

Southern Rivers

CATCHMENT MANAGEMENT AUTHORITY

Catchment Action Plan



SECTION 4:

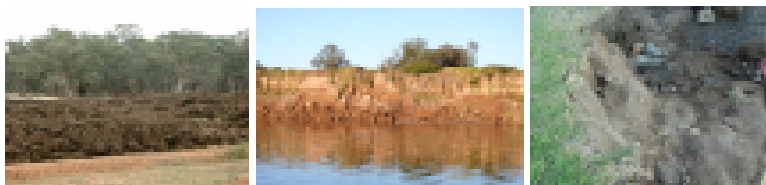
Soil and Land Capability Program



SOIL AND LAND CAPABILITY PROGRAM

4.1 INTRODUCTION

Geological processes have shaped a variety of landforms and landscapes across the Southern Rivers region. The soils that have formed in different parts of these landscapes vary considerably depending on geological time, parent material, topography and climate.



Land is owned and managed by both public and private land managers. The way the land is used varies considerably depending on the economic, environmental and social objectives of the land managers; and land capability.

The ability of land to support different types of land use without becoming degraded depends on:

- its biophysical characteristics (e.g. slope, aspect and soil type);
- climate; and
- the management practices of the land manager.

The soil and land capability program focuses on the human element within these landscapes. The management practices of land managers can maintain, improve or degrade the land. In recognition of their key role, the program aims to support land managers and increase their skills and knowledge to manage land within its capability.

A growing population and land use changes have the potential to impact on soil and land capability, as well as a range of other natural values. The soil and land capability program recognises the central role of government in managing development pressures and aims to ensure greater integration of planning instruments and processes.

There is considerable variability in soil types across the Southern Rivers region. The soil and land capability program recognises that knowledge of soil characteristics and limitations is very important for land managers. The program aims to improve the management of acid sulphate soils on the coast and more generally to encourage appropriate soil and pasture management practices that improve soil health and productivity.

This is primarily achieved through the adoption of best practice and the negotiation of contracts, agreements and farm plans.

There are a range of natural processes which can be altered by human activity and lead to land degradation. This program aims to work with land managers to address the root cause and impacts of:

- gully erosion;
- wind erosion;
- sheet and rill erosion;
- salinity;
- invasive weeds; and
- pest animals.

The state of the region's soil resources, the continuing pressure on these, and the way the catchment action plan directs effort to improve their condition is described in Table 6.

4.2 SOIL AND LAND CAPABILITY INFORMATION IN THE SOUTHERN RIVERS REGION

The Soil and Land Capability Program was developed on the basis of the most up-to-date and relevant information available. The Department of Natural Resources and the Department of Primary Industries were the primary sources of data and analysis.

Southern Rivers CMA has taken this information and developed targets that reflect the capacity of government and the community to deliver realistic outcomes over the 10 year span of the catchment action plan.

4.3 MONITORING AND EVALUATION

The central aim of the program is to improve land management and address land degradation processes. There are a large number of performance indicators that could be used to measure the progress of the catchment target and associated management targets. These include indicators of management, planning, education and biophysical outcomes.

The indicators that have been chosen were selected because:

- they are easy to measure;
- they provide meaningful information;
- the collection of data relating to the indicators is inexpensive and does not require the establishment of a complex monitoring system.

Information about the area of land treated for soil erosion, salinity, acid sulphate soils and the type of action taken, are recorded in Southern Rivers CMA's database. These figures help to monitor progress towards management targets and catchment targets, but also help inform management about what type of issues are being addressed, and the practices used.

Information is also collected about the capacity building program within the soils program, to determine how many training events are run and how many participants have been involved. When training events are run, information is collected to determine the quality of the training and help improve future events.

The main challenge to developing specific, measurable, achievable, realistic and time-bound targets is data quality. The process used to develop the catchment action plan has highlighted certain shortcomings in the quality of data sets. The need to improve data quality is a significant outcome of this process and will be addressed in consultation with Southern Rivers CMA's partner agencies and institutions.

