Implementation of a WRM system in the Northern Territory, Australia

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Charles Darwin UNIVERSITY
Innovation in Education

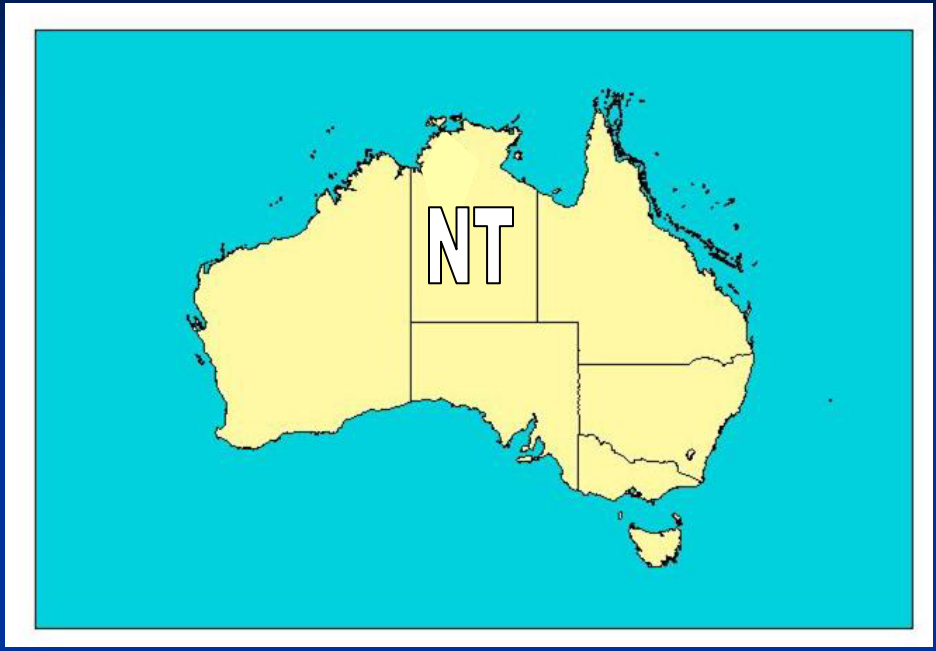
Natural Heritage Trust
Helping Communities Helping Australia
A Commonwealth Government Initiative

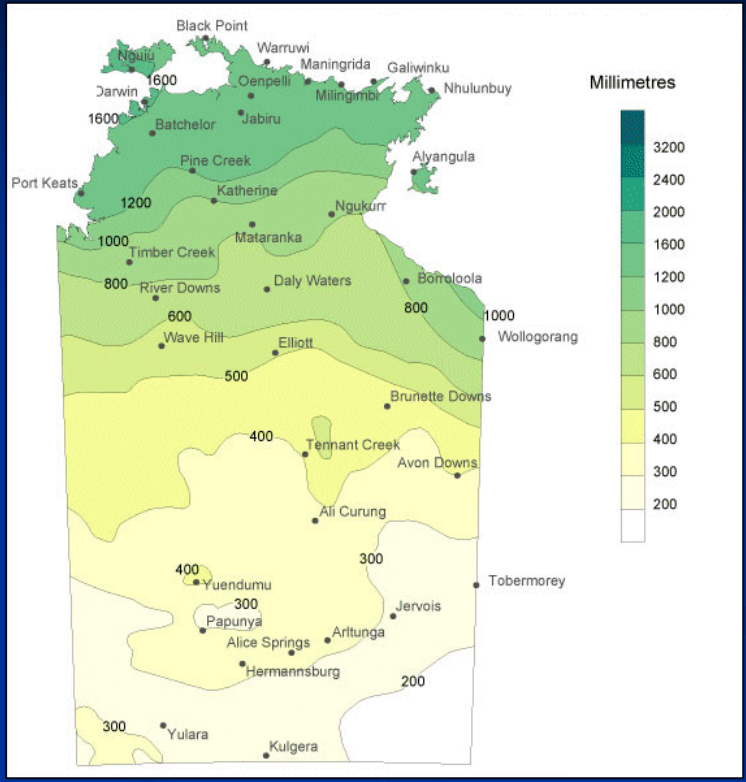
Overview

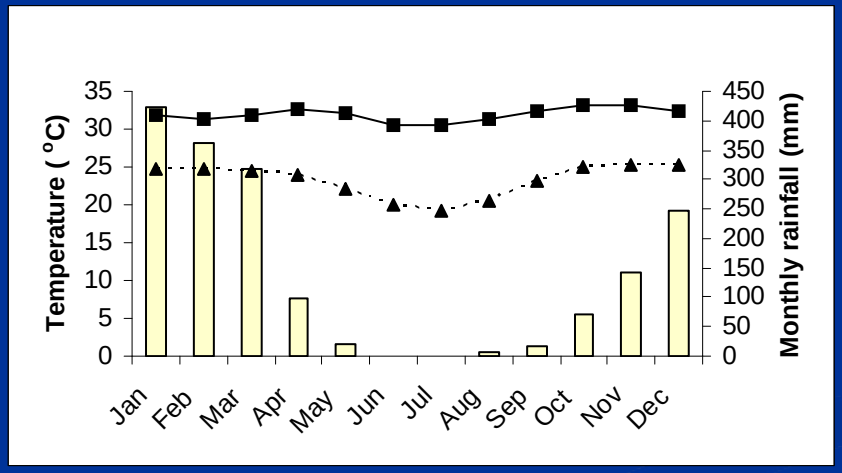
- Background -where, why and what we aimed to do
- How we approached
- Results to date
- Gaps in WRM ID'd
- Proposed solutions and way forward

Para grass

Where







- 140K km2
- 200K people (mostly Darwin)
- 1% Australian popn

Why worry and door metaphor?

- Australian quarantine v. good but door still ajar
- Until relatively recently, no door at all – and invited through door didn't have
- ~25,000 plants introduced
  => same number as no. native spp (Groves 2002)
- ~2,500 naturalised, many become weeds
- Shutting door now = prevent future incursion
- Shutting door not deal with those already here
- Post-border WRM system one tool for both pre and post entry

Close the door & mop up the spill

- NT – largely intact
- But, reflects national problem
- Weeds threaten environment, production and community
- With increased development, inevitable, forecast changes climate, and large number of weeds already present..
- Expected problem will only grow.

