

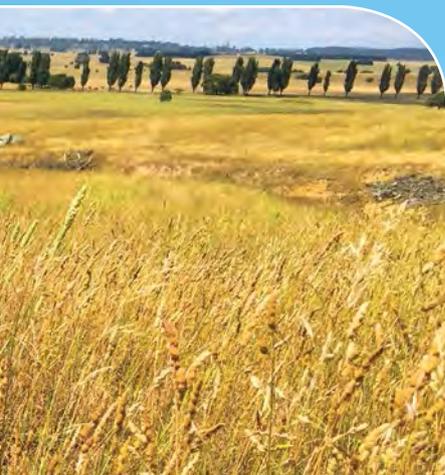


Local Land  
Services  
South East



# Rural Living

A guide for rural and rural  
residential landholders for  
the South East Region



[www.southeast.lls.nsw.gov.au](http://www.southeast.lls.nsw.gov.au)

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Rural Living Handbook  
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### **Disclaimer**

This handbook is not a comprehensive guide to managing your land. It is intended to help you find good advice. No legal liability is accepted for the information presented in this booklet. The information contained in this publication is based on knowledge and understanding at the time of writing September 2016. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Local Land Services or the user's independent adviser.

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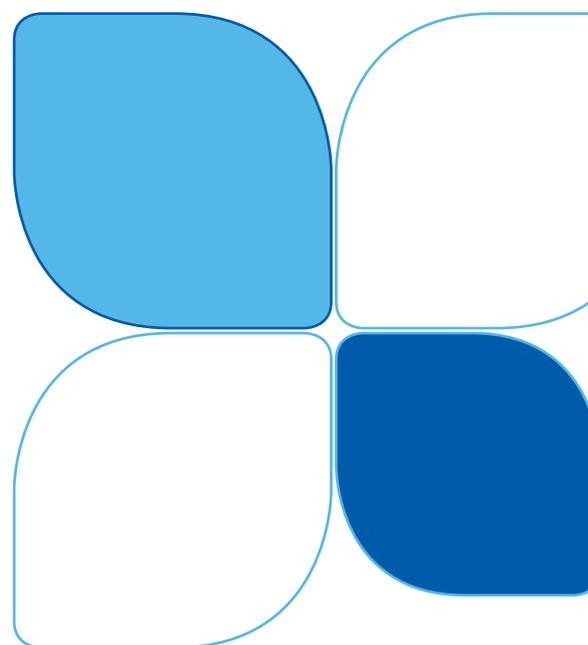
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# Introduction

## Rural living: The great Australian dream

For many of us, the idea of 'getting away from it all' and becoming a part of a rural community is a lifelong dream. In the South East Region, this often involves buying a rural block and pursuing productive agricultural activities, environmental conservation or a combination of both.

Whatever your goals as a landowner or manager, you need to be aware of your responsibilities and rights. It is important that you understand the capacity of your land to support any of the activities that you may wish to undertake. Rural living can have a significant impact on water quality, soil health and biodiversity, it is important that residential activities occur alongside primary production without negatively impacting upon environmental health or agricultural productivity.

The Rural Living Handbook addresses many of the important issues that arise for rural landowners and land managers in the South East Local Land Services region. It also includes a range of contacts for organisations that provide support to rural landowners. We hope this handbook helps you get the most out of your rural property so that you can improve productivity, protect the health of your animals and the environment, contribute to your local community and above all, enjoy rural living!



# Before you start: Buying a rural property – Checklist



Anyone purchasing a rural property should realistically and honestly assess their expectations and capabilities. Owning a property can be a lot of work. It is important to be fully aware of the responsibilities and commitments required to meet your legal requirements.

*Important note: this checklist is designed to provide general advice only. It is not comprehensive, nor does it provide legal advice. You should always seek legal advice before buying any property.*

## Before you decide to buy a rural property, consider asking the following questions:

### Do you know the history of the property?

Request a property search from Local Land Services. This will identify outstanding rates, levies, known chemical residues or animal health issues on the property.

Request the contract of sale from the seller. This should include details of any outstanding rates or charges payable to the Local Council.

An extra Section 64 Report is encouraged as it includes any outstanding Noxious Weeds notices, debts or orders.

Request a property management history. For example soil tests, fertiliser application history, sowings of pastures and/or crops, livestock numbers and classes from the vendor.

### Do you know the capabilities and limitations of the property as a result of its previous use?

- Are there any rubbish or chemical dumps on the property that you will need to remediate?
- Are there mining leases over the property?
- Are there any derelict mine shafts on the property? If so, are they fenced to ensure your safety?
- Does the property already have an organic status?
- Are there conservation covenants on the property? This may require you to undertake specific management actions, and/or limit land use.

### Do you understand the condition of the property?

Undertake a visual inspection of the property prior to purchase. Some examples to consider:

- Evidence of pest animals such as rabbits and pigs;
- Presence of noxious weeds ;
- Condition of fences, are they suitable for your purpose?
- Active soil erosion on the property?

### Is the property capable of supporting your planned activities? You may consider:

Water: Suitable supply? Will your activities impact water quality? Are farm dams sufficient/ compliant? (page 12)

Pasture: What are the dominant species? (annual, perennial or weeds) (pages 31 and 36)

Are soil nutrients appropriate to support your planned activities? (page 16)

Is there enough shade and water for stock? (page 33)

Are there any land management issues that need to be remediated, can you afford this?

Is the land prone to flood or at risk of bushfire?

Would you need to clear native vegetation? Is this legal? (page 23)

## Is the proposed use of the property permissible/compatible with surrounding land use?

Have you examined the Section 149 planning certificate from Council? It should have been included with the contract of sale.

Talk to Council to discuss the following:

- Does the proposed use of the property require consent?
- If there is no existing dwelling and you want to build one, does the property satisfy the minimum area requirement for consent?
- Does the property have council entitlement for a dwelling?
- Are there any development applications currently proposed or approved for the nearby area?
- Are there existing or proposed adjacent land uses that will affect your enjoyment of the property?
- Are all services you require provided to the property? (Services include phone, gas, internet, water, sewer and electricity)
  - If not, can they be provided economically?
  - If not, is the property located in an area that will have services in the future?
- Is there legal access to the property on a publicly maintained road?

## Do you know about the other regulations that may affect your property?

- Do you know what the regulations and conditions are for building dams or drilling bores?
- Do you know that work (including excavation, depositing material, construction and other activities) near a watercourse requires a Controlled Activity Approval from NSW Government?
- Are you aware that in most instances you require approval to remove native vegetation?
- Are there any rights-of-carriageway or other easements on the property that need to be maintained or which may allow neighbours access and the possible associated cost?
- Are there any covenants or agreements on the property that protect certain areas?
- Have you considered if there are any Indigenous cultural value sites?



# South East Local Land Services

Local Land Services brings together agricultural production advice, biosecurity, natural resource management and emergency management into a single organisation.

South East LLS has a seven member board made up of people from across the region. These board members help set the strategic direction for the organisation and come from various backgrounds, bring a range of experience, and a wealth of knowledge. To be eligible to vote for these Board members you will need to register with us.

## What services LLS provides

Local Land Services provide a range of services to assist local landholders improve the management of their properties and rural enterprises including:

- Livestock care advice, monitoring potential biosecurity threats to the livestock industry and response to emergencies;
- Advice and assistance in biosecurity management including feral animal management, reducing risks and helping maintain vital domestic and international market access for producers.  
**Examples of biosecurity projects in the past include outbreaks of fire ants and equine influenza, as well as state-wide wild dog management programs.** Pest and weed support programs help minimise the impact on agricultural productivity and conservation values;
- Natural resource management advice, supporting regional community groups with an interest in improving the management of their local natural resources, provision of financial incentives to assist landholders in improving their natural assets for the benefit of the wider community;
- Advice to landholders regarding regulations associated with the protection of native vegetation; and
- Agricultural production advice, employing agronomists and livestock officers with specialist knowledge that covers a range of livestock and pasture management issues relevant for the region.

## Rates

Under the *Local Land Services Act 2013*, Local Land Services must charge rates on all parcels of land that are classified as rateable under the Act. Each region has a minimum rating area for properties, with the rateable area being 10 ha within South East LLS region.

All landholders on parcels of land deemed to be rateable under the *Local Land Services Act 2013* are required to pay general rates as they all receive the benefit of the services and support Local Land Services provides. Rates help pay for the biosecurity and animal health services your region provides to the rural community, such as:

- the coordination of programs to control declared pest animals and insects, including access to baits, traps and chemicals, advice on control methods and assistance in forming groups to tackle pests;
- the provision of animal health services, including animal health and drought feeding advice, diagnosis of flock and herd issues and response to emergency disease outbreaks;
- the management of travelling stock reserves (TSRs), including the issue of movement permits, permits to graze on TSRs or walk stock on roads and advice about feed/water availability on TSRs;
- the administration of stock identification systems, including property identification codes, brands, earmarks and compliance with the National Livestock Identification System;
- the local administration of drought and other natural disaster relief; and
- the delivery of agricultural emergency management assistance for drought and other natural disaster relief (bushfires, floods).

Rates are not the only source of income for Local Land Services – they make up about one-fifth of the funding. As well as rates, the NSW and Federal Governments contribute funding through for on-ground programs to support biodiversity, native vegetation, threatened species and Aboriginal cultural heritage initiatives.

## Managing the movement of livestock in NSW

### Property Identification Code (PIC)

A Property Identification Code (PIC) is a unique eight character number assigned by Local Land Services to properties with livestock. The PIC system allows for the tracing of livestock for disease and chemical residue purposes.

Since September 2012 anyone who keeps livestock in NSW is required to obtain a PIC for the land on which the livestock are kept. This requirement applies when one or more sheep, cattle, goats, pigs, donkeys, deer, bison, buffalo, alpaca, llama or horses, 100 or more poultry, or 10 or more emus or ostriches are owned or managed and kept restrained (fenced) and captive on a property (i.e. owned or leased land).

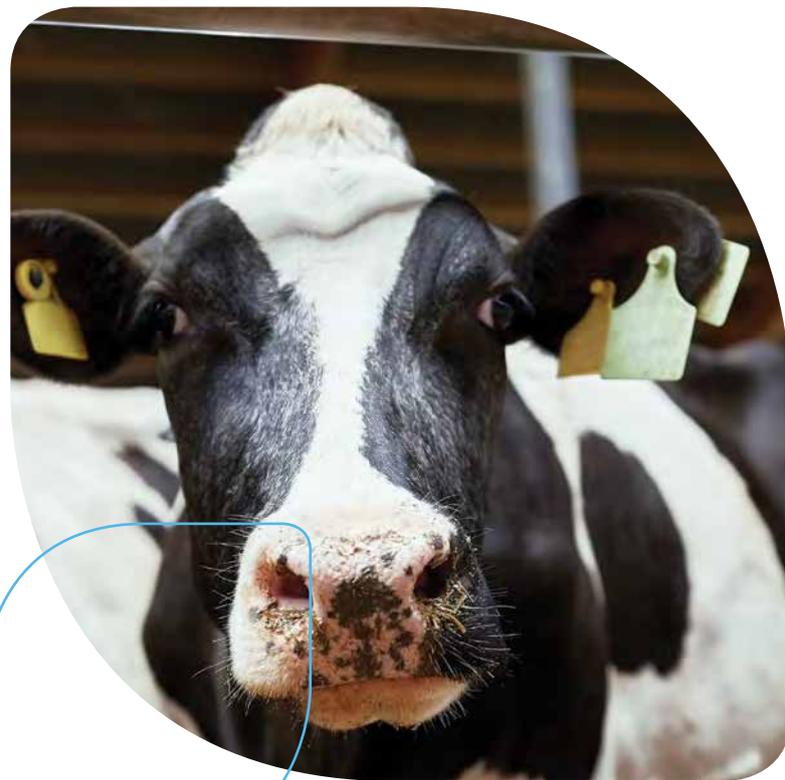
A PIC identifies a property for the purposes of livestock trading, disease control, chemical and antibiotic residue monitoring and trace back, and emergency response. The PIC allocated to your property is NOT transferable – if you sell the property the PIC stays with the property and is used by the new owner.

The identification of properties, livestock and their products is essential in the process of paddock to plate food quality and safety certification. It is also fundamental to the certification of live animals and animal products for export and the maintenance of international market access worth billions of dollars. PICs are also crucial during emergencies involving livestock (e.g. fires, floods, or disease outbreaks) as they enable Local Land Services and Department of Primary Industries staff to identify livestock and provide livestock owners and managers with critical information.

To sell livestock through the saleyards or send to an abattoir, you must, have a Property Identification Code (PIC) and be registered with Meat and Livestock Australia (MLA) and be accredited on the Livestock Production Assurance program.

Local Land Services provide Property Identification Codes (PIC). An application form can be obtained from nearest Local Land Services office.

All other States have a PIC system to identify properties where livestock are kept. All the information required for landholders regarding PICs can be found at <http://southeast.ils.nsw.gov.au/livestock/pics>



## National Livestock Identification System

Local Land Services are key partners in Australia's National Livestock Identification System (NLIS), the national traceability system for cattle, sheep and goats. Under the scheme, movement of these animals between different properties with different PICs are recorded on a national database.

All cattle, sheep and goats must have an appropriate NLIS tag in place before they exit your front gate, for any reason. Any livestock purchase you make should have an NLIS tag in place.

NLIS tags can be ordered from your local rural supplies merchant and must have your Property Identification Code (PIC) printed on them.

If you are required to move your livestock prior to being able to order your NLIS eartags, Local Land Services are able to provide you, for a fee, with emergency tags.



## Moving livestock within NSW

Livestock must be appropriately NLIS tagged and accompanied with documentation to meet the NLIS. Forms that may be required for the movement of stock include National Vendor Declarations (NVD), Transported Stock Statements (TSS), Animal Health Statements and stock permits.

### National Vendor Declaration (NVD)

Any movement of stock that is to be sold to processors, to saleyards or for private sales requires a NVD form. They can also be used for movements of stock between properties with different PICs. NVDs can be ordered from MLA via **1800 683 111** or their website [www.mla.com.au/lqs](http://www.mla.com.au/lqs)

### Transported Stock Statement (TSS form)

Any movement of stock by vehicle without a National Vendor Declaration (NVD) requires a TSS form, e.g. transporting stock for agistment. TSS forms are available from any South East LLS Office. Many livestock carriers may also have copies of this form.

It is a legal requirement to have one of these forms completed, or carriers may receive a fine.

### General steps to selling or moving livestock (cattle, sheep & goats) in NSW

1. Obtain your Property Identification Code (PIC) via Local Land Services;
2. Become accredited with the Livestock Production Assurance program ([www.nlis.mla.com.au](http://www.nlis.mla.com.au));
3. Order your National Vendor Declarations [www.mla.com.au](http://www.mla.com.au) or **1800 683 111** (with separate books for sheep, goats or cattle);
4. Ensure all livestock have an NLIS tag, tags can be ordered via your local rural supplies store or special identifiers (emergency tags) via Local Land Services;
5. Complete the NVD or TSS forms;
6. Complete the transfer on the NLIS database ([www.nlis.mla.com.au](http://www.nlis.mla.com.au)). Your livestock agent may be able to assist you with this last step.

## **Selling pigs**

It is a legal requirement for all pigs greater than 25 kg to be branded with a registered swine brand before sold in a saleyard, direct to a processor, or private sale. To obtain a swine brand you must first have a PIC and then apply for a registered swine brand via Local Land Services.

Local Land Services may assist you in the provision of the crown brand if you have not registered or have allowed your swine brand to lapse in registration and your pigs are ready for sale (there is a requirement to register your brand annually).

