

## **Buffel grass in South Australia – development of pest plant policy**

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**Summary** In South Australia, concerted state-wide efforts have been initiated to address the serious weed threat posed by buffel grass. It is a highly invasive species that is well adapted to arid environments with irregular rainfall, South Australia's dominant biome. Policy for buffel grass as a weed is currently lacking at state or national levels. Currently in South Australia, a policy framework is being developed and advances in on-ground management are being made. South Australia is bounded by four states or territories where buffel grass is well established, and given that buffel grass has been considered one of Australia's worst environmental weeds, there is a need for a coordinated national approach to its management.

**Keywords** Buffel grass, weed risk, pest plant policy, strategic plan, management zones.

### INTRODUCTION

Buffel grass belongs to a select group of weeds of 'extensive continental distribution' that are 'capable of destroying' Australian ecosystems (Humphries *et al.* 1991). Globally, arid or semi-arid ecosystems are relatively resistant to alien invasions however buffel grass is an exception to this generalisation, including within Australia. It has been identified as a 'transformer weed' of the Australian rangelands (Bastin *et al.* 2008) due to its ability to transform the basic attributes of habitats. Buffel grass is well recognised as a contentious species in Australia (e.g. Grice *et al.* 2011)—in South Australia its potential value for livestock production in the arid rangelands is offset by serious environmental and social weed impacts. It is a highly invasive species with modeling indicating it could establish in over 60% of mainland Australia (Lawson *et al.* 2004).

### HISTORY OF SPREAD

Buffel grass is a perennial tussock grass with a long history of repeated introductions to Australia for pasture improvement of semi-arid and subtropical natural rangelands. After more than a century of deliberate introductions it has dispersed extensively across many landscapes. Since the late 1950s, buffel grass has been a major pasture grass sown in northern Australia (Loch 1999). It has been accidentally and intentionally introduced around northern South Australia. Small-scale buffel grass trials have been

carried out on many pastoral properties in South Australia since the 1950s. Dispersal by wind, water, animals and machinery has spread it into other areas. Based on the collection of specimens for state herbaria alone<sup>1</sup>, the period of greatest range expansion in South Australia has perhaps been the past 30 years (i.e. from the 1980s). Much of this spread could have been unintentional or by natural dispersal rather than deliberate introductions. Pastoral Board policy governing the introduction of non-indigenous plants for pasture improvement has prevented uncontrolled, wide-scale deliberate introductions of buffel grass in the northern part of South Australia.

### DEVELOPMENT OF POLICY

Despite the problems associated with buffel grass there has been little concerted action to deal with its negative effects in Australia. It is not listed in the weed legislation of any Australian state, and there have been no state-level and few regional-level attempts to regulate sale, planting or spread of the species (Grice *et al.* 2011). Neither nomination of buffel grass as a Weed of National Significance, nor introduction of biocontrols to address the weed threat, are likely to eventuate due to its contentious nature in Australia.

The development of a policy on buffel grass as a pest species in South Australia faces some challenging issues. It is an abundant species that is geographically widespread in the state. It is not declared for control under state legislation. It is regarded as valuable pasture plant by some pastoralists, despite its significant risks.

On a risk basis, the presence of buffel grass in South Australia cannot be ignored. Weed risk assessments in the past ten years have become a driver of policy development for pest species at both a regional and state level. An assessment of weed risk using the SA Weed Risk Management System<sup>2</sup> indicates a 'very

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### Footnotes

<sup>1</sup> Collections of *Cenchrus ciliaris* from SA decade by decade based on records in State herbaria: pre-1940 (nil); 1940-49 (1); 1950-59 (3); 1960-69 (0); 1970-79 (8); 1980-89 (21); 1990-99 (33); 2000-9 (44).

<sup>2</sup> Developed by Biosecurity SA's NRM Biosecurity unit, the weed risk management system, has been used in partnership with regional NRM boards and local stakeholders to prioritise weeds for control programs in their regions.

high' risk for the state's arid rangelands. In recent years, three of the state's eight regional NRM Boards most threatened by buffel grass have elevated it as a priority pest species based on regional-level risk assessments and developed management plans.