Mopping up the spill using an under-sized mop

- Large area to manage
- Limited resources
- Growing threats posed by invasive plants
- Hard to decide where, with our “small mop” to
  (a) “start mopping”
  (b) prevent more “spills”
- WRM system evidence-based, best-practice solution

Hot topic: weeds media

"In Queensland they're referring to it as the **green bulldozer**. It's killing trees without the use of machinery, ..."

Hot topic: weeds media

Feral grasses a major worry

AS Greg Miles noted (April 29), gamba grass and the set of other African and South American grasses that are now taking over our native environments are likely to have a far more serious impact upon our wildlife than cane toads will. But while our politicians whip themselves into hysteria about toads, they do nothing about the spread of introduced grasses.

It is still legal for pastoralists to plant and spread gamba grass, buffel grass and many

Weeding out gamba

IN A Territory first, an all-you-need-to-know guide on Gamba grass is now available.

Environment Minister Marion Scrymgour unveiled the Gamba Management Guide yesterday to help Territorians better identify and manage the introduced invasive grass.

"While it provides limited benefits to the pastoral industry it causes numerous negative environmental impacts due to its invasiveness and impacts on fire regimes," she said.

"We're not going to fully eradicate the weed but it is an unfortunate tool, which will help Territorians assess and manage the problem."

Gamba grass was introduced from Africa to the Barkly Tablelands as cattle feed but it has spread and now threatens much of the Top End. The grass grows quicker and thicker than native grasses and burns at a different time and with greater intensity.

Ms Scrymgour said the grass should be considered a weed of national significance and is working at getting it declared a weed under the Weeds Act.

"Under the Act we can enforce and make sure land owners take responsibility," she said. "If our landowners

Marion Scrymgour launches the Gamba Management Guide. Picture: PATRINA MALONE

Darwin River under quarantine

Govt seeks weed ban

GAMBA grass may be declared a weed in the Territory – but not until the middle of next year.

Environment Minister Marion Scrymgour said experts were assessing the effects of the exotic grass on the environment.

Independent MLA Gerry Wood said gamba was still being baled and sold at a property on the Stuart Highway.

