REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: **Broom and Gorse** Regional Management Plan

1.2 PLAN PROPONENTS

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

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Signature: Chairperson: Date:

1.3 NAME OF PLANT(S) **WONS** Y/N Yes (gorse)

Botanical name(s):	Common name(s):
Cytisus scoparius	Scotch/English broom
Genista monspessulana	Cape/Montpellier broom
Spartium junceum	Spanish broom
Ulex europaeus	gorse

1.4 PLAN PERIOD

Starting date: 1st July 2002 Completion date: 30th June 2007

1.5 AREA OF OPERATION: Southern Tablelands & South Coast Region

1.6 AIM: is strategically directed for maximum benefit for effort.

1.7 OBJECTIVES:

1. To stop the spread of broom/gorse into those uninfested areas identified in the 2002 mapping
2. To coordinate on-the-ground control efforts between shires and agencies
3. To eradicate (except garden plants) all rare, isolated and new infestations
4. To strategically reduce infestations in marginal areas and contain or where possible reduce infestations in core areas.
5. To obtain declaration in LCAs where broom and/or gorse are currently undeclared.
6. To discourage use of broom as a garden plant
7. To implement appropriate follow-up and rehabilitation following control work
8. To improve landowner understanding of broom & gorse ecology, threats and control techniques

2.0 STAKEHOLDERS

2.1 Signatories

The following organisations have signed an agreement to implement the Plan:
NSW Agriculture
Councils of the Southern Tablelands and South Coast
Rural Lands Protection Boards

2.2 Other Stakeholders

The following organisations have been involved in the planning process, either through notification or actual participation:
NSW National Parks and Wildlife Service
Environment Australia (Booderee National Park)
Environment ACT
ACT Forests
NSW State Forests
Aboriginal Land Councils
Catchment Management Boards
State Rail Authority
Roads and Traffic Authority
Nursery Industry Association
National Farmers Association
Landholders / Dairy Farmers / Cattle Producers
Landcare
Rivercare
Coastcare

3.0 BACKGROUND

Broom (*Cytisus scoparius, Genista monspessulana* and *Spartium junceum*) and gorse (*Ulex europaeus*) are addressed in one management plan as they are closely related and require similar management actions to control infestations.

3.1 Reason for Plan

Broom & gorse primarily threaten natural habitats (*e.g*. conservation areas) at present, although they may also compete with favourable species in pastureland. Native flora and fauna are threatened by broom & gorse invasion as native plants are outcompeted and animal habitat is removed. These weed species are able to invade seemingly undisturbed bushland and therefore represent a significant threat to ecological values throughout the Region. It is essential to coordinate control efforts to reduce the spread and establishment of broom & gorse throughout the Region.

Null hypothesis: If control is not undertaken, broom will spread a significant distance along watercourses in the Region, particularly in natural areas and toward coastal areas. Biodiversity along these valuable riparian corridors will likely decline, and local populations of some species are likely to be lost. Land adjoining riparian areas will also be infested with loss of agricultural land and further impacts on biodiversity.

Without a successful control program, gorse has the potential to become one of Australia's worst environmental and agricultural weeds (ARMCANZ & ANZECCFM 2000). In economic terms, if control is not undertaken immediately, the costs associated with control in the future may exceed the value of the land. If gorse is not controlled within the Region, it may continue to spread and invade its potential range.

3.2 Description of the problem

Table 1 outlines problems associated with broom & gorse invasion.

Table 1: Community sectors affected by broom & gorse invasion

Sector affected	Impacts of broom	Impacts of gorse
Agriculture	• Restrict access to forage and watering points for stock • Thickets may close access to forestry roads and prevent regrowth	• Reduces stocking rates • Reduces stock access • Provides shelter for pest vertebrates such as rabbits • Interferes with establishment procedures in forestry operations and competes with tree seedlings
Economy	• As broom is mostly an environmental weed, it has not been assigned a significant economic value at present • Broom does reduce the value of some cattle grazed pastures and forestry areas	• A recent study indicates gorse has cost Tasmanian producers around $1M / year in lost production (ARMCANZ & ANZECCFM 2000) • Control work is expensive: estimates vary from $700 - $1,500 / ha depending on the age and severity of the infestation, method of control and nature of terrain (ARMCANZ & ANZECCFM 2000) • Often the cost of control exceeds the dollar value of the land
Environment	• Environmental weed in grassland and woodland/open forest complexes in disturbed and undisturbed communities • Shades out groundcover plants and seedlings of shrub and tree species • Restricts access to habitat and watercourses for native species • Adversely affects rare or threatened native species • Provides shelter for vertebrate pests • As broom is a legume, the species may change the soil chemistry	• Environmental weed in conservation areas, riparian areas and at the edge of natural bushland • Outcompetes native understorey plants • Reduces access to habitat for native fauna • Infestations alter soil chemistry by concentrating available bases, particularly calcium in foliage and therefore acidifying the soil