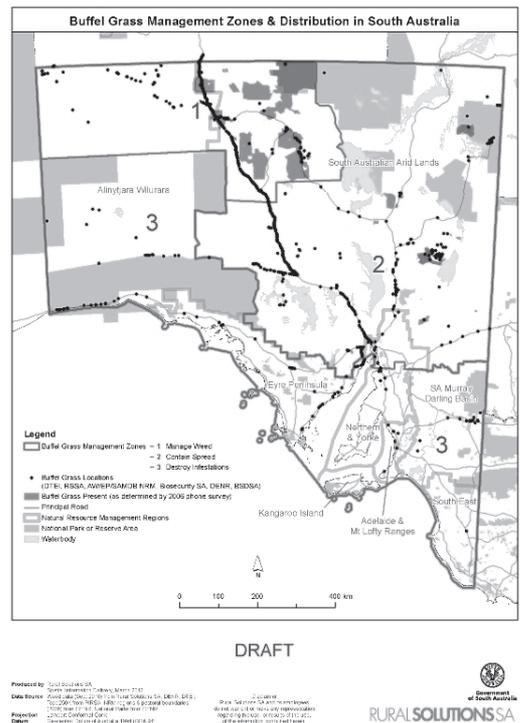
Accordingly, South Australia led by Biosecurity SA with support of regional NRM Boards is taking the national lead in developing a state strategy to deal with the weed threat posed by buffel grass. Perhaps more so than other regions in Australia with extensive arid and semi-arid rangelands, South Australia has an opportunity to prevent buffel grass from establishing in, and transforming, many natural landscapes—there are still important large areas of the State where buffel grass has yet to have a significant impact and the natural landscape is relatively intact such as the Gawler Ranges, far west and the far north east.

A State Strategic Plan has been prepared to provide a policy setting for potential declaration under state legislation (subject to NRM Board, NRM Council and the Minister's approval). The plan can thus inform the development of State policy required for declaration for control under the *Natural Resources Management Act 2004*, as well as inform pest management planning by regional weed managers.

An important component of the draft strategy is a broad zonal system reflecting the gradient of invasion and establishment of buffel grass from the far north-west to the southern regions of the State. The purpose of management zoning is to guide planning and management at a broad scale without prescribing what must occur at a local scale, which should be determined on the basis of local issues. Zonal boundaries are delineated broadly on the basis of current knowledge of the weed's extent, having implications for the feasibility of eradication—these boundaries can be reviewed in the future after a more thorough investigation of the extent of buffel grass across the state. The management zones will be reflected in regional weed management plans of individual NRM Boards. In addition to the broad goals of 'preventing further spread' and 'building capacity' state-wide, the strategic approach to the management of buffel grass across the state will involve planned and coordinated activities in three key zones (Figure 1):

- Zone 1 – Manage Weed: the far north-west and the far north
- Zone 2 – Contain Spread: the north-east and the upper mid-north
- Zone 3 – Destroy Infestations: the far west, and the southern agricultural region

In June 2012 the draft Buffel Grass Strategic Plan for South Australia was released for public consultation. Buffel grass is also being considered as part of the



**Figure 1.** Buffel Grass Management Zones (proposed) and distribution in South Australia.

current review of plant declarations under the South Australian *Natural Resources Management Act 2004*.

**THE NEED FOR A NATIONAL APPROACH**

The management of buffel grass within South Australia presents a significant challenge. South Australia, however, is also bounded by four states or territories where buffel grass is well established (WA, NT, QLD and NSW) from which ongoing invasion can occur. Buffel grass is also considered as one of Australia's worst environmental weeds (e.g. Humphries *et al.* 1991). A national approach could involve avoiding the introduction of additional genetic material, preventing incursion into conservation areas where it is absent, containing or destroying strategically located populations, and preventing proliferation in regions or important habitats where the species is sparse.

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