NT News - Page 4
18/10/06

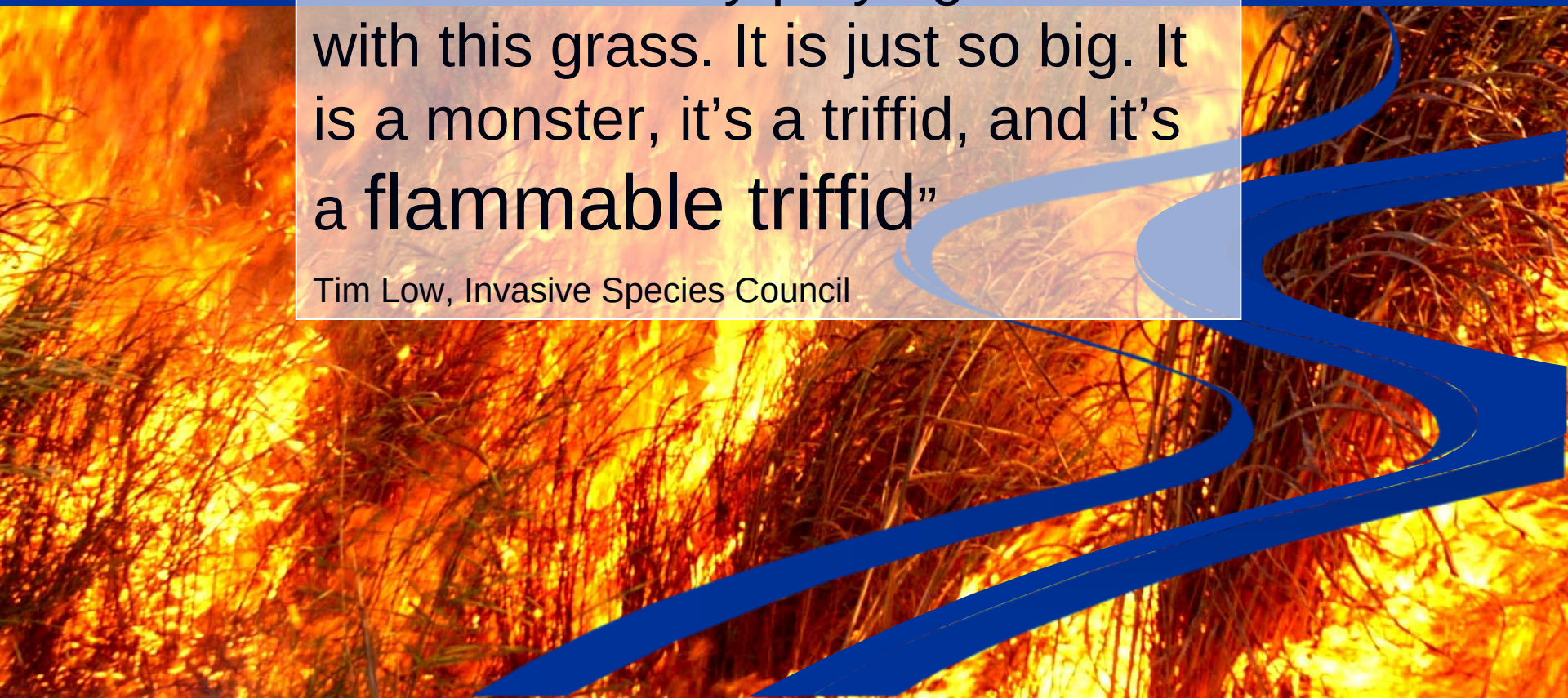
BackgroundBriefing

ABC Radio National

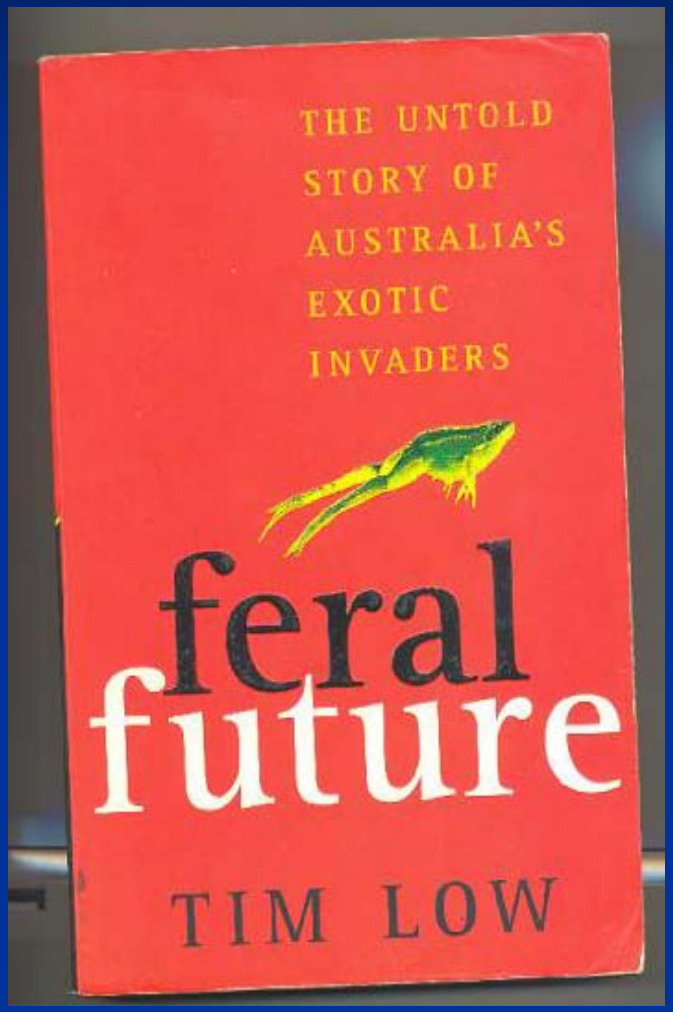
Gamba grass

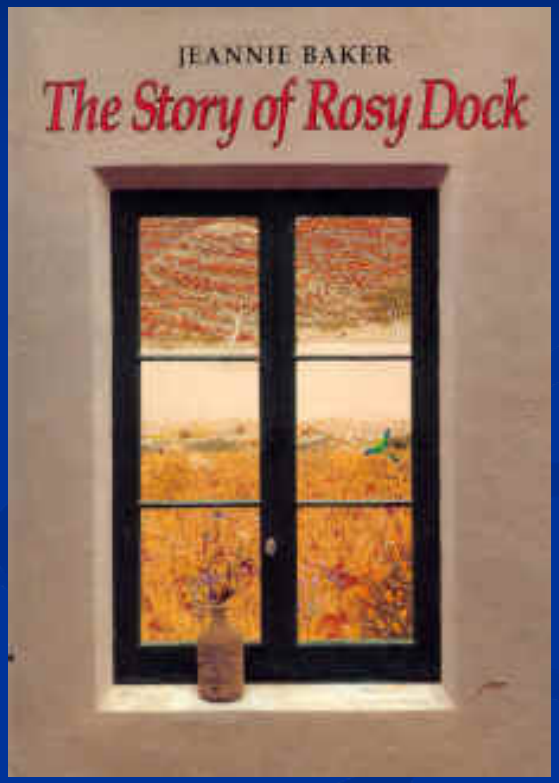
"You are literally playing with fire with this grass. It is just so big. It is a monster, it's a triffid, and it's a flammable triffid"

Tim Low, Invasive Species Council



Literature for all ages





WRM: What and Why ?

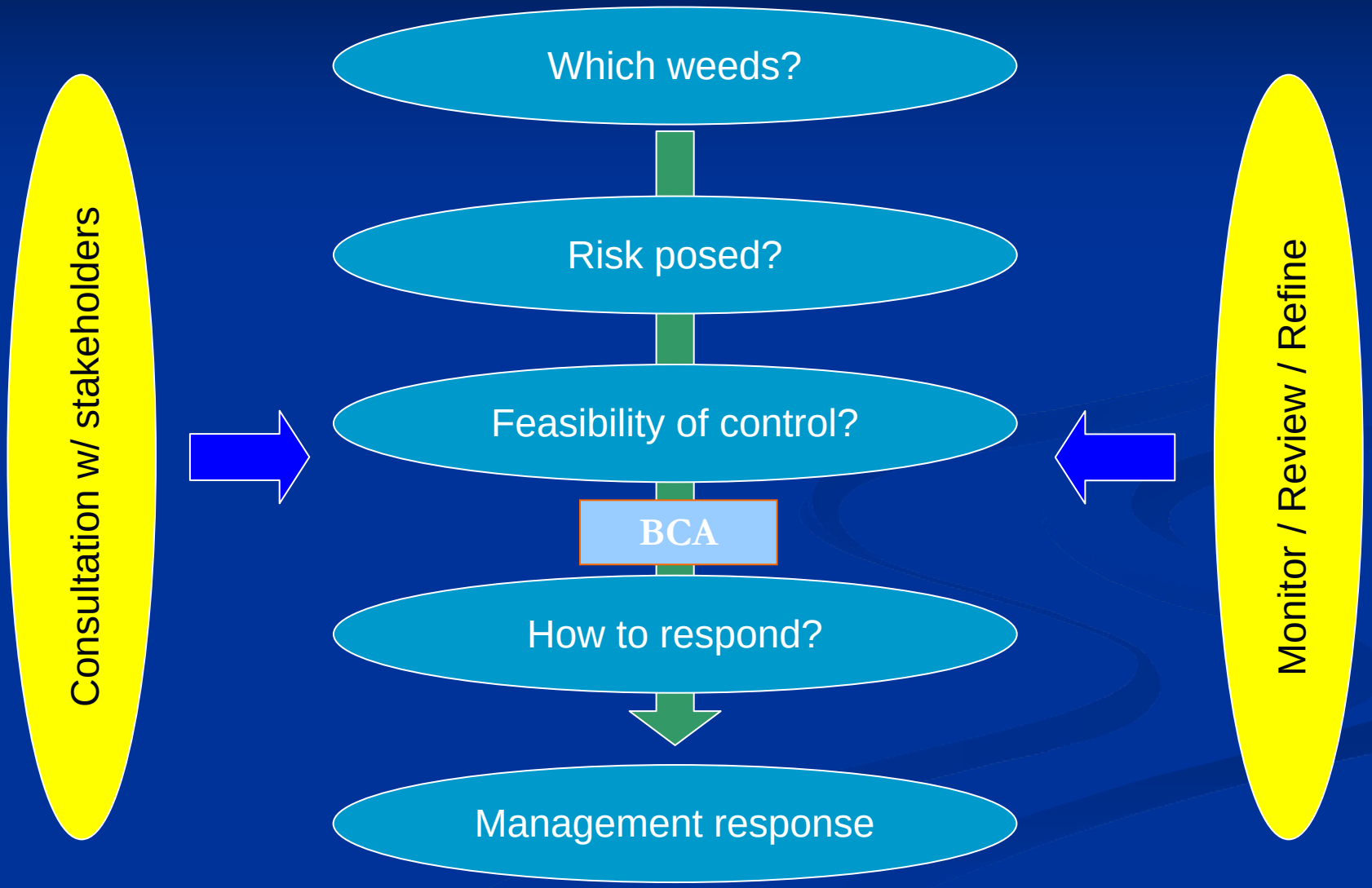
- A logical framework and decision support tools
- Need to prioritise management actions
- There are limited resources for control
- Weeds differ in their impacts
- Weeds differ in their feasibility of control
- Need to foster prevention or early intervention against new weeds
- Need to make decisions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

