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Buffel grass: understanding perceptions can contribute to policy development



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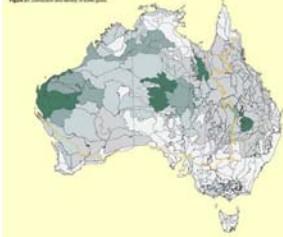


History of introduction and spread

- Earliest herbarium record: 1887
- Naturalised at least by 1922
- A focus of concerted pasture research and activity, at least since the 1930s
- Over 40 cultivars apparently naturalised in Australia (over 100 introduced)
- Cultivars can differ in their ecology, value and impacts
- Cultivars can apparently "interbreed"

National distribution and abundance




Diversity of species


- intermediate use concentration/intermediate use zone boundary
- stochastic overabundance
- common and widespread
- occasional or localized
- absent
- no data

Disclaimer:
National Land Use Database (NLUD) Version 4.0.1. Land Use Data is derived from the NLUD. Data is not intended to be used as a substitute for the NLUD. © Commonwealth of Australia 2014

- Potentially can become more dominant over large areas
- Only absent from the remotest places





Woodgreen



Benefits of buffel grass

- It is arguably the most important pasture grass species in large areas of northern Australia
- It has also helped with rehabilitation of degraded land

Costs of buffel grass

- Buffel grass is a major environmental weed with the potential to establish in over 60% of mainland Australia



Miller

Invasion-fire cycle: conversion to grasslands



van Vreeswyck

What was there before buffel?

Much still to learn on impacts



The problem

- Two perceptions prevent the development and application of broad-scale strategic management approaches
 1. Conflict
 2. Technical difficulty
- Resulted in a default position: cultivation and exploitation continues largely unchecked



What we wanted to achieve

Social research to:

- Assess stakeholder views at the organisational and land manager levels
- Identify common ground
 - Impacts (positive and negative)
 - Management objectives
 - Management tools
- Identify pathways toward more effective management including policy directions

Develop an approach that can be applied to other "conflict species"



Stakeholders involved

- Federal and State Departments of Environment/Conservation e.g. environmental impacts (biodiversity, water, fire, weeds, Park management), Agriculture (animal and pasture production), Transport
- NRM Boards and regional committees
- Landcare
- Pastoral Boards
- Industry bodies e.g. Agforce, PGA, SAFF, NTCA
- R&D agencies e.g. MLA, LWA and individual DWM projects, esp. Setterfield LWA NTU25 project
- Shire Councils
- NGOs e.g. Greening Australia
- Companies e.g. S. Kidman, Rio Tinto
- Indigenous agencies e.g. CLC
- Individual landholders



Project activities

Alice Springs Region

Pilbara

Fitzroy Region

South Australian Arid Lands

- phone surveyed up to 25 land managers in each region
- a focus group (1.5 days) in each region

Perceptions of impacts

Production

Conservation

Some surprises

- sectors could consistently see "the other side"
- big differences between regions in what impacts were important (e.g. fire)

Perception of impacts: e.g. Conservation

Impact	Fitzroy		Alice		SAAL		Pilbara	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Biodiversity	14%	43%	82%		75%		60%	
Fire		43%	64%		25%		13%	27%
Biophysical			27%	27%			27%	13%
Social			27%		42%		20%	
Management			27%		92%		27%	73%

Management objectives

Groups recognised four management objectives:

- Eradicate if very localised
- Reduce spread into clean areas
- Suppress
- Manage for dominance (50-90% buffel grass)

Management objectives and land use/tenure

Management objective	Environmental reserves		Pastoral land			
	High conservation value	High conservation value	High conservation value	High conservation value	Low conservation value	Low conservation value
	No production allowed	Production applicable	High production value	Low production value	High production value	Low production value
Eradicate if very localised	y	y	n (F) y (AS) y (SARL) y (P)	y/n y y/n	n	n
Reduce spread into clean areas	y	y	y y y	y/n y y/n	n	n
Suppress	y	y	y/n y y y	y/n y y n	y/n n n	n
Manage for dominance, where dominance means buffel grass is >50% of pasture, and monoculture means >90%	n	n	y/n y n	y/n n y/n	y	n

Management tools

- Management tools were generally uncontroversial for managing buffel grass on environmental reserves
 - One exception was grazing as a management tool
 - Dependent on resource availability
- Management tools were uncontroversial for pastoral lands
 - Revolved around grazing management
- Tools and their application were highly dependent on context (e.g. local environmental, economic and social conditions)

Tools: e.g. on environmental reserves

Table 6. Feasible and desirable management tools for environmental reserves (with and without grazing), as identified at four regional forums. x = no tools widely supported.

Management option	Fitzroy	Alice Springs	South Australian Arid Lands	Pilbara
Eradication	Re-seeding with natives	x	Re-seeding	x
		Mechanical/manual treatments	Mechanical/manual treatments	Manual removal
		Herbicides	Chemical control	Herbicides
		Burning and herbicides		Surveillance
		Mechanical treatments and herbicides		Quarantine
Reduction of spread	Buffer zones	Buffer zones	Buffer zones	Buffer zones
	Washdown facilities	Hygiene management; Manage hay transport; Use clean topsoil; gravel	Vehicle hygiene protocols; Protocols for nete works; Limit vehicle, stock access	Machinery, vehicle, clothing and boots hygiene; Limit soil movement
	Education	Best practice guidelines	Education	
	Controlled cool fire	Fire prevention		Fire management
	Healthy ground cover;		Maintain ground cover; Re-seeding	Maintain cover;
	Minimal soil disturbance	Road verge management		Minimise disturbance; Re-seeding
		Catchment management in high use areas		
		Herbicide	Herbicides	Herbicides
Suppression	Controlled fire	Burning and grazing where permissible	Burning and herbicide or grazing where permissible	
	Strategic grazing where permissible	Controlled grazing where permissible	Grazing where permissible	
		Stock water management where permissible		

Some examples of action

Dispelling the myth of "too hard"

Prevention of new problems

Restrictions of movement of existing cultivars

- differences in palatability (a production risk)
- differences in habitat requirements (an environmental risk)

Restrictions on introduction of new cultivars

- risk expanding range, worsening impacts, making management more difficult
- e.g. frost-tolerant cultivars in Mexico



Eradication

- Off-shore islands (e.g. Barrow Island)
- High-value assets (e.g. some National Parks)



Tourist point along
Canning Stock Route



Management strategy: "learn to live with"

Aim is to reduce buffel grass to below an acceptable threshold or to prevent it from going above that threshold

Potential tools include:

- disturbance management (fire, grazing)

Challenges:

- what works at the right scales?
- grazing in environmental reserves?
- what can be done with minimal intervention



Conclusions: overcoming perception blockages

• Conflict

- This study suggests that diverse views can be met
- Manage change by involving landholders in open dialogue and in the setting of agreed goals
- Recognise and accept transaction costs of community engagement

• Technical

- There are options
- Need to improve options (and demonstrate their effectiveness) through adaptive management and research
- Options need to be tailored for region and context



Shifting the default: a national strategy

Develop a national strategy for the sustainable management of buffel grass for production and conservation, relevant to regional scales

- there is sufficient commonality across sectors (at least at institutional level)
- include a common reference point and framework for buffel grass management
- prioritise research and resources for on-ground management
- provide a mechanism for continued engagement and interaction among sectors
- the WONS process is not necessarily appropriate



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