When arranging for sale of your pigs, you are also required to complete the Pig Pass National Vendor Declaration (PigPass NVD) which describes the stock and will declare the husbandry practices on the farm. This statement must accompany your animals to sale and/or slaughter. PigPass NVD forms can be ordered online at [www.pigpass.com.au](http://www.pigpass.com.au)

## **Livestock branding**

If you are interested in increasing the security of being able to identify your livestock via a particular brand or earmark, you can register your brand or mark with Local Land Services.

## **Livestock theft**

Livestock theft causes potential loss of significant income for affected landholders. If you notice suspicious livestock movements, contact the local police.

## **Stock on roads**

To move your livestock on foot along a public road, you need a permit from South East LLS. Routine movements which follow the same route each time can be covered by an Annual Stock Movement Permit. Alternatively, you may apply for a one off permit from Local Land Services.

Straying stock on public roads can be very dangerous. If there is an immediate threat to the public from straying stock, (such as cattle on a highway) the police should be notified. In other circumstances the local Council is responsible.

## **Travelling Stock Reserves**

Local Land Services manage parcels of Crown Land known as Travelling Stock Reserves or TSRs. TSRs provide pasture reserves for travelling or grazing stock and cover more than 600,000 hectares of NSW.

They are especially beneficial for stock in times of drought, bushfire or flood. They are also important for public recreation, conservation and as apiary sites.

You need to apply for a permit from Local Land Services if you wish to access Travelling Stock Reserves for purposes such as grazing and/or walking stock, apiary sites, collecting seeds or accessing water. It is illegal to use a travelling stock reserve to ride motorbikes, dump rubbish, shoot, hunt or damage the vegetation. You can undertake passive uses such as walking or bird watching during daylight hours without the need to seek South East LLS approval.

## **Assistance with feral animal management**

Your Local Land Services office can provide advice and help you to eradicate declared pest species from your property by providing training, access to poison baits, hiring equipment such as traps and initiating education and cooperative management programs.

Current species declared as pests in NSW include rabbits, foxes, feral pigs, wild dogs and a number of locust species. You have a legal obligation to control these pests. Mice are presently classed as nuisance animals in NSW and you are not obliged to control these species, although Local Land Services can provide advice and/or help to control them if required.

Contact your local Biosecurity Officer to discuss issues with and potential evidence of pest animal activity on your property. Evidence may include tracks, scats or predation of domestic and native animals. Your Biosecurity Officer can also discuss lethal and non-lethal control measures as well as assistance in developing a pest management plan for your property.

The most effective pest management plans don't stop at your boundary. When neighbouring landholders join together and implement plans concurrently they achieve ongoing results. South East LLS co-ordinates some of these community plans and assists with others. If you are asked to be part of a community plan, please consider it. If you would like to be part of an existing or new community plan please contact your local Biosecurity Officer to learn more.

## Improving your skills

Knowledge about sustainable land management is growing rapidly. Getting up-to-date, accurate information will help you enjoy your land. Landcare and producer groups provide a sense of community, great way of building knowledge and sharing experience, and there are many quality publications available.

South East LLS provides one source of information, with agricultural and natural resource management specialists available to provide you with advice, information and occasionally financial assistance to improve your land management decisions. South East LLS run regular short or one day courses and field days on a variety of topics that may help to enhance your knowledge and skills.

## Our partner organisations

South East LLS actively support a range of community groups that provide support to rural landholders. Joining these community groups may help you to connect with your local community, understand your neighbours and local land management issues and join in projects that would be of benefit to you and your neighbours and greater catchment. For information about your local groups, your local LLS office can assist you.



# South East Local Land Services – Office locations

## **BEGA**

Rooftop Level  
Sapphire Marketplace  
2/83 Upper Street  
BEGA NSW 2550  
Telephone: 02 6491 7800

## **BERRY**

13 Scholfields Lane  
BERRY NSW 2535  
Telephone: 02 4464 6000

## **BRAIDWOOD**

42 Ryrie Street  
Braidwood NSW 2622  
Telephone: 02 4842 2594

## **GOULBURN**

159 Auburn Street  
GOULBURN NSW 2580  
Telephone: 02 4824 1900

## **COOMA**

26 Soho Street  
COOMA NSW 2630  
Telephone: 02 6452 1455

## **YASS**

13 Mitchell Street  
YASS NSW 2582  
Telephone: 02 6118 7700

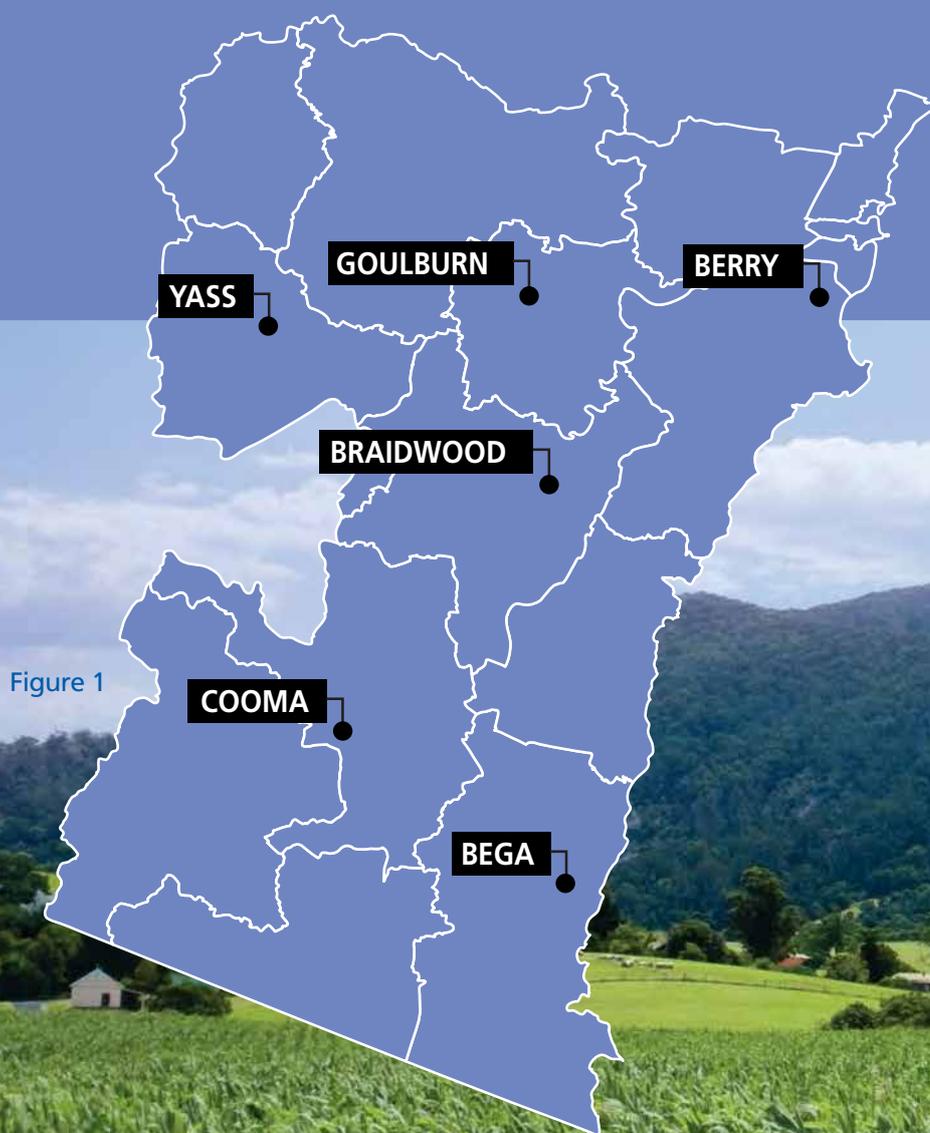


Figure 1

## South East Region at a glance

The South East Local Land Services region covers 55,600 square kilometres of south-east NSW – from north of Wollongong to the Victorian border in the south. It extends westward – from north of Boorowa to Thredbo in the south. The area covers 673 kilometres of coastline or 40 per cent of the NSW coast.

The region is home to approximately 605,000 people including over 16,500 Indigenous Australians. The current economic prosperity of the South East Local Land Services region is dependent upon natural resources which support a variety of highly diverse land uses including agriculture (sheep, beef, dairy and cropping and horticulture), aquaculture, water harvesting, commercial and recreational fishing, heavy industry, forestry, surface and underground mining, urban and lifestyle development and tourism and recreation. The value of the regions agriculture is approximately \$644 million per annum. The region is dominated by large tracts of public land, including national parks, State forests and Crown lands. Nature-based tourism is a significant contributor to the region's economy, especially in the Snowy Mountains and along the coast.

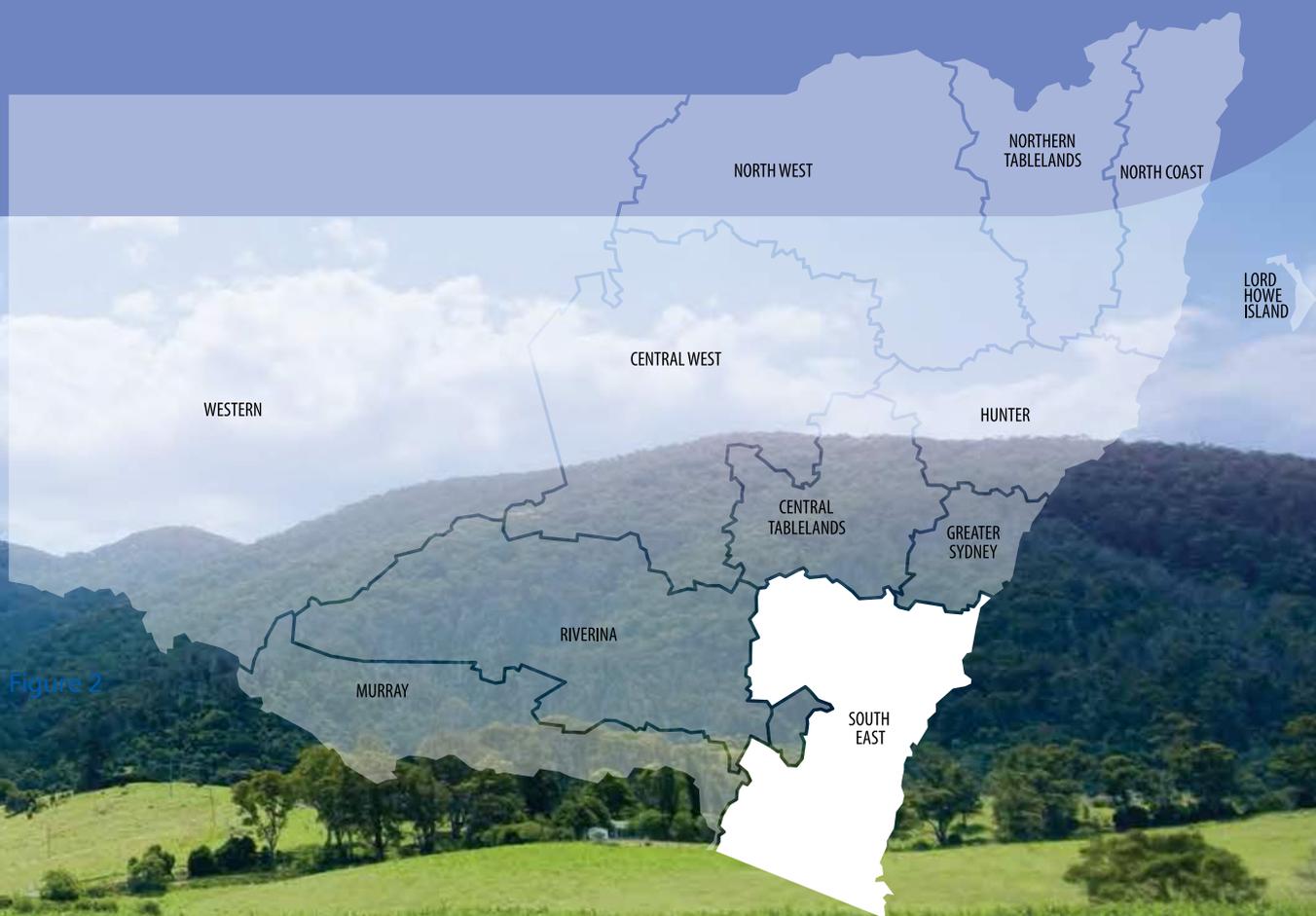


Figure 2

# Know your natural resources

Looking after your soil, water, native plants and animals is important for agricultural productivity, the environment and your community. This handbook will provide an introduction to a range of topics that will assist you in your decisions, working towards sustainable land use and the protection of your natural assets.

## Water

Proper management of water is an essential part of rural living. Efficient use of water can minimise costs and maximise benefit to you, your property and to downstream users. Protection of riparian land and their associated natural values can enhance and protect your property and provide valuable habitat for a range of native plants and animals.

Rural living places additional pressure upon water resources. It is important that residential and agricultural activities are carried out in a way that minimises impacts on water quality. Future changes in climate, along with further rural residential growth and demand, increases the need to conserve water resources as a community through improved management techniques and household activities.

Key activities that can degrade our waterways include:

- removal of vegetation within the catchment;
- removal of riparian vegetation;
- over allocation of water;
- unmanaged point source pollution;
- channel disturbance;
- digging in the creek bed;
- floodplain drainage; and
- obstructions to fish movement (including dams and weirs).

The health of waterways in our region varies as land management decisions have a direct impact on these significant areas. Maintaining sufficient groundcover and maintaining effective riparian buffers are crucial steps to reducing erosion, maintaining good water quality in waterways.

## Water law

WaterNSW is responsible for managing access to water and ensuring equitable sharing of water. WaterNSW manages applications for licences and other approvals (such as building structures in streams) and investigates illegal activity. For all enquiries associated with these activities, call **1800 353 104**.

Legislation applicable to the region includes the *Water Management Act 2000* the *Water Management Regulation 2011* and the *Water Management Amendment Act 2014*. This legislation is based on the concept of ecologically-sustainable development and the need to balance landholder rights with environmental health.

There are three types of basic landholder rights in NSW under the *Water Management Act 2000*:

**Domestic and stock rights** – All landholders in NSW with property frontage to any river, estuary or lake have a basic right to take water for domestic use and to water stock. This basic right does not apply where the property frontage is Crown Land, or where there is a reserve between the property frontage and rivers or creeks (you may need a licence from WaterNSW to extract water in these situations).

**Native title rights** – Anyone who holds native title with respect to water, as determined under the *Commonwealth Native Title Act 1993*, can take and use water for a range of personal, domestic and non-commercial purposes.

**Harvestable rights** – dams – Harvestable right water allows landholders in most rural areas to collect a proportion of the runoff on their property and store it in one or more farm dams up to a certain size.

For water licensing and water management enquiries and driller's licences call WaterNSW on **1800 353 104**.

## Streams and rivers

Many activities can impact on water quality in nearby rivers and creeks, and on other water users. Many of the responsibilities discussed in this handbook come from the need to protect water quality.

Any excavation or work in or within 40 metres of the bed or bank of a watercourse may be classed as a “controlled activity” and may require a license from WaterNSW. Visit the WaterNSW website for more details: <http://www.waternsw.com.au>

Approval may be required to remove native vegetation and exotic trees within or immediately next to a waterway. If you are considering these types of activities, contact your Local South East LLS Office for advice.

Legislation applicable to aquatic fauna and habitat also includes the *Fisheries Management Act 1994*. If considering activities that may impact on native aquatic animals, consult NSW DPI (Fisheries).

## Riparian zones

The riparian zone is the area directly influenced by a river, creek, watercourse or drainage line. The zone generally extends from the normal water level to the floodplain.

Healthy riparian vegetation – trees, shrubs and groundcovers along waterways – will make creek banks more stable and help prevent erosion. The vegetation will also filter out nutrients from surrounding paddocks, and support and create habitat for native wildlife.