The recipe book for WRM

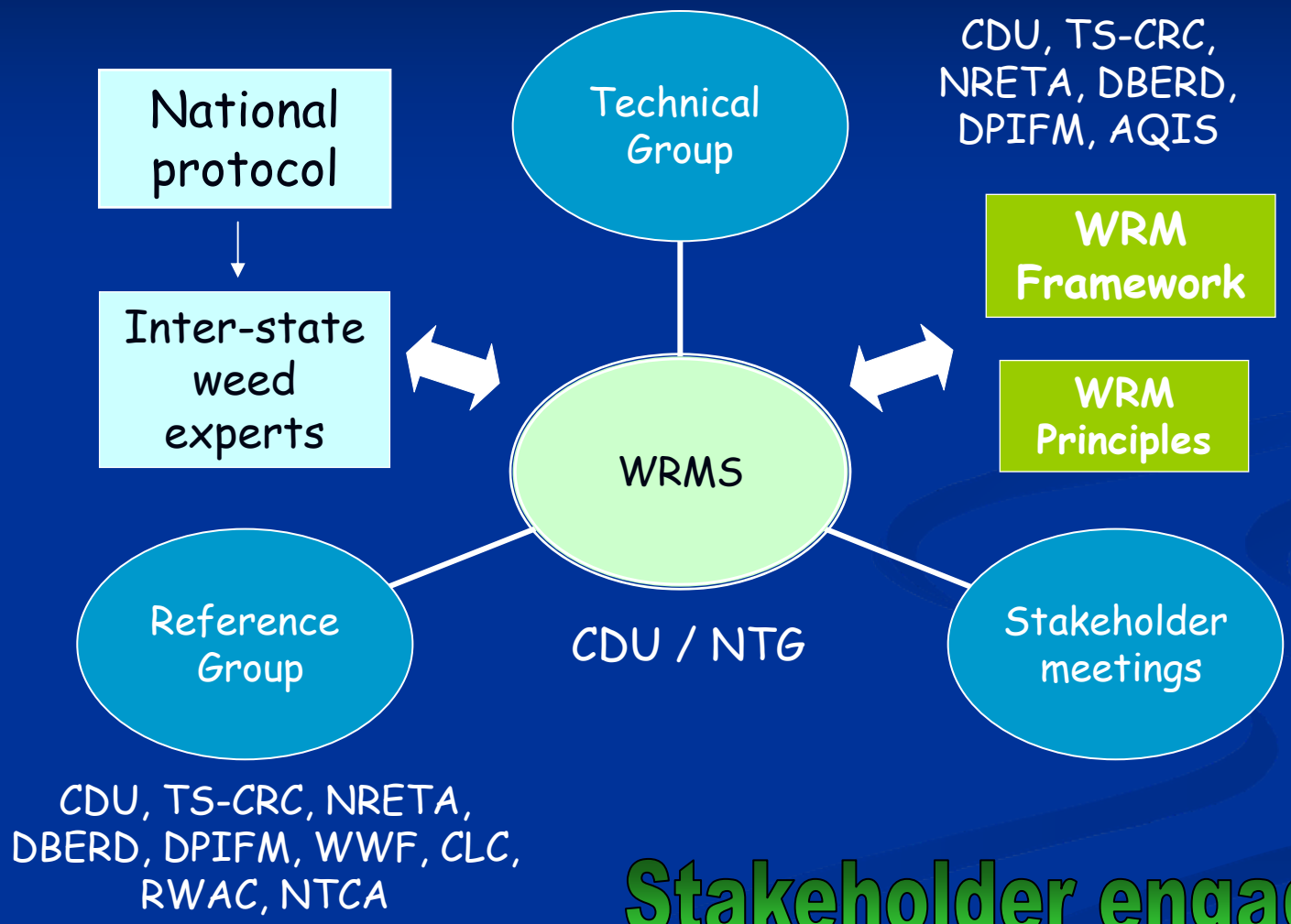
National Post-Border WRM protocol
(Standards Aust/NZ & CRC WM 2006)

- best practice weed management principles
- incorporating risk management principles

