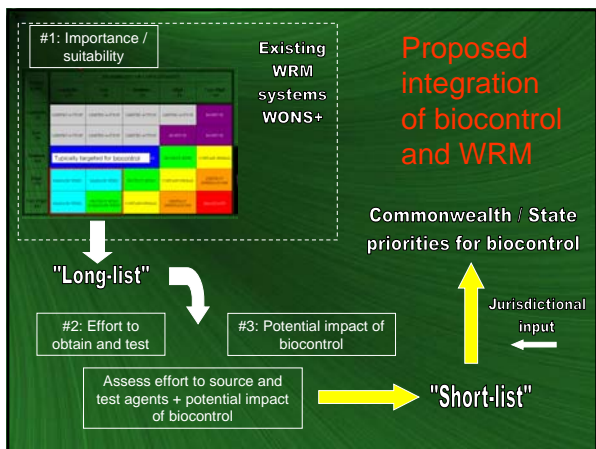
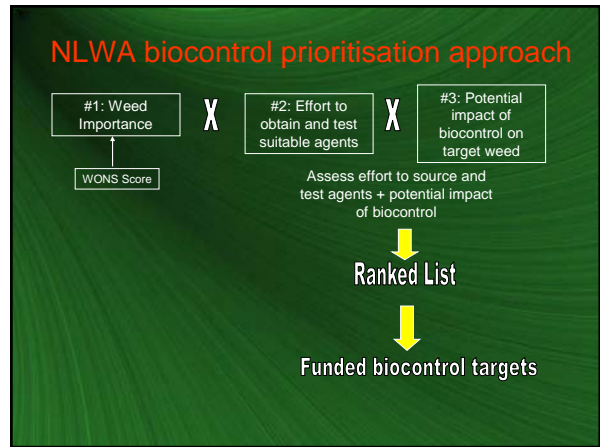


Management Action Matrix

WEED RISK	FEASIBILITY OF CONTAINMENT				
	Negligible >113	Low >56	Medium >31	High >14	Very High <14
Negligible <13	LIMITED ACTION	LIMITED ACTION	LIMITED ACTION	LIMITED ACTION	MANAGE WEED
Low <39	LIMITED ACTION	LIMITED ACTION	LIMITED ACTION	MONITOR	MONITOR
Medium <101	Targets for biocontrol				
High <192	MANAGE WEED	MANAGE WEED	MONITOR	CONTAIN SPREAD	MANAGE WEED
Very High >192	MANAGE WEED	PROTECT SITES & MANAGE WEED	CONTAIN SPREAD	LEGISLATE / INVESTIGATIONS	CONTAIN SPREAD

ALERT

Integrating the biocontrol prioritisation tool into WRM



Proposed Implementation Approach

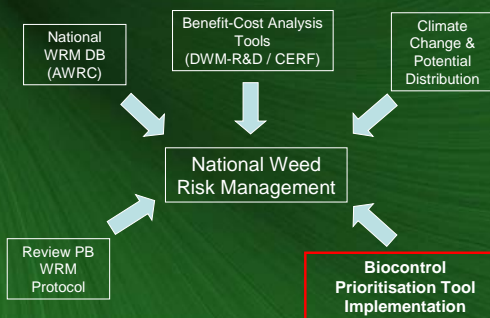
National WRM Forum

- Facilitate improved coordination, cooperation and consistency between jurisdictions engaged in WRM
- All States and Territories represented
- BQ, BRS, BA, FFICRC, CDU, CSIRO
- Data exchange, sharing expertise, review and refine existing WRM systems via workshops and R&D
- Joint projects:
 - National WRM DB
 - ACERA uncertainty project
 - Review of National post-border WRM protocol

Possible Approach

- New tools as being part of larger WRM toolbox, rather than stand-alone tool / system.
- Build on existing frameworks / tools / systems wherever possible – value add to previous investments.
- Stakeholder engagement is essential element
- Recognise that each jurisdiction will have its own priorities
- National WRM Forum provides existing mechanism stakeholder/end-user engagement.

Biocontrol prioritisation within WRM Framework



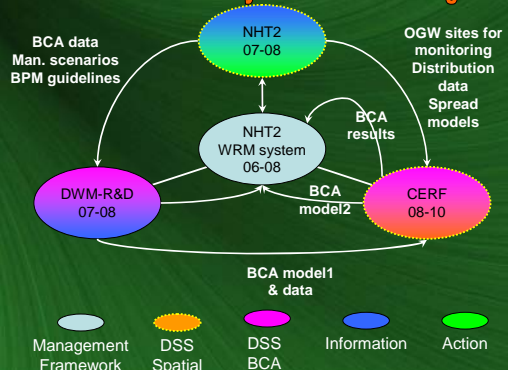
Conclusions

- Biological prioritisation tool very useful addition to existing prioritisation systems i.e. WRM
- Maximum utility & uptake (Stage 2) via embedding within existing national systems / policy
- National WRM Forum can assist within technical advice and stakeholder networks
- National WRM Forum needs to ensure funding bodies aware of national standards/guidelines and existing "tools".
- NWRMF to pursue funding through AWRC

Future R&D priorities

- Basic information, tools, decision support systems that support evidence based approach
 - Impact & ecology of invasive spp
 - Improved methods mapping / monitoring
 - Economic data
 - Impact
 - Management costs
 - Optimisation tools
- Building on previous / existing projects (programs not projects)
- Collaborative projects (researchers/NRM's/stakeholders/cross-jurisdictional)

Northern Grassy Weeds R&D Program



National WRM Forum - 2008

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Stephen Johnson (NSW Department of Primary Industries)
Paul Keese (Office of Gene Technology Regulator - OGTR)
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