

# REGIONAL WEED MANAGEMENT PLAN

**1.1 PLAN TITLE:** African lovegrass Regional Management Plan

## 1.2 PLAN PROPONENTS

Regional Weeds Advisory Committee: Southern Tablelands & South Coast Noxious Plants Committee

Address:

Contact person:

Telephone number:

Facsimile number:

Signature: Chairperson: ..... Date:.....

## 1.3 NAME OF PLANT(S)

WONS Y/N

No

Botanical name(s): *Eragrostis curvula*

Common name(s): African lovegrass

## 1.4 PLAN PERIOD

Starting date: 1<sup>st</sup> July 2003..... Completion date: 30<sup>th</sup> June 2008

**1.5 AREA OF OPERATION:** Southern Tablelands & South Coast Region

## 1.6 AIM:

To strategically contain and control infestations of African lovegrass

## 1.7 OBJECTIVES<sup>1</sup>:

1. To prevent the spread of African lovegrass into uninfested or 'absent' areas identified in the 2002 mapping
2. To control all rare, isolated and new infestations
3. To strategically reduce infestations in marginal areas and core areas
4. To implement protocols to reduce the risk of seed spread
5. To improve species identification by landholders and practitioners
6. To make available to land managers best management control and prevention practices (including rehabilitation)
7. To facilitate coordination amongst stakeholders
8. To protect vulnerable high conservation areas from infestation

<sup>1</sup> Time frames and measurable performance indicators are contained within Section 7 – Strategic Actions

## 2.0 EXECUTIVE SUMMARY

African lovegrass is an invasive species that is significantly impacting pasture, native grasslands and riverbank ecosystems. If no or inadequate action is undertaken, the range of African lovegrass is expected to expand significantly. Core infestations will rapidly develop and become difficult and expensive to control. This will impact on threatened species and communities (including the *Natural Temperate Grasslands of the Southern Tablelands and the ACT* and *O'Hares Creek Shale Forest Community*) and result in reduced agricultural productivity. Although widespread throughout the Region, there are extensive areas where it is currently rare or absent and is therefore potentially vulnerable to African lovegrass invasion (Map 1).

The aim of the African Lovegrass Regional Weed Management Plan 2003/2008 (The Plan) is to strategically control infestations of African lovegrass in the Southern Tablelands and South Coast Region (Map 1). Objectives of the plan are located on the cover page. Implementation of the plan by all stakeholders listed within the Plan (Section 3 and Section 4.6) is considered critical to its success.

The Plan details strategies for the management of African Lovegrass in the Region for the next five years including:

- **Mapping of infestations (Section 7):** Improvement to the accuracy of location map (Map 1) with input from all land management authorities and managers, standardisation of techniques and criteria, and updates to the map every two years. Two categories of 'absent areas' are also to be mapped during the next update.
- **Prioritising operational and control response (Section 7):** Operational response have been prioritised within 'absent', 'rare and isolated', 'marginal' and 'core' infestations. Further prioritisations are based on the 'cleanliness' of catchments and proximity to areas of high conservation value.
- **Improvement to grazing and land management practices (Section 6.2 and Section 6.3):** Promotion through education and extension of improved land management practices and where appropriate to the location and the variety of lovegrass, the possibility of better utilising the plant is to be investigated and promoted.
- **Declaration changes (Section 5.2 and Section 7):** implementation of enforceable management plans and split declarations in appropriate LGAs and W2 declaration in the Wollondilly LCA.
- **Roadside and riparian zone control (Section 6.2 and Section 7):** Maintenance of buffer zones along roadsides leaving core areas and strategic and prioritised roadside and riparian control prescriptions are highlighted in the Plan.
- **Hygiene and quarantine procedures (Section 6.2.1 and Section 7):** Promotion of hygiene methods and protocols and other initiatives to restrict the movement of African lovegrass outlined within this Plan is considered essential.
- **Training, extension and education (Section 6.3 and Section 7):** Identification training is to focus on staff in areas currently less-affected by lovegrass. Strategic targeting of extension programs is also highlighted within the Plan.

It is anticipated that at a regional scale the application of the actions contained within the Plan should restrict the spread and reduce abundance of African lovegrass infestations and will benefit the Region's agricultural industry, threatened species and communities, the environment and the community.

## **ACRONYMS**

<b>ACT</b>	Australian Capital Territory
<b>ACTDUS</b>	ACT Department of Urban Services
<b>ACTWWG</b>	ACT Weeds Working Group
<b>ALG</b>	African lovegrass
<b>BLCS</b>	Bush and Land Care Services
<b>BMA</b>	Biodiversity Management Action
<b>BMT</b>	Biodiversity Management Target
<b>CMB</b>	Catchment Management Boards
<b>CMBp</b>	Catchment Management Blueprint
<b>CRC</b>	Cooperative Research Centre
<b>DLRA</b>	Department of Lands and Rural Affairs (formerly Department of Lands and Water Conservation)
<b>LCA</b>	Local Control Authority
<b>LGA</b>	Local Government Area
<b>NHT</b>	Natural Heritage Trust
<b>NSW</b>	New South Wales
<b>NSW Ag</b>	NSW Agriculture
<b>NSWNPWS</b>	NSW National Parks and Wildlife Service
<b>NWAC</b>	Noxious Weeds Advisory Committee
<b>RIRDC</b>	Rural Industries and Research Development Corporation
<b>RLPB</b>	Rural Lands Protection Board
<b>RTA</b>	Roads Traffic Authority
<b>SCA</b>	Sydney Catchment Authority
<b>SEMT</b>	Social and economic Management Target
<b>SLMA</b>	Soil and Land Condition Management Action
<b>SLMT</b>	Soil and Land Condition Management Target
<b>SRA</b>	State Rail Authority
<b>ST&amp;SCNPC</b>	Southern Tablelands and South Coast Noxious Plants Committee
<b>TSC Act</b>	Threatened Species Conservation Act 1995
<b>VA</b>	Vegetation and Biodiversity Action
<b>VBMT</b>	Vegetation and Biodiversity Management Target
<b>WONS</b>	Weeds of National Significance

### 3.0 STAKEHOLDERS

#### 3.1 Signatories

The following organisations have signed an agreement to implement the Plan [this has yet to be achieved]:

- Councils of the Southern Tablelands and South Coast – Bega Valley, Bombala, Cooma-Monaro, Crookwell, Eurobodalla, Goulburn, Gunning, Wollongong, Shellharbour, Kiama, Mulwaree, Queanbeyan, Snowy River, Shoalhaven, Southern Slopes (Boorowa, Harden, Yass and Young), Tallaganda, Wingecarribee, Yarrowlumla
- Rural Lands Protection Boards
- Murrumbidgee, Lachlan, Warragamba, South East, and Southern Catchment Management Boards
- NSW National Parks and Wildlife Service
- Department of Land and Water Conservation
- Environment Australia
- Sydney Catchment Authority
- ACT Department of Urban Services
- NSW State Forests
- State Rail Authority
- Roads and Traffic Authority
- Country and Integral Energy

#### 3.2 Other Stakeholders

The following organisations have been involved in the planning process, either through notification or actual participation:

- NSW Agriculture
- National Farmers Association
- Landholders / Dairy Farmers / Cattle Producers
- Landcare
- Coastcare

### 4.0 BACKGROUND

#### 4.1 Reason for Plan

African lovegrass has widely naturalised within temperate climatic zones of Australia. It is an invasive species that is significantly impacting pasture, native grasslands and riverbank ecosystems. Many high conservation grassland, grassy woodland areas, shale forest and upland swamps in the region are vulnerable to invasion. Recent widespread fires and drought in the Region further exacerbated the threat posed by African lovegrass by creating ideal conditions for seedling establishment.

The Scientific Committee, established by the *Threatened Species Conservation Act* (TSC Act), has made a preliminary determination to support a proposal to list the *invasion of native plant communities by exotic perennial grasses* as a Key Threatening Process in Schedule 3 of the Act. If final determination is approved landholders, occupiers and government land

management authorities will have additional legal responsibility under this legislation to control this and other exotic perennial grasses (implementation of *Threat Abatement Plans*).

African lovegrass is also beginning to impact upland swamp communities within the upper reaches of the O'Hares Creek. These swamps are listed on the directory of Important Wetlands of Australia. Upland wetlands within Region, important for conservation values and the maintenance of water quality may also be similarly threatened by African lovegrass.

African lovegrass is a declared noxious weed throughout the region. Despite this, current control measures and strategies have not prevented its continued spread or impact. An effective management strategy for the weed requires a coordinated and integrated approach with committed involvement from all stakeholders.

**Null hypothesis:** If control works are not undertaken, the range of African lovegrass in the Region would expand significantly. Understorey along river systems will be dominated by African lovegrass until it forms a monoculture. Core infestations will rapidly develop and become difficult and expensive to control. This will impact upon threatened species and communities and result in reduced agricultural productivity, increased water runoff and soil erosion.