Community	• Recreational and tourism values may decrease due to restricted access to pursuits such as fishing, water sports and birdwatching • Aesthetic and intrinsic values of affected areas may be compromised	• Increases intensity of bushfires in some environments • Recreational and tourism values may decrease due to restricted access to pursuits such as fishing, water sports and birdwatching. • Aesthetic and intrinsic values of affected areas may be compromised

In some situations, broom and gorse may have the following beneficial properties:

- Gorse is beneficial in its ability to minimise soil erosion and stabilise riverbanks. Gorse is also an important supplementary pollen source for the apiary industry during autumn and spring (ARMCANZ & ANZECCFM 2000).
- Broom and its hybrids are still valued as ornamentals in Australia. Broom has medicinal value and is used as a dye, to make brooms and as a substitute for hops, capers and coffee (CRC Weed Management Systems 2000).

Broom & gorse are particularly problematic environmental weeds due to their plant and seed longevity characteristics. Thus any control program must be committed to long-term implementation and monitoring. Uncertainty associated with funding and stakeholder commitment may limit the achievement of Plan outcomes. Barriers and contingencies to the Plan are discussed in Section 5.5.

3.3 Distribution of infestations

Broom is currently estimated to infest over 200,000ha in Australia. It occurs in many conservation areas including the Australian Alps National Parks (CRC Weed Management Systems 2000).

Gorse occurs primarily in national parks and reserved areas in the south-east of NSW and in the Blue Mountains. The species is not a significant problem as yet in the agricultural sector (ARMCANZ & ANZECCFM 2000). Gorse has established along roadsides and other non-agricultural areas such as rail lines, electricity easements, quarries and mine sites and in riparian zones (ARMCANZ & ANZECCFM 2000).

Within the Region, Scotch/English broom and gorse occur mostly in the tablelands, while Montpellier broom is problematic on the coast. These species have been recorded in the Illawarra District Weeds Authority, Wingecarribee, Shoalhaven, Mulwaree, Goulburn, Crookwell, Gunning, Southern Slopes County Council, ACT, Queanbeyan, Snowy River, Bombala, Tallaganda and Yarrowlumla LCAs (refer to Map 1).

A small infestation of Spanish broom was recently found in Tallaganda Shire. The current distribution of the species in the Region is unknown, however it is closely related to Scotch broom and currently grows as an ornamental in much of the Region. Thus Spanish broom may be an emerging weed problem in the Region.

MAP TO BE INSERTED HERE

3.4 Weed biology / ecology

The term “broom” encompasses four genera: *Cytisus*, *Genista*, *Calicotome* and *Spartium*. Within these genera, five serious weeds emerge: Scotch or English broom (*Cytisus scoparius*), cape, canary or Montpellier broom (*Genista monspessulana*), Spanish broom (*Spartium junceum*) flax-leaved broom (*Genista linifolia*) and spiny broom (*Calicotome spinosa*). Another species, Madeira broom (*Genista stenopetala*) is weedy in Tasmania at present (CRC Weed Management Systems undated). The current Plan addresses Scotch/ English broom, Cape/Montpellier broom and Spanish broom only.

Broom is a native of Europe. It is a large shrub that is deciduous over winter or in dry conditions. The species has several erect or spreading then erect stems which later collapse to become prostrate. Individuals grow to 4m and often form dense thickets in cooler areas. Plants may live 25 years or more in Australia. The pea flowers are golden yellow and are profuse. Individuals generally flower first in their third year. However, only a small proportion of flowers develop into fruits. The average number of seeds per pod varies from five to eight and seeds are mostly released from December to early March. (CRC Weed Management Systems 2000; Deane pers. comm. 2002).

Cape or Montpellier broom is often confused with Scotch/English broom, however it has ridged (but not five-sided) stems, flowers 0.8-1.3cm long and densely hairy pods mainly 1.5-2.5cm long (CRC Weed Management Systems 2000).

Features which distinguish Spanish broom from related species include a round stem, a simple leaf and fragrant flowers (www.wa.gov undated).

Gorse is a perennial shrub with prickly stems and leaves. The species is native to central and Western Europe and the British Isles and can grow to a height of 3+ metres. It produces a deep and extensive root system, which provides the species with a competitive advantage as it is able to access water during dry periods. In addition, the leaves are covered in a waxy cuticle, which further reduces water loss. The pea flowers are bright yellow and produce much seed. Plants flower when about 18 months old. Seeds have a hard, water-resistant coating and may remain dormant in the soil for 20+ years. Viability of dormant seed can exceed 85% (ARMCANZ & ANZECCFM 2000).