Native vegetation is degraded along a number of the streams and river banks in this region. This makes riparian zones vulnerable to erosion and weed infestation, which can in turn affect ecosystem health and economic function.

Where stock rely on streams and rivers to access water, disturbance to the soil and vegetation can be avoided by actions such as limiting where stock access creeks, providing stable stock crossings or access points or pumping water to troughs.

Some methods to control degradation and loss of riparian vegetation include:

- ✓ encouraging the re-growth of a native vegetation along the riparian zone where a potential seed source exists within or upstream of your property;
- ✓ minimising the number and careful placement of farm tracks leading to your riparian area;
- ✓ minimising ground disturbance during weed removal activities in the riparian zone;
- ✓ using the riparian area within its capabilities;
- ✓ minimising herbicide and pesticide use in the riparian zone;
- ✓ protecting riparian areas from stock with fencing and providing alternative water and shade areas; and
- ✓ repairing degraded and eroded riparian areas.

Contact a South East LLS office for advice on potential funding options to assist with increasing biodiversity and protecting your riparian zones using revegetation, fencing and alternate stock watering options.



## Livestock management near creeks and rivers

### Why should stock access to stream banks be managed?

- They may damage the vegetation that protects banks from erosion and nutrient inflow;
- They can compact the soil making plant growth difficult;
- They disturb steep banks;
- They create tracks, which can concentrate the flow of water down the banks causing erosion; and
- They may injure themselves falling over steep banks.

### Why should stock access to waterways be managed?

- They eat, trample and destroy water plants and reeds that control erosion and provide fish habitat;
- They stir up mud and may get trapped in the mud;
- They can get bogged and trapped in mud;
- They can transfer and receive diseases;
- They contaminate the water with excess nutrients and pathogens from manure; and
- They destroy instream habitat critical for tadpoles, native fish and crustaceans.

### Alternatives for livestock drinking water

- Install a paved gravel ramp down to the water, on the inside of a bend;
- Construct a dam in the paddock; or
- Install a pump, tank and trough in the adjacent paddocks.

### How do you manage a fenced-off area?

- When fencing an area from livestock, it is still important to actively manage these areas including short term strategic grazing once native vegetation is established (at times that don't impact on native plants flowering & seeding). On-going weed and feral animal management activities are also important considerations in these areas.

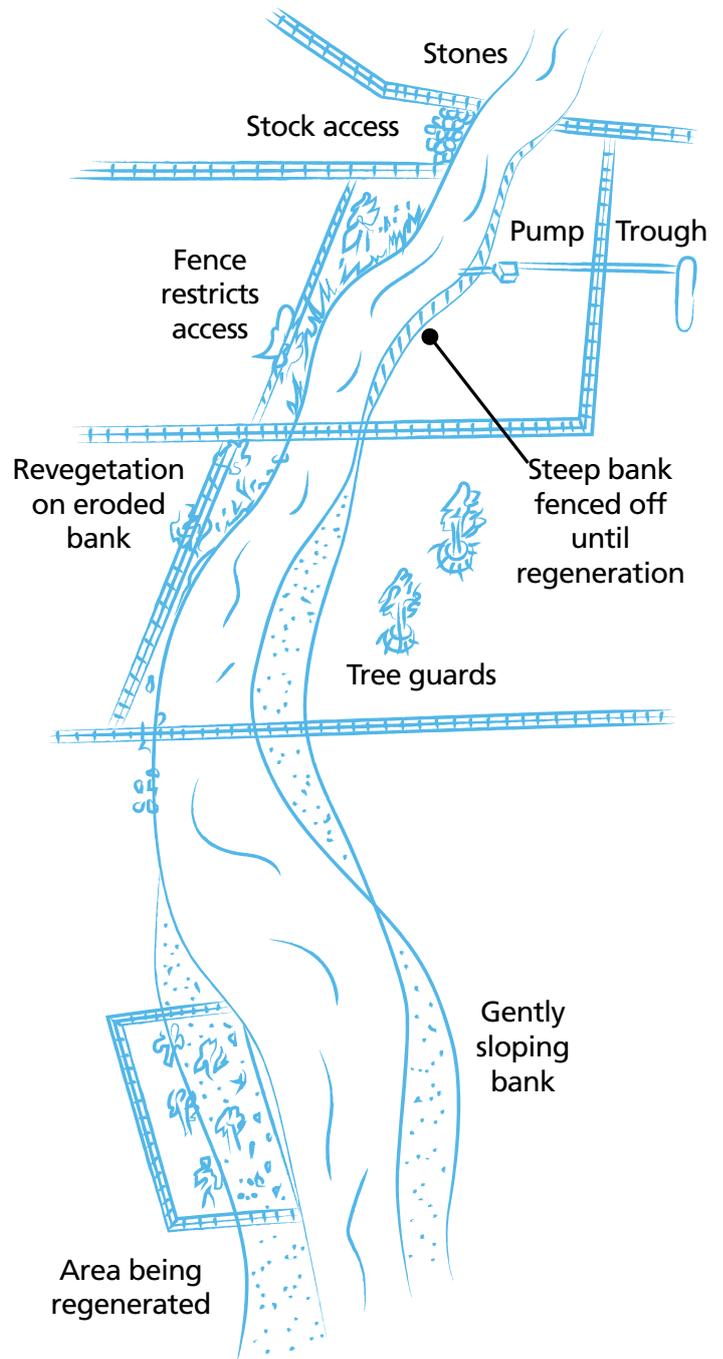


Figure 3

Adapted from RIVERWISE notes AGDEX 572, DLWC

## Groundwater

If you are considering drilling a bore for access to groundwater, contact WaterNSW. You are required to apply for a licence, with the licence conditions specifying how much water you can use and for what purpose. Further information can be gained by calling **1800 353 104** or visiting the WaterNSW website at [www.water.nsw.gov.au/Water-management/Groundwater](http://www.water.nsw.gov.au/Water-management/Groundwater).

## Farm dams

Landholders use farm dams to provide water for stock and domestic purposes. If not properly managed, farm dams can impact on the water quality on your property and downstream.

Under the NSW Farm Dams Policy, landholders have a 'harvestable right'. This allows landholders to capture 10 percent of the rainfall runoff from their properties and use it for any purpose without needing a licence from WaterNSW.

The amount that you are entitled to, in megalitres or dam capacity, is calculated by a formula known as the Maximum Harvestable Right Dam Capacity (MHRDC). This formula considers your property size, area specific rainfall and run-off calculations. Any existing dams have to be factored into your overall entitlement. You can calculate your own specific MHRDC by visiting the WaterNSW website: <http://www.watarnsw.com.au>

Building a new farm dam in excess of the MHRDC or located on a larger (3rd order or higher) stream will require a license. Dams built on smaller (1st or 2nd order) streams only require a licence if the stream is perennial (year round) flowing or if the dams are in excess of the MHRDC. For more information visit the WaterNSW website: <http://www.watarnsw.com.au>

All dams, new and existing, should be managed to maximise the benefits to stock safety and health and minimise the impacts on the environment. Some hints to improve dam health include the following:

- ✓ Wherever possible, use fencing to limit stock access to one or two locations at the dam. Better still, fence stock out of dams, and use troughs to water them. This prevents stock from fouling the water and minimises erosion to maximise water quality and the longevity of the dam.



- ✓ Prevent nutrients from entering the dam by leaving an unfertilised strip where water flows into the dam. This will help minimise the chances of blue-green algae.
- ✓ Avoid using fertilisers, herbicides and pesticides in areas around dams and waterways.
- ✓ Encourage native plants to grow in the dam and along the water's edge – reeds, sedges and rushes at the water's edge and grasses and shrubs on the banks. Vegetation filters out sediments and nutrients.
- ✓ Encourage grass to grow on the spillway to prevent erosion – 100% ground cover is required to prevent erosion. If there are continuous trickle flows install a trickle pipe.
- ✓ Don't plant trees or allow trees to grow, along the dam wall as their roots may weaken it. Trees can also drop leaves in the water and release tannins that degrade water quality.
- ✓ Plant shade trees, but plant them away from dams so that stock are not required to rely on dam water to keep cool in summer.
- ✓ Dam spillways are crucial to the stability of dam walls and stock and vehicle access to the spillway should be limited.

For more information about farm dams and their management, you can refer to *The Farm Dam Handbook*.

## Irrigation

Many agricultural practices require irrigation to be viable. However, you are unable to pump water from a stream or groundwater source for the purpose of irrigation without a licence from the WaterNSW. Some properties may already have an irrigation licence entitlement. Contact WaterNSW for more information on **1800 353 104**.

# Soil

Soil is a valuable resource containing nutrients for your pastures, crops, and for the growth of native species. A healthy soil is one which is fit for purpose which balances fertility, physical properties and soil biology. Understanding and monitoring your soil asset is one of the most important steps as a landholder.

To best manage soils, consider the soil types and landscape of your area, the types of plants present, and the grazing management strategies you wish to employ. South East LLS staff can assist you with accessing this type of information for your property.

## Soil types for your region

There are a range of soil landscapes across the South East LLS region, which are described outlined at a local level in the Land and Water Conservation's Soil Landscapes Series. These landscape descriptions assist in the understanding of the nature and limitations of land and soils and have recognisable topographies. Soil characteristics range across these landscapes, influenced by geology, landscape position, climate and vegetation.

It is important to understand your property's soil type and defining characteristics, so you can best match an enterprise to the land. Many of these mapped resources for local areas are available to access at your South East LLS office, or online at eSpade: <http://www.environment.nsw.gov.au/eSpade2Webapp>

## Key soil characteristics

Understanding a range of key soil characteristics will help with management decisions. To assess soil health, it is useful to consider the following indicators of soil health. Here are some short explanations of these indicators and the simple tests you can undertake (adapted from *Northern Rivers Soil Health Card 2002* and *Soil Land Food Inc. 2014*):

## Physical indicators

### Soil Texture

Texture is an estimate of the proportion of sand, silt and clay, which gives either a gritty, silky or smooth feel to a damp sample depending on the fractions within that soil type. This strongly influences a number of the other soil properties including structure, water infiltration and holding capacity and is determined mainly by rock type.

### Groundcover

Groundcover is any material which covers bare soil, protecting it from wind and rain erosion and evaporation. This can include living plants, dead plant litter, manure and stones. Groundcover blankets precious topsoil from the elements and provides the soil with valuable organic matter to sustain its soil ecosystem.

### Infiltration

Infiltration is an indicator of how easily water can enter into the soil profile and not run off, which is important for erosion prevention and increased water holding capacity. The more water entering the soil profile the better, as this means there is adequate soil, air and plant roots in the profile, allowing the water to infiltrate.

### Aggregate stability – slaking

Aggregate stability tests the ability of soil crumbs to keep their structure when put under stress of water and movement which simulates the stress of rain-splash erosion and waterlogging on a soil. Unstable soil crumbs either **slake** (fall apart into smaller crumbs) or **disperse** (dissolve into individual clay particles). Dispersion is a chemical indicator of soil sodicity, where there is excessive exchangeable sodium in the clay minerals.

## Chemical indicators

Soil test results are useful to monitor we change over a period of time e.g: an increase in nutrients after a period of fertiliser applications or ensuring pH levels remain static. However, it is important to recognise that there is a range of testing methods available and that the same test method should be used to ensure consistent results.

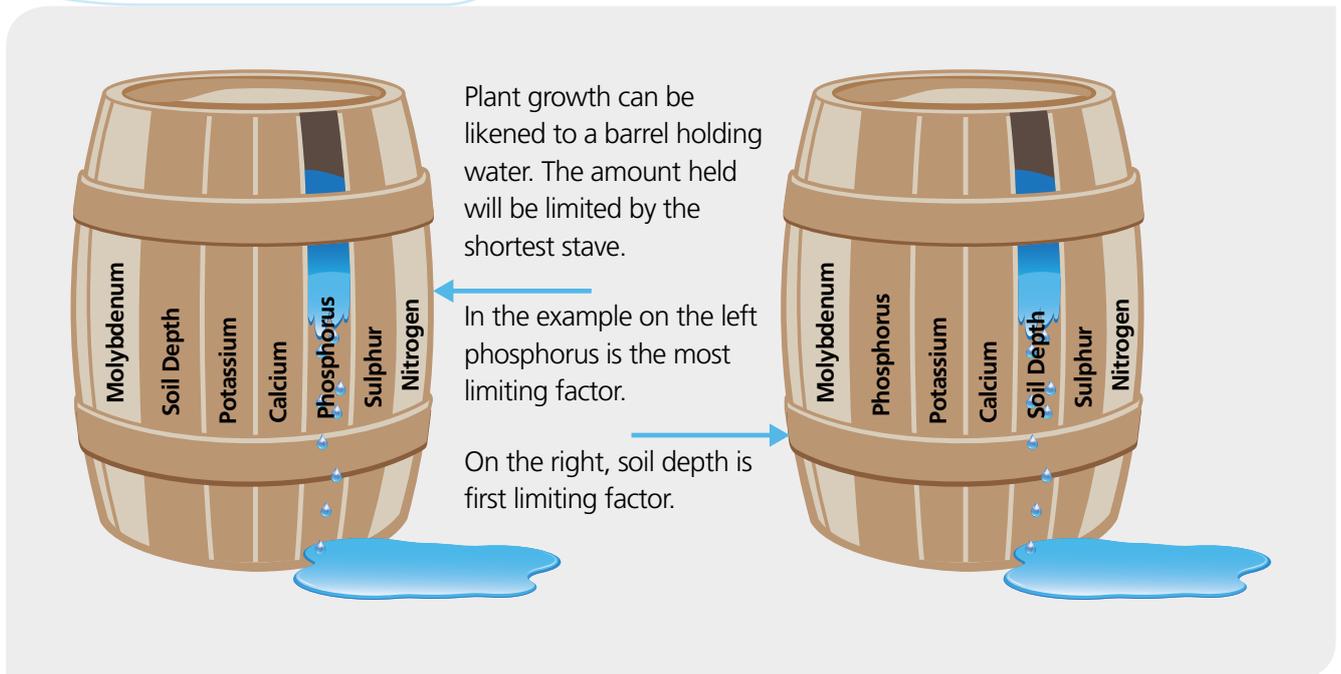
## Limiting nutrients

Plants require access to a range of nutrients for optimal growth. Australian soils are very old and are commonly deficient in one or more nutrients for a range of reasons including naturally low fertility soils or export of agricultural products. Nutrient shortfalls can restrict plant growth and overall production of an agricultural production system.

Understanding the requirements of the range of nutrients available in a soil is a necessary skill to identify the nutrient(s) that may be limiting growth in plants. Nutrients necessary for plant growth can be classified as major or minor nutrients and include:

Soil testing should be conducted to assist in identifying the nutrient levels in soils. Understanding a soil's limiting nutrients is an important step in matching nutrient inputs to pasture, environmental and enterprise needs. South East LLS conduct training courses to assist in preparing and interpreting these soil tests.

## Law of the Minimum



**Figure 4**

This diagram has been adapted from Landscan(TM) manual, NSW Department of Primary Industries, 2nd edition July 2004.

## pH

pH measures how acidic or alkaline overall soil conditions are, which strongly influences a number of soil processes including nutrient availability and soil biological processes. Under extreme pH conditions, a number of nutrients may tie up and not be accessible to plants, or allow toxic elements like aluminium and manganese to become available. Be aware that there are a number of different pH tests which will give a different result. Know which test is used when interpreting any results.

## Salinity

Soil salinity is a measure of how much salt is in the soil's soluble fraction. This can occur naturally, coming from the parent materials, move to a site through water cycles or be added through heavy salt-based fertiliser use. Excessive salt in soil can cause problems by impacting on plant growth and soil structure.