4.4 LINKS BETWEEN TARGETS

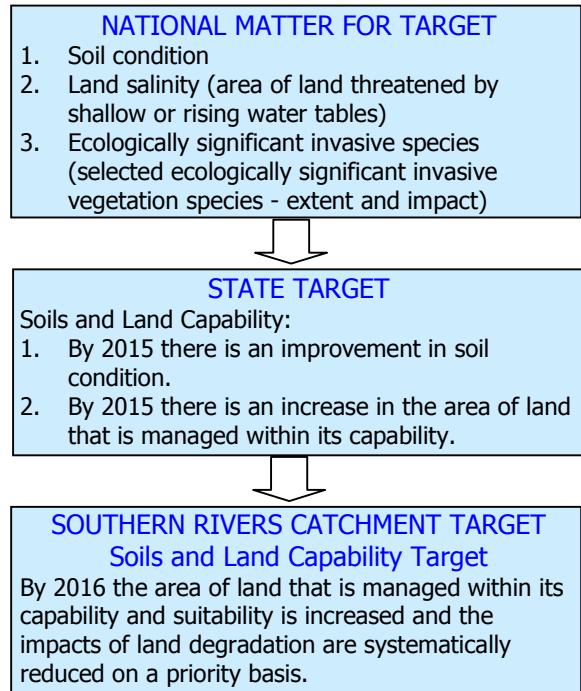


TABLE 6

SOIL AND LAND CAPABILITY PROGRAM -
Current state and pressures and proposed action plan responses

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<ul style="list-style-type: none"> variable management capacity of land managers high landholder turnover for smaller properties high absentee landholder rates in some sub-catchments, ageing population, large number of retirees reducing terms of trade urban and peri-urban expansion 	Variable land management practices (some beneficial, some neutral and some detrimental to soil and land resources)	SLC1 There will be 300 land managers per year with increased skills, knowledge and support to manage land within its capability.
The capacity of landscapes to support various forms of development is highly variable.	Increasing population and development pressures	SLC2 By 2008, there will be greater integration of natural resource management with planning instruments and processes to ensure that land use change recognises land capability and suitability.
<p>Minor and moderate gully erosion in the Southern Rivers region currently totals 1,265 kilometres*, including:</p> <ul style="list-style-type: none"> >12km in the Bega sub-region; >32km in the Eurobodalla sub-region; >7km in the Illawarra sub-region; >14km in the Lower Shoalhaven sub-region; >406km in the Upper Shoalhaven sub-region; and >792km in the Snowy sub-region. <p>Source: (SCS 1989; CALM 1993; DLWC 1999) <i>*Figure has reduced since original survey due to implementation of works.</i></p> <p>Severe and very severe gully erosion in the SRCMA region currently totals 1,882 kilometres*, including:</p> <p>>7km in the Bega sub-region; (continued over)</p>	<ul style="list-style-type: none"> loss of soil and nutrients contamination in runoff to streams (nutrients, sediment and biological contaminants) variable land management practices. 	<p>SLC3(a) By 2016, stabilise 300 kilometres of gully erosion including:</p> <ul style="list-style-type: none"> 125 kilometres of minor and moderate gully erosion; and 175 kilometres of severe and very severe gully erosion.