Gorse grows well on fertile soils as well as light sands, heavy clays and disturbed soils. It is cold limited and generally grows where the mean daily minimum temperature of the coldest month is above 2°C. Gorse has potential to spread well beyond its current range (ARMCANZ & ANZECCFM 2000).

3.5 Method and rate of spread

Broom spreads via seed. Seeds are released from the pods explosively on sunny days as the pods dry out. Seeds may fall up to 4.5m from the parent plant, and secondary local dispersal may occur via ants. Long distance dispersal may occur via attachment to mud on vehicles, machinery, footwear and animals, by water during floods and through the gut of animals such as horses and pigs. Broom has sometimes been planted deliberately via the nursery trade (CRC Weed Management Systems 2000).

Broom seeds have a hard coat and achieve considerable longevity, thus there are large soil seed banks below broom infestations (*e.g.* up to 50,000 seeds/m^2 in the soil under mature broom infestations) (CRC Weed Management Systems 2000). Spanish broom seeds which are buried more than 10cm do not germinate, however, future site disturbance will trigger germination if seeds are positioned higher in the soil profile (www.wa.gov).

Gorse spreads mainly via seed dispersal. Seed may be dispersed ballistically, by water, in mud on animals and machinery, by ants and possibly by wind. Although gorse does not generally propagate vegetatively, cultivation may disperse the root system and gorse fragments may regenerate (ARMCANZ & ANZECCFM 2000). Gorse is a prolific seeder with up to 6 million seeds being produced per hectare per year. Seeds may remain viable for up to 25 years (NRE 1997). Fire stimulates germination of gorse seed (Downey 1999).

Options to limit the spread of broom and gorse include:

- implementing plant equipment and material hygiene
- establishment of local quarantine methods and zones
- restricting sale and propagation of broom

3.6 Roles and responsibilities of land managers

All agencies must participate in broom & gorse control, however, implementation of the Regional Plan by the following land managers is considered critical to the success of the Plan:
Catchment Management Boards
NSW National Parks & Wildlife Service
ACT Parks and Conservation Service
State Forests of NSW
Department of Land & Water Conservation
Sydney Catchment Authority
Private landowners
Nursery industry

4.0 LEGISLATIVE SITUATION

4.1 Current declaration

Scotch or English broom is currently declared a W2 noxious weed under the *Noxious Weeds Act 1993* in all LCAs in the Region apart from Wollondilly Shire (associate member). Scotch or English broom is a Declared Pest Plant under the *Land (Planning and Environment) Act 1991* in the Australian Capital Territory (associate member). Cape broom is a W2 weed in Bega Valley Shire (refer to Appendix 1). Spanish broom is currently undeclared in all LCAs of the Region.

Gorse is currently declared a W2 noxious weed under the *Noxious Weeds Act 1993* in the following LCAs: Bombala, Cooma-Monaro, Crookwell, Goulburn, Gunning, Illawarra District Weeds Authority (Wollongong, Shellharbour & Kiama Councils), Mulwaree, Queanbeyan, Shoalhaven, Snowy River, Tallaganda, Wingecarribee, Wollondilly and Yarrowlumla. Gorse is a Declared Pest Plant under the *Land (Planning and Environment) Act 1991* in the Australian Capital Territory (associate member) (refer to Appendix 1).

Under the *Noxious Weeds Act 1993* (NSW), W2 weeds must be fully and continuously suppressed and destroyed. Under the *Land (Planning and Environment) Act 1991* (ACT) an order may be given to control pest plants. Consequently all land managers have a legal obligation to control W2 or pest plants on their property.

4.2 Declaration changes

The current English/Scotch broom declarations are generally considered sufficient to achieve successful control in the Region.

However, declaration changes according to Table 2 are recommended for gorse and Cape/Montpellier broom.

Table 2: Current and proposed declarations for broom and gorse in the Region

Local Council	Current declaration	Proposed declaration	Reasoning for changes to current declaration
gorse			
Bega Valley	Not declared	W2	A W2 declaration would provide consistency along the coast and allow swift control
Eurobodalla	Not declared	W2	Broom is spreading down the Deua River from Tallaganda Shire and affecting Eurobodalla Shire east of Araluen. Declaration will allow Council to effect control before the species becomes a major weed in the LGA.
Cape / Montpellier broom			
Bega Valley	W2	W2	Species declaration is sufficient
Eurobodalla	Not declared	W2	Declaration will allow the LCA to prohibit sale of the species via nurseries and retail outlets (this is the significant threat in the LCA area).
Shoalhaven	Not declared	W2	A W2 declaration is appropriate as the weed is new and emerging in the Shoalhaven and swift control action is required.
Illawarra District Weeds Authority	Not declared	W2 or W4g	W2 declaration may be justified with additional funding (approx. $5000) from NWAC. At present it would be difficult for the IDWA works program to fund the W2 declaration (operational and inspectorial costs) without additional funding. If funding is not available, a W4g declaration is proposed.