## Sodicity

Soil sodicity is a measure of how many exchangeable sodium ions are in a soil relative to the calcium, potassium, magnesium and aluminium ions. When there are excessive sodium ions in the clay, the soil is considered sodic. This usually comes from the inherent parent materials which formed the soil and can result in hard layers, crusting, soil structure collapse and dispersion. These soils are extremely sensitive to cultivation and are best left covered.

## Biological indicators

### Root depth

Root depth is the top section of the soil where the majority of growing plant roots occupy. This is the active zone of the soil where the nutrients, water and carbon are exchanging, and where soil life is most abundant.

### Root volume

Root volume is a measure of how much of a soil's space contains roots. In a well-functioning soil, plant roots should be able to fill much of the soil with roots as they grow, which indicates that the soil is actively exchanging nutrients, water and carbon. Comparing the same species of plant root is vital in this test due to root variation.

### Soil organisms

A soil has an ecosystem full of life, including micro-organisms (bacteria, fungi, protozoa, nematodes) and macro-organisms (earthworms, spring-tails, ants, pot-worms, dung-beetles and a range of others) which are visible to the naked eye.

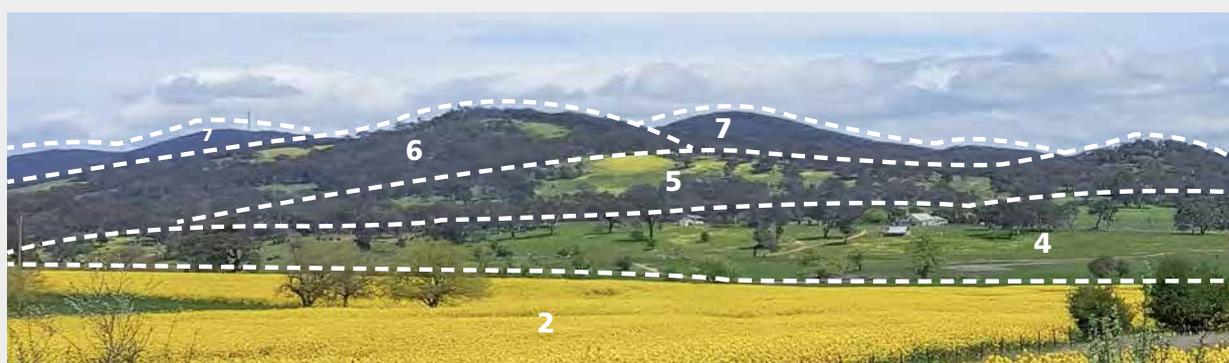
South East LLS offer a range of training opportunities and documents, to help you better understand these basic soil indicators and how to assess them. Please contact your nearest South East LLS office for more information.



## Management of land and soil

### Land and soil capability

There are eight classes defined by the NSW Office of Environment and Heritage that outline the capability of the land to undertake particular activities. Land capability maps are available at [www.environment.nsw.gov.au/soils](http://www.environment.nsw.gov.au/soils) or can be accessed online via the interactive eSPADE website at <http://www.environment.nsw.gov.au/eSpade2Webapp>



Land class	Land use options
Class 1 – 2	<ul style="list-style-type: none"> <li>• Land with few, if any, limitations – many options available;</li> <li>• Arable land suitable for regular cultivation for crops, and/or high input introduced pastures</li> </ul>
Class 3 – 4	<ul style="list-style-type: none"> <li>• Grazing land well suited to introduced pastures</li> <li>• It may be cultivated or cropped in rotation with pasture</li> <li>• Preferable use direct drill techniques</li> </ul>
Class 5 – 6	<ul style="list-style-type: none"> <li>• Class 5 is non-arable by class 6 is often non-trafficable</li> <li>• Land suitable for grazing but not for cultivation</li> <li>• Manage to maintain or improve perennial pastures and preserve ground cover</li> <li>• Direct drilling exotic pastures is only an option on suitable soil</li> </ul>
Class 7 & 8	<ul style="list-style-type: none"> <li>• Land not generally suitable for agriculture or at best suited to light grazing</li> <li>• Possible retire from agriculture for conservation purposes.</li> </ul>

Figure 5

## Erosion management

There are various forms of erosion including wind, sheet, rill, gully, streambank and streambed erosion.

Some soil types are very susceptible to erosion. Factors such as slope, rainfall intensity and groundcover influence erosion rates. Management activities such as over stocking and cultivation can significantly reduce ground cover that can lead to erosion.

Help to minimise erosion and retain topsoil on your property by using the following good land management practices:

- ✓ Retain adequate vegetation cover, particularly at ground level. Ground vegetation should provide at least 80 percent groundcover.
- ✓ Plant windbreaks and establish native plants along creeks and farm roads to help filter sediment and nutrients;
- ✓ Protect and enhance existing native bushland as this will assist in reducing rates of runoff;
- ✓ Cultivate in accordance with the land and soil capability class and plant along contour lines. Don't cultivate steeply sloping land; and
- ✓ Construct access roads along the contour on gentle slopes wherever possible and avoid wet areas.



## Soil acidity management

Many local soils are highly weathered and naturally acidic, with a pH(CaCl) of less than 5.5. (The pH of soil is a logarithmic measure of its relative acidity or alkalinity. Acid soil has a pH of less than 7.0.)

While different plants have different tolerances to acidity, most agricultural plants do best when the soil pH(CaCl) is between 5.0 and 6.5. However when the pH drops below 5.0, plants that are very sensitive to toxic levels of some elements released by acidity, such as barley and lucerne, become adversely affected.

It is generally very difficult to alter the pH of soil to the depth that plant roots require. To make the most of pastures that are growing within your soil's natural pH, you may need to adjust your land management to ensure maintenance of good ground cover.

There are three basic strategies to manage acid soils:

1. Use deep-rooted perennial pastures to improve nutrient cycling and slow the rate of acidification;
2. Use plants that are tolerant of acid soil conditions;
3. Retain native species in highly acidic soils as they are usually the most tolerant; and
4. Consider the use of lime to raise soil pH (most useful if only the topsoil is acidic).

For more specific information on understanding soil pH, see the following DPI Factsheet [http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0003/167187/soil-ph.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/167187/soil-ph.pdf). Your South East LLS office can also provide advice on appropriate strategies for managing the soil limitations on your property.

## Acid sulphate soils management

Acid Sulphate Soils (ASS) contain large amounts of iron sulphide minerals and are almost entirely found in coastal landscapes less than 5 m above sea level. Coastal ASS are widespread across NSW's coastline, and often occur in mangrove flats, salt marshes, tea-tree swamps and coastal floodplains which have been often developed for urban or rural living.

These soils were formed in the intertidal zones during the last 10,000 years, after the last major sea level rise. When the sea level rose and inundated the land, bacteria in the organically rich soils converted sulphates from the sea water and iron from the sediments to iron sulphide (iron pyrite).

While these soils remain waterlogged, the pyrite is in a stable form. However, if the soils are exposed to air by drainage or excavation, the iron sulphide oxidises to form sulphuric acid. This acid is released from the soil following rainfall or flooding. Such soils show the presence of a yellow sulphur mineral called jarosite. Re-flooding the affected soils will not reverse the process of the acid production (Landscan Manual, 2010).

ASS can have the following effects on plants, animals and infrastructure:

- Plant growth is severely limited due to toxic levels of iron and aluminium in the soil;
- Acidic run-off into waterways can impact water quality and cause fish mortality;
- Oysters and other shell fish suffer breakdown of their shells; and
- Concrete, iron steel and some alloy structures are corroded.

For more detailed information on managing ASS on your property, see the following DPI webpage: <http://www.dpi.nsw.gov.au/content/agriculture/resources/soils/ass> or contact your South East LLS office for more detailed advice on appropriate management strategies

### Dryland salinity management

Dryland salinity is the build-up of salt in surface soil in non-irrigated areas, usually because of rising groundwater tables. Groundwater seeps to the surface, bringing salt with it. As the soil surface dries out, salt is left behind. When the water balance is disturbed by the removal of deep-rooted perennial vegetation, dryland salinity is accelerated. Dryland salinity can cause vegetation loss, stream salinisation and can be a precursor to soil erosion.

Dryland salinity is a problem for farmers because salt makes it harder for plants to extract water from soil. The result is loss of pasture and groundcover, and eventually soil erosion. Some properties are particularly prone due to natural factors such as rock/sediments containing high levels of salt, salt in rainfall, landform and hydrogeology characteristics.



Causes of dryland salinity in these areas include:

- removing deep-rooted perennial vegetation and replacing it with shallow rooted pastures and crops – this raises the water table, which brings salt to the surface;
- blocking natural groundwater flow, such as by building roads, levees or dams.

When considering methods to manage dryland salinity, it is important to get advice from the relevant authorities, such as a South East LLS office.

*How can you tell if you have saline soils?*

Dryland salinity can be detected visually by changes in pasture or scalding of the ground surface, including in some cases the presence of actual salt crystals on scalded ground. Stock may “chew” at salty patches of ground, indicating sensitive areas to manage. Other signs of saline soils include the species composition of pastures. Cocksfoot, white clover and subterranean clover thin out and disappear as salinity levels increase. They are progressively replaced by more salt-tolerant species including Paspalum, Yorkshire Fog, Couch and Sea Barley Grass.

Fencing these areas is a good option, preventing the expansion of these bare patches. Use of mulches or establishment of salt tolerant species is also recommended.



## Sodicity management

Sodicity is a major cause of land degradation in the Southern Tablelands. It is caused by high concentrations of sodium which is generally attached to clay particles of the soil. As a result, clay particles in the soil lose their tendency to stick together when wet. This leads to unstable soils that may erode or become impermeable to water and plant roots.

Landholders sometimes use the terms 'spewy' or 'wormy' to describe sodic soils. Signs of sodic soil are poor water infiltration, surface crusting, waterlogging, collapsing areas which appear to result from underground tunnelling and piping, and cloudy water in dams and creeks that never settles out.

Sodicity is most common in the subsoil. Soil structural problems from sodicity increase when soil organic matter is low.

**Having a good ground cover helps stabilise the topsoil and retain its organic matter content. In this way, the risk of sodic subsoils becoming exposed to run-off and erosion is reduced.**

The best way to treat sodic subsoil is to stop the subsoil from being exposed by retaining perennial groundcover. Applying gypsum (calcium sulfate) to the affected soil can treat sodicity of topsoil however; you may need large quantities of gypsum to have more than a short-term effect, which can be an expensive option. Gypsum is also a salt and may increase salinity. For advice relevant to your property, contact South East LLS.

## Native plants and animals

Biodiversity is all life on earth and the systems that interact with and support it. Supporting a range of species, habitats and therefore systems helps to maintain the ecosystem services of the landscape.

The best way to support biodiversity is to ensure that there are areas on your land that are set aside for native vegetation and animals, or used infrequently. Reducing grazing pressure in remnant vegetation, maintaining native vegetation and leaving shrubs, dead wood and leaf litter in place will make a positive contribution to supporting biodiversity.

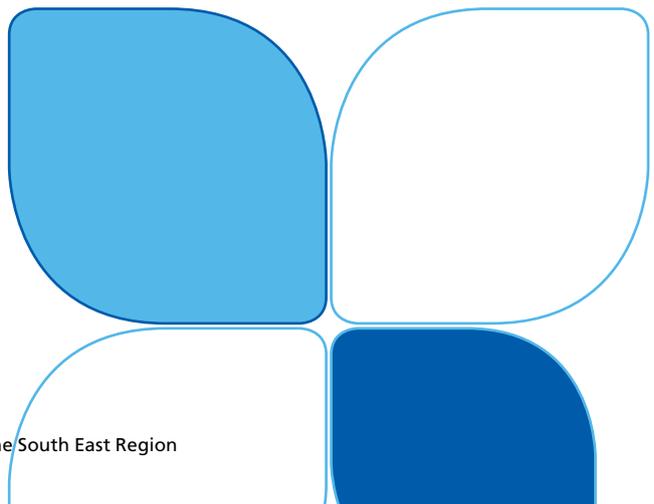
Remnant native vegetation is the area's remaining indigenous vegetation, including forests, woodlands and native grasslands. During the past two centuries, much of the original native vegetation in the local area was cleared for agriculture and other land uses.

However, the presence of native vegetation on your farm can provide multiple benefits, including:

- Stabilising soil;
- Preventing sedimentation to waterways;
- Providing shelter to livestock;
- Providing habitat for a range of native wildlife;
- Reducing the spread of wind blown seed such as serrated tussock;
- Providing a landscape that is pleasing to many.

Re-establishing native vegetation helps to restore and link remnant patches of native vegetation on private and public lands, enhancing their value as wildlife corridors and biological reserves. When planning a replanting program, always try to use locally sourced seed or plants and choose species that are appropriate for your area to support native plants and animals.

Join your local Landcare group for more information and assistance regarding revegetation on your property.





## What laws apply to native vegetation?

Clearing native vegetation is currently regulated under the *Native Vegetation Act 2003* (NV Act). Local Land Services provides extension and advisory services regarding the management and clearing of native vegetation. Local Land Services is also a consent authority under this legislation.

Clearing native vegetation for many routine farm management activities does not require consent under the NV Act. Local Land Services works with landholders to negotiate Property Vegetation Plans (PVPs) to authorise clearing and any necessary offsets.

Regulations associated with native vegetation are changing, rural landholders need to be aware that they should contact their South East LLS Office prior to disturbing native vegetation or considering the development of their land, to determine what approvals may be required.

Other laws relating to native plants and animals include the *Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) which detail the current status and protection level and laws in place for particular species and communities.

## Looking after native vegetation

Many options for assistance are available to private landholders. Inspections and advice are available through programs such as Land for Wildlife and Landcare. Incentive funding may also be available through South East Local Land Services or Landcare.

Larger patches of native vegetation are more valuable for connecting viable populations of plants and animals. Therefore avoid reducing the size of existing remnants on your property. If considering new fences, tracks or services, consider placing them around an area of native vegetation rather than through it.

An area of degraded native vegetation will continue to degrade and ultimately die out if not actively managed. It is easier and cheaper to look after these areas now than repair land degradation issues and revegetate a cleared block at a later time. Obvious signs of a

degrading area of native vegetation include:

- ✓ Eucalyptus trees all of a similar age class (size), with no recruitment or shrub understorey;
- ✓ Mainly grassy understorey with perennial summer growing native grasses being replaced with annual grasses;
- ✓ Dominance of weeds;
- ✓ No fallen timber;
- ✓ Limited number of different plant species;
- ✓ Limited number of bird species visiting the area, usually dominated by large aggressive species such as Noisy Miner, Mudlarks and Cockatoos; and
- ✓ Limited number of native fauna species occupying the area;

Strategies for bringing back healthy native vegetation areas include:

- ✓ Fence existing vegetation to manage stock pressure and to allow for natural regeneration;
- ✓ Restrict fertiliser use in areas managed for conservation as all native tree and some native grass species are sensitive to a nutrient rich environment;
- ✓ After discussing suitability and regulations with your South East LLS office, plant a range of local native species within existing degraded native vegetation to improve species diversity and restore the mid and understorey layer. A healthy understorey is the key to increasing diversity of animals such as small insect-eating birds, assisting in improving soil fertility via the introduction of nitrogen fixing species and providing natural competition against weed infestations.

Signs of a patch of healthy native vegetation include:

- ✓ Eucalypts of various size and age;
- ✓ Presence of a shrub layer;
- ✓ Mostly grassy ground layer with a range of native grasses, legumes and herbs;
- ✓ Largely weed free;
- ✓ Abundant fallen timber;
- ✓ High number of different plant species;
- ✓ Variety of native fauna utilising the area.



## Weeds

A weed is a plant in the wrong place at the wrong time. Plants are weeds if they harm the environment, choke out native vegetation, or harm agricultural production. Weeds often have a high level of seed production with easy dispersal and are highly competitive with a lack of natural controls.