## 4.2 Description of the problem

When managed strategically, many varieties of African lovegrass can be useful pasture species, but under light grazing it invades pastures and reduces production significantly. Older growth has low palatability, is avoided by animals and is eaten only when other pasture has been consumed. It can consequently spread and dominate sparse overgrazed pastures or disturbed areas such as quarries, roadsides and riverbanks to form dense monocultures. It forms dense swards of tussocks, often to the exclusion of desirable species. It can survive drought, fire, low nutrient regimes and grows under a wide range of climatic conditions.

African lovegrass, as well as a range of other weeds including, serrated tussock (*Nassella trichotoma*), and St Johns wort (*Hypericum perforatum*) are seen as threatening processes to the *Natural Temperate Grasslands of the Southern Tablelands and the ACT* which are listed as an endangered ecological community under the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999*. Remnant sites with these communities in the Region also provide habitat for a wide range of threatened species under the Commonwealth and NSW threatened species legislation including the striped legless lizard (*Delmar impar*), little whip snake (*Suta flagellum*), grassland earless dragon (*Tympanocryptus lineata pinguicolla*), mauve burr-daisy (*Calotis glandulosa*) creeping hopbush (*Dodonea procumbens*), Monaro golden daisy (*Rutidosis leiolepis*) and austral toad-flax (*Thesium australe*).

Invasion of native plant communities by exotic perennial grasses, such as, African lovegrass, is an identified threat to a number of communities, and flora and fauna species listed on Schedule 1 and Schedule 2 of the TSC Act (NSW NPWS Website 2003, see reference list for link). African lovegrass has spread into the O'Hares Creek Shale Forest Community (an endangered ecological community listed under the Threatened Species Conservation (TSC) Act 1995) northwest of Wollongong (in the Wollondilly and Wollongong LGAs).

African lovegrass is also beginning to impact on upland swamp communities within the upper reaches of the O'Hares Creek. These swamps are listed on the directory of Important Wetlands of Australia. Upland Wetlands within Region, important for the maintenance of water quality may also be similarly threatened by African lovegrass.

### **4.3 Distribution of infestations**

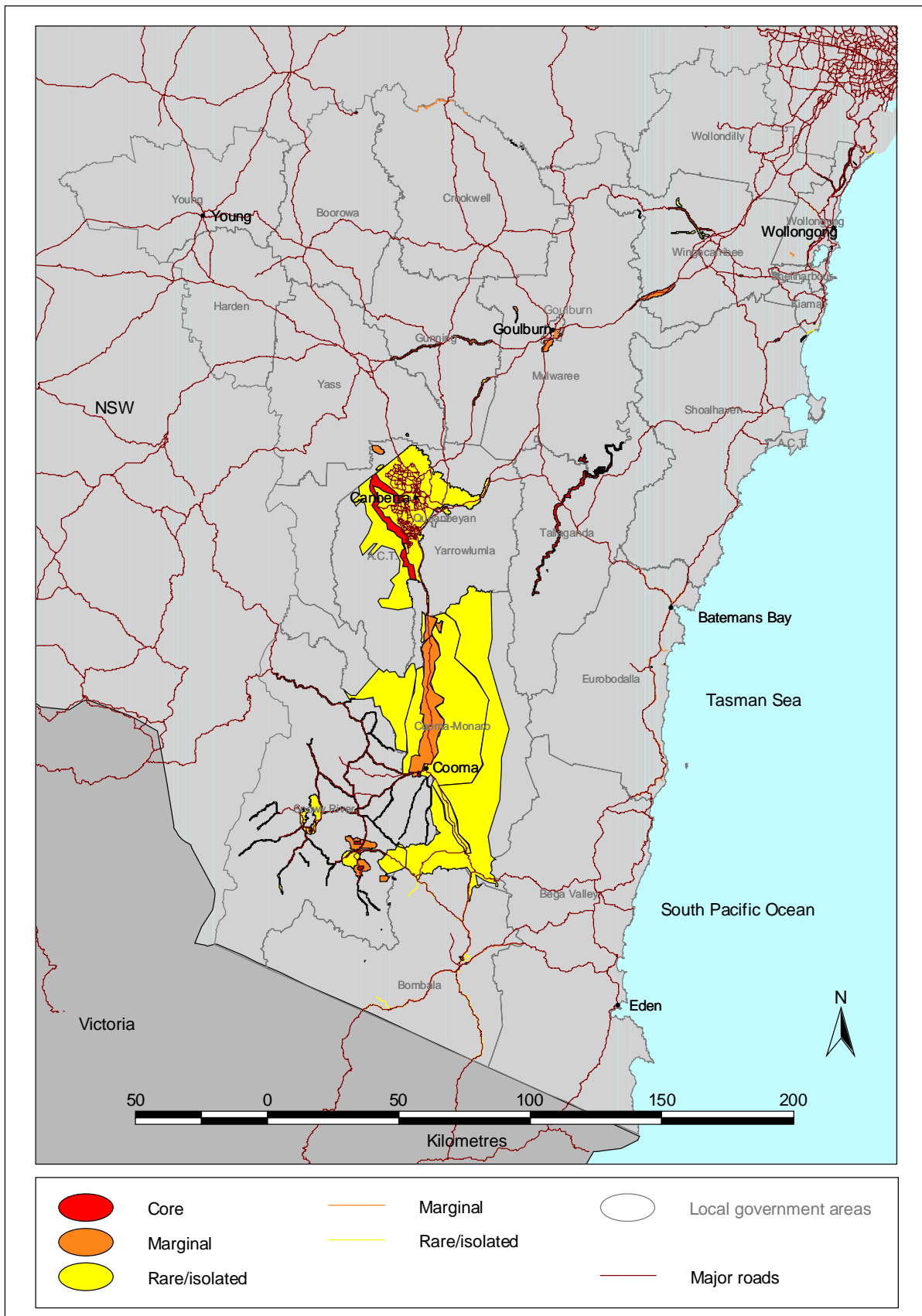
African lovegrass originated in southern Africa. It was probably introduced to Australia before 1900 but has subsequently been deliberately imported as a pasture species. Four of the seven agronomic types are now naturalised in Australia.

African lovegrass invades dry coastal vegetation, lowland grassland and grassy-woodland, dry sclerophyll forest and woodland, rock outcrop vegetation, shale forests, upland swamps, river corridors, roadsides, pastures and waste places. It tolerates poor nutrients and soil, fire, drought and frost (Blood 2001). Within the Region, infestations range from rare and isolated scattered plants to dense monocultures in core infestations (Map 1). Dense infestations are mainly in riparian zones, roadsides, quarries and urban areas.

Although widespread throughout the region, there are extensive areas where it is currently rare or absent and is therefore potentially vulnerable to African lovegrass invasion (Map 1).

Within the Southern Tablelands and South Coast Region, African lovegrass occurs in the following Local Control Authority areas: Goulburn, Mulwaree, Wingecarribee, Queanbeyan, Shoalhaven, Crookwell, Boorowa, Cooma-Monaro, Snowy River, Gunning, Wingecarribee, Yass, Tallaganda, Bombala, Yarrowlunla, Bega Valley and the ACT. Coastal LCAs, such as, Wollongong, Kiama, Shoalhaven, and the Eurobodalla are currently less affected by African lovegrass (Map 1).

Map 1: African Lovegrass distribution and density



#### **4.4 Weed biology / ecology**

There are seven agronomic types in New South Wales: robusta (blue, green and intermediate); cloromelas (tall and short); conferta; and curvula. Differences between them are based on leaf colour, height, stalkiness, chromosome number, habit and seed head characteristics. The varieties also differ in palatability, therefore, the ability to use African lovegrass as a pasture species will vary across the region.

African lovegrass is a densely tufted perennial, C4 tussock grass 20-120 cm high reproducing apomictically (without fertilisation) by seed. On the tablelands flowering begins in early summer whilst on the coast flowering occurs all year round. The seed stalks produce approximately 300 to 1,000 seeds per head. Ripe seeds are present from January to March and germinate in autumn or spring given adequate moisture. African lovegrass is generally dormant in winter (ACT Weeds Working Group 2002).

#### **4.5 Method and rate of spread**

Seed can be spread short distances by wind and dispersed longer distances by animals, machinery, water, vehicles and hay. It is readily spread during road construction in contaminated soils and by roadside slashing by councils and RTA.

#### **4.6 Roles and responsibilities of land managers**

Implementation of the Regional Plan by the following land managers and authorities is considered critical to its success:

- Private landholders; who are to control African lovegrass on their own land and participate in regional/catchment/Landcare groups;
- Roadside, easement and corridor managers (e.g. RTA, Councils, State Rail, Actew / AGL, Australian Pipeline, Country / Integral Energy etc.); who are to ensure that adequate plant and equipment hygiene is undertaken; that their works/operations are conducted in such a way to reduce the risk of African lovegrass spread; and that they participate in cooperative management programs.
- Land management authorities (Environment Australia, Sydney Catchment Authority, Department of Defence, DLWC, Department of Urban Services, Rural Lands Protection Boards, NSW National Parks and Wildlife Service, NSW State Forests, and local councils); who are to ensure compliance by staff to restrict the movement of African lovegrass, to implement cooperative management programs and to ensure control is undertaken on crown lands, especially in threatened communities and where critical to support strategies on local agricultural lands; and
- Catchment Management Boards to implement Catchment Management Blueprints; to provide clear direction and cooperation of all land managers; to develop cooperative management programs and to assess projects submitted for funding under Commonwealth and State natural resource management grant programs.