It is not recommended that declarations are made in LCAs for Spanish broom at present. It may be possible to work cooperatively with landholders, gardeners and the Nursery Industry to eradicate any isolated infestations and reduce threat of outbreaks. It is important to continue to monitor the species and revise declaration if the species becomes more threatening.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 Opportunities to be exploited

Funding sources to be investigated in the control of broom & gorse include:

- Noxious Weed Grant scheme for control on Council and RLPB land (administered through NSW Agriculture)
- Grants to Landcare and Rivercare groups that meet objectives of Catchment strategies and Natural Heritage Trust
- Vacant Crown Land funding (administered through DLWC)

Joint ventures may be pursued through:

- Seeking sponsorship of broom & gorse control works by tourism agencies, recreational fishing groups *etc*.

No specific agreements have been reached on the above opportunities, however given the threat potential the plan has recommended investigation of the above opportunities.

5.2 Species management

A combination of the following are required to reduce the spread and impact of broom & gorse in the Region:

- prevention of spread
- grazing management (*e.g*. the use of goats as trialed by NSW Agriculture, Cowra),
- mechanical control (*e.g*. slashing and mulching),
- cultivation,
- fire regime management,
- chemical application (*e.g*. low volume chemical applicators and wick wipers),
- rehabilitation (*e.g*. revegetation or pasture improvement)
- biological control

Refer to CRC (2000) and NRE (1997) for information on the above control measures.

Broom biocontrol is active in Australia, however, there are no more funds for redistribution. Agents have been released in the Shoalhaven and Tallaganda Shires. Montpellier broom work is active but agents have not yet been released and more resources are needed (A. Sheppard pers comm. 2001). The biocontrol agents are a twig-mining moth, a sap sucking psyllid and a seed-feeding beetle (CRC for Weed Management Systems 2000).

A number of biological control agents have been released to control gorse in Australia. Namely the gorse seed weevil (*Exapion ulicis*), gorse spider mite (*Tetranychus lintearius*) and gorse thrips (*Sericothrips staphylinus*). Biological control cannot be used solely to control a weed but can reduce the vigour and spread of infestations. Other methods are often required to achieve control (NRE 2001). The Region will continue to support and facilitate the introduction of biological control agents where possible (refer to Strategy 2.3.2 of the National Gorse Strategy 2001).

Grazing, cultivation and sometimes fire are inappropriate methods of broom & gorse control in conservation areas. A combination of mechanical methods, herbicides and revegetation may successfully control infestations with minimal damage to surrounding species. Due to plant and seed longevity, broom & gorse infested areas require monitoring for many years.

5.3 Extension and education

Research indicates that farmers learn and develop new skills through “farm networks, direct hands-on involvement in field days and specific demonstrations of new technologies and techniques rather than through traditional educational institutions” (NWAC 1996).

To date, broom & gorse extension and education programmes have included:

- dissemination of Agnotes and Council information sheets
- media releases
- field days

The weedy potential of broom & gorse must be recognised by landholders and the nursery trade. Educative measures must be undertaken immediately to raise the profile of broom & gorse. The following programmes are proposed:

- educate absentee landholders on noxious weed control – *e.g*. leaflet distributed with rates notices
- coordinate media releases, radio segments and if possible field days immediately prior to the optimal control period may achieve improved broom & gorse control Region wide
- submit articles in targeted magazines and journals
- it may be appropriate to extend educative material to include information on emerging broom species such as Spanish broom. Landholders may then provide feedback as to the distribution and threat potential of such species in the Region.

5.4 Links to other strategies

All direct funding proposals and priorities for the broom & gorse Regional Plan will support the goals of the NSW Weeds Strategy and the Regional Weeds Strategy.

Land management agencies such as the NSW NPWS and State Forests of NSW may have weed control plans or weed management strategies as part of other management plans for specific areas. Representatives from the above agencies have provided input for this Plan.