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<ul style="list-style-type: none"> • >37km in the Eurobodalla sub-region; • <1km in the Illawarra sub-region; • >4km in the Lower Shoalhaven sub-region; • >288km in the Upper Shoalhaven sub-region; and • >1,545km in the Snowy sub-region. <p>Source: (SCS 1989;CALM 1993; DLWC 1999) <i>*Figure has reduced since original survey due to implementation of works.</i></p>		
<ul style="list-style-type: none"> • 250 hectares of land is identified as having a severe and very severe wind erosion hazard, and • >100,000 hectares of land is susceptible to severe and very severe sheet and rill erosion. <p>Source: (SCS 1989;CALM 1993; DLWC 1999)</p>	<ul style="list-style-type: none"> • loss of soil • airborne dust. 	<p>SLC3(b) By 2016, protect a minimum of 10,000 hectares from the threat of erosion including land identified as having a severe or very severe wind erosion hazard; and susceptible to severe and very severe sheet and rill erosion</p>
<p>Over 364 hectares is identified as having a high probability of acid sulfate soil risk, including:</p> <ul style="list-style-type: none"> • 45 hectares in the Bega sub-region • 80 hectares in the Eurobodalla sub-region • 56 hectares in the Illawarra sub-region • 184 hectares in the Lower Shoalhaven sub-region. <p>Over 249 hectares is identified as having a low probability of acid sulfate soil risk, including:</p> <ul style="list-style-type: none"> • 39 hectares in the Bega sub-region • 53 hectares in the Eurobodalla sub-region • 24 hectares in the Illawarra sub-region • 133 hectares in the Lower Shoalhaven sub-region. 	<ul style="list-style-type: none"> • development of areas with acid sulfate soils • variable landholder understanding of appropriate management of these soils. 	<p>SLC4 By 2016, manage according to best practice:</p> <ul style="list-style-type: none"> • all exposed acid sulphate soils • all land identified as having an active acid sulphate soil risk within its capability.
<p>There are over 500 hectares of mapped salt scalds (in association with sheet and rill erosion) in the Upper Shoalhaven sub-region. (Source: DIPNR, 2004). <i>(continued over)</i></p>	<ul style="list-style-type: none"> • Variable recognition of issue by landholders • Limited scientific analysis of salinity processes applicable to coastal catchments. 	<p>SLC5 By 2016, manage at least 200 hectares of land affected by dryland salinity.</p>

State of key natural resources in the Southern Rivers region	Pressure on natural resources condition	Response of the Catchment Action Plan
There are over 70 hectares of land affected by salinity (in association with rill and mass movement erosion) in the Snowy sub-region. (Source: DIPNR, 2004).		
Substantial variation in soil types across the landscape with varying capabilities to support different land uses.	<ul style="list-style-type: none"> • loss of soil and nutrients • contamination in runoff to streams (nutrients, sediment and biological contaminants) • variable land management practices. 	SLC6 By 2016, an additional 10,000 hectares of land will be managed with appropriate soil and pasture management practices to improve soil health and productivity
17 plant species have been identified as being weeds of regional significance in the draft <i>Regional Weed Strategy of the Southern Tablelands and South Coast Noxious Plants Committee</i> (Southern Tablelands and South Coast Noxious Plants Committee 2003, p.10). Co-ordinated action is required to control and manage their spread. These plants include: African lovegrass; Alligator weed; Bitou bush and boneseed; Blackberry; Bridal creeper; Cabomba; Chilean needle grass; Fireweed; Giant Parramatta Grass; Groundsel bush; Lantana; Nodding thistle; Salvinia; Scotch broom and gorse; Serrated tussock; St Johns wort; Willows	<ul style="list-style-type: none"> • inadequate budget to sustain necessary levels of control • lack of co-ordinated action by state government agencies, local government and landholders. 	SLC7 By 2016, an additional 50,000 hectares will be actively managed for invasive plant species that threaten agricultural sustainability
Extensive pest animal infestation	Impacts on soil stability, health and production as well as threatened and endangered species.	SLC8 By 2016, there is a 20,000 hectare increase in the area of land actively managed to control pest animal species (&/or impact of these species) that threaten agricultural sustainability.

4.5 TARGETS OF THE CATCHMENT ACTION PLAN'S SOIL AND LAND CAPABILITY PROGRAM

Set out below are the soil and land capability catchment targets, eight management targets and detail on the intent, performance indicators and examples relevant to each management target.