## 5.0 LEGISLATIVE SITUATION

### 5.1 Current declaration

Other than within the Wollondilly Shire (associate member only) the species has been declared noxious under the *Noxious Weeds Act 1993* in all LCAs within the Region (Appendix 3). It is also a declared pest plant under the *Land (Planning and Environment) Act 1991* in the ACT.

### 5.2 Declaration changes

Declaration changes for local councils in the Region are probable as economic realities place questions on the ability to enforce W2 and W3 declarations in heavily infested, non-arable, non-productive lands where the cost of control is far greater than the economic return from the land. A W3 or W2 declaration in LGAs, which have extensive core areas of African lovegrass, may become onerous and difficult to enforce and may divert funding or resources from more problematic weeds.

A new declaration is recommended that would allow councils to develop individual management plans for landholders. These management plans will be enforceable and will allow a more flexible and strategic approach to the control of African lovegrass. This strategy would enable more efficient use of resources as it could focus on creating buffer or strategic control areas nominated by the council or on the protection of threatened grassland, woodland, shale forests and upland swamp communities.

The implementation of enforceable management plans in W2 declared areas is currently being investigated through NSW Agriculture. If this is acceptable, many LCAs within the region should consider the use of this strategy. In the interim and where local weed officers consider appropriate, the attachment or inclusion of property or weed management plans to weed notices is recommended. To ensure compliance, these plans must be agreeable to all parties and unambiguous. Notices must also be unambiguous when referring to such plans.

The opportunity for sub-regional or split declarations is also to be investigated for LCAs with areas of isolated core infestations. For instance, to contain the spread and reduce infestations in parts of the region with core infestations a W3 declaration is maintained while other parts of the region with marginal to rare to nil infestations would remain at W2 level. LCAs that should consider this declaration include Tallaganda, Goulburn and the Snowy River.

A W2 declaration in the Wollondilly is recommended to prevent the spread of African Lovegrass in this LGA.

## 6.0 CONSIDERATIONS AND OPPORTUNITIES

### 6.1 Opportunities to be exploited

Funding sources to be investigated include:

- Noxious Weed Grant scheme for control on Council and RLPB land (administered through NSW Agriculture);

- Vacant crown land funding (administered by DLWC);
- Regional Biodiversity Conservation incentives; and
- Catchment Management Boards, Natural Heritage Trust and envirofunds

### **6.1.1 Priority for additional funding**

Additional funding opportunities are to be actively and continually sought through the means outlined above. The following is a list (not necessarily in order) of priority uses for additional funding:

- The employment of a Regional serrated tussock and African Lovegrass agronomist or extension officer. The position would oversee the implementation of Regional Plans (in particular extension and education) and facilitate coordination amongst all stakeholders.
- The employment of property weed management planning officer (for all weeds). The position would develop standard property management proforma and provide extension and implementation training to all weed officers.
- Improve roadside control. Additional funding could allow every road-side to be checked for all noxious weeds, and infestations controlled and rehabilitated every year.
- Increase inspections and control operations. Additional funding could allow performance indicators for strategic actions listed in Section 7 to be met earlier than the indicated timeframes. Additional funding will also enable marginal and core areas to be further reduced than that specified in Section 7.
- Establishment, promotion and interpretation of African lovegrass grazing demonstration sites.

### **6.1.2 Other opportunities**

Joint ventures should be pursued through:

- coordinating control programs with Rural Lands Protection Boards on and adjoining Travelling Stock Reserves;
- coordinated control programs with NSW National Parks & Wildlife Service and ACT Department of Urban Services as African lovegrass is a significant threat to many state and nationally listed threatened species and communities; and
- coordinated programs with road, rail and utilities managers for the control of African lovegrass

No specific agreements have been reached on the above opportunities, however given the threat potential of this and other similar weeds a forum to investigate the above opportunities is recommended.

## **6.2 Species management**

Control of African lovegrass must be integrated into a continuing overall land management program with appropriate follow-up. In arable areas cultivation and cropping or the establishment of vigorous perennial pasture will provide good suppression and management. Newly sown pastures should be spelled for at least a year to aid their establishment and African lovegrass should be removed from the sward by hoeing or the application of herbicide (NRE Website 2002).

In non-arable areas the possibility of better utilising the plant should be investigated. The plant in early stages is palatable but quickly loses its palatability after jointing occurs, however feed quality can be maintained by top dressing, especially with nitrogen, and on the Tablelands, heavy rotational grazing (Keith Turnball Research Institute 1998). As seeding occurs all year round on the coast, rotational grazing in infested paddocks may spread African Lovegrass seed and should be avoided. All dead matter should be removed by burning in autumn or midspring (not winter) and the pasture should be heavily grazed in the first summer, then oversown with clovers the following autumn. Heavy rotational grazing should be commenced when the African lovegrass grows through the clover sward. It is critical that dense sowing and on-going management of pasture grasses follows as burning stimulates African lovegrass production.

There are also a number of herbicides that are registered for use in NSW. However, chemical control should be strategic, focussing on keeping roadways, tracks, yards and fence lines adjoining clean areas free of African lovegrass.

To prevent the spread of African lovegrass along roadsides leaving core areas, the creation of a 3 to 5 metre wide control zone (or the width of the maintained slashed area) should be maintained from the edge of the bitumen. This strategy is to apply along roadsides leaving core areas that have core infestations on each side of the road and on lands adjacent to the roadside. Full roadside control is to occur along roadsides in rare, isolated and marginal infested areas

Riparian systems pose the greatest African lovegrass dispersal threat. Once established along a river system the infestation and spread is virtually uncontrollable. In these locations chemical control and other methods of control should be carefully considered with the focus directed to preventing the spread of African lovegrass from riverbanks, and more fundamentally, preventing spread into 'clean catchments or sub-catchments. This plan prioritises African Lovegrass control and prevention programs in clean catchments and where infestations occur in otherwise clean catchments or sub-catchments (see Section 7).

In core and marginal infested areas, fire may be considered a management tool. Burning in autumn will remove lovegrass trash and assist in complementing other management programs.

### **6.2.1 Hygiene and Quarantine procedures**

Practices such as implementing plant, equipment and material hygiene, and restricting livestock movement from infested areas to clean areas are critical in reducing the species spread. Hygiene methods should be promoted to address seed dispersal issues. Further initiatives and means to restrict movement of African lovegrass include:

- identification training for weed officers, land managers, road-side, easement and corridor management authorities and landholders. This should focus in localities where lovegrass is absent, rare and/or isolated;
- development and dissemination of contact lists, maps and web sites to improve communications between weed officers, land management authorities and roadside, utility easement and corridor managers;
- altering roadside slashing and mowing regimes, *i.e.*, improve hygiene, prevent roadside slashing occurring when species is seeding; and prevent roadside slashing starting in core infestations and moving out into clean or marginal areas;
- promoting on-farm quarantine methods, for example, using holding paddocks for contaminated stock prior to or after transportation, minimising stock movement from infested paddocks to clean paddocks and cleaning of on- or off-farm vehicles that have passed through African lovegrass;
- suppressing African lovegrass along roadsides.
- ensuring hygiene requirements are included in road maintenance operations including tender or contract specifications; and
- creating buffer zones between infested paddocks and uninfested paddocks by spraying, cultivation or by sowing an appropriate pasture.

Councils, weed officers and road and utility easements authorities should undertake the following as a minimum:

- avoid where possible organising and travelling/working in known African lovegrass areas when seeding (December to March) and only travel through lovegrass areas when it is absolutely necessary;
- if working in clean and infested areas work from the clean areas towards the infested areas;
- develop and implement procedure manuals for the prevention of the spread of noxious weeds and plant and animal diseases and ensure relevant employees/contractors are aware of the provisions of the procedure manual;
- utility easement managers are to obtain up-to-date weed distribution maps from local weed officers or from the Southern Tablelands and South Coast Noxious Weeds Committee;
- regular maintenance work along roadsides and utility easements on the Tablelands is to be avoided whilst seeding (December to March);
- contact the land management authority prior to entering known African lovegrass areas; and

- vehicles and all other tools and equipment are to be cleaned before leaving, or immediately after leaving, any known African lovegrass areas. Cleaning of vehicles and tools is to be carried out in accordance with the requirements of the land manager or by the following methods (adapted from Country Energy unpub.);
  - Liaising with the landowners/managers as to the availability of washdown facilities;
  - Using portable or existing washdown facilities immediately after working in known African lovegrass infested areas and before leaving the area;
  - Carry out cleaning in, or as near as possible to, the infested area; and
  - When washdown facilities is not available, vehicles and tools area to be broomed down to the best of the employees or contractors ability.