In addition the Plan conforms to the following strategies:

- NSW Weeds Strategy
- NSW Agriculture Corporate Plan 2001/2004
- The National Weeds Strategy – a strategic approach to weed problems of national significance
- Weeds of National Significance gorse (*Ulex europaeus*) Strategic Plan
- Catchment Management Board plans (*e.g*. Southern Catchment Management Board Blueprint 2001)

5.5 Barriers and contingencies

The following are barriers to broom & gorse control:

- Perceived consumer demand for broom via nurseries and other retail outlets and community market days (Action 9 and Action 12)
- Perception by some land managers that broom & gorse are not problematic (Action 12)
- Provision of habitat for native species. Large-scale removal of broom & gorse infestations may alter / remove habitat for territorial species and threaten the viability of local native species populations (Action 11)
- Removal of broom & gorse infestations without land rehabilitation may promote reinvasion by broom & gorse propagules and other highly invasive weed species (Action 11)
- Absentee and small acreage landholders may be less committed and active in broom & gorse control (Action 6 and Action 12)
- Restrictions to the use of herbicides in proximity to watercourses reduce available control mechanisms in some areas (Action 13)
- The *Pesticides Act 1999* makes it an offence to harm off-target species. Consequently, appropriate practices are required to minimise risks of off-target effects (Action 13)
- Potential for mass germination of broom and gorse seed following disturbance events such as fire (Action 14)
- Gorse provides supplementary pollen for the apiary industry during autumn and spring (Action 7 and Action 12)

The following contingencies cannot be overcome in broom & gorse control:

- Broom & gorse seed are long lived (may be viable for up to 80 years). Thus landholders must be committed to long-term control of infested areas. Studies in NZ have revealed that complete native regeneration after gorse control may take 50-60 years (Action 2, Action 3, Action 4 and Action 5)

6.0 ACTIONS AND PERFORMANCE INDICATORS

Current actions associated with the control of broom & gorse include activities such as extensive on ground control, field days and information brochures.

Proposed actions for control of broom & gorse during the period 2002 - 2007 are given below. As a general principle, new populations in areas currently absent and rare and isolated infestations should be given priority, followed by marginal infestations and then core infestations. It is important to continue strategic control in areas mapped as marginal and core (refer to Appendix 2) as per actions listed below. Actions flagged with an asterisk (*) are considered essential components of the plan.

	ACTION	Performance indicator	Who is to be responsible (add others involved)	*Objective number*
Mapping				
1	a) Update mapped information (preferably on GIS) at least every second year	a) Maps updated at least every second year	**ST&SCNPC**: all composite land management agencies	3, 4
Strategic response				
2*	**Riparian populations** a) Contact all Catchment Management Boards in the Region to develop catchment-based implementation programmes for control of brooms and gorse in riparian habitats b) Devise work schedule *i.e.* identify priority riparian areas and prepare strategies	a) Catchment Management Board representatives invited to ST&SCNPC meeting in July 2003 b) Work schedule devised by September 2003	**ST&SCNPC, Catchment Management Boards**	2
3*	**Rare and Isolated populations** a) All known rare and isolated infestations eradicated[*1] (*i.e*. treat above ground material) b) All locations with rare and isolated populations to be inspected annually and control undertaken as required. Management plans devised by all affected landowners c) All currently known (non-garden) Spanish broom populations eradicated[*1]	a) Currently known rare and isolated infestations eradicated[*1] by July 2006. At least 20% of this work (Region wide) to occur each year and verified through annual reports b) Annual inspection results and verification that management plans exist included in annual reports	**Affected LCAs, NPWS** (ST&SCNPC Peter Deane)	3

	ACTION	Performance indicator	Who is to be responsible (add others involved)	*Objective number*
	d) Request Landcare and Rivercare groups and others give priority to rehabilitation of sites where rare and isolated infestations have been eradicated[*1]	c) Non-garden Spanish broom populations eradicated[*1] by July 2004. All sites tagged and a GPS reading taken (if possible) and control works undertaken every two years for the life of the Plan, followed by control works every 5 years d) Sites where eradication has occurred are rehabilitated within 5 years		
4	**Marginal populations** a) At least 50% of known marginal infestations treated. "Treatment" has an obligation of continued follow up in the long term to ensure infestation does not re-establish from extant seed bank	a1) At least 50% of known infestations treated by November 2006. At least 20% of work completed annually. a2) Majority of sites where control has occurred are rehabilitated within 5 years	**Affected LCAs, NPWS** Landcare and Rivercare groups (ST&SCNPC Peter Deane)	4
5	**Core populations** a) Encourage and where possible assist landowners with clean properties in core areas b) Prevent expansion beyond 2002 perimeter through creating strategic buffer zones *e.g*. prevent downstream spread of riparian infestations c) Seek funding from NHT for work (Strategy 2.5.3 of National Strategy) d) Encourage nurseries not to sell any *Cytisus* or *Genista* Species e) urban gardeners educated and encouraged to remove any *Cytisus* or *Genista* species	a) Actions recorded in annual reports b) Buffer zones established by July 2005 c) NHT funding submission sent by May 2003 d) The NSW Nursery Industry Association approached with recommendations and alternatives by July 2003 e) During Weedbuster weeks replacement plants or nursery vouchers to be made available for gardners removing Broom plants.	**Affected LCAs** (ST&SCNPC Peter Deane)	4
Prevention, regulation and rehabilitation				
6*	a) Gorse and Cape broom declared as noxious see Section 4.2, Table 2	a1) Submission requesting declaration in relevant Councils sent by December 2002 a2) Declarations completed by July 2003	**Relevant Councils** (DoA, ST&SCNPC)	5
7	a) Liaise with Landcare and Rivercare groups to develop guidelines for broom & gorse control where rare and threatened species occur (*e.g.* staged removal to retain habitat while native regeneration occurs).	a) A set of guidelines aimed at volunteer bush regeneration and weed removal groups is prepared by December 2003	**ST&SCNPC and NPWS** Landcare Rivercare	7