The soils and land capability catchment targets

Soil and Land Capability catchment target: By 2016 the area of land that is managed within its capability and suitability is increased and the impacts of land degradation are systematically reduced on a priority basis.

<p>Intent</p>	<p>This Catchment Target aims to:</p> <ul style="list-style-type: none"> • support land managers and increase their skills and knowledge to manage land within its capability • support greater integration of natural resource management with planning instruments and processes to ensure that land use change recognises inherent land capability/suitability • improve the management of acid sulphate soils • encourage appropriate soil and pasture management practice that improve soil health and productivity • support land managers in tackling the root cause and impacts of land degradation (e.g. gully erosion, wind erosion, sheet and rill erosion, salinity, invasive weeds and pest animals). <p>Most commonly, 'land capability' is recognised as a system that is used for classifying landscapes according to the risk of soil degradation, particularly soil erosion. Land suitability takes account of issues such as landscape aesthetics, conservation values, cultural values, economic values, buffer areas for fire, habitat, flood etc. and other constraints to development. It helps contribute to land use planning at property, catchment and regional scales. It has conventionally been determined by a combination of attributes including climate, soil, slope, terrain and existing soil degradation. A description of soils across the Southern Rivers region is outlined in Appendix 6 and further information on land capabilities is also included. Beyond this, capability can also include considerations that affect sustainable land use including other environmental, social and economic values held by the community (eg remnant native vegetation, threatened fauna, water quality).</p> <p>Major issues affecting land capability in the SRCMA region include:</p> <ul style="list-style-type: none"> • low commodity returns limiting ability of farmers to invest in natural resource management and improvement • weed and pest invasion • declining soil pH on granite and sedimentary soils and the high cost of amelioration • a high proportion of sodic soils • emerging salinity in some areas of the Tablelands • retention and improvement of remnant vegetation (refer to biodiversity and water programs) • threats from increasing subdivision and pressure on core agricultural land.
<p>Performance indicators</p>	<ul style="list-style-type: none"> • number of land managers attending training events • memorandums of understanding signed with each local government authority to increase the integration and adoption of natural resource values in local planning instruments • hectares of land managed to address land degradation (e.g. gully, rill, sheet and wind erosion; salinity, invasive plant species, pest animals) • hectares of land managed to minimise acid sulphate risk • hectares of land with exposed acid sulphate soils managed • numbers of farmers adopting sustainable soil and pasture management practices

TABLE 7

The soil and land capability management targets

Soils and Land Capability Management Target SLC1 – Land Manager Skills

SLC1 There will be 300 land managers per year with increased skills, knowledge and support to manage land within its capability.

Soils and Land Capability Management Target SLC2 – Development Controls

SLC2 By 2008 there will be greater integration of natural resource management with planning instruments and processes to ensure that land use change recognises land capability and suitability.

Soils and Land Capability Management Target SLC3 – Erosion

SLC3(a) By 2016 300 kilometres of gully erosion will be stabilised including:

- 125 kilometres of minor and moderate gully erosion
- 175 kilometres of severe and very severe gully erosion.

SLC3(b) By 2016 a minimum of 10,000 hectares will be protected from the threat of erosion including land:

- identified as having a severe or very severe wind erosion hazard; and
- susceptible to severe and very severe sheet and rill erosion.

Soils and Land Capability Management Target SLC4 – Acid Sulphate Soils

SLC4 By 2016 manage according to best practice:

- all exposed acid sulphate soils; and
- all land identified as having an active acid sulphate soil risk within its capability.

Soils and Land Capability Management Target SLC5 – Salinity

SLC5 By 2016 manage at least 200 hectares of land affected by dryland salinity.

Soils and Land Capability Management Target SLC6 – Soil Health

SLC6 By 2016 an additional 10,000 hectares of land will be managed with appropriate soil and pasture management practices to improve soil health and productivity.