NT WRM system



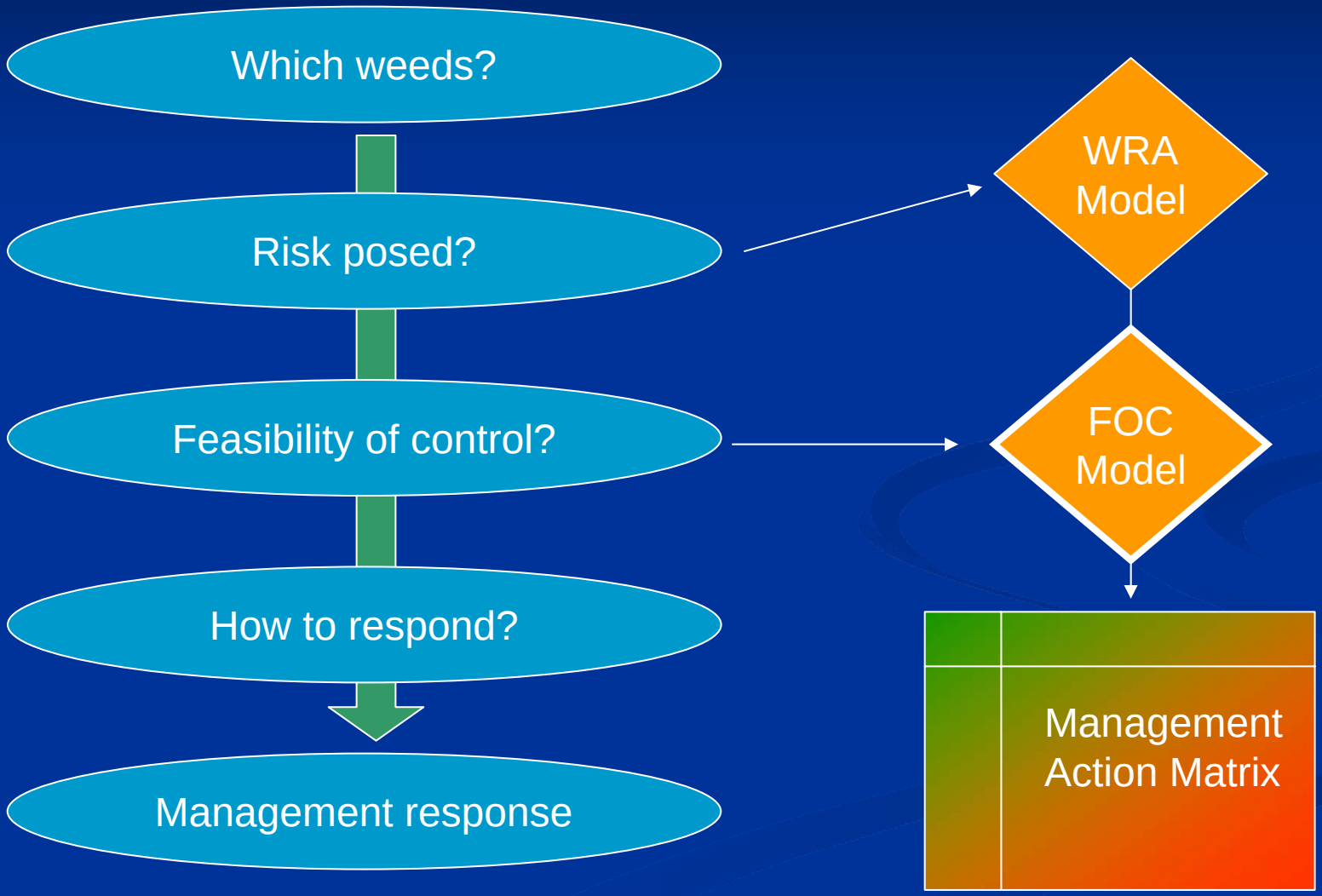
Approach for WRM development



WRM Reference Group

- Additional advice on FoC
  - NT's primary professional contractors
  - Peter Jeffries, Murray Fuller, Guy McSkimming

How does NT WRMS work?



What we modified

- Landuse
  – protection of native veg
- Indigenous cultural values
  - not just western values
- Fire
  - ecosystem driver
  - grass-fire cycle
- Lost questions we couldn't:
  - reliably /consistently answer
  - not relevant to NT
- BCA – simplified - categories

NORTHERN TERRITORY WEED RISK MANAGEMENT GUIDE

Draft Only – June 2007

INTRODUCTION

The Northern Territory Weed Risk Management (WRM) System has been developed collaboratively by the Department of Natural Resources, Environment and the Arts; the Department of Primary Industries, Fisheries and Mines; Charles Darwin University; and other stakeholder groups. The system was developed by reviewing WRM systems currently in use throughout Australia and selecting suitable components of these systems. Most of the NT WRM system is derived from the South Australian system, (see: *Virtue 2006, SA Weed Risk Management Guide*', *South Australian Department of Water, Land and Biodiversity Conservation*). The benefit-cost component of the NT WRM system is derived from the Queensland WRM system (ref). All components were modified / improved to suit the environmental conditions and weed management needs of the NT. It aims to provide a evidence-based, standard, agreed and transparent process for making decisions about the introduction, declaration and prioritisation of potential weed or current weed species. It also aims to help achieve a balance between the economic benefits to be gained from using exotic species versus the potential detrimental impacts (costs) on the environment, industry or the community. Specifically the WRM system has been designed as a decision support tool for:

- Deciding which plants should be approved for release in the NT;
- Identifying which plants require further research prior to release in the NT;
- Prioritising weeds for the allocation of limited management resources;
- Determining the appropriate legislative status for undeclared naturalised plants; and
- Reviewing the legislative status of currently declared weeds.

In the NT the majority of the landscape is relatively intact and the majority of beneficial uses derived from the NT environment rely on an intact/functioning landscape. Weeds threaten the intact nature of the landscape via modification of native vegetation (structural and functional changes). As such, weeds have the potential to have significant negative environmental, social and economic impacts.

In undertaking weed risk management in the NT we therefore focus on the potential for a weed to have a negative impact on native vegetation; where native vegetation is used as an indicator of the degree to which the landscape is intact. This focus on the protection and conservation of native vegetation therefore provides an indication of the degree to which we may be able to mitigate the risk posed and/or the success of management intervention.

1) COMPARATIVE WEED RISK

The comparative weed risk questions are divided into three main criteria; Invasiveness, Impacts and potential distribution. *Invasiveness* looks at the plants ability to establish, disperse and its rate of spread. *Impacts* are the environmental, economic and social effects the plant would have if established. *Potential distribution* indicates the total area of the NT that is climatically suitable for growth and establishment of the plant. Scores for each of these criteria are multiplied (each ranging between 0 and 10), to give a weed risk score out of 1000.

A) INVASIVENESS

This section indicates how fast the plant can spread and how dense it can become within native vegetation. It takes account of how well the weed can establish, reproduce and disperse.