	ACTION	Performance indicator	Who is to be responsible (add others involved)	*Objective number*
8	a) Discuss coordinated control between tableland and coastal councils to limit distribution and abundance of broom & gorse along riparian corridors and restrict movement of broom species towards coastal environments	a1) Coordination of control discussed at July 2003 ST&SCNPC meeting a2) Satisfactory attendance by Council representatives and Catchment Management Board representatives	ST&SCNPC, Tableland and Coastal Councils, Catchment Management Boards	1, 2
9*	a) Enforce prohibitions on broom sales in nurseries and other retail outlets. Educate nurseries re. weed potential of Spanish broom and other related species and hybrids	a) Annual weed inspections undertaken by Weeds Officers and recorded in annual reports (at least 2-3 days work per year dedicated to nursery inspections). Annual reports also provide indication of popularity of Spanish broom as an ornamental plant in the Region	Local Councils	6
10	a) Obtain gorse WONS hygiene procedures (as outlined in National Strategy 2.3.1) in affected areas b) Implement protocols where appropriate	a) Hygiene protocols obtained by June 2003 b) Affected councils distribute and enforce protocols where appropriate: documented in annual report	**ST&SCNPC**, DoA	4
11	a) Discuss logistics of coordinated broom & gorse removal and subsequent agricultural and native ecosystem rehabilitation. b) Develop revegetation guidelines for different vegetation communities	a) Logistics discussed during July 2003 ST&SCNPC meeting b) Rehabilitation strategies devised by all organisations undertaking broom & gorse control	**ST&SCNPC**, Landcare, Rivercare, NPWS, DLWC, Catchment Management Boards	7
Training, education and extension				
12	a) Obtain gorse information packages and best practice manual compiled by the National gorse Taskforce, State Strategy Contact and State agencies (refer to Strategy 2.2.2 and 2.2.4 of the National gorse Strategy 2001) b) Maintain education campaign to remind land managers of the importance of controlling broom & gorse. Broom & gorse identification, impacts and control measure information may be selectively disseminated via rates notices, council pamphlets and field day material. Absentee and small acreage landholders to be specifically targeted c) Seek sponsorship or funding to have garden broom plants replaced with a suitable plant when offered up during weedbuster week	a) Gorse information package and best practice manual obtained by September 2002 b) Actions recorded in annual reports. Broom & gorse brochures and / or discussion included in all field days over the next 5 years c) Replacement of broom species strategy occurring in the 2003 Weedbuster week	**ST&SCNPC Councils, DoA**	6, 8

	ACTION	Performance indicator	Who is to be responsible (add others involved)	*Objective number*
	d) Combine with other regional committees to educate nursery trade of the problems with broom species.	d) Nursery trade education campaign underway by July 2003		
13	a) Promote methods of reducing off-target mortality at field days and in information brochures	a) Methods of reducing off-target mortality during weed control are specifically addressed at all field days during 2002-2006. CNG brochures include methods of reducing off-target mortality	**Councils, DoA**	8
Other actions				
14	a) Each Council and land management agency to devise a rapid follow up plan in the event of fire affecting broom & gorse affected areas.	a) Broom & gorse seedlings treated within 12 months of a fire event - strategy to be discussed at July 2003 ST&SCNPC meeting	**Local Councils**, NPWS, DLWC, SCA	7
15	a) Potential of other broom species and their hybrids in the Region to be assessed	a) Issues associated with other broom species in the Region discussed at November 2003 ST&SCNPC meeting	**ST&SCNPC**, LCA Weeds Officers, NPWS	1
16	a) Clarify the responsibility of different land managers regarding control of riparian corridors (*i.e*. determine agency or landholder responsible for streambank weed management)	a) Responsibility for streambank weed management discussed at July 2003 ST&SCNPC meeting	**ST&SCNPC,** DLWC, NPWS, Catchment Management Boards	

*1 refer to Appendix 1 for definition of "eradicate"

It is anticipated that at a regional scale the application of the above actions will highlight the importance of enacting long term control for both broom and gorse. In addition, the Plan emphasises the strategic importance of coordinated efforts across the Region, especially along riparian corridors. It is anticipated that the Plan will prevent realisation of the potential range and abundance of broom and gorse in the Region. Appendix 3 provides a checklist to improve accountability and ensure the actions and performance indicators in Section 6 are met.