### **6.3 Extension and education**

At present little education and extension material is available on African lovegrass. An important requirement of the Plan is to increase public and land manager awareness of African lovegrass threat through:

- involvement of community groups such as Landcare groups, Friends groups *etc.* in identification and mapping of African lovegrass infestations;
- regionally coordinated publicity campaigns aimed at seasonal situations (*e.g.* in winter the importance of ground cover to control emerging plants, and in spring the importance of preventing seed set);
- using property inspections as the major tool in extension and developing management plans with landholders;
- the use of media such as the web, television, and radio to disseminate extension material;
- articles in targeted magazines and journals;
- education and training of stock and pasture management through initiatives such as Prograze; and
- establishment and promotion of grazing demonstration sites throughout the Region.

Strategic targeting of extension programs is an important supplementary measure to other aspects of a strategic and integrated weed control program. The extension and education program identified in the plan is based upon the following principles:

- extension programs are to be integrated with other weed management activities where possible, *e.g.*, inspections, field days and Landcare initiatives;
- targeting awareness and identification programs throughout the region, and particularly in rare and isolated, and absent areas;
- targeting extension and training towards land use change or management improvement in areas with intractable weed infestations;
- targeting extension programs towards absentee landholders and those not working the land;

- aligning the detail and volume of extension materials and programs with the scale of the weed problem;
- undertaking extension programs in partnership with organisations such as Landcare;
- targeting extension post drought or other disasters particularly where fodder has been imported or restocking programs implemented;
- targeting areas effected by wildfires and wildfire suppression activities (*i.e.* where disturbances such as control lines have been established particularly through existing infestations)

An Extension Strategy currently in production for the Region is to target problems associated with the continued subdivision of rural land, which has created many landholders who do not require their land for income and who derive no benefit from expensive control programs. Actions (see Section 7) within the Regional Plan commit in-principle support to this Strategy.

#### 6.4 Links to other strategies

The African lovegrass Regional Plan is consistent with the goals of the NSW Biodiversity Strategy, NSW Weeds Strategy, the Draft Regional Weeds Strategy (currently in production) and the ACT African lovegrass Management Plan.

The regional Plan is also consistent with the target outcomes of the Lachlan, Murrumbidgee, South East, Warragamba and Southern Catchment Management Blueprints. Many of the target actions identified within the draft blueprints are currently undertaken by actions of this and other regional plans. Details of supporting links are contained within Appendix 2 p23.

#### 6.5 Barriers and contingencies

Barriers and contingencies identified in Table 1 may limit the success of African lovegrass programs. Actions identified in the Plan to overcome these barriers and contingencies are identified in Table 1.

**Table 1: Responses to identified barriers and contingencies**

Barrier / Contingency	Responses	Strategic Actions (Section 7)
Natural disasters can promote African lovegrass spread and density	<ul style="list-style-type: none"> <li>• Implementation of Disaster Strategy Actions and priority given to areas affected by recent wildfires</li> </ul>	Action 13
The species is not well known in parts of the Region, consequently, awareness of the magnitude of the problem is poor. The current known distribution of the weed is likely to be inaccurate.	<ul style="list-style-type: none"> <li>• Additional mapping effort, maps updated every second year and absent areas identified and mapped.</li> <li>• Extension and training strategically aimed at increasing awareness of African lovegrass and the ability of stakeholders to identify it.</li> </ul>	<p>Actions 1 and 2</p> <p>Actions 12 and 13. See also Section 6.3</p>

Barrier / Contingency	Responses	Strategic Actions (Section 7)
The skills, motivation, money or infrastructure to control African lovegrass may not exist for some private landholders, occupiers and government departments.	<ul style="list-style-type: none"> <li>• Development of incentive schemes, tailored property weed management plans, intractable infestation strategies, pasture and grazing management schemes, effective distribution of best practice management guidelines and extension and training initiatives.</li> <li>• Government departments are to be signatories to the implementation of the Regional Plan. Plan is to support targets of Catchment Management Blueprints.</li> </ul>	<p>Actions 5, 9, 13 and 14</p> <p>Section 2.1 and Appendix 2</p>
It is difficult to control seed spread resulting from movement of plant, equipment, materials and livestock from infested areas to clean areas. This problem is exacerbated by natural disasters such as droughts, floods and fires.	<ul style="list-style-type: none"> <li>• Promotion and Implementation of quarantine and hygiene protocols for properties, roadsides, utility easements and those who work in African lovegrass infested areas. Promotion of risk-minimising fodder feeding and stock movement practices during natural disasters.</li> </ul>	<p>Action 9 and Action 14. See also Section 6.2</p>
Knowledge of locations of isolated infestations can be lost when staff leave or transfer in government and other land management agencies	<ul style="list-style-type: none"> <li>• Improved mapping and data collection for LCA's, and improved access to this data for other stakeholders.</li> </ul>	<p>Actions 1 and 2</p>
Land rehabilitation may be required after control works to avoid reinvasion by African lovegrass propagules and other invasive weed species	<ul style="list-style-type: none"> <li>• Use of property weed management plans as a control tool; encouragement of community groups such as Landcare; promotion of pasture training programs; effective dissemination of best-practice management; and the promotion of off-target mortality reduction methods</li> </ul>	<p>Actions 5, 11, and 13</p>
Insufficient funding is available to promote awareness and response to problem	<ul style="list-style-type: none"> <li>• Mechanisms and opportunities to access additional funds are identified.</li> </ul>	<p>Action 14 (see also Section 6.1)</p>
Coordination and cooperative management is currently lacking along roadsides and riparian zones	<ul style="list-style-type: none"> <li>• Seeking dialogue with roadside and easement managers, focus on clean catchments, managing roadsides strategically based on infestation levels and promoting participation of community groups.</li> </ul>	<p>Actions 6, 7 and 9</p>
African lovegrass occurs in agricultural areas where the economic return from the land is often less than the costs of controlling the weed, or the weed occurs in non-arable land where rehabilitation will be extremely difficult	<ul style="list-style-type: none"> <li>• Development of incentive schemes, tailored property weed management plans, intractable infestation strategies, pasture and grazing management training schemes, effective distribution of best practice.</li> </ul>	<p>Actions 5, 9, 13 and 14</p>
The continued subdivision of rural land has created many landholders who do not require their land for their income and	<ul style="list-style-type: none"> <li>• Rural- residential and rural lifestyle extension strategy (currently in production) is to be implemented.</li> <li>• Landowners and occupiers in this category are</li> </ul>	<p>Action 13</p> <p>Action 13 (see</p>

Barrier / Contingency	Responses	Strategic Actions (Section 7)
who derive no benefit from expensive control programs	specifically targeted for inspection and extension programs.	also Section 6.3)
The maintenance of effective on-going control in core areas may be difficult and may result in the infestation of currently clean properties within these areas.	<ul style="list-style-type: none"> <li>• Encouragement and assistance to landowners with clean properties in core areas.</li> <li>• Management strategies are to be developed in intractable infestation areas that use effective and long-term management techniques.</li> </ul>	Action 5  Action 5

## 7.0 ACTIONS AND PERFORMANCE INDICATORS

Proposed actions for control of African lovegrass during the period 2003 - 2008 are given below. Actions flagged with an asterisk (\*) are considered essential components of the plan.

Actions have been guided by the aims and objectives and also by the underlying strategic directions of the African lovegrass Regional Plan, which are to;

- prevent and initiate rapid control of new infestations;
- control rare and isolated infestations as a priority;
- significantly reduce marginal infestations and core infestations in priority areas;
- integrate African lovegrass control with best land management practices and other weed management programs (especially serrated tussock); and
- seek regional cooperation to overcome barriers (Section 6.5) to effective African lovegrass management.

ACTION	Performance Indicator	Who is to be responsible (add others involved)	Objective number	
<b>Mapping</b>				
1	<ul style="list-style-type: none"> <li>a. Complete more accurate mapping of African lovegrass (AL) throughout the Region (e.g. at 1:25 000 scale (or larger).</li> <li>b. Standardise mapping methodology across the Region.</li> <li>c. Update mapped information (preferably on GIS) at least every second year.</li> <li>d. See also Action 2 and Action 4 below (mapping in absent and core areas)</li> </ul>	<ul style="list-style-type: none"> <li>a. More accurate map produced by March 2004 (note that ID is difficult outside flowering and seeding, therefore should be completed between December and March).</li> <li>b. Pilot cooperative mapping project to be undertaken prior to Dec 2003.</li> <li>c. Maps updated at least every second year.</li> </ul>	<b>ST&amp;SCNPC</b> , all stakeholders (LCAs, NSW Ag., RTA, NPWS, ACTDUS, DLRA, RLPB)	1