Weeds can occur on land and in water. They can be a major problem on rural land because of the impact they have on human and livestock health, pastures, crops and waterways. Managing weeds across the landscape is recognised as an important way to improve land productivity and sustainability.

**Weeds are generally a sign of land degradation and pasture decline, not the cause of these management issues. Determining the cause of pasture decline or land degradation and taking action early is the best way to minimise weed invasion and prevent further loss of desirable species.**

Weeds can be spread by:

- the contamination of stock feed or pasture/ crop seed, livestock, machinery, water, wind and garden escapees;
- deliberate introduction, such as willows or African lovegrass planted for bank stabilisation;
- lack of awareness or inability to identify weeds; and
- poor land management, such as overgrazing or undergrazing.

Under the *Biosecurity Act 2016* (to be implemented in 2017), landowners will be required to control all declared noxious weeds on their property. Noxious weeds are certain plant species that have been declared by the government to have a detrimental effect on the environment and/or agricultural production. Local council is the local weed control authority and has the right to enter and inspect private properties and, if required, issue notices to carry out weed control work. Fines may also be applied or weed control actions undertaken (at the landholders expense) if noxious weeds are not managed appropriately. You can apply to your local council to see if there are any outstanding weed notices on a property before buying or discuss the potential for an inspection of the property.

**We all live with weeds within our landscape. Gaining complete control of all your weeds is not likely to be a realistic goal, however establishing a management plan that will meet your legal obligations and reduce the impact of weeds on everyone's productivity and natural assets is a key step.**

Herbicides are often an important part of an integrated plan to control weeds – but not the sole control technique. An integrated approach to weed management may include strategic grazing (to target weeds or increase competition), pasture improvement, herbicides, biological control agents, improving soil fertility, cultivation, slashing, burning, mulching, hand pulling, early detection and farm hygiene. The selection of weed management techniques should be done carefully and may well vary for each of the weed species being targeted for control. Using an inappropriate technique could result in poor weed control or more significantly, the further spread of the weed and/or degradation of the landscape.

Seeking advice on how to manage weeds is very worthwhile, as much damage can be done with misapplication of chemical in the landscape. Without the correct knowledge, desirable plants may well be killed unintentionally. Contact the weeds officer at your local council for more information. South East LLS also offers a range of workshops, courses and resources such as the Guide for landholders Developing an integrated weed management Plan, that may assist you in developing weed management strategies. Contact your South East Local Land Services office for more information.

The following diagram outlines the key phases in a plant lifecycle and considerations for their suppression:

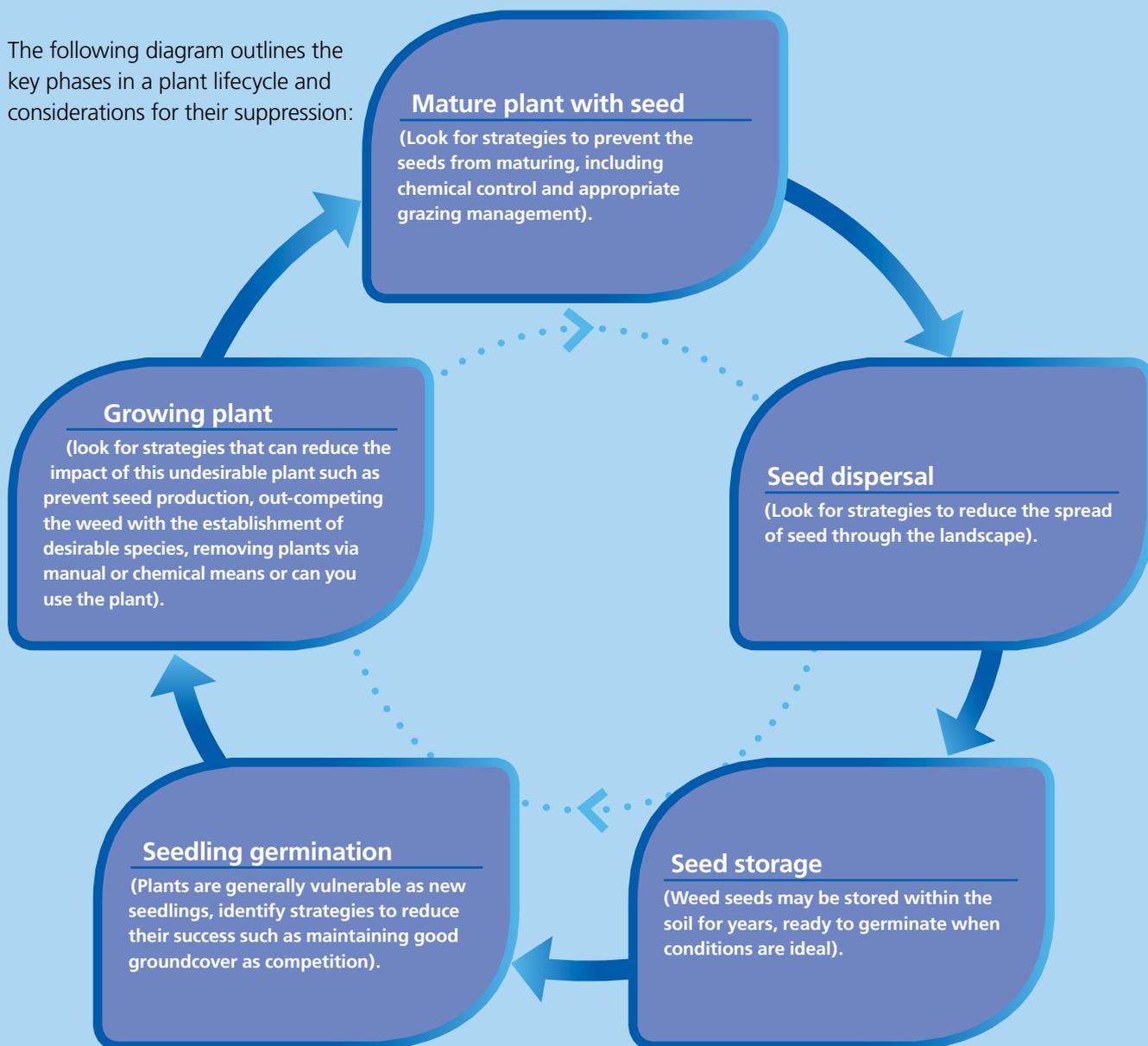


Figure 6

Source: South East LLS Integrated Weed Management Plan and Guide, 2016



## Native animals

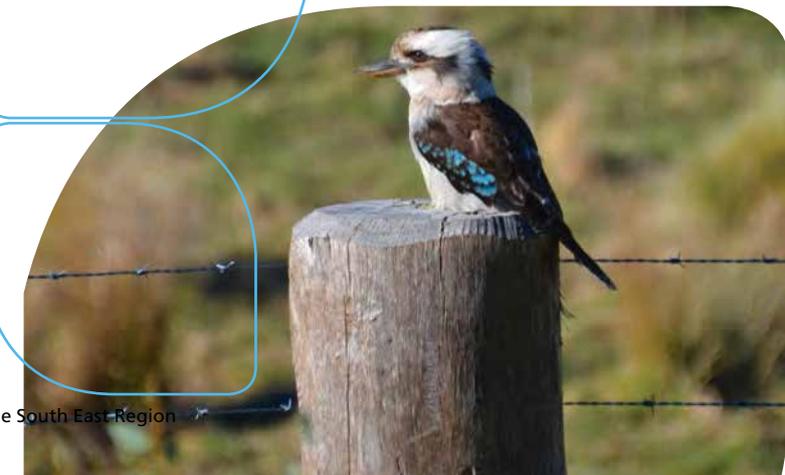
The enjoyment of Australian native animals is one of the many reasons for moving to a rural area. Some residents take formal steps to protect wildlife by entering into conservation agreements with various government and non-government organisations. The goal is to live in harmony with native animals, however sometimes they can pose a threat to our safety, activities or cause problems in an agricultural setting. It is important to understand how to balance these situations on your property.

### What laws apply to native animals?

All native animals in NSW are protected under the under the *National Parks and Wildlife Act 1974*. This means that it is illegal to trap, kill or harm them unless licensed to do otherwise. Applications to control some native species can be obtained from National Parks and Wildlife Service. There are legislative changes that will be finalised in 2017 that are likely to alter these arrangements. For more up to date information on these changes, contact National Parks and Wildlife Service (part of the Office of Environment and Heritage) on **1300 072 757**.

The *Threatened Species Conservation Act 1995* aims to prevent the extinction and promote the recovery of threatened species, populations and ecological communities in NSW. Damaging or harming any listed native plants, animals and ecological communities, may require consent, even on private property.

Threatened species may not be obvious on your property. If you are considering developing property or land clearing, you may need to have a threatened species survey and an assessment of significance. Find out about potential threatened species on your property by searching the NSW Bionet (<http://www.bionet.nsw.gov.au/>).



## Pest animals

Pest animals and insects can cause serious economic losses to agricultural production on your property. Pest animals may present an unacceptable risk of exotic disease, threaten the survival of many native species, and cause environmental degradation, including erosion. The threat of exotic disease outbreaks, such as foot and mouth disease has led to an increased effort to manage feral pigs.

Landholders have a legal responsibility under the *LLS Act 2013* to control and eradicate pest animals on land they own, occupy or manage.

Pests such as wild dogs, rabbits, feral pigs, foxes, feral cats and feral goats can introduce disease and outcompete native animals for food and shelter, as well as injuring or killing livestock and damaging crops and pastures.



Local Land Services can provide advice to help control declared pest species on your property. A range of strategies are available. Local Land Services Office will assist in identifying the most suitable method and provide access to training, poisoned baits, hire equipment such as traps and initiating education and cooperative management programs.

The use of poison including 1080 and pindone is often a strategy employed to manage populations of feral foxes, pigs and rabbits. Only an authorised control officer in NSW can prepare this bait and supply it to land managers. 1080 is regulated under the current 1080 Pesticide Control Order. The use of this chemical currently requires a minimum chemical use accreditation. Local Land Services offers a three hour course which, on completion, allows you to use 1080 and pindone on your property.

Contact your nearest Local Land Services office if there is any evidence of wild dog attacks on stock on your property or to access assistance with developing a pest animal management plan for your property.

## Domestic dogs and cats

Domestic dogs and cats can also harm the environment and disrupt farming practices. All dogs and cats have the potential to kill and maim native animals, and dogs may injure or kill livestock which will impact on neighbour's livelihood and may make you liable to compensate for losses. Under the *Companion Animals Act 1998* landholders can take actions to protect their livestock from roaming domestic dogs. To reduce this risk, keep cats indoors or provide a caged run, and keep dogs chained up or within a secure yard.

You must register pet dogs and cats through your local council. For working dogs (a dog used primarily for the purposes of droving, tending, working or protecting stock, registration is free. Micro-chipping working dogs is strongly advised, so that lost dogs can be returned to their rightful owners. Unwanted animals should not be dumped in the bush, but should be taken to the Royal Society for the Prevention of Cruelty to Animals (RSPCA), your local veterinarian or council pound.

# Cultural heritage

There are two types of historical sites that may be present on your property: Aboriginal and European.

These sites may already be listed on local, State or National registers, or you may discover something new. In any case of identifying significant historical features, you have certain responsibilities under legislation for the protection of these areas.

## Aboriginal cultural heritage

Aboriginal people are considered the custodians of country. Cultural heritage not only encompasses objects but the broader landscape; the water, plants, animals and the land. Areas of spiritual and social significance are known by knowledge and may be referred to in art, songs and stories while some are associated with ancestral remains.

Recent amendments to the Aboriginal Heritage provisions under the *National Parks and Wildlife Act (1974)* introduce two types of offences for harming Aboriginal objects. The offences relate to the harming or desecrating an Aboriginal object, either knowingly or unknowingly. It also clearly states in the *National Parks and Wildlife Act* (section 102) that identified sites need to be recorded within a reasonable amount of time. It is the land manager's responsibility to ensure that cultural sites on any land tenure are recorded.

South East LLS is committed to ensuring the protection of Cultural Heritage values within the region. Assistance can be provided to landholders and managers to identify and protect sites on a property.

For further information regarding Aboriginal Cultural Heritage legislation contact the Office of the Environment and Heritage.

## European cultural heritage

European cultural heritage artefacts can provide significant detail to the telling of the history of towns, cities and the surrounding areas. Within the rural areas, European Cultural Heritage can include farmhouses, barns, agricultural equipment, property markers and mining sites.

Due to the wide cross section of potential artefacts and structures it is hard to know exactly where an item may be located on a property. Within New South Wales, European Cultural Heritage is protected by the *Heritage Act 1977*. The Heritage Act states that if a potential artefact is located during any works undertaken on a property, that the work is to cease and the NSW Office of the Environment and Heritage is to be contacted immediately.

The Heritage Act also includes provisions for offences for harming archaeological artefacts as well as works without consent on State Heritage Items. Where an item is locally listed the *Environmental Planning and Assessment Act 1979* NSW provides similar provisions.



# Fire

Fire is a part of the Australian landscape, and bushfire management in NSW is a community effort. Not only does bushfire pose a risk to personal safety and property, it can also have major impacts on biodiversity and water quality.

Effective bushfire management involves fire authorities, land managers, planning authorities, Council and the local community. The work you do to prepare your own property is a critical part of bushfire management. Bushfire management involves a risk planning process. You will need to:

- identify the location of bushfire hazards (such as high fuel loads),
- identify the location of community assets (buildings and environmental),
- assess the level of threat that the hazard presents to identified assets.

While many existing farmhouses are built on cleared farmland there has been an increasing tendency to build on bush blocks, on land which is often too rugged for agricultural use. To build a dwelling on these bush blocks, you will need to consult your local Council and NSW Rural Fire Service. Building standards in bushfire prone areas include the need for adequate design standards, appropriate setbacks from bushland, reduced fuel areas (asset protection zones), correct siting, and good access roads for fire fighters and residents. Strategically planned asset protection zones and regular maintenance to remove fuel greatly enhances the ability of your home to be protected in an emergency.

Land clearing in NSW that is for bushfire hazard reduction and not agricultural purposes will usually require a Bushfire Hazard Reduction Certificate. This certificate is for activities such as burning, land clearing and slashing. The Rural Fire Service must also be notified, and depending on the season you may require a permit to burn.

Some properties will be eligible to clear vegetation under the 10/50 Vegetation Clearing Scheme, which was introduced following the devastating 2013 bush fires. To check if your property is covered in the eligible area under this scheme, utilise the RFS' online assessment tool. The tool contains the latest information on areas covered by the rule and can be accessed at: <http://www.rfs.nsw.gov.au/plan-and-prepare/1050-vegetation-clearing/tool>

For more information on preparing for and responding to bushfires in rural areas, contact the Rural Fire Service at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au) or the NSW Department of Primary Industries at [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au).



# Non-residential landholders

As a landholder you are responsible for looking after the environment of your property and making sure that you don't contribute to problems on your land and the land of others.

Many rural properties do not have permanent residents and may remain vacant for extended periods. This absence raises potential management problems that can lead to land degradation and increase tension between neighbours. If you are an absentee landholder, consider strategies to reduce these management issues including weeds and pest animal control, erosion, boundary fencing maintenance, failure of the effluent management system due to lack of use, fuel build up causing a potential bushfire hazard, straying stock and inadequate care of stock.



# Agricultural advice

Establishing and managing an agricultural enterprise, whether it is as a hobby or a primary source of income, can be a daunting and complex task. There are many agricultural systems that are suitable in the South East Local Land Services region. Getting the right advice for your individual production system is vital.

## Livestock

### Stocking rates

Overstocking can be a quick route to destroying your pastures, soil and bushland, along with depleting the health of your own animals. When starting out, seek advice from an agronomist and consider the whole environment. The Notional Carrying Capacity stated on your LLS rates is NOT a suggested stocking rate, only a means used to allocate rates to ratepayers.