1. What is the ability of the plant to establish amongst intact native environments?		SCORE
☐ very high	"Seedlings" can establish within relatively intact native vegetation.	3
☐ high	"Seedlings" establish within highly disturbed native vegetation, which is defined as vegetation structure intact, disturbance affecting individual species (Kelleberg, 1994).	2
☐ medium	"Seedlings" mainly establish where there has been moderate disturbance to existing vegetation which significantly alters the vegetation's structure and substantially reduces competition from other plant species. This could include intensive grazing, mowing, raking, clearing of trees, floods, drought or in some cases fire. The native vegetation retains basic structure or ability to regenerate (Kelleberg, 1994).	1
☐ low	"Seedlings" mainly need bare ground to establish; basic vegetation structure is severely impacted by disturbance, some or no scope for regeneration but not to a scale approaching good condition without intensive management (Kelleberg, 1994). This will occur after major disturbances such as cultivation, overgrazing, hot fires, grading, long-term floods or long drought.	0
☐ don't know		1.5

Assume no weed control practices for this question. According to assumptions, "vegetation" implies native vegetation. Plant / soil / water / intact vegetation, where a dense vegetative cover, over soil is maintained relative to the maximum depth of that community, are assumed to have more weed potential.

Assume the plant has just arrived. "Seedlings" include growth from dispersed vegetative propagules (e.g. broken fragments of stems or roots) and spores. In addition to seeds. "Seedlings" does not include new vegetative growth whilst still attached to the parent plant (e.g. by stolons, rhizomes or lateral roots). This feature is accounted for in question 2(c).

		Feasibility of Control			
		negligible	**low**	**medium**	**high**
Weed Risk	**negligible**	assist interested parties	assist interested parties	assist interested parties	Monitor assist interested parties
	low	Improve general weed management	Improve general weed management	Targeted control Improve general weed management	Targeted control Monitor Protect priority sites
	medium	Targeted control	Targeted control	Protect priority sites	Prevent entry Contain regional spread
	high	Targeted control (incl. biocontrol) protect priority sites	Targeted control (incl. biocontrol) Protect priority sites	Prevent entry Contain regional spread protect priority sites	Prevent entry Regional eradication protect priority sites

NB: High FOC = high liklihood of success

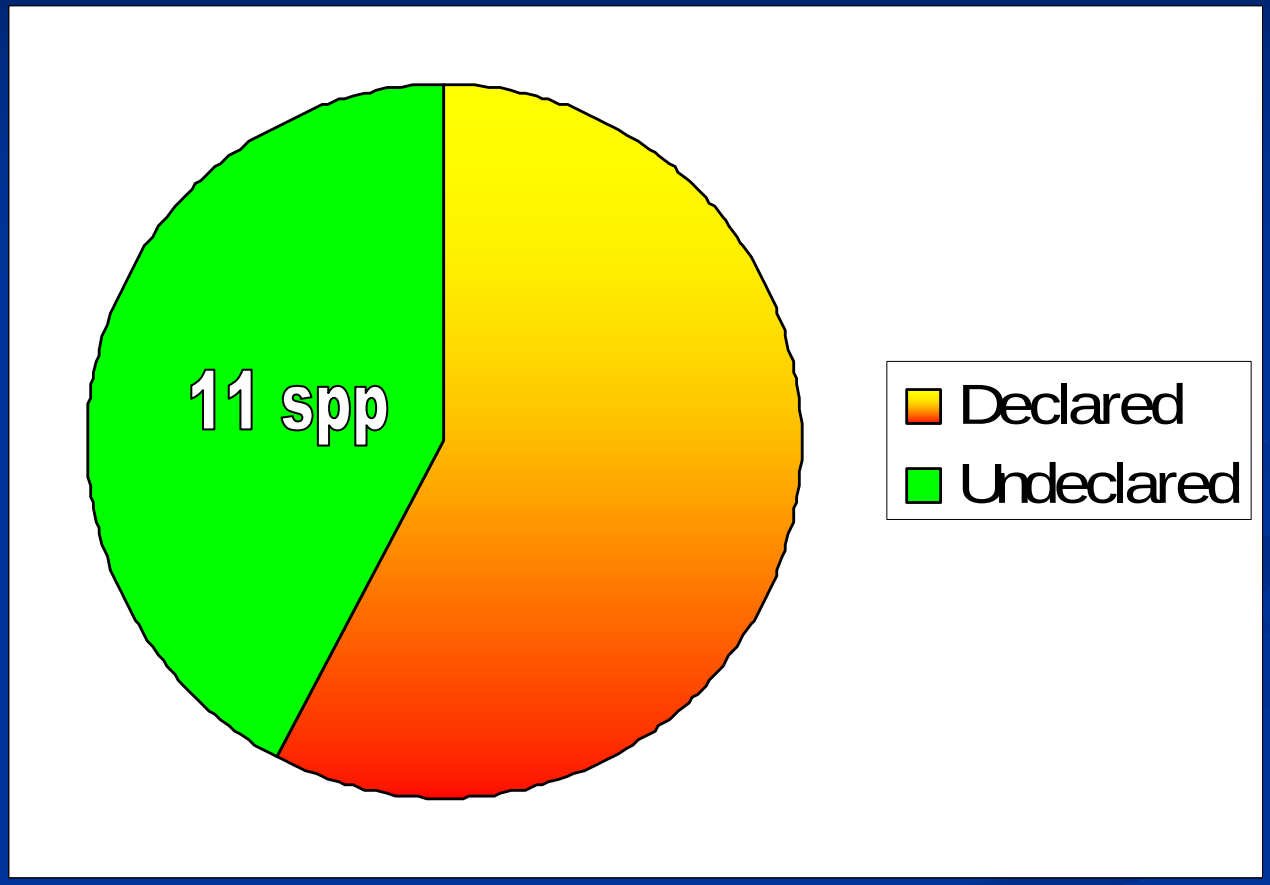
		Feasibility of Control			
		N	L	M	H
Weed Risk	N				
	L				
	M				
	H				

priority spp

Where we are @

- WRA model tested – being finalised
- FOC – tested being finalised
- BCA – draft / testing about commence
- 50 spp – WRA/FOC
- 50 spp management recommendations