<b>ACTION</b>	<b>Performance Indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>	
<b>Strategic response</b>				
2	<b>'Absent areas'</b> a. Areas identified as absent to be remapped as 'absent-confirmed', and 'absent – not confirmed'. b. Confirmed absent areas to be inspected or surveyed every five years c. 'Absent – not confirmed' areas to be prioritised for surveying programs.	a. Next update of maps to include new classifications. b. Confirmed absent areas are checked prior to 2008. c. '50% of 'absent but not confirmed' areas surveyed prior to each map update.	<b>All stakeholders</b>	1 and 2
3*	<b>New, Rare and Isolated populations</b> a. All new infestations eradicated* <sup>1</sup> b. All known rare and isolated infestations eradicated* <sup>1</sup> or reduced to an appropriate level <sup>2</sup> . c. All locations with rare and/or isolated populations to be inspected annually. d. Rare and isolated infestations in otherwise clean catchments are prioritised	a. New infestations eradicated* <sup>1</sup> within a year of detection. b. Current known rare and isolated infestations eradicated* <sup>1</sup> by July 2006. The eradication work schedule is as follows: Year 1: seek funding, and survey and map exact locations (grid referenced) of isolated infestations, Year 2 - 3: 1/2 of eradication work occurs annually and is verified through annual reports, management plans, and follow up inspections. c. Annual reports indicate inspections occurred and compliance achieved. d. Rare and isolated population in otherwise clean catchments eradicated by August 2006	<b>All stakeholders</b>	2
4	<b>Marginal populations</b> a. All known marginal infestations significantly reduced. b. Marginal populations in otherwise clean catchments are prioritised for control.	a1. At least 25% of properties affected inspected and appropriate action taken within 1 year of inspection. a2. Currently known marginal infestations reduced by 75% (region-wide) by July 2008. Year 1: seek funding, Year 2 - 5: 25% of control work occurs annually and is verified through annual reports. a3. Majority of sites where control has occurred are rehabilitated within 1 year. b. Marginal populations in otherwise clean catchments reduced by 75% by August 2008.	<b>All stakeholders</b>	3
5	<b>Core populations</b> a. Identify and map those parts of existing core areas where: <ul style="list-style-type: none"> <li>• control programs over next 5 years could reduce ranking to marginal</li> <li>• natural barriers/control lines could be expanded</li> </ul>	a. Core area mapping completed by July 2005 b. Actions recorded in annual report c. Areas of dense / extensive / inaccessible infestations identified and policy developed by July 2006. Areas covered are reduced by at least 25% by 2015	<b>All Stakeholders</b>	3 and 6

<b>ACTION</b>	<b>Performance Indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>
<ul style="list-style-type: none"> <li>• control is a priority (e.g. boundary of core areas, adjacent important native grassland communities)</li> <li>b. Encourage and where possible assist landowners with clean properties in core areas.</li> <li>c. Identify areas where dense / extensive / inaccessible infestations occur and LCAs develop policy to assist landholders in meeting legal obligations in these areas</li> <li>d. Develop management strategies for these areas (c), using best practice techniques that minimise chemical use (e.g. afforestation, and pasture and grazing management)</li> </ul>	<p>d. Best practice management practices developed and presented at ST&amp;SCNPC meeting of November 2005. LCAs and NSW Ag to promote in areas in suitable areas identified in Action 5c</p>		
<p>6* <b>roadside populations</b></p> <ul style="list-style-type: none"> <li>a. Create strategic buffer zones where lovegrass is actively suppressed for at least 3 - 5 m out from the edge of the bitumen along roadsides leaving core infestations.</li> <li>b. Full roadside control undertaken in rare and isolated areas</li> <li>c. Full control of roadsides in marginal areas which then pass through into rare, isolated or absent areas.</li> <li>d. Full roadside control in otherwise clean catchments.</li> <li>e. RTA and utility and easement managers to be provided with ALG distribution maps on an annual basis.</li> </ul>	<ul style="list-style-type: none"> <li>a) b) and c) Annual control programs are undertaken along roadsides</li> <li>d. Priority is given to the control of roadside infestations in otherwise clean catchments and these infestations are eradicated by July 2006.</li> <li>e. RTA and other utilities receive ALG distribution maps on an annual basis</li> </ul>	<p><b>All stakeholders, NSW Ag., Affected LCAs</b></p>	<p>2, 3, 4, 6 and 8</p>

ACTION	Performance Indicator	Who is to be responsible (add others involved)	Objective number
7	<p><b>Infestations along waterways</b></p> <p>a. Infestations in otherwise clean catchments or sub-catchments are prioritised for control</p>	<p>a. Infestations in otherwise clean catchments or sub-catchments are identified by Nov 2004.</p> <p>b. All rare and isolated infestations in otherwise clean catchments are eradicated by August 2006.</p> <p>c. All marginal infestations in otherwise clean catchments are eradicated by August 2008.</p> <p>d. All core infestations in otherwise clean catchments are reduced 75% by August 2008.</p>	<p><b>All stakeholders</b></p> <p>1, 2, 3, and 9</p>
<b>Prevention, regulation and rehabilitation</b>			
8*	<p>a. Make a recommendation to the Wollondilly council for a W2 declaration of African lovegrass</p> <p>b. Support declaration changes outlined in Section 5.2</p>	<p>a. A letter addressed to the Wollondilly Shire to be sent by December 2003.</p> <p>b. Implementation of changes within a year of acceptance by NSW Ag., NWAC, Councils and other authorities.</p>	<p><b>ST&amp;SCNPC, LCAs</b></p> <p>6</p>
9*	<p>a. Develop and promote local and on farm quarantine and hygiene methods as outlined in Section 6.2</p> <p>b. In consultation with RTA and utility easement managers, develop code of practice and protocols for road-side and easement maintenance as outlined in Section 6.2</p>	<p>a. Extension material concerning quarantine and hygiene methods developed and promoted by LCAs through means outlined in Strategic Action No. 13, by July 2005.</p> <p>b. Roadside maintenance codes of practice and protocols developed and implemented throughout the region by July 2005.</p>	<p><b>ST&amp;SCNPC, NSW Ag., RTA, and Catchment Management Boards</b></p> <p>4, 5 and 6</p>
10	<p>a. NPWS and ACT Department of Urban Services identify strategies for protection of threatened grasslands, grassy woodlands, shale forest and upland swamps (i.e. Threat Abatement Plans).</p> <p>b. This information is to be included in revised Regional Plan.</p>	<p>a. NPWS and ACT Department of Urban Services have addressed a ST&amp;SCNPC meeting by July 2004 or Threat Abatement Plans and/or Recovery Plans address lovegrass threat mitigation strategies.</p> <p>b. Strategies are included in revised plan.</p>	<p><b>ST&amp;SCNPC , NPWS and ACT Department of Urban Services</b></p> <p>8 and 9</p>
11	<p>a. Promote methods of reducing off-target mortality at field days and in information brochures</p> <p>b. Ensure council spray contractors undertaking chemical control are trained in the identification of ALG, in the calibration of</p>	<p>a. Methods of reducing off-target mortality during weed control are specifically addressed at all field days during 2003-2008. African lovegrass brochures include methods of reducing off-target mortality</p> <p>b. By Dec 2003 all council spray contractors are to be trained in African lovegrass identification and hold qualifications of</p>	<p><b>Councils, NSW Ag.</b></p> <p>6</p>

<b>ACTION</b>		<b>Performance Indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>
	equipment and the interpretation of chemical labels	Chemcert, SMARTtrain or equivalent		
<b>Training, Education and Extension</b>				
12 *	a. Cooperative training for Weeds Officers, Catchment, Landcare Coordinators and agronomists and selected field staff in land management authorities in species identification. This is to focus on staff in areas currently relatively less-affected by lovegrass (Map 1).	a. 80% of targeted people can distinguish African lovegrass prior to January 2005 ( <i>i.e.</i> when the species is flowering: November - February) and 100% by January 2007	<b>NSW Agriculture and land management authorities</b>	5
13	<p>a. Update best practice management, including treatment details as relevant to the region on completion of trials</p> <p>b. In affected and potentially affected LCAs, information on identification, impacts and control of lovegrass to be disseminated in one or more of the following:</p> <ul style="list-style-type: none"> <li>• Rates notices</li> <li>• Council pamphlets</li> <li>• Field day material</li> <li>• Absentee and small acreage landholders to be specifically targeted</li> </ul> <p>c. * Promote sustainable pasture and grazing training programs such as 'Prograze'. This is to include a section on the control or use of African lovegrass.</p> <p>d. Landholders with intractable infestations targeted for appropriate extension material/programs.</p> <p>e. Landholders adjacent to core or marginal infestations, or with land adjacent to roadsides or waterways where infestations occur specifically targeted for extension programs aimed at promoting practices that improve resilience to AL</p>	<p>a. Updates provided as information increases, with initial update prior to July 2004</p> <p>b. Lovegrass brochures and/or discussion included in all field days in ACT and surrounding Tableland Councils over next 5 years.</p> <p>c. At least one 'Prograze' (or similar) course annually within each catchment region. An additional section regarding the pasture use of weeds such as African lovegrass and Chilean needlegrass is to be included in the course.</p> <p>d. Extension programs specifically targeting landholders adjacent to core and marginal infestations implemented by July 2006</p> <p>e. Landholders with intractable infestations receive appropriate extension materials/programs</p> <p>f. Relevant disaster strategy actions implemented as soon as practicable and at least by June 2004</p> <p>g. All actions within the Extension Strategy completed within 4 years of its completion.</p>	<b>ST&amp;SCNPC, Catchment Management Boards and NSW Agriculture with LCA involvement</b>	6 and 7