You should make an effort to correctly identify appropriate stocking rates for your property. This will take into account your time, availability and farm goals, the pasture or vegetation composition, fertiliser history, type of production system you are proposing, local climate, geography of your property and your property layout. The stocking rate will give you a guide to the number of livestock you may keep without significantly damaging the health of your land or livestock.

### How to determine an appropriate stocking rate

In measuring the energy requirements of livestock, a 50 kg wether is the standard measure. A 50 kg wether maintained at constant weight has a dry sheep equivalent (DSE) rating of 1. Animals requiring more feed have a higher rating and animals requiring less feed have a lower rating. The DSE rating of all classes of stock is based on the feed requirements of the animals (Prograze Manual, 2011).

The following table provides an estimated range DSE rating per hectare for a range of common pasture types on the South East LLS region:

DSE rating per hectare for a range of common pasture types in the South East LLS

Tablelands and Slopes Pasture Types	Range DSE/ha
Low quality native pasture (grass dominant, low legume component)	0.5–1.5
Good quality native pasture, unfertilised (wallaby grass, microlaena)	1.5–3.0
Good quality native pasture + sub clover + fertiliser	3–12
Sown perennial grass/legume fertilised pasture	6–14

Monaro Pasture Types	Range DSE/ha
Summer active native (Kangaroo grass and forbs)	2–6
Fully improved (e.g. phalaris, cocksfoot & clover)	7.5–15
Summer active weeds (African Lovegrass)	1–3
Poa on Basalt	4–8+
Stipa on Granite	2–5

Far South Coast Pasture Types	Range DSE/ha
Kikuyu	4–8
Ryegrass/clover	8–24
Native pasture (e.g. microlaena, kangaroo grass & clover)	3–10

South Coast Pasture Types	Range DSE/ha
Unimproved pasture, carpet grass	3–6
Topdressed kikuyu based with clover	7–10
Improved pasture: ryegrass, kikuyu, paspalum and clover on good fertile soils and fertiliser	14–24



## Carrying capacity

Carrying Capacity is an average over a 12 month period. The value will change between years depending on rainfall, rainfall timing, nutrient availability and pasture use. It will change between paddocks depending of soil depth, aspect and pasture composition. This is different from Stocking Rate which is the grazing density at a given time. For example a paddock may have 20 dse/ha for a grazing period but require rest at other times, having an annual average of only 5 dse/ha. Carrying capacity is the most important management decision a land manager makes, and it is also the most difficult because the best number is continuously changing depending on the season. Land managers need to use experience, objective measurements and trigger points to make changes to best make this decision.

For more information on calculating your property's Stocking Rate or Carrying Capacity for your particular enterprise requirements, please contact your South East LLS office for advice and training opportunities in your local area.

## Animal welfare

The RSPCA promotes 'Five Freedoms of Animal Welfare', as follows, Freedom from: hunger and thirst; discomfort; pain, injury or disease; to express normal behaviour; and from fear and distress. Owners can be prosecuted by the RSPCA if they don't meet the needs of their animals.

It therefore makes sense to ensure that your livestock always have access to water and feed as well as shelter from climatic variations.

## Livestock nutrition

Animals need a balanced diet to maintain health and a good level of production. The following section is an overview of the basics but if further information is required contact your South East LLS Livestock Officer, district veterinarian or a nutritionist.

Energy provides the body's ability to do work. It is mainly produced when carbohydrates (in plants and grains) are broken down. Fats and protein also provide some energy. It is needed for maintenance, growth and reproduction.

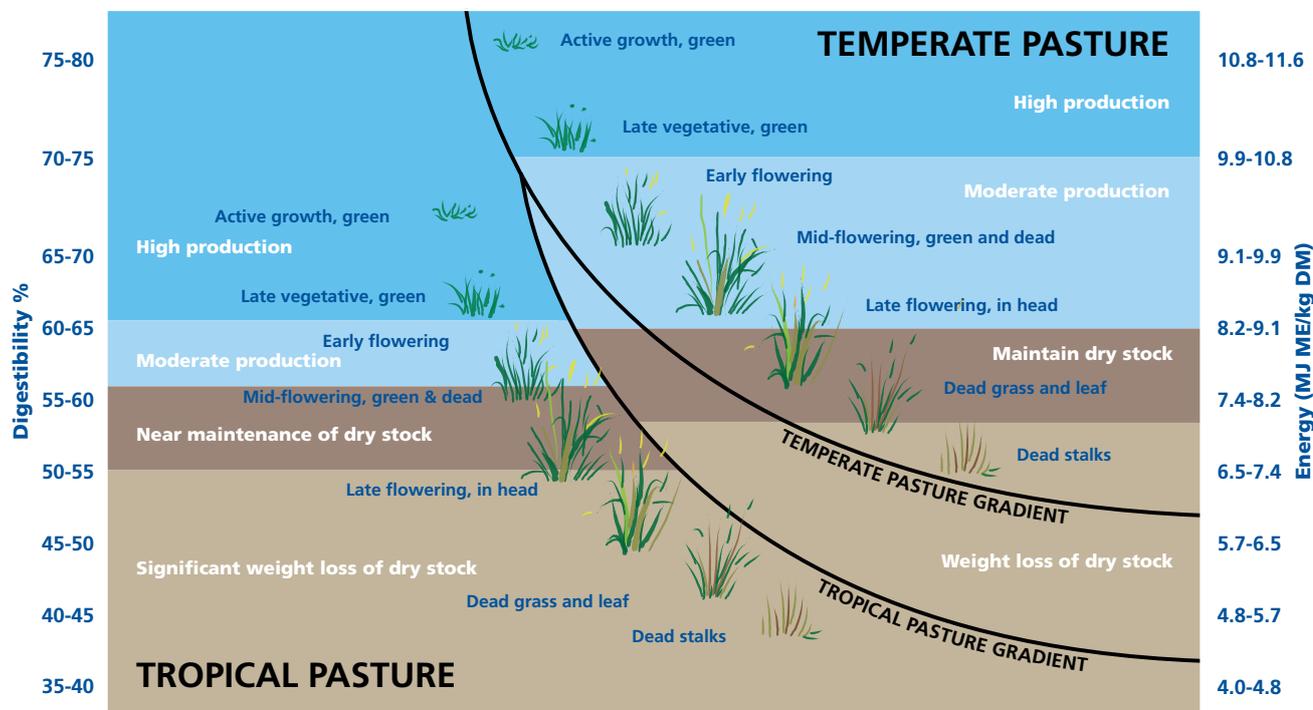


Figure 7

Source: The information in the above diagram, and the table on the previous page are adapted from Prograze®, Profitable Sustainable Grazing Manual, NSW Department of Primary Industries, 8th Edition 2011.

Excessive energy intake can lead to animals becoming over fat, which is not ideal especially if they are pregnant. Overfat stock will also be penalised when sold for slaughter as excess fat needs to be trimmed from the carcass. In contrast, where energy intake is less than daily requirements weight loss will occur. Weight loss in stock needs to be carefully managed as excessive loss can lead to death.

Protein is often referred to as ‘building blocks’ of the body. Protein is most important for growth, reproduction and production of muscle tissue (meat), wool, milk and immunity. Fibre/roughage is needed to aid digestion. No nutritional value is gained from the indigestible fibre but is still an essential component of the diet which keeps the gastrointestinal tract healthy.

Vitamins and minerals are required for various body functions and processes. Amounts required vary with the animal’s stage of production and if minimum levels are not met, this may result in decreased production, reduced fertility and possibly metabolic problems and disease.

The following chart provides you with a guide to the likely digestibility value of grasses at various stages in their lifecycle, along with the requirements of cattle and sheep at various stages in their lifecycles. For more information, contact your nearest South East LLS office to register your interest in participating in workshop/ learning opportunities.

### Livestock fat scores

Fat scoring is an assessment of the amount of fat or body condition that an animal is carrying. If you are running livestock, developing skills in fat scoring and setting fat score targets is important for a whole range of reasons. Fat scoring helps you to:

- manage breeding stock effectively (especially females)
- ensure that animals consigned for slaughter meet market specifications (i.e. price discounts aren’t applied for under or over fat stock)
- make better grazing management decisions

Fat scoring in sheep is done on a 1 to 5 scale by manually feeling the long ribs for fat cover (visual assessment of sheep can be very misleading). Cattle can be assessed either visually or manually and is done on a 1–6 scale. From both a management and marketing perspective livestock should be managed so they stay in the fat score 2–4 range. The extremes at both ends of the fat score range result in different

animal health issues and should be avoided. For further information see primefacts:

[http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0015/96000/fat-scoring-sheep-and-lambs.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0015/96000/fat-scoring-sheep-and-lambs.pdf)

[http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0004/95863/visual-and-manual-assessment-of-fatness-in-cattle.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/95863/visual-and-manual-assessment-of-fatness-in-cattle.pdf)

If you would like to develop skills in fat scoring, contact your nearest South East LLS office to register your interest.

### Areas of the body for visual fat assessment in cattle

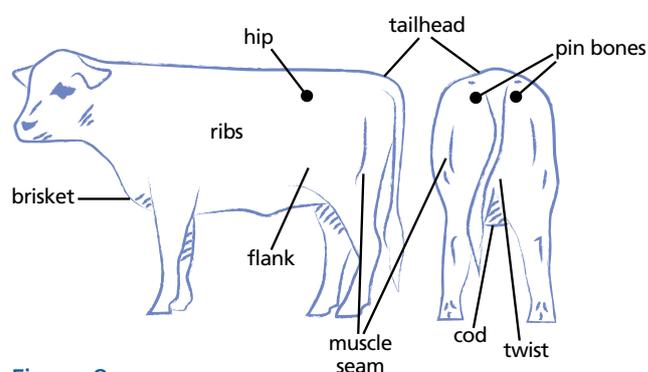


Figure 8

Source: NSW DPI 2006: Visual and manual assessment of fatness in cattle, Primefact 282

### Provision of stock water

Various livestock have different requirements for access to water, depending on factors such as the life stage of the animal (e.g. a lactating cow on grass may need up to 100 litres per day), the time of the year, the moisture in the pasture, water quality (e.g. animals drink more water if it is salty) and climate conditions (e.g. drought or hot windy conditions). However, a guide to the minimum requirements for access to water includes:

Type of Animal	Access to water (Litres/year)
Beef Cattle	13,500
Horse	12,000
Pig	9,000
Dog	3,000
Sheep	1,230

# Animal health

Appropriate nutrition and timely management practices to ensure the welfare of animals on your farm should be your highest priority. Many disorders of grazing farm animals are exacerbated by nutrition. Diets deficient in energy, protein and minerals, or based on inappropriate supplements or poisonous plants, are common causes of disease and even deaths in livestock. Pastures dominated by one plant species often cause disorders, such as bloat, staggers or grass tetany. In addition, animals in poor body condition due to inadequate nutrition are often more susceptible to diseases, such as those caused by internal parasites.

It is important to understand the range of diseases possible in the type of livestock you wish to run on your farm, before you purchase them. It is often easier to implement measures to prevent the importation of diseases rather than try to control them once on your farm. Vaccination, quarantine drenching, segregation upon arrival, avoiding purchase of already diseased animals, and asking relevant questions of the agent and vendor may all be used to your advantage. In addition to the National Vendor Declaration (NVD), you should ask for a completed Health Statement which allows the vendor to declare the disease status of the stock, and list recent health treatments. They are available for several types of livestock at <http://www.farmbiosecurity.com.au/toolkit/>.

Information on the health and management of your preferred livestock may be found on the NSW DPI website (<http://www.dpi.nsw.gov.au/animals-and-livestock>). Numerous books on specific livestock are also available through outlets such as <http://www.tocal.nsw.edu.au/publications>. Rural newspapers and periodicals, your neighbours, rural merchants, private veterinarians, council weeds officers and livestock agents are also valuable sources of advice. South East LLS distributes a monthly newsletter which contains timely information on animal disease and livestock management, and holds field days to discuss current issues. Your South East LLS District Veterinarian is available for local livestock advice.

Your availability and experience will influence which class of livestock you run. Having breeding stock will not suit if you don't live on farm and visit only infrequently, for example, unless you make arrangements for them to be supervised in your absence.

Be aware that many animal diseases may also affect people. Infections such as ringworm on horses and cattle, scabby mouth in sheep and goats, and Q-fever are common on farms. It is likely that new landholders will have no immunity to common farm animal

diseases. Use appropriate protective equipment when handling animals, followed by good personal hygiene. Be especially careful when city visitors handle your livestock or enter stock yards.

Treat farm livestock with respect. They can cause serious injury to people during handling. Ensure you have access to adequate safe handling facilities before you purchase any stock. Cows and mares may become aggressive when protecting their young and the temperament of sick or injured animals is unpredictable.

Keep records of stock you buy and sell; products you use to treat stock, details of withholding periods required prior to sale of treated stock, and the numbers of stock in each paddock. Ensure you are able to recognize your stock, in case they stray onto neighbouring land. Ear tags, ear marks, brands and photos may be useful.



## Supplementary feeding

Ruminant animals are defined by the structure of their gastrointestinal system. They include animals such as cattle, sheep and alpacas and have an organ called a rumen, which allows the animal to process fibrous foods such as pasture.

A good quality pasture will provide all of the nutritional requirements of livestock. However, not all pastures can be classified as good quality. Poor quality pasture will require some form of supplementation.

The trick with supplementation is to start early so livestock do not lose too much weight. Try to match the supplement to the deficiency occurring. The supplement could be an energy supplement (e.g. grain or roughage), a protein supplement (e.g. protein meals, protein/oil seeds like lupins or cottonseed), vitamin/mineral supplements (e.g. for deficiencies) or a combination of the lot.

With most supplements, especially grain, the animals must be gradually accustomed to the ration to prevent digestive upsets. Before embarking on a supplementary feeding regime you should contact your local agricultural advisor, nutritionist or veterinarian.

Prior to introducing a grain or hay to your property, it is recommended that you have the feed tested for nutritional value and also investigate how weed free you anticipate the feed to be as introducing weed seeds to your property via supplementary feeding can be a common mistake. Obtain a commodity vendor declaration for purchased fodder, to avoid chemical residue risk.

## Pigs and poultry

There are many proprietary products developed to feed these species which eliminates much of the guess work.

If you are going to design your own ration you must ensure that it is properly balanced. It is wise to contact a nutritionist, livestock officer or district veterinarian.

Swill feeding of pigs is illegal in Australia. Swill consists of meat products, carcasses or part of any bird or mammal carcass, the excrement of any bird or mammal, household, commercial or industrial waste or anything that has been in contact with a prohibited substance.

Feeding swill to pigs can lead to the outbreak of several serious diseases including foot and mouth disease.

## Top 5 tips for biosecurity management

Biosecurity on your farm involves all the activities and practices you undertake to minimise the impacts of animal diseases, pests and weeds.

How you approach your on-farm biosecurity can make a difference to the overall profitability of your enterprise. Responding to diseases, pests and weeds ultimately costs money, so investment in keeping your farm free of these problems can help improve productivity and profitability.

- 1. Know the risks, rules and requirements**  
Stay up-to-date with the rules and regulations for keeping and trading livestock through contact with South East LLS. Be familiar with animal disease, pest and weed risks in your area and be aware of what you can and cannot feed to livestock.
- 2. Have a plan!** A biosecurity plan can help you to prioritise, manage and mitigate risks on your farm and reduce costs in responding to a disease, pest or weed outbreaks. Coordinating with your neighbours on feral animal, pest and weed control plans and pre-planning for emergency events such as natural disasters can hasten recovery after the event.
- 3. Keep records** Compulsory records such as those for livestock movements and records such as animal treatments, on-farm chemical usage and vendor declarations, are vital to producing safe and traceable food; and ask for an animal health certificate when you purchase new livestock.
- 4. Control and patrol**, aim for one sign-posted entry point onto your farm to control visitor entry, keep a visitor register, quarantine new livestock to your farm and undertake frequent monitoring of your livestock and their environment.
- 5. Spot something unusual? Report immediately.** If you notice unusual clinical signs of disease in your livestock such as lameness, sudden deaths, diarrhoea, salivation or nasal discharge contact a veterinarian, your closest Local Land Services office, or the animal disease hotline 1800 675 888.