7.0 MONITOR AND REVIEW PROCESS

Stakeholders will provide an annual progress report which 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 each year. The regional report will address any modifications to actions and performance indicators which may improve the outcomes of the Plan.

The Plan is to be reviewed and updated after five years *i.e.* prior to July 2007. It may be important for future reviews of the Plan to incorporate emerging weedy broom species (as per. Action 15a).

In the event of a key 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.

8.0 BENEFITS

Benefits to industry following implementation of the broom & gorse Plan include:

- improved stock access to watering points and access for silviculture operations;
- improved stocking rates

Benefits to the environment following implementation of the broom & gorse Plan include:

- maintenance of native species diversity;
- reducing refuges for pest animals such as rabbits and foxes;
- reducing unnatural bushfire fuel;

It should be noted that many of the ecological benefits of controlling broom & gorse infestations will not be measurable during the life of the Plan – the species will continue to invade and therefore require control due to the longevity of the parent plant and seed propagules.

Benefits to the community following implementation of the broom & gorse Plan include:

- improved aesthetic and recreational values;
- improved tourism opportunity and appeal;
- reduced bushfire hazard;
- improved community involvement and ownership as objectives and performance indicators are met.

9.0 RESOURCES

References

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Appendix 1: Current and proposed declarations for broom & gorse in the Region

LCA	Scotch / English broom		Cape / Montpellier broom		Gorse	
	Current declaration	Proposed declaration	Current declaration	Proposed declaration	Current declaration	Proposed declaration
ACT	D	D	-	-	D	D
Bega Valley	W2	W2	W2	W2	-	W2
Bombala	W2	W2	-	-	W2	W2
Cooma-Monaro	W2	W2	-	-	W2	W2
Crookwell	W2	W2	-	-	W2	W2
Eurobodalla	W2	W2	-	W2	-	W2
Goulburn	W2	W2	-	-	W2	W2
Gunning	W2	W2	-	-	W2	W2
IDWA	W2	W2	-	W2 / W4g	W2	W2
Mulwaree	W2	W2	-	-	W2	W2
Queanbeyan	W2	W2	-	-	W2	W2
Shoalhaven	W2	W2	-	W2	W2	W2
Snowy River	W2	W2		-	W2	W2
Southern Slopes	W2	W2	-	-	-	-
Tallaganda	W2	W2	-	-	W2	W2
Wingecarribee	W2	W2	-	-	W2	W2
Yarrowlumla	W2	W2	-	-	W2	W2

Appendix 2: Density classes used to map broom & gorse

Density / distribution class	Comment
Core	A 'core' area is where, using realistic resource levels and advances in technology*[1], it is NOT FEASIBLE in the long term*[2] to: - significantly reduce*[3] the density and distribution of the species, OR - maintain the current density and distribution of the species, with a decreasing amount of expenditure/effort*[4] Note: Although core areas are ultimately likely to be lower priority areas, they will continue to require at least site specific control measures. However for the ST&SCNPC to support grant funding for these sites they will need to meet the 'core area' priority criteria in the Regional Strategy Plan.
Marginal	A 'marginal' area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the long term to,: - significantly reduce*[3] the distribution and density of the species, or - maintain the density and distribution of the species, with a decreasing amount of expenditure/effort

Rare and/or isolated	A 'rare and/or' isolated area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the long term to:
	- eradicate*[5] the species where it occurs as an isolated*[6] population
	- where the population is rare*[7] to:
	  - eradicate the species, OR
	  - maintain it at a level where it has an insignificant environmental and economic effect*[8], with a minimum and preferably decreasing expenditure/effort

Absent	- requires a high level of certainty that weed is absent. Rare and/or isolated may be a better class to use if uncertain. - may represent all of the area not covered by the first 3 classes - where possible, indicate what environmental constraint or history is causing the absence

*[1] '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.

*[2] 'Long term' means greater than 5 years.

*[3] Significantly reduce means reduce by approximately 75% from 2001 levels of distribution and abundance in 5 years

*[4] '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.

*[5] '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 achievable within the currency of the plan.

*[6] '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.

*[7] 'Rare' means a species is very uncommon, but unlike isolated may be scattered over a wider area at a very low density.