ACTION		Performance Indicator	Who is to be responsible (add others involved)	Objective number
	invasion. f. Implement relevant actions in regional disaster strategy particularly promoting risk reduction techniques. g. Implement Regional Rural-Residential / Rural Lifestyle Extension Strategy (currently in production)			
<b>Other actions</b>				
14	a. Develop and implement incentive scheme options (e.g. monetary, equipment hire) b. Joint ventures and opportunities identified in Section 6.1 and in other Regional Plans investigated through Catchment Management Boards	a. Discussed at ST&SCNPC meeting of March 2005. Stakeholders other than Local Councils involved in meeting discussion. b. Catchment Management Boards approached to coordinate joint ventures among stakeholders by Dec 2004.	<b>ST&amp;SCNPC CMBs, and NSW Agriculture</b>	6 and 8
15*	a. Establish lovegrass grazing demonstration site within the Monaro	a. Interest from landholders sought by Dec 2003. Demonstration site established by Dec 2005.	<b>Cooma – Monaro and NSW Agriculture</b>	6

\*1 refer to Appendix 1 for definition of “eradicate”

\*2 reduced to an ‘appropriate level’ means the population can be “maintained at a level where it has insignificant environmental and economic effect, with a minimum and preferably decreasing expenditure/effort”. Insignificant environmental and economic effect means that the level of expenditure and effort required to keep the species at a ‘rare level’ is insignificant, and the population does not adversely and ‘significantly’ affect natural (including biodiversity), cultural and social values (Appendix 1)

It is anticipated that at a regional scale the application of the above actions should restrict the spread and reduce abundance of existing African lovegrass infestations. Development of identification skills, pasture and grazing management, provision of education / extension programs and promotion of adequate hygiene techniques are essential if the Plan is to succeed.

## 8.0 MONITOR AND REVIEW PROCESS

Stakeholders will provide an annual progress report that details their success in meeting the performance indicators within the Plan. This includes an updated distribution map required at least every second year. A brief regional report will be submitted to NWAC with a copy to Catchment Management Boards each year. The regional report will address target outcomes of Catchment Management Blueprints and any modifications to actions and performance indicators that may improve the outcomes of the Plan.

The Plan is to be reviewed and updated after five years *i.e.* prior to July 2008.

In the event of a stakeholder failing to meet an objective as given in the Plan, the Committee will assist the stakeholder to meet requirements: e.g. determine an appropriate action for the stakeholder and / or other members of the Committee. If the stakeholder is still unable to meet the objective, the Committee will review the mechanism and performance indicators related to the required action.

## 9.0 BENEFITS

Efforts to restrict the spread and abundance of existing African lovegrass infestations as outlined in this Plan will benefit the agricultural industry, the environment and the community. Efforts to prevent establishment of infestations will save industry both control and opportunity costs.

The environment will benefit through African lovegrass control works and extension / education initiatives and joint ventures with NSW National Parks and Wildlife Service, through the alleviation of threatening processes affecting native flora and fauna species (see Section 4.2.1). Native grasslands and shale forests are rare and marginalised, thus control of competitive introduced species such as African lovegrass may assist in conserving these vegetation communities and ultimately, assist in the conservation of biodiversity.

The industry will benefit through increased production from grazing enterprises and improved sustainability of the rural sector. It will increase land productivity and grazing potential through improved pasture, grazing management and effective use of lovegrass as a pasture plant.

The wider community will benefit through African lovegrass control by avoiding trickle-down economic impacts from the agricultural sector.

## 10.0 RESOURCES

### References

ACT Weeds Working Group 2002 *ACT African Lovegrass Management Plan 2002 -2012*

Blood, K. 2001. *Environmental weeds - A field guide for SE Australia*. Jerram & Associates - Science publishers, Victoria.

Bush and Land Care Services (BLCS), 2002. *Southern Tablelands & South Coast Noxious Plants Committee - Natural Disaster Weed Strategy*. Unpublished

Keith Turnball Research Institute 1998 Landcare notes – African lovegrass. KTRI, Frankston  
NSW Agriculture 1987 *African lovegrass control* Agfact P7.6.37

Southern Tablelands and South Coast Noxious Plant Committee 1999 African Lovegrass Management Plan.

### Web sites

[www.ea.gov.au/epbc/biodiversityconservation/natural-temperate-grasslands.html](http://www.ea.gov.au/epbc/biodiversityconservation/natural-temperate-grasslands.html)

[www.fs.fed.us/database/feis/plants](http://www.fs.fed.us/database/feis/plants)

<http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Invasion+of+native+plant+communities+by+exotic+perennial+grasses+-+proposed+key+threatening+process+declaration>

## Appendix 1: Density classes used to map African lovegrass

Density / distribution class	Comment
Core	<p>A 'core' area is where, using realistic resource levels and advances in technology*<sup>1</sup>, it is NOT FEASIBLE in the short term*<sup>2</sup> to:</p> <ul style="list-style-type: none"> <li>- significantly reduce*<sup>3</sup> the density and distribution of the species, OR</li> <li>- maintain the current density and distribution of the species, with a decreasing amount of expenditure/effort*<sup>4</sup></li> </ul> <p>Note: Although core areas are ultimately likely to be lower priority areas, they will continue to require at least site specific control measures.</p>
Marginal	<p>A 'marginal' area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the short term to,:</p> <ul style="list-style-type: none"> <li>- significantly reduce*<sup>3</sup> the distribution and density of the species, or</li> <li>- maintain the density and distribution of the species, with a decreasing amount of expenditure/effort</li> </ul>
Rare and/or isolated	<p>A 'rare and/or' isolated area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the short term to:</p> <ul style="list-style-type: none"> <li>- eradicate*<sup>5</sup> the species where it occurs as an isolated*<sup>6</sup> population</li> <li>- where the population is rare*<sup>7</sup> to:</li> <li>- eradicate the species, OR</li> <li>- maintain it at a level where it has an insignificant environmental and economic effect*<sup>8</sup>, with a minimum and preferably decreasing expenditure/effort</li> </ul>
Absent	<ul style="list-style-type: none"> <li>- requires a high level of certainty that weed is absent. Rare and/or isolated may be a better class to use if uncertain.</li> <li>- may represent all of the area not covered by the first 3 classes</li> <li>- where possible, indicate what environmental constraint or history is causing the absence</li> </ul>

\*<sup>1</sup> 'realistic resource levels and technology advances' should be based upon your experience over the last 5 years with some informed judgement on what is expected over the next five years. If in doubt assume a continuation of the same level of funding and effort. Resources include funding and labour. Technology includes new control techniques such as biological control and integrated management.

\*<sup>2</sup> 'short term' means less than 5 years.

\*<sup>3</sup> Significantly reduce means reduce by approximately 75% from 2002 levels of distribution and abundance in 5 years

\*<sup>4</sup> 'Decreasing expenditure/effort' means that the amount of funding, resources and effort (including 'non-costed' labour from private land owners/managers) to control the weed over the past five years will decrease over the next five years.

\*<sup>5</sup> 'Eradicate' means: (a) remove or destroy all above ground biomass of the weed species population. This definition recognises the weed seed bank will remain viable and follow up work may be required beyond the term of this plan.  
(b) remove populations of the weed from the local area to the extent that little or no follow up is required *i.e.* the weed seed bank is largely exhausted. It is recognised that this may not be achievable within the currency of the plan.

\*<sup>6</sup> 'Isolated' means the population is considerably separate from other local populations (*i.e.* seed source from other local populations can not re-establish the local population) and is small enough to be eradicated. If eradicated it is assumed re-invasion is unlikely to occur.

\*<sup>7</sup> 'Rare' means a species is very uncommon, but unlike isolated may be scattered over a wider area at a very low density.

\*<sup>8</sup> 'Insignificant environmental and economic effect' means that the level of expenditure and effort required to keep the species at a 'rare level' is insignificant, and the population does not 'adversely and significantly' affect natural (including biodiversity), cultural and social values.

## Appendix 2: Supporting actions and links to Catchment Management Blueprints

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East	<b>Biodiversity Management Target 3</b> – by 2012 the area of public and private lands and waters (within specified sub-regions as per map on page 9) infested with the high priority weeds will not exceed year 2000 levels.	<ul style="list-style-type: none"> <li>The aim and objectives of the Regional Plan are consistent with this target</li> <li>All new and known rare and isolated infestations eradicated or an appropriate level by July 2006</li> <li>All known marginal infestations reduced by 75% by July 2008</li> <li>Annual control roadside control is to occur</li> <li>Core areas will be prioritised and strategically managed and infestations reduced to marginal levels prior to 2008. Intractable in core areas are to be reduced by 25% by July 2015</li> </ul>	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 6</p> <p>Action 5</p>
	<b>Biodiversity Management Action 2</b> – Develop and implement integrated control <sup>2</sup> strategies for priority weeds.	<ul style="list-style-type: none"> <li>The plan incorporates and promotes a range of strategies to manage African lovegrass, including, pasture and grazing management, legislation, herbicide control, exclusion techniques, extension and education. Successful implementation of the Regional Plan will be consistent with this action.</li> <li>The Regional Plan supports the objectives of the ACT and NSW Biodiversity Strategy and the NSW and Regional Weeds Strategy</li> </ul>	Section 6.4

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<sup>2</sup> Authors clearly meant that programs are comprehensive, linking with all land management programs including the control of other weeds, pest and threatening processes.