Other livestock biosecurity information and resources can be found at the Australian Farm Biosecurity webpage (<http://www.farmbiosecurity.com.au/livestock/>).

# Pastures

Perennial pastures are the foundation of our livestock grazing systems across the region. Getting the right, productive and resilient pastures are vital to achieving both successful agricultural and natural resource management outcomes. The best pasture can be either an improved or a native-based perennial grass pasture which includes legumes such as clover. While this sounds simple, managing pastures to make the best out of them is often very complex. There are, however, many sources of information available.

South East Local Land Services has dedicated agricultural advisors that can provide information on pasture composition, establishment and ongoing management based on your individual agricultural system and farm property.

The success of a pasture will depend on a number of limiting factors including land class, slope and erodibility, soil type and inherent soil fertility, aspect and the influences of local climates such as rainfall and temperature. Historical pasture and grazing management activities can also have a significant influence of the current state and condition of a pasture.

Grazing management decisions will also influence a pasture's productivity and resilience. By understanding the growth pattern and life cycles of your main pasture species, you will be able to understand where you can influence important pasture characteristics such as the quality of feed produced, pasture utilisation, maintenance of ground cover and pasture composition. Likewise, understanding the lifecycles of key weed species can also help in managing them successfully without compromising your pastures health.

To assist in developing skills in the identification of pasture species, assessment of pasture health and considering options for management, workshops are often held across the region that provide a broad spectrum of advice options. Keep aware of upcoming workshops via the South East Local Land Services website or by subscribing to the South East Circular (via our website [southeast.ils.nsw.gov.au](http://southeast.ils.nsw.gov.au)).

For a guide on the management of pastures, refer to *The Graziers Guide to Pastures* produced by NSW DPI along with many other information resources available at: <http://www.dpi.nsw.gov.au/content/agriculture/pastures/pastures-and-rangelands/management>.

Information on pasture species, both native and introduced can be found at: <http://www.dpi.nsw.gov.au/content/agriculture/pastures/pastures-and-rangelands/species-varieties>.

Information on pasture mixes for each region can be found at: <http://www.dpi.nsw.gov.au/content/agriculture/pastures/pastures-and-rangelands/pasture-mix/long-term-pasture>.



# Fences

Fences are vital to successfully manage the grazing on your property. Fences have various functions on rural properties.

Consider the layout of fences in a whole-of-property approach in a property plan.

You can use fences for a range of purposes, including defining the property boundaries, stock management, protecting the environment (e.g. to keep stock out of native vegetation or away from rivers and streams), controlling pest animals, increasing property value, minimising erosion and vegetation rehabilitation.

There are different fence construction methods depending on the fences purpose. For ideas on how to design fences that benefit both wildlife and livestock, refer to [www.wildlifefriendlyfencing.com](http://www.wildlifefriendlyfencing.com).

In flood-prone areas, consider designing paddocks to avoid fencing across waterways, where possible try to place fences above the floodplain and flood-prone areas.

## Dividing fences

Neighbours share responsibility for construction and maintenance of boundary fences, regardless of whether either neighbour runs stock. The *Dividing Fences Act 1991* sets out how the cost of a dividing fence is shared between adjoining landowners where an owner wants to erect a dividing fence or wants work done on an existing dividing fence. The Act sets out minimum requirements and owners may agree to arrangements exceeding these requirements.

The Act also sets out the procedure to resolve disputes about the cost, type and position of a fence. Land and Property Information administer the *Dividing Fences Act 1991*. However, this responsibility is limited to administration matters.

Seek advice about disputes from sources including Legal Aid Services, the Chamber Magistrate at the local courthouse, LawAccess NSW, Community Justice Centres or private lawyers.

## More information

References for fence building, including the publication 'Fencing', are available on the internet at [www.tocal.nsw.edu.au/publications](http://www.tocal.nsw.edu.au/publications).

The National Heritage Trust publication, 'Cost effective feral animal exclusion fencing for areas of high conservation value in Australia', is available at the Department of Environment, Water, Heritage and the Arts website at [www.environment.gov.au/biodiversity/publications](http://www.environment.gov.au/biodiversity/publications).

For more information on dividing fences see the NSW Land and Property Information website at <http://www.lpi.nsw.gov.au/>.



# Chemicals

Chemicals such as fuel, fertiliser and pesticides are commonly used on rural properties. These chemicals are often dangerous, some are flammable, most are poisonous and all can be harmful to the environment if used incorrectly. For example, they can pollute waterways, particularly if they are stored or used near creeks and rivers.

**There is a legal requirement to read the label and follow all directions on the container.** This is necessary to ensure the safety of you, your family, your stock and the environment. Considerable fines can be imposed for failure to transport, store, apply and dispose of chemicals and containers properly.

**There are also requirements under the *Pesticides Act 1999* to keep records of pesticide use and for pesticide users to undergo training.**

Advice is available from the Office of Environment and Heritage (transport and disposal training), WorkCover NSW (use and storage), and local Council (general information).

## Storing chemicals

A farm chemical store needs to have the following features:

- A separate, well-ventilated cupboard or building used only for this purpose – located away from houses, pumps, tanks, waterways and animals and preferably fireproof;
- A manifest, copies of labels and a Material Safety Data Sheet (MSDS);
- Storage in a cool, dry place;
- Some form of spillage containment or bunding;
- Shelving made of impervious materials – for small quantities of chemicals place containers in drip trays;
- Liquids should not be stored above solids;
- A locked storage area; and
- Clearly signposted storage area, e.g. 'Chemical Store – Keep Out' and a no smoking sign.

## Transporting farm chemicals

Everyone transporting farm chemicals has a duty of care and a responsibility to carry out tasks in a manner that will not cause harm or injury to themselves, other people, their property, animals, and the environment.

Before moving chemicals, read information on the transport requirements of individual chemicals which are often found on the label or Materials Safety Data Sheet. When collecting new containers of chemicals, check them carefully for damage and tighten lids to prevent leaks.

Make sure your vehicle is roadworthy and can safely transport chemicals. Put chemicals inside a tray of some kind that will contain any spillage.

Do not put chemicals in the same compartment as the driver and passengers, food, drinks or animals. Vapours and spills can cause illness. Some chemicals will not be supplied by a retailer if the vehicle is unsuitable.

Do not transport items classified as Dangerous Goods in large quantities. Private vehicles should transport less than 100 kilograms or 100 litres of farm chemicals at a time.

Pack the load securely so items can't move or fall over and store different classes of chemicals apart. Take the most direct route back.

If any spills occur clean the vehicle immediately. The main steps for dealing with a spill are to isolate, contain, decontaminate and dispose.

If chemicals enter drains, you should contact the local fire brigade and Council immediately. Make sure you use appropriate clothing and gear to protect your skin and face and to avoid inhaling vapours.

On arrival, put the containers straight into the chemical store. Make sure containers are not damaged.

## Safe disposal of non-returnable containers and on-farm chemicals

Disposal of non-returnable crop production and on-farm animal health chemical containers is a significant problem for farmers. If you use agricultural chemicals you are legally responsible for ensuring that empty containers and unwanted chemicals are disposed of safely. National programs called drumMUSTER and ChemClear have been set up to help farmers safely manage their farm chemicals.

The drumMUSTER program collects and recycles cleaned eligible containers.

The ChemClear service collects and disposes unwanted currently registered rural chemicals. This program features a web based booking system and free call number **1800 008 182**. More information can be found at [www.chemclear.com.au](http://www.chemclear.com.au) or by contacting your local Council.

Store rinsed containers in a safe location until the next drumMUSTER collection. The rinsed containers can also be taken to some Council landfill depots.

## Cleaning containers for disposal

Rinse containers on fallow ground away from drains and waterways, and always wear personal protective equipment as specified on the label for applying, mixing and loading the pesticide. To ensure containers are suitable for delivery to a collection centre always follow these procedures:

- Triple or pressure rinse containers immediately after use and pour the rinse water back into the spray tank;
- Thoroughly clean the container thread and outside surfaces with a hose into the spray tank. Rinse all caps separately into a bucket of clean water and pour rinsate into the spray tank;
- Inspect the container, thread and screw neck to ensure all chemical residue has been removed;
- Puncture metal containers through the neck/ pouring opening and through the base of the container; and
- Allow containers to drain completely and air dry them over a number of days.

The rinsed containers can also be taken to Council drop off sites (visit drumMUSTER's website collection calendar for information on local collection sites and details, or

contact your local Council). For more information about drumMUSTER call **1800 008 182** or go to [www.drummuster.com.au](http://www.drummuster.com.au).

## Disposal of rinsate or diluted chemicals

Labels and state environmental legislation prohibit disposing of chemical concentrate on-site or on a farm. You need to dilute unused chemicals. If you are not applying chemicals according to the label use pattern, you must dispose of them in an environmentally responsible manner. For more information, refer to the WorkCover NSW code of Practice for Safe Use and Storage of Chemicals in Agriculture.

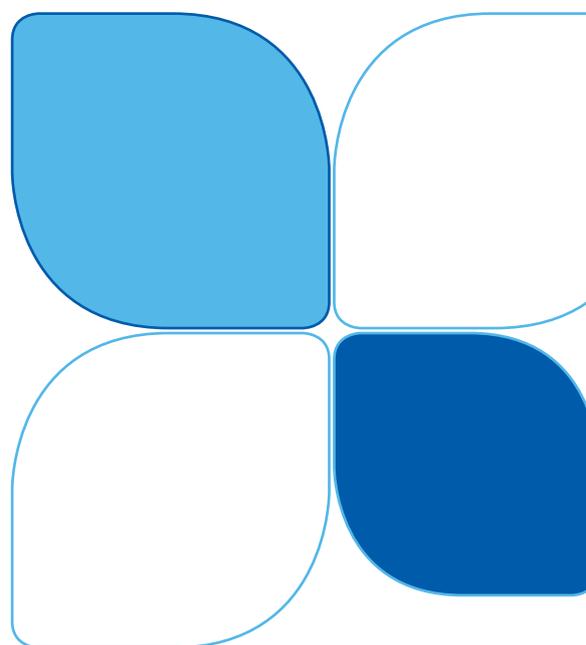
**Do not dispose of chemicals down drains, gullies or watercourses.**

## More information

The NSW Department of Primary Industries has leaflets and booklets available to guide farmers in the safe handling of chemicals which are available at [www.dpi.nsw.gov.au/agriculture/farm/chemicals](http://www.dpi.nsw.gov.au/agriculture/farm/chemicals) or from WorkCover NSW at [www.workcover.nsw.gov.au](http://www.workcover.nsw.gov.au).

## Training

Training courses are available through various providers. For example, the two day Chemical Users (AQF 3) course for farm chemical users covers topics such as integrated pest management, the product label, chemical formulations and residues, personal safety, transport, storage and handling, environmental safety, legislation, risk management and record keeping.



# Farm safety

Rural properties can be dangerous places to live and work. Potential hazards include vehicles, tractors and attachments, motorcycles and all-terrain vehicles, farm livestock, working from heights and the potential for manual handling injuries.

Farming is the third most dangerous occupation in Australia. Over 80 people die from farming related injuries each year. The number of non-fatal injuries is much greater – numbering several thousand.

Injuries to part-time farmers are a concern. Often these people do not have the skills or equipment of full-time farmers and can be injured as a result.

Children are particularly at risk on farms because of easy access to water/dams and vehicles, including motorbikes and tractors. On average, 30 children under 16 years die on Australian farms each year as a result of a farm accident. Many more children are injured.

## Preventing rural injuries

Just like any work environment, there are legal requirements on a farm under the *Workplace Health and Safety Act 2011* to ensure a safe workplace.

Be aware that ordinary house and contents insurance does not cover public liability or workers compensation which is compulsory if you employ anyone to work on a property (an employee of your farming business), however, engaging contractors is a different matter, with the responsibility falling on their business for workers compensation. The WorkCover website at [www.workcover.nsw.gov.au](http://www.workcover.nsw.gov.au) has information on preventing injuries on rural properties.

Two key documents of interest that you can get from their website are:

- ✓ Farm Safety – Starter Guide
- ✓ 15-minute Farm Safety Checklist.

## Is your farm safe for kids?

Farms are great places for kids when we create the right environment, but safety for children on farms is a major concern. On average, one child under 16 years is fatally injured on an Australian farm every 10 days and many more are injured across rural Australia. The major causes of child deaths and injuries on farms are dams, farm vehicles, machinery, motorcycles and horses.

You need to identify hazards and risks specific to the farm for children as well as visitors. As well as safety behaviours, you should reduce hazards and design for safety wherever possible.

Key recommendations for child safety on farms include:

- ✓ Create a securely fenced house yard for children to play;
- ✓ Have safety rules that everyone knows and follows;
- ✓ Children should stay in the safe play area unless an adult can closely supervise them on the farm;
- ✓ Wear seatbelts and restraints when in cars, utes and trucks;
- ✓ Children should not ride on tractors, all-terrain vehicles or in the back of utes; and
- ✓ Always wear helmets when riding bikes and horses.

## More information

Further information and resources can be found at the Farmsafe NSW website at [www.farmsafe.org.au](http://www.farmsafe.org.au).

Further information about farm safety can be found on the NSW Department of Primary Industries website at [www.dpi.nsw.gov.au/agriculture/farm/safety](http://www.dpi.nsw.gov.au/agriculture/farm/safety)

## Mental health

Living and working in regional, rural or remote Australia can be a very rewarding and challenging way of life. People living in regional, rural and remote areas are known for being down-to-earth, practical and resilient. But, living away from metropolitan areas can be difficult and it's important to ask for help during tough times.

If you are feeling stress, are down or know someone who is, help can be found at: [www.lifeline.org.au](http://www.lifeline.org.au) or by calling **13 11 14**.

## Safety on rural roads

Road surfaces in rural areas are often less predictable than highways and city streets. Be alert at all times as the road surface may change without warning, sharp corners may not always be sign-posted, and the crests of hills may reduce visibility. Always be on the look-out for stock and native animals.

## Livestock on roads

It is legal, with a permit, for livestock to walk along roads and graze on roadside vegetation, provided they are not left unattended and the stretch of road where they are grazing is sign-posted at each end.

Livestock need to be moved so you can expect to be sharing the road with farm animals from time to time.

All rural landowners who own even just a few livestock must ensure that their roadside fences are kept in good condition. Domestic livestock are not allowed to roam unattended. Straying stock on public roads may be dealt with by Council.

## Roadside vegetation and wildlife

There are many large trees located close to rural roads, which are easily hit when drivers lose control of their vehicle. Remember to slow down and drive to the conditions – the speed limit is the maximum and NOT a must.

Native vegetation adjacent to many rural roads often acts as a wildlife habitat and refuge. This can be a problem for drivers from dusk to dawn when native animals, such as kangaroos and wombats, are out looking for food.

Remember, if you can't avoid a collision with an animal it is often safer to hit them than swerve and lose control of your vehicle. If you hit an animal, check if it is alive and if it has any young. Contact an animal care organisation such as WIRES if the animal/s can be rehabilitated or euthanised. You can contact LAOKO on the Monaro on **02 6452 1313**, Wildcare in NSW regions surrounding the ACT on **02 6299 1966** or WIRES on **1300 094 737**. If the animal is dead, move it to the side of the road if you can. Be careful of your own safety with traffic while moving the animal.