Soils and Land Capability Management Target SLC7 – Agricultural Weeds

SLC7 By 2016 an additional 50,000 hectares will be actively managed for invasive plant species that threaten agricultural sustainability.

Soils and Land Capability Management Target SLC8 – Pest Animals

SLC8 By 2016 there will be a 20,000 hectare increase in the area of land actively managed to control pest animal species (and/or impact of these species) that threaten agricultural sustainability.

Details on soil and land capability management target SLC1 – land manager skills

Management target SLC1:	
There will be 300 land managers per year with increased skills, knowledge and support to manage land within its capability.	
Intent	<p>Land manager understanding, management skills and commitment to soil management are essential to maintaining the region's natural resources including vegetation and water quality, weeds and pests, and securing the sustainable use of these resources for primary production and tourism.</p> <p>Southern Rivers CMA will work with the full range of land managers to achieve this target. It is recognised that primary producers need to have profitable enterprises if they are to focus on and invest in natural resource management.</p>
Performance indicators	<ul style="list-style-type: none"> • number of land managers attending training events • skill level of participants after training • adoption of practices • follow-up survey of landholders to ascertain application of learning.
Examples of catchment activities that would support this target	<p>Capacity building and information</p> <ul style="list-style-type: none"> • industry recognised training programs conducted for minimum 60 (Snowy / Monaro; Bega / Eden; Upper Shoalhaven), 50 (Lower Shoalhaven), 40 (Eurobodalla) and 30 (Illawarra) land managers respectively, per annum (<i>eg ProGraze, MLA, Landscan, conservation land management, farm chemical training, property management planning — including business and farm management skills</i>) • appropriate training products (<i>eg manuals, course notes</i>) developed and/or applied • non-training events (eg field days) specific to identified land manager needs coordinated and delivered • appropriate Information products (<i>eg newsletters, brochures, fact sheets, soil and land capability maps</i>) developed and/or applied • the concept of agro-ecosystem management promoted through the development and implementation of a training module • existing decision-support tools (eg soil landscape maps, SPADE and other web-based resources) promoted • Media and promotion used to raise awareness and willingness to adopt new management
Related targets	C1, C3, C4, B1, CM2

Details on soil and land capability management target SLC2 – development controls

Management target SLC2: By 2008 there will be greater integration of natural resource management with planning instruments and processes to ensure that land use change recognises land capability and suitability.	
Intent	<p>In conjunction with state and local government, Southern Rivers CMA seeks to have planning instruments (eg LEPs) that will deliver strong natural resource management outcomes consistent with catchment action plan targets, NSW Coastal Policy and the Australian Governments Integrated Coastal Zone Management Policy.</p> <p>In conjunction with state and local government, Southern Rivers CMA seeks to reduce or minimise the impact of development on prime agricultural land, on coastal zone land vulnerable to degradation and on land of environmental significance (e.g. wetlands, endangered ecological communities, coastal lakes, headlands etc).</p> <p>This will require fostering the coexistence of future growth and development with environmental values, with emphasis on maintaining the high quality condition of the natural resource base that underpins the economic and social welfare of the region.</p> <p>To promote adoption of management systems that enhance the profitability and viability of primary production within the context of sustainable resource use and stewardship.</p> <p>Landscapes having physical, cultural or spiritual significance to Aboriginal communities are recognised and considered in regional and local planning processes and instruments.</p>
Performance indicators	<ul style="list-style-type: none"> • numbers of Memorandums of Understanding negotiated with each local government authority • number of regional strategies and LEPs that reflect catchment action plan principles and priorities • the value of agricultural lands, coastal and environmental assets recognised in all local government planning instruments • lands unsuitable for further development identified in local government planning instruments.
Examples of catchment activities that would support this target	<p>Plans and strategies</p> <ul style="list-style-type: none"> • memorandums of understanding developed with each local government authority to increase the integration and adoption of natural resource values in local planning instruments. • work with local government to recognise the value of agricultural lands, coastal and environmental assets in planning instruments and identify those lands unsuitable for further development. • work with local government to recognise all landscapes identified as having physical, cultural or spiritual significance to Aboriginal communities; such landscapes to be considered in regional and local planning processes and instruments <p>Southern Rivers CMA to work with and support the Department of Natural Resources and local governments to ensure there are clear linkages between the catchment action plan, the Rural Land Strategy and the proposed revised Local Environment Plan template.</p>
Related targets	W3, W5