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East (cont.)	<b>Biodiversity Management Target 4</b> – by 2005 the processes will be in place to maintain the weed and pest free status of all areas that are weed free of pests and weeds (as at 2001 levels). The processes will include a combination of community education information sharing and coordination of all land managers	<p>The Plan places high priority on controlling all rare, isolated and new infestations. Actions listed within the Plan to meet this target include (Section 7);</p> <ul style="list-style-type: none"> <li>• surveying 'clean areas'</li> <li>• eradicating new infestations</li> <li>• Rare and isolated infestations in otherwise clean catchments are prioritised for control</li> <li>• Controlling roadsides entering clean areas and prioritising control in relatively clean catchments</li> <li>• Providing community and agency extension programs especially targeted within areas currently clean and less affected by of African lovegrass</li> <li>• Hygiene protocols/methods are to be developed and promoted</li> </ul>	<p>Action 2</p> <p>Action 3</p> <p>Action 3</p> <p>Action 6</p> <p>Action 12 and Action 13 and Section 6.3</p> <p>Action 9</p>
	<b>Biodiversity Management Action 5</b> - Maintain the weed and pest free status of all areas that are free of pests and weeds	See comment for BMT4	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East (cont.)	<p><b>BMA 10</b> – Negotiate reform for weed control and establish monitoring trial zones for a South East regional approach. This may include:</p> <ul style="list-style-type: none"> <li>• review of current systems;</li> <li>• Research into biological and biological and other forms of control</li> <li>• Trialing of innovative approaches</li> </ul>	<ul style="list-style-type: none"> <li>• There are no specific actions to negotiate reform or to establishing monitoring trials. This work is currently being effectively carried out by research organisations such as NSW Agriculture, CRC Weed Management Systems and CSIRO</li> <li>• Biological control agents are not expected to be released during the term of the Plan.</li> <li>• The Regional Plan remains flexible to allow innovation and new methods. Conclusions from trial investigations along with information concerning successful local practices are to be promoted across the region.</li> <li>• An African lovegrass grazing demonstration site is to be established</li> </ul>	<p>Section 6.2</p> <p>Section 6.1 and Action 11</p> <p>Action 15</p>
	<p><b>Social and economic management target (SEMT) 1</b> – Develop a package of the most effective combination of incentives, regulation and extension programs to achieve catchment targets in the face of rural adjustment and demographic change for weed and pest control programs by 2005</p>	<p>The Regional Plan supports this target through:</p> <ul style="list-style-type: none"> <li>• Identifying additional resourcing and funding opportunities</li> <li>• Strategic targeting of training, education and extension programs</li> <li>• Property/weed management plans will be developed and enforced in areas where economic realities place questions on the ability to enforce W2 declarations.</li> <li>• Farm or local based strategies are to be developed in areas with intractable infestations</li> </ul>	<p>Section 6.1</p> <p>Section 6.3 and Actions 12 and 13</p> <p>Section 5 and Action 8</p> <p>Action 5 and Action 8</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern	<p><b>Sustainable Land Use Program</b></p> <p><b>Catchment Target</b> - By 2012 the area of land affected by land degradation problems including weed infestations, will not exceed the 2003 baseline</p> <p><b>Management Target</b> – by 2005, a regional weed control strategy will be implemented for priority weeds</p>	<ul style="list-style-type: none"> <li>The Plan aims to considerably reduce the spread and reduce the impact and density of existing African lovegrass infestations. The aims and objectives of the Regional Plan are consistent with this target.</li> <li>All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006</li> <li>All known marginal infestations reduced by 75% by July 2008</li> <li>Annual roadside control is to occur</li> <li>Core areas will be prioritised and strategically managed and infestations reduced by 85% by July 2008</li> <li>The plan will be consistent with the ST&amp;SCNPC Regional Weed Strategy (currently in production)</li> </ul>	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 6</p> <p>Action 5</p> <p>Section 6.4</p>
	<p><b>L1.1 Establish a working group to :</b></p> <ul style="list-style-type: none"> <li>Agree on priority weeds</li> <li>Create a regional priority weeds map; and</li> <li>Negotiate reduction targets with state and local government and major stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>African lovegrass has been identified as a priority weed on social, environmental, and economic grounds by all major stakeholders in the Region</li> <li>An African lovegrass weed map has been created during the development of the Regional Plan.</li> <li>African lovegrass reduction targets (including time-frames) for rare and isolated, marginal and core infestations, have been agreed to by major stakeholders in the Region</li> </ul>	<p>Section 3 and Section 4</p> <p>Map1</p> <p>Actions 3, 4 and 5</p>
	<p><b>L1.2</b> - Develop and implement an integrated weed control strategy, incorporating investment options.</p>	<p>This will be detailed in the Regional Weed Strategy (currently in production)</p>	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	<p>L1.3 Support the implementation of best management practices for the control of weed species by landholders through education, incentive programs and government planning instruments particularly:</p> <ul style="list-style-type: none"> <li>• Information and training that addresses dispersal of weeds and land management for weed control</li> <li>• Protocol to manage new weeds</li> <li>• Code of practice for infrastructure developments that may create conditions favourable for weeds</li> </ul>	<ul style="list-style-type: none"> <li>• The Plan details actions to provide education and extension programs for private landholders and occupiers to raise awareness and best practice control techniques, and land and pasture management techniques</li> <li>• Funding and resource opportunities for landholders, occupiers and stakeholders are outlined in the Plan.</li> <li>• Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers Incentive schemes (e.g. monetary, equipment hire, tax rebates) and joint ventures are to be developed and implemented.</li> <li>• Methods to raise public awareness of African lovegrass and its impacts are listed. Targeting of extension programs to increase effectiveness and efficiencies are detailed within the Plan.</li> <li>• Hygiene protocols/methods are to be developed and promoted. Councils, RTA and other utility stakeholders are to develop codes of practice and protocols for roadside and easement maintenance.</li> <li>• New infestations of African lovegrass are to be eradicated within a year of detection.</li> </ul>	<p>Section 6.3 and Action 13</p> <p>Section 6</p> <p>Section 6.3 and Actions 13 and 14</p> <p>Section 6.3</p> <p>Section 6.2 and Actions 6 and 9</p> <p>Action 3</p>
	<p><b>L1.4</b> – Develop and implement mechanisms that provide incentives for landholders to adopt best practices for weed control</p>	<ul style="list-style-type: none"> <li>• Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers.</li> <li>• Support is to be sought through appropriate government industry bodies for additional financial support</li> <li>• Incentive scheme options (e.g. monetary, equipment hire, tax rebates etc.) are to be developed and implemented.</li> <li>• Joint ventures and opportunities are to be investigated</li> <li>• Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan</li> </ul>	<p>Section 6.3 and Actions 11, 13 and 14</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	<b>L1.5</b> – Support programs for the biological control of weeds	<ul style="list-style-type: none"> <li>No biological control agents are expected to be released during the life of the Plan. Stakeholders have given in-principle agreement to support research.</li> </ul>	Section 6.2
	<b>L 2.5</b> - Implement pasture management programs to promote sustainability through maintenance of soil health	<ul style="list-style-type: none"> <li>The implementation of the Plan will promote pasture improvement and management at field days, in information brochures and through sustainable grazing and pasture management training programs such as 'Prograze'</li> </ul>	Action 12
	<b>L 2.7</b> - Promote the adoption of best management practices for sustainable agriculture and land use through education and incentive programs and in government planning instruments	<ul style="list-style-type: none"> <li>Sustainable pasture and grazing training programs will be promoted.</li> </ul>	Action 13
	<p><b>Biodiversity Program</b></p> <p><b>Management Target 4</b> - By 2012, areas of high conservation value will be managed for conservation and priority actions for threatened species recovery plans will be implemented</p> <p><b>Management Target 5</b> – By 2005, collaborative programs will be in place to manage targeted pest species</p>	<p>African lovegrass has been identified as a threatening process for the <i>Natural Temperate Grasslands of the Southern Tablelands and the ACT</i> which is listed as an endangered ecological community under the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>. African lovegrass in these areas will be prioritised for control.</p> <p>Implementation of the Regional Plan is to occur prior to 2004. Key stakeholders have been consulted and are signatories for the implementation of the Plan.</p>	<p>Section 4 and Action 5</p> <p>Section 3</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Warragamba	<p><b>Soil and Land Condition Management Target (SLMT) 1</b> – By 2012, the whole community aims to reduce the area infested by pest plants and animals to below 2002 levels through:</p> <ul style="list-style-type: none"> <li>• Maintenance of the pest free status of all areas of land infested by pest plants and animals.</li> <li>• By 2007, reduce the rate of infestation of priority pest plants and animals (noxious, environmental and production) by 50%; and</li> <li>• Management for long-term sustainable reduction in pest plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>• The Plan aims to considerably reduce the spread and reduce the impact and density of existing African lovegrass infestations. The aims and objectives of the Regional Plan are consistent with this target.</li> <li>• All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006</li> <li>• All known marginal infestations reduced by 75% by July 2008</li> <li>• Annual roadside control is to occur</li> <li>• Core areas will be prioritised and strategically managed and infestations reduced by at least 25% by July 2015</li> <li>• The plan will be consistent with the ST&amp;SCNPC Regional Weed Strategy (currently in production)</li> </ul>	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 6</p> <p>Action 5</p> <p>Section 6.4</p>
	<p><b>Soil Land Condition Management Action (SLMA) 1/d</b> – Identify, in consultation with key stakeholders, the priority weeds (noxious, environmental and production), pest animals, including pest fish, for each subcatchment and the area of infestation or numbers, as relevant</p>	<ul style="list-style-type: none"> <li>• The development of the plan reflects the identification of African lovegrass as a priority weed by key stakeholders within the Southern Tablelands and South Coast Region. The area of infestations has been identified (Map 1).</li> </ul>	<p>Section 3 and Section 4</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Warragamba (cont.)	<b>SLMA2/a</b> – In consultation with key stakeholders, develop and implement integrated strategies for pest plant and animal control that agree on goals / strategies that keep clean areas clean, and also identify priority actions for pest plants, animals and fish. These strategies should ensure that areas free of pest plants and animals remain un-infested, as well as incorporate consistent, timely and appropriate local management of pest and weed control. Barriers to management and the current programs of individuals and organisations need to be reviewed	<p>Key stakeholders have been consulted. The Plan is integrated and prioritises efforts to keep clean areas clean through</p> <ul style="list-style-type: none"> <li>• surveying of ‘clean areas’</li> <li>• eradicating new infestations</li> <li>• prioritising for control, rare and isolated infestations in otherwise clean catchments</li> <li>• Control of roadsides entering clean areas</li> <li>• W2 declaration in the Crookwell Shire and the Queanbeyan City Council</li> <li>• Community and agency extension programs especially targeted within areas currently clean of African lovegrass.</li> </ul>	Section 7 – strategic actions
Lachlan	<b>Vegetation and Biodiversity Management Target (VBMT 4)</b> - All identified terrestrial and aquatic weed and pest plant animals of concern for the Lachlan Catchment are managed through integrated management across land tenures	<ul style="list-style-type: none"> <li>• African lovegrass has been identified as a declared weed under the Noxious Weed Act, for the LGAs covered by this Plan.</li> <li>• Key stakeholders, within the area covered by this Plan, have been consulted and are signatories for the implementation of the Plan.</li> <li>• The plan incorporates and promotes a range of strategies to manage African lovegrass, including, pasture and grazing management, legislation, herbicide control, exclusion techniques, and extension and education. Successful implementation of the Regional Plan will be consistent with this action.</li> </ul>	<p>Section 5</p> <p>Section 3</p> <p>Section 7 – Strategic Actions</p>
	<b>Vegetation Action (VA) 34</b> – Identify the terrestrial and aquatic weeds and pest animals of concern, develop status reports on the extent of the problem and the impacts of these on catchment health	<ul style="list-style-type: none"> <li>• The extent of the African lovegrass problem and impact within the Region has been documented throughout the Plan. African lovegrass impacts on the catchment’s economy, water quality, threatened species and communities, land values, grazing enterprises, and the social values of rural communities.</li> </ul>	Section 4.2 and 4.5 and Map 1