High / medium CWR

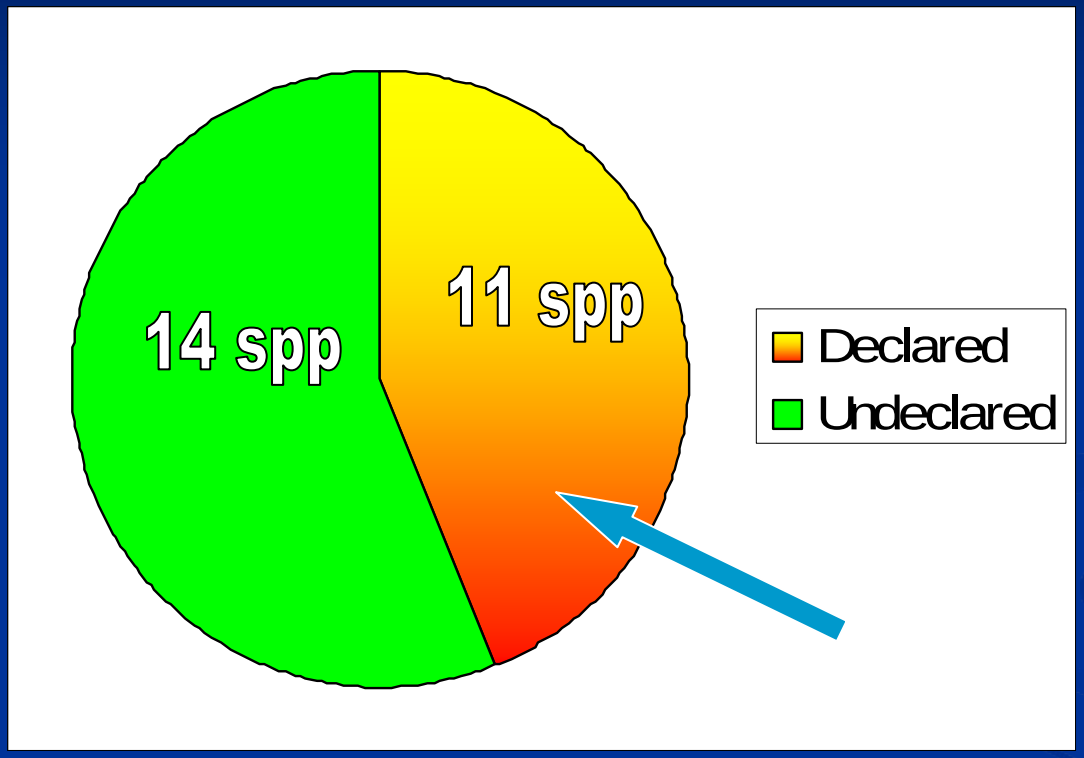


54% undeclared & H/M CWR = grasses

Currently not declared but should be

- Gamba grass
- Buffel grass
- Guinea grass
- Annual mission grass
- Para grass
- Sheda grass
- Brazilian pepper
- Coffee bush
- Neem tree
- Coral vine
- Water mimosa

Low /negligible CWR



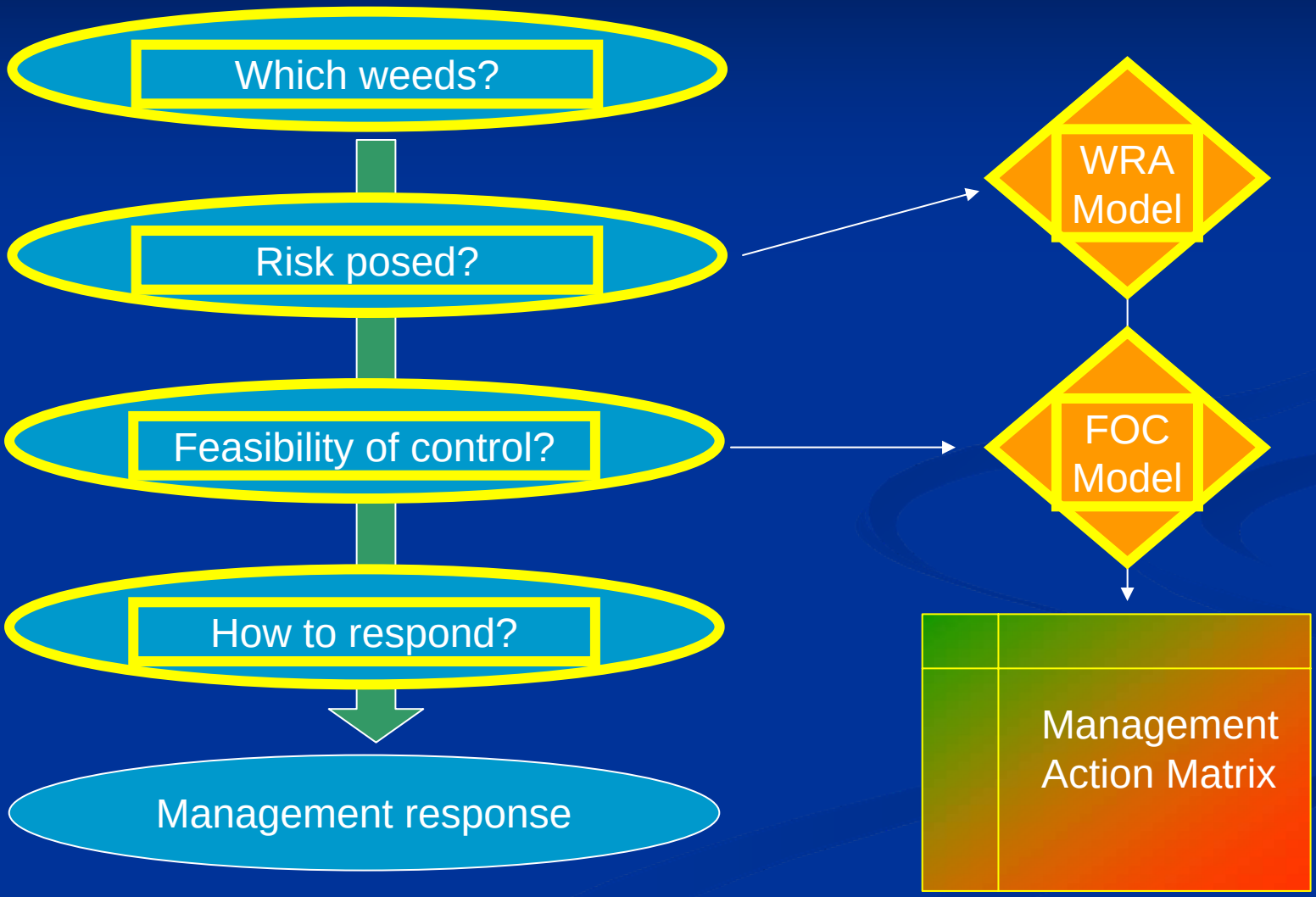
4 spp - declared but not priority

Currently declared but should not be?