Details on soil and land capability management target SLC3 - erosion

<p>Management target SLC3:</p> <p>a) By 2016, 300 kilometres of gully erosion will be stabilised including:</p> <ul style="list-style-type: none"> • 125 kilometres of minor and moderate gully erosion; and • 175 kilometres of severe and very severe gully erosion. <p>b) By 2016 protect a minimum of 10,000 hectares from the threat of erosion including land:</p> <ul style="list-style-type: none"> • identified as having a severe or very severe wind erosion hazard; and • susceptible to severe and very severe sheet and rill erosion. 	
Intent	<p>Working in partnership with land managers, the Southern Rivers CMA aims to identify priority locations and work with land owners to increase the rate of adoption of best management practices to control, rectify or minimise soil erosion.</p> <p>Southern Rivers CMA will work with affected land owners to address priority sites to maximise returns on investment and protect other catchment values.</p> <p>Native vegetation establishment will be supported as a valid strategy for the control of erosion. Farm forestry will be supported on appropriate land as an erosion, and farm diversification measure.</p>
Performance indicators	<ul style="list-style-type: none"> • length (km) of gully stabilised <u>and</u> area (ha) of upstream catchment protected by works <u>and</u> number of sites protected under management agreements; • hectares of land managed to sustain minimum pasture/groundcover levels; • number of land managers actively supported to minimise wind, sheet and rill erosion.
Examples of catchment activities that would support this target	<p>Develop and implement projects</p> <ul style="list-style-type: none"> • stabilise minor and moderate gully erosion • stabilise severe and very severe gully erosion • revegetation works to stabilise soils • stabilising priority dunes and landscapes • revegetating 'rocky knobs' and aeolian sand deposits. <p>Plans and strategies</p> <ul style="list-style-type: none"> • work with the Department of Natural Resources to consolidate and map all project works undertaken in period 1998-2005. • work with land managers to promote and implement erosion and sediment control best practices <p>Capacity building and information</p> <p>Develop and distribute extension tools specific to wind, sheet and rill erosion (<i>e.g. Land and Soil Capability Tool from PVP Developer, guidelines etc</i>)</p>
Related targets	None

Details on soil and land capability management target SLC4 – acid sulphate soils

Management target SLC4:	
By 2016 manage according to best practice:	
<ul style="list-style-type: none"> • all exposed acid sulphate soils; and • all land identified as having an active acid sulphate soil risk within its capability 	
Intent	<ul style="list-style-type: none"> • support refinement of state acid sulphate soil maps in priority risk areas (especially the Lower Shoalhaven floodplain) • increase land holder knowledge of acid sulphate soil probability, including access to existing maps. • promote adoption of BMPs for acid sulphate soils • on-ground remediation where acid sulphate soils are exposed with priority for those sites threatening habitat or infrastructure.
Performance indicators	<ul style="list-style-type: none"> • hectares of land managed to minimise acid sulphate risk • number of land managers actively supported to minimise acid sulphate risk. • hectares of land with exposed acid sulphate soil managed
Examples of catchment activities that would support this target	<p>Capacity building and information</p> <ul style="list-style-type: none"> • support land managers to remediate priority acid sulphate discharge sites • strengthen existing networks to improve dissemination of technical information to affected land managers.
Related targets	W5