*[8] '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 3: Checklist for completion of control actions

Year	Action (see Sect. 6)	Action	Responsibility	Sign and date when completed
2002	3a	At least 20% of currently known rare and isolated infestations eradicated	Peter Deane	
	3b	Information regarding inspections of rare and isolated populations and landholder management plans recorded in annual reports	Peter Deane	
	4a1	At least 20% of marginal infestation treatment work completed	Peter Deane	
	5a	Actions recorded in annual reports	Peter Deane	
	6a1	Submission requesting declaration in relevant Councils sent by December	ST&SCNPC Chairperson	
	9a	Annual nursery weed inspections undertaken by Weeds Officers and recorded in annual reports	Peter Deane	
	12a	Obtain gorse information package by September	ST&SCNPC Chairperson	
2003	1a	Maps updated	Peter Deane	
	2a	Catchment Management Board representatives invited to ST&SCNPC meeting in July	ST&SCNPC Chairperson	
	2b	Work schedule devised by September	ST&SCNPC Chairperson	
	3a	At least 40% of currently known rare and isolated infestations eradicated	Peter Deane	
	3b	Information regarding inspections of rare and isolated populations and landholder management plans recorded in annual reports	Peter Deane	
	4a1	At least 40% of marginal infestation treatment work completed	Peter Deane	
	5a	Actions recorded in annual reports	Peter Deane	
	5c	NHT funding submission sent by May	ST&SCNPC Chairperson	
	6a2	Declarations completed by July	ST&SCNPC Chairperson	
	7a	Guidelines prepared by December	ST&SCNPC Chairperson	
	8a	Coordinated control discussed at July meeting	ST&SCNPC Chairperson	

Year	Action (see Sect. 6)	Action	Responsibility	Sign and date when completed
	9a	Annual nursery weed inspections undertaken by Weeds Officers and recorded in annual reports	Peter Deane	
	10a	Hygiene protocols obtained by June	ST&SCNPC Chairperson	
	11a	Logistics of coordinated removal and rehabilitation discussed at July meeting	ST&SCNPC Chairperson	
	12e	Replacement of garden broom species occurring in Weedbuster week	ST&SCNPC Chairperson	
	12f	Nursery trade education campaign underway by July 2003	ST&SCNPC Chairperson	
	14a	Rapid follow up plan in the event of fire in broom & gorse affected areas	Peter Deane	
	15a	Issues associated with other broom species in the Region discussed at November meeting	ST&SCNPC Chairperson	
	16a	Streambank weed management discussed at July ST&SCNPC meeting	ST&SCNPC Chairperson	
2004	3a	At least 60% of currently known rare and isolated infestations eradicated	Peter Deane	
	3b	Information regarding inspections of rare and isolated populations and landholder management plans recorded in annual reports	Peter Deane	
	3c	Currently known Spanish broom populations eradicated by March: all sites tagged and a GPS reading taken (if possible)	Peter Deane	
	4a1	At least 60% of marginal infestation treatment work completed	Peter Deane	
	5a	Actions recorded in annual reports	Peter Deane	
	9a	Annual nursery weed inspections undertaken by Weeds Officers and recorded in annual reports	Peter Deane	
2005	1a	Maps updated	ST&SCNPC Chairperson	
	3a	At least 80% of currently known rare and isolated infestations eradicated	Peter Deane	
	3b	Information regarding inspections of rare and isolated populations and landholder management plans recorded in annual reports	Peter Deane	

Year	Action (see Sect. 6)	Action	Responsibility	Sign and date when completed
	4a1	At least 80% of marginal infestation treatment work completed	Peter Deane	
	5a	Actions recorded in annual reports	Peter Deane	
	5b	Buffer zones nominated for all core infestations by July meeting	Peter Deane	
	9a	Annual nursery weed inspections undertaken by Weeds Officers and recorded in annual reports	Peter Deane	
2006	3a	100% of currently known rare and isolated infestations eradicated	Peter Deane	
	3b	Information regarding inspections of rare and isolated populations and landholder management plans recorded in annual reports	Peter Deane	
	3c	Follow up control of Spanish broom sites undertaken	Peter Deane	
	4a1	100% of marginal infestation treatment work completed (*i.e.* 50% of known infestations treated)	Peter Deane	
	5a	Actions recorded in annual reports	Peter Deane	
	9a	Annual nursery weed inspections undertaken by Weeds Officers and recorded in annual reports	Peter Deane	
		5 year review of Plan completed	ST&SCNPC Chairperson	
As required	3d	Sites where eradication has occurred are rehabilitated within 5 years	ST&SCNPC Chairperson	
	4a2	Majority of sites where control has occurred are rehabilitated within 5 years	ST&SCNPC Chairperson	
	10b	Affected councils distribute and enforce protocols where appropriate: recorded in annual reports	Peter Deane	
	11b	Rehabilitation strategies devised by all organisations undertaking control	ST&SCNPC Chairperson	
	12b	Broom & gorse brochures and / or discussion included in all field days	Peter Deane	
	13a	Methods of reducing off-target mortality addressed in all field days	Peter Deane	