- Hyptis
- Lions tail
- Knob weed
- Mexican poppy

		FOC			
		N	L	M	H
CWR	N	X	X	X	
	L	X	X		
	M				
	H				

Progress thus far

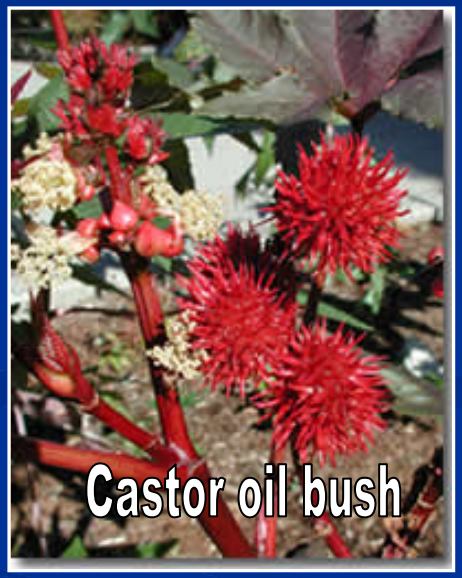


What will we do with this info

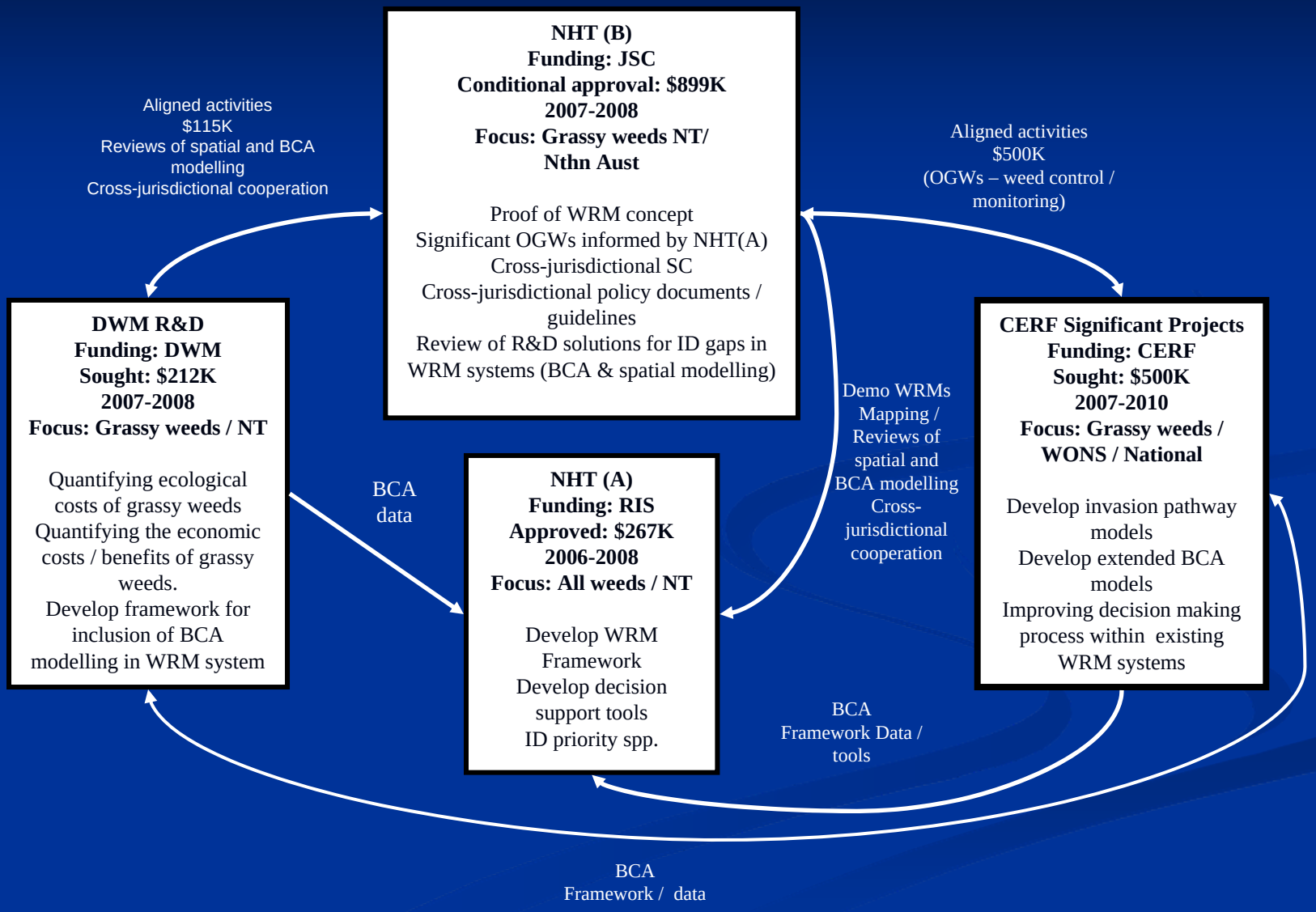
- Review NT declared weed list and assoc. man. plans
- Nominate H/M risk spp for declaration
- Commence design management plans
- Recommendations to regional weed managers
- Recommendations to NRM managers
- Cross-border cooperation / where priorities align

WRM gaps – R&D

- Strategic response impediments
- Potential distn modelling
- BCA / optimising investment
- Cross-jurisdictional coordination



Grassy weeds in northern Australia



Where to from here

- Complete and implement WRMS in NT
- Revise declared weed list
- Nominate spp for declaration
- Sensitivity analyses
- Work with other jurisdictions to coordinate assessments, address gaps and implement cross-border management responses to priority spp
- Grassy weed R&D program 2007-10
- Incorporating potential distn and BCA tools into existing WRM frameworks
- Permitted plants list ("turning off tap")

Acknowledgements

- WRM project team
  Nat Rossiter, Jane Barratt, Laura Wirf
- Interstate collaborators/ mentors
  "The Johns" - Virtue, Weiss (& team), Clarkson, and Steve Csurhes
- Weed management contractors
- Technical and Reference stakeholder groups