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Lachlan (cont.)	<b>VA35</b> – Develop integrated management plans for the control and management of the identified weed and pest animals	<ul style="list-style-type: none"> <li>The plan incorporates and promotes various strategies to manage African lovegrass including pasture and grazing management, legislation, herbicide control, extension and education.</li> </ul>	Section 7 – Strategic Actions
	<b>VA36</b> - Support the implementation of the integrated weed and pest management plans	<ul style="list-style-type: none"> <li>Strategies requiring extra funding are highlighted throughout the plan</li> <li>Regional Plan has been developed to assist PAP and Noxious Weeds Grant funding applications.</li> <li>Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan.</li> <li>Regional Plan is linked and supports all Catchment Management Blueprints</li> </ul>	Section 6.1.1  Section 6.1 Section 6.4 and Appendix 2
	<b>VA37</b> – Community education and awareness programs targeted at how to limit the spread of weeds and pest animals of concern within the catchment	<ul style="list-style-type: none"> <li>On-farm, road-side and utility easement, hygiene practices are to be implemented based on best practice hygiene protocols.</li> <li>Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers</li> <li>Methods to raise public awareness of African lovegrass and its impacts are listed within the Plan. Targeting of extension programs to increase effectiveness and efficiencies are also detailed within the Plan.</li> </ul>	Section 6.2 and Action 9  Action 10 and Action 12  Section 6.4 and Action 13
	<b>VA38</b> - Implementation of integrated management plans for the control and management of the identified weeds and pest animals	<ul style="list-style-type: none"> <li>The Plan provides details to assist in the integrated management of African lovegrass.</li> <li>ST&amp;SCNPC and LCAs, in association with respective catchment Management Boards, are to coordinate stakeholders and implement Regional Plan.</li> </ul>	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Lachlan (cont.)	<b>VA39</b> – Develop and provide appropriate cost sharing arrangements to support the implementation of the integrated management Plans, with varying levels of public investment based on community gain versus private gain. Priority given to the weeds and pests that are identified as having a greater impact on catchment health	<ul style="list-style-type: none"> <li>• Incentive scheme options (e.g. monetary, equipment hire, tax rebates etc.) are to be developed and implemented.</li> <li>• Joint ventures and opportunities are to be investigated</li> <li>• Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan.</li> </ul>	Action 14 Section 6.2 and Action 14 Section 6.1
Murrumbidgee	<b>Soil Management Target 6 activities</b> – facilitate the development of a regional weeds strategy incorporating a regional protocol for prioritising weed management actions in order to prevent new, problem weeds and manage existing weeds. Encourage the adoption of the strategy by private and public managers.	<ul style="list-style-type: none"> <li>• The Regional Plan can be readily adopted as part of the Regional Weeds Strategy. Key stakeholders have been consulted and are signatories for the implementation of the Plan</li> </ul>	Section 3
	<b>BMA 4</b> – control weeds	<ul style="list-style-type: none"> <li>• The plan will facilitate the integrated control of African lovegrass</li> </ul>	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Murrumbidgee (cont.)	<p><b>BMT3 Activities –</b></p> <p>Identify, develop and implement integrated weed and pest control strategies. Manage problem weeds in context on the Regional Weed Management Plan.</p> <p>Research and encourage the adoption of best management practices to improve grazing management of native perennial pastures to enhance productivity and biodiversity.</p> <p>Manage medium and high conservation value stock routes and roadsides by controlling stock grazing and removing weeds</p> <p><b>BMT4 Activities -</b></p> <p>Identify weeds within the catchment that are having a detrimental effect on listed threatened species/ communities, especially those weed species which are included on the Alert list of Weeds and Weeds of National Significance. Implement control actions with particular reference to specified Commonwealth and State legislation. Any proposed on-ground actions should be done with reference to any relevant strategies such as those developed for the 20 weeds of National Significance and the National Weeds Strategy</p>	<ul style="list-style-type: none"> <li>• The Plan is consistent with the draft Regional Weed Strategy.</li> <li>• The plan will facilitate the integrated control of African lovegrass</li> <li>• Sustainable pasture and grazing training programs (such as Prograze) will be promoted.</li> <li>• Management strategies for intractable African lovegrass infestations will be developed which may include the promotion and management of native perennial pastures.</li> <li>• High conservation value areas are prioritised for control. An integrated and prioritised system of road-side control is detailed within the Plan.</li> <li>• African lovegrass has been identified as a threatening process for the <i>Natural Temperate Grasslands of the Southern Tablelands and the ACT</i> which is listed as an endangered ecological community under the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>. It has also been identified as a key threatening process impacting on many threatened communities, flora and fauna (listed under the TSC Act 1995).</li> </ul>	<p>Section 6.4</p> <p>Action 12</p> <p>Action 6</p> <p>Action 6 and Action 5</p> <p>Section 4</p>
	<b>BMA2 –</b> Implement grazing management	The implementation of the Plan will promote pasture improvement and management at field days, in information brochures and through sustainable grazing and pasture management training programs such as 'Prograze'	Action 13

### Appendix 3: Current declarations for African lovegrass in the Region

Local Council	Current declaration
ACT	Declared pest
Bega Valley	W2/W3
Cooma-Monaro	W3
Bombala	W2
Crookwell	W2
Snowy River	W2
Eurobodalla	W2
Queanbeyan	W2
Goulburn	W3
IDWA* <sup>1</sup>	W2
Gunning	W2
Mulwaree	W3
Southern slopes	W2
Tallaganda	W3
Wingecarribee	W2
Yass	W3
Wollondilly	nil
Yarrowlumla	W3

\*<sup>1</sup> Illawarra District Weeds Authority (Wollongong City, Shellharbour City and Kiama Council areas)