## Local information

More information about rural road safety can be found at the Roads and Maritime Services NSW website at <http://www.rms.nsw.gov.au/>.



# Waste management

It is important to dispose of waste in an environmentally sustainable way. Dumping waste in eroded gullies is not acceptable. Rural properties produce a wide range and significant amount of waste and its successful and environmentally-friendly disposal requires good management. Rural waste typically includes domestic waste, solid waste (e.g. wire or old white goods), farm chemicals and oil and dead stock.

## Domestic waste, recycling and reuse.

Details of local domestic waste removal can be sought from your local Council.

## Composting

Almost half of our domestic waste consists of kitchen and garden waste. Most of this material can be composted. Composting is nature's own recycling program. In time, organisms will break down the waste into a rich, dark, crumbly compost that is a nutrient rich fertiliser. Consider establishing a home composting system to reduce your waste.

A composting system can be created in special compost bins, old garbage bins, wooden boxes, or even a simple heap. Aerobic composting systems require four main components to be balanced: Nitrogen (green ingredients), Carbon (brown ingredients), Oxygen (regular turning of the heap) and Water (compost should be moist, but not wet to create the optimum conditions).

**Cold Composting** is a slow process that involves placing a mixed variety of organic matter into a pile and leaving it to break down over a matter of months. This process does not break down the organic particles into homogenous small pieces and does not destroy pathogens or weed seeds. However, this is an option for those who have little time to turn the heap.

**Hot Composting** is a more efficient process, which breaks down the various organic materials into a small, crumble structure for ease of spreading on the garden. Hot composting can take between 18–30 days and requires close monitoring of the pile's temperature which is maintained between 55–65 degrees Celsius. For this method, the heap is built in one go, with the complete materials – add 1/3 Nitrogen (green materials) to 2/3 Carbon (brown materials); wet down and left for 4 days, then turned every 2nd day until finished.

There are more step by step instructions available online for building and maintaining hot compost heaps, including <http://www.cleanup.org.au/au/LivingGreener/composting.html>



## Landfill

A landfill site should be the last resort for waste disposal on rural properties. Waste management facilities should be used wherever possible. If you think a landfill site is appropriate contact your local Council or the Office of Environment and Heritage for advice.

## Burning

Burning waste, such as household rubbish and garden clippings, has a negative impact on air quality. Measures have been introduced over time to control backyard burning and other open air burning. The fire ban season generally runs from September to March but can vary according to conditions and location. You should carry out any burning in a way that prevents or minimises air pollution. You need a permit from the Rural Fire Service for pile burning. Regardless of the time of year, you must notify the Rural Fire Service and all adjoining or nearest neighbours prior to conducting burning activities.

## Dead stock disposal

If the cause of death of an agricultural livestock animal is unknown, local vets, or in the case of large numbers of losses, your Local Land Services District Veterinarians may offer services. This veterinarian is not available for general animal issues, they are conducting investigations into unexplained deaths which may be due to a biosecurity threat. To do this the carcass needs to be fresh.

Whether one or more animals are to be disposed of, disposing of dead stock carries the risk of polluting watercourses, producing odours, spreading disease and interfering with community amenity. If you have to dispose of carcasses on the farm it is important to do the job quickly and thoroughly. Burning is rarely satisfactory – burying is better. However, with certain exotic diseases burning may be mandatory. Contact South East LLS district veterinarians if you are unsure of what to do.

## More information

Details of the Protection of the Environment Operations (Clean air) Regulation 2002 and the *Rural Fires Act 1997*, are available at the Office of Environment and Heritage website at [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).

The recommended method to dispose of dead stock can be found at the Office of Environment and Heritage website at [www.epa.nsw.gov.au/mao/deadstockdisposal.htm](http://www.epa.nsw.gov.au/mao/deadstockdisposal.htm)



# Effluent management

Failing on-site effluent management systems release dangerous levels of sewage pollution to the environment. Sewage pollution can contaminate water, spread disease, and lead to environmental degradation. With advances in the performance of on-site effluent management systems, there is no reason for the community to accept failing systems.

Research shows many people don't know how to manage their systems and around 70% of systems fail to meet current environmental and health protection standards.

## Septic safe

The NSW Government has introduced local government reforms and guidelines for efficient management of small domestic sewage facilities. Local Councils regulate the installation and operation of on-site effluent management systems under the *Local Government Act 1993*. Regulations under the Act specify performance standards and require Councils to supervise the operation of on-site effluent management systems.

If you have an on-site effluent management system you must obtain an approval to operate from Council. You, as the owner, are responsible for the system's operation. Therefore, you must maintain and manage the system in accordance with health and environmental performance standards.

To support these performance standards landholders must ensure:

- People do not come into contact with sewage or effluent (whether treated or not) in their ordinary activities on the premises concerned;
- Effluent is not discharged into any watercourse or onto any land other than a designated effluent application area;
- Whatever system of effluent management is used, it is well maintained and operated in a sanitary condition;
- You have lodged an application for approval to operate, and paid the scheduled fee for registration and assessment costs.

Depending upon where you live in the region, there are different requirements in regards to placement of effluent management areas. To ensure your system meets approval and minimise the risk of pollution, talk to your Council health officer.

## How to maintain a healthy effluent management system – some easy tips

Many of these suggestions help reduce the volume of wastewater going into the effluent management system and help avoid the use of chemicals that interfere with how well the effluent management system works.

- ✓ In the laundry, if you have a number of loads of washing spread them over a couple of days. This will avoid flooding the system with large amounts of water at one time.
- ✓ Use low phosphorous or phosphorous free, detergent. Phosphorous is a major pollutant of waterways and contributes to the growth of algal blooms.
- ✓ Repair leaking taps and cisterns and install a lint filter on the washing machine – a stocking over the outlet hose will do. Make sure to clean it regularly.
- ✓ If you've got a blocked drain, use boiling water or a drain eel to clear the line. Don't use caustic soda or drain cleaners in a septic tank.
- ✓ Use front loading washing machines for households on effluent management systems because they use less water and detergent.
- ✓ In the kitchen, use a sink strainer. Food scraps slow down the digestion process and make solids build up more quickly. Don't pour oils and fats down the sink as they can block the system.
- ✓ In the bathroom, install a low-flow shower head to save water.
- ✓ Repair leaking taps and minimise the use of commercial cleaners and bleaches – these interfere with the bacterial breakdown in the tank. Try using baking soda, vinegar or a mild soap.

- ✓ Don't flush anything down the toilet that could block the system. Don't leave taps running unnecessarily, for instance when cleaning teeth. Install an efficient toilet cistern – aim for 4-stars or higher.
- ✓ Around the tank and trench area, keep water from the roof downpipes and paved areas away from the absorption field.
- ✓ Have a plumber fit an effluent filter to the septic tank outlet to keep solids in the tank and extend the life of your trenches.
- ✓ Only plant grass near the absorption field – roots from larger plants such as trees and shrubs are likely to damage the trench. Mow regularly.
- ✓ Don't drive or park on any part of the absorption area and keep livestock away. These will compact the soil and may crush the pipes and trench domes.
- ✓ Grow plants with high nutrient requirements near the drain fields and irrigation areas.

## More information

Contact your Council's environmental health officer for advice about how to install and maintain an effluent management system.

Also see the Department of Local Government website at [www.dlg.nsw.gov.au](http://www.dlg.nsw.gov.au) and NSW Health's website at [www.health.nsw.gov.au/environment/pages/default.aspx](http://www.health.nsw.gov.au/environment/pages/default.aspx)

# Property management

Property plans can help to achieve your rural living goals by setting up the basis for efficient and sustainable property management. This will help you to play a part in supporting a healthy landscape and prosperous region. Property plans take a whole-of-property approach and are useful for both farmers and rural residential landholders.

## Beginning your property plan

There are a number of methods and documents that can help you to develop a property plan. Farm planning training may be available through Local Land Services or your local Landcare network. A basic property plan guide is provided below to help get you started.

## Property plan guide

What do you want to achieve on your property?  
What is your vision?

Obtain a good map of your property. Aerial photographs are very useful, as well as surveyor's boundary plans, topographic and cadastral plans.

The map will need to be to a metric scale of a large enough size to clearly show the features of the property.

You will need to identify the following:

- ✓ Slope;
- ✓ Areas of natural vegetation and vegetation type;
- ✓ Streams, gullies, drainage lines and dams;
- ✓ Flood liable land;
- ✓ Erosion and salinity prone areas;
- ✓ Water and shade areas for stock;
- ✓ Rock outcrops;
- ✓ Water supply;
- ✓ Climate, rainfall and seasonality;
- ✓ Landscape types and physical features; and
- ✓ Current land uses
- ✓ Soil types and characteristics (pH, salinity, erodibility, nutrient deficiencies)

Carry out a SWOT (strengths, weaknesses, opportunities and threats) analysis of the property's capabilities as follows:

- What strengths does the property have that you can take advantage of (e.g. areas of high quality soils)?
- What weaknesses will need attention before they cause problems (e.g. existing weed infested areas)?
- What opportunities are there to develop your resources further (e.g. moving fence lines to improve management)?
- What threats exist that could affect the property (e.g. potential erosion areas)?

On an overlay of the map, illustrate the permanent features such as the property boundary, waterways, bushland, structures and land types (i.e. the most productive soils to the least) and contours.

Use this information as a base. On another layer, sketch where features are wanted, e.g. fences, productive paddocks, shelterbelts, woodlots, dams, troughs, lanes and gates. Rearranging fences according to land features can help you to use the land more efficiently.

Work out where planting needs to go to achieve maximum effectiveness for windbreaks, erosion control and repair, shelter, salinity reduction, and to provide habitat for native birds and animals.

Write notes about:

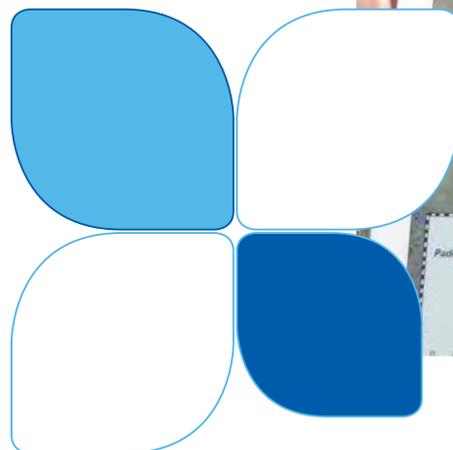
- ✓ Proposed land use;
- ✓ Planning for houses, sheds, stockyards, windbreaks, dams, roads and fence alignments;
- ✓ Methods to control and prevent weeds and pest animals;
- ✓ Methods to sustain or improve water quality for stock and downstream users;
- ✓ Methods to control stormwater movement and prevent erosion;
- ✓ Reducing bushfire hazard, conserving soil, preserving trees;
- ✓ Treating and disposing of effluent and rural rubbish;
- ✓ Legal and planning requirements;
- ✓ Methods to improve stock or alternative water sources for stock; and
- ✓ Methods and timing for proposed revegetation of disturbed areas.

Use the information in this handbook to help you understand issues and best practices in these areas. Use the map, your notes, and information in this handbook, to set goals and actions. Make a plan for how you can achieve these goals.

Prioritise your actions and then do them. Remember certain activities (e.g. tree planting) should be timed to take into account seasonal conditions. Constantly monitor, improve and reshape your goals as necessary along the way. Make sure you regularly monitor and maintain the areas where you have worked to address any issues quickly.

## More information

To purchase or view aerial photographs of your property visit the NSW Land and Property Information website at [www.lpi.nsw.gov.au](http://www.lpi.nsw.gov.au). Free imagery (of lesser quality) can also be obtained through Google Earth ([www.google.com/earth/](http://www.google.com/earth/)) or via the Department of Lands Spatial Information Exchange website ([www.six.nsw.gov.au](http://www.six.nsw.gov.au)). The South East LLS can also provide support and training in property planning, visit our website or call your local office for further information.



## Community

One of the great advantages of living in a rural community is sharing common experiences with neighbours. There are some fantastic community and service groups in every region. If you can't find the one you are looking for, South East Local Land Services might know one, or be able to help create one.

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## Conclusion

We hope this handbook has helped you get the basic information you need to make the most out of your property so you can enjoy rural living within your local community! Being a land manager can be a complex but rewarding experience and equipping yourself with the most up to date information will help you to manage your various responsibilities easier. For any further information, please contact your local South East LLS office and speak to one of our helpful staff members today.

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### **BEGA**

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Rooftop Level  
Sapphire Marketplace  
2/83 Upper Street  
BEGA NSW 2550  
Telephone: 02 6491 7800

### **COOMA**

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26 Soho Street  
COOMA NSW 2630  
Telephone: 02 6452 1455

### **GOULBURN**

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159 Auburn Street  
GOULBURN NSW 2580  
Telephone: 02 4824 1900

### **BERRY**

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13 Scholfields Lane  
BERRY NSW 2535  
Telephone: 02 4464 6000

### **YASS**

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13 Mitchell Street  
YASS NSW 2582  
Telephone: 02 6118 7700

### **BRAIDWOOD**

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42 Ryrie Street  
Braidwood NSW 2622  
Telephone: 02 4842 2594

# References

Australian Alps National Parks (2012) <http://www.australialps.environment.gov.au>

Australian Bureau of Statistics 2006, 'Quick Census Stats' for Bega Valley (A); Bombala (A); Eurobodalla (A); Goulburn Mulwaree (A) Bal; Kiama (A); Palerang (A) – Part B; Shellharbour (C); Shoalhaven.(C) – Part A; Shoalhaven.(C) – Part B; Snowy River (A); Wollongong (C) Bal; and Wollongong (C) Inner, [www.censusdata.abs.gov.au/ABSNavigation/prenav/ProductSearch](http://www.censusdata.abs.gov.au/ABSNavigation/prenav/ProductSearch)

Australian Bureau of Meteorology (2013) 'Climate Statistics for Australian Locations'.  
<http://www.bom.gov.au/climate/data/index.shtml> accessed 2013

Landscan manual (2010) Landscan – *Landscape and Soil Test Interpretation for Sustainable Pasture and Land Management, workshop manual*. Third edition. Eds B Clements, L McCormick and M Keys. Industry and Investment NSW.

NSW Department of Land and Water Conservation soil landscape series. 2000.

NSW DPI 2006, Visual and manual assessment of fatness in cattle, Primefact 282

NSW DPI 2002, *Northern Rivers Soil Health Card*. Available online:  
[http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0007/168703/northern-rivers-soil-health-card.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/168703/northern-rivers-soil-health-card.pdf)

NSW Department of Environment, Climate Change and Water (DECCW) 2010, 'South Coast Regional Conservation Plan', Department of Environment, Climate Change and Water, Sydney.

NSW Department of Environment, Climate Change and Water (DECCW) 2010a, 'NSW Climate Change Profile', Department of Environment Climate Change and Water, Sydney.

ProGraze manual (2011) *ProGraze – Profitable, Sustainable Grazing*. Eighth edition. Ed P Graham. NSW Department of Primary Industries and Meat & Livestock Australia.

Soil Land Food and Little River Landcare Inc. 2014 *Landcare Rapid Assessment of Soil Health Manual*

Trenaman, R 2011, 'Aquaculture production Report 2010 – 2011', NSW Department of Primary Industries, Port Stephens Fisheries Institute, NSW.

NSW Government, 2011. *The Farm Dam Handbook*

Tourism Research Australia (2008 – 2011) National Visitor Survey and International Visitor Survey, YE Sep 08 to YE Sep 11, accessed via Destination NSW Regional Tourism Statistics  
<http://www.destinationnsw.com.au/tourism/facts-and-figures> (accessed 6 December 2013).

Upper Murrumbidgee Catchment Coordinating Committee 2010, *Looking after your Natural Assets* (Third edition).