Details on soil and land capability management target SLC5 - salinity

Management target SLC5:	
By 2016 manage at least 200 hectares of land affected by dryland salinity	
Intent	<p>Promotion of best management practices for management and prevention of dryland salinity under all types of land use. Issues include:</p> <ul style="list-style-type: none"> • scalds related to seeps (gradual increase in salt levels through evaporation); • geological boundaries between Tertiary sediments and country rock are salt prone; and • atmospheric input of salt from coast.
Performance indicators	<ul style="list-style-type: none"> • hectares of land managed to mitigate existing dry-land salinity • hectares of land managed to mitigate potential increases in new land affected by dry-land salinity
Examples of catchment activities that would support this target	<p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • in the Snowy/Monaro and Upper Shoalhaven catchments, map potential dryland salinity hazards. • in the Bega/Eden, Eurobodalla, Lower Shoalhaven and Illawarra regions, review potential hazards from dryland salinity. <p>Develop and implement projects</p> <ul style="list-style-type: none"> • manage land affected by dryland salinity in the Upper Shoalhaven and in the Snowy/Monaro.
Related targets	None

Details on soil and land capability management target SLC6 – soil health

Management target SLC6: By 2016 an additional 10,000 hectares of land will be managed with appropriate soil and pasture management practices to improve soil health and productivity.	
Intent	<p>In partnership with land managers, improve the viability of agricultural systems by improving soil structure, pH and biological activity to enhance the productive capacity and sustainable use of land.</p> <p>The target reflects the fundamental importance of soil condition within a healthy, functioning landscape. Healthy soils have moisture holding, nutrient cycling capability, and support diverse populations of flora and fauna both above and below the ground.</p>
Performance indicators	<ul style="list-style-type: none"> • number of farmers utilising soil conditioners or fertilisers according to soil tests and supported by whole farm planning/nutrient budgeting • number of farmers adopting more sustainable soil and pasture management practices • number of hectares of land managed to improve soil health.
Examples of catchment activities that would support this target	<p>Capacity building and information</p> <ul style="list-style-type: none"> • work with the dairy industry to undertake comprehensive nutrient budgeting to increase pasture production and protect catchment values • promote use of simple on-farm soil health monitoring systems for all land owners • promote the collection of soil pH and organic carbon results. <p>Research, monitoring and evaluation Support the current trials on the Monaro that investigate the role of legumes in boosting grass production and recycled organic products as soil conditioners (analysis of pasture response and soil characteristics)</p>
Related targets	C4, B1, W2

Details on soil and land capability target SLC7 – agricultural weeds

Management target SLC7: By 2016 an additional 50,000 hectares will be actively managed for invasive plant species that threaten agricultural sustainability	
Intent	<p>Further develop and implement the regional weed strategy for the Southern Rivers Catchment with sub-regional action plans. Invest in accordance with accepted priorities for weed management (eg land managed to prevent establishment of new incursions; land managed for the eradication or effective control of high priority weeds; and land managed to contain or reduce the impact of established priority weeds).</p> <p>Minimise the economic, environmental and social impacts of existing and new and emerging weeds.</p> <p>Assist and support managers, community groups and local control authorities to implement cooperative and integrated weed programs, establish containment lines for priority weeds and to keep clean areas clean.</p>
Performance indicators	Area of land (hectares) actively managed for invasive plant species by category (new incursions, high priority weeds and established priority weeds).
Examples of catchment activities that would support this target	<p>Develop and implement projects</p> <ul style="list-style-type: none"> • Target programs to focus on priority weeds such as: African lovegrass, Alligator Weed, Bitou Bush, Blackberry, Blue Hound's Tongue, Bridal Creeper, Broom, <i>Caulerpa taxifolia</i>, Chilean Needle Grass, Fireweed, Giant Parramatta Grass, Lantana, Orange Hawkweed, Pine Wildings, Privet, Salvinia, Serrated Tussock, Spiny Burr Grass, St John's Wort, and Willow. • Work with local control authorities to implement an agreed inspection schedule for each district in accordance with regional weed strategy. • Support land managers and local control authorities to manage weeds as described in regional weed management plans. • Training and enforcement programs for aquarium and nursery trade to restrict the sale of invasive weeds. <p>Capacity building and information</p> <ul style="list-style-type: none"> • Education and awareness programs targeting priority weeds (e.g. support the development of a landholder information package for weeds relevant to local areas). <p>Plans and strategies</p> <ul style="list-style-type: none"> • Quarantine and hygiene protocols to prevent the introduction of new weeds into the region and to limit the dispersal of weed species within the region. <p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • Identify priority sites for protection of threatened species and endangered ecological communities, human health or priority agriculture areas. • Improve collection and analysis of spatial data to establish the effectiveness of weed management strategies.
Related targets	B6

Details on soil and land capability management target SLC8 – pest animals

Management target SLC8: By 2016 there is a 20,000 hectares increase in the area of land actively managed to control pest animal species (and/or impact of these species) that threaten agricultural sustainability.	
Intent	<p>Successful pest animal management requires a co-ordinated approach which involves all levels of government in establishing appropriate legislative, educational and coordination frameworks in partnership with industry, landholders, land managers and the community.</p> <p>The primary responsibility for pest animal management rests with land holders/land managers but collective action is necessary where the problem transcends the capacity of the individual landholder/land manager to address it adequately.</p> <p>Southern Rivers CMA will work with rural lands protection boards and other land managers to improve coordination of effort between landholders and land managers.</p>
Performance indicators	Area of land (hectares) actively managed for pest animal species by category (new incursions, high priority pests).
Examples of catchment activities that would support this target	<p>Develop and implement projects</p> <ul style="list-style-type: none"> • Co-ordinated pest animal control with public and private land managers, including rural lands protection boards, Department of Environment and Conservation, landholders etc.
Related targets	B5

4.6 RISK TO TARGET ACHIEVEMENT

Low level of stakeholder and industry acceptance and involvement

The degree to which targets are achieved will often rely on the level of community, industry and / or stakeholder acceptance and / or involvement.

Targets at risk: All

Response: Southern Rivers CMA is responding to this potential risk through the Engagement and Partnership Strategy will identify changes in community needs, methods of improving engagement and development and the identification of partnership opportunities.

Climate change

Human-induced climate change has the potential to alter vegetation communities, influence soil stability and impact on soil erosion through increasing frequency of drought and flood events. It also has the potential to impact on farm productivity.

Targets at risk: Management targets SLC3 , SLC5, SLC6, SLC7

Response: Raise the level of community awareness regarding the potential impacts or climate change and the need for region-wide adoption of more sustainable land management practices.

Inadequate agency collaboration

Increased collaboration between agencies, stakeholders and government is necessary to adopt and integrate development controls in the recognition of land capability and suitability). Increased agency collaboration is required to improve the co-ordinated management of pest animals and invasive plant species.

Targets at risk: Management targets SLC2 , SLC7, SLC8

Response: Southern Rivers CMA will work closely with the relevant authorities and key stakeholders to foster a stronger collaborative approach on these issues.

Knowledge of sulphate soils

Mapping of acid sulphate soils is of a high standard and will be further improved over time. There is strong agency collaboration on the identification of both exposed acid sulphate soils and land that is identified as an acid sulphate soil risk. However, it is important that landholders who manage land identified as having an acid sulphate soil risk have the knowledge, skills and support to management these soils appropriately. It is also important that when land identified as having an acid sulphate soil risk changes ownership that the new owners be made aware of this land management issue.

Targets at risk: Management targets SLC4

Response: Support of existing networks to provide ongoing advice, training and support in the identification of acid sulphate soils. Methods of engagement and partnership with agencies will be further developed through the Engagement and Partnership Strategy.