



PRINCIPLES FOR SUSTAINABLE LAND MANAGEMENT

Introduction

Property management planning involves a long-term vision which considers the whole of the property and its place in the catchment.

Sustainable land management involves using the land within its capability to ensure the productivity and economic potential of the land is maintained, whilst its ecological function, such as the ability of the soils to retain water or the landscape to support biodiversity, is not diminished.

Where economic, social and environmental factors are considered simultaneously by land managers, the long-term sustainability of the health, resilience and productivity of a property is more likely to be assured.

General land management principles



Fertile basalt uplands, Crows Nest landscape



Healthy kangaroo grass pasture

<p><input checked="" type="checkbox"/> Manage your property according to the capability and limitations of the land</p>	<p>This is based on an understanding of land resource areas and ecological processes. Consider soil structure, depth and type, slope and drainage in your management decisions. Critical processes include the ability of the soil to retain water or resist erosion.</p>
<p><input checked="" type="checkbox"/> Work cooperatively with neighbours</p>	<p>This allows for effective management of landscape scale issues such as fire management, weeds, animal pests and erosion. Often this can maximise benefits and increase cost efficiency.</p>
<p><input checked="" type="checkbox"/> Ensure appropriate placement and maintenance of infrastructure</p>	<p>This could include roads, bridges, drains, soil conservation features such as contours and waterways, fences, yards and water points to minimise land degradation. A property management plan can guide you in making these decisions from a whole of property perspective.</p>
<p><input checked="" type="checkbox"/> Protect and rehabilitate areas that are degraded or at risk from erosion and salinity</p>	<p>Through fencing for stock management and re-establishment of groundcover and native vegetation.</p>
<p><input checked="" type="checkbox"/> Control weeds and pests</p>	<p>Identify different weed species and adopt good hygiene practices particularly regarding movements of machinery, livestock, fodder and seed. Plan and implement integrated control measures, which are most appropriate for your situation, to reduce negative impacts on production and the environment.</p>



General land management principles continued.

<input checked="" type="checkbox"/> Develop a fire management plan for your property and work with neighbours	Manage fire for the protection of life and property, conservation of biodiversity, protection of commercial forestry interests and pasture management for grazing.
<input checked="" type="checkbox"/> Respect and protect Indigenous and European cultural heritage sites	Manage access to significant sites and identify risks to their preservation.
<input checked="" type="checkbox"/> Manage native forests for multiple purposes	Implementing sustainable forest practices can improve timber production and grazing whilst maintaining or enhancing biodiversity values.
<input checked="" type="checkbox"/> Minimise on-farm energy use & waste	This reduces costs and environmental impacts.



Tall open forest, Mt Kilcoy

Healthy land - managing soils and pastures

The quality and health of pastures and soil types have a critical role in grazing and crop production enterprises.

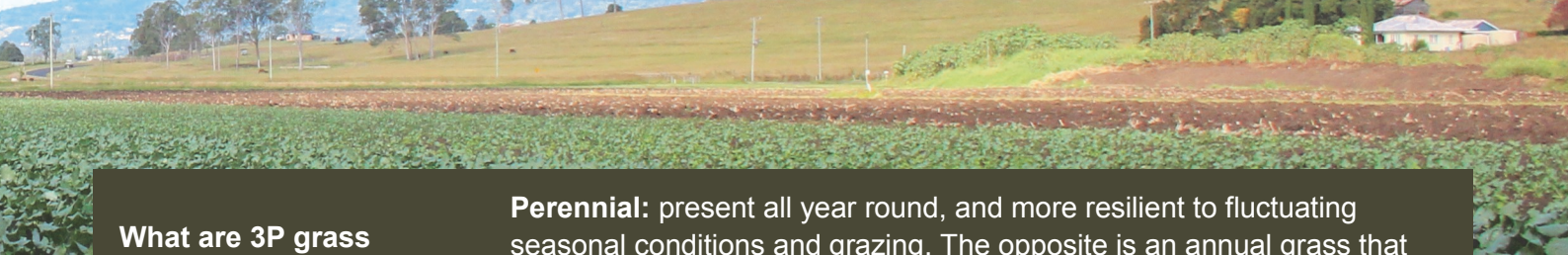
Maintaining good vegetation cover helps keep soils healthy, as the roots help bind the soil together, controlling run-off and preventing erosion. The quality of groundwater and run-off water entering watercourses are also largely influenced by vegetation cover and soil health.

Below are a few key points to consider when managing soils and pasture:

“Groundcover is any material that covers the soil such as, live plant material (e.g. grass butts), dead plant material (litter, leaves, branches and logs), rocks, cryptogams (lichens, algae and fungi) and dung.*”

<input checked="" type="checkbox"/> Maintain high levels of groundcover	Keep at least 90 % of the soil surface covered at all times of the year by managing your stocking rate. This will help prevent erosion, improve water quality and mean your pasture is able to quickly respond to any rainfall.
<input checked="" type="checkbox"/> Adopt grazing management practices which maintain good land condition	Maintain healthy, diverse pastures dominated by 3 P (perennial, productive and palatable) species by managing utilisation, matching stock numbers to available forage and routine spelling.
<input checked="" type="checkbox"/> Regularly monitor your pastures and match stock numbers to seasonal pasture availability.	This helps ensure sustainable utilisation and prevents overgrazing and pasture degradation. It also allows early detection of emerging issues such as pest species or the onset of erosion.
<input checked="" type="checkbox"/> Regular spelling or rest of your grazing management system	This enables pastures to recover and is especially important at some point during the wet season to promote seed set; the most affordable pasture rejuvenation action.
<input checked="" type="checkbox"/> Adopt sustainable cropping practices	This includes reduced tillage, stubble retention, use of green manure crops, legumes & ley pastures, crop rotations, and regular soil analysis to match inputs to crop & soil needs, prevent soil health decline, soil acidification and erosion.
<input checked="" type="checkbox"/> Adopt sustainable irrigation and farming practices	Implement irrigation & farming practices which improve water use efficiency, minimise nutrient losses, run off and deep drainage and conserve limited water supplies.

*Estimating Groundcover for Erosion Control, Farmtalk, 2008



What are 3P grass species?

These are grasses that are **perennial, productive and palatable**

Perennial: present all year round, and more resilient to fluctuating seasonal conditions and grazing. The opposite is an annual grass that must grow from seed each year.

Productive: grows a large amount of forage over time.

Palatable: livestock like to eat it.

Conserving biodiversity

Where land is managed in a way that either conserves or enhances native vegetation, providing habitat for wildlife, the results can also be highly beneficial for sustainable farm production. A well balanced ecosystem has a key role in functions such as soil health, water quality, pest management and salinity control.

<input checked="" type="checkbox"/> Protect and manage remnant vegetation and regrowth representing all original vegetation communities	<p>This enhances diversity, resilience and ecosystem function.</p>
<input checked="" type="checkbox"/> Retain all large standing trees with hollows	<p>Whether alive or dead as key habitat for arboreal mammals, birds and reptiles.</p>
<input checked="" type="checkbox"/> Maintain natural structural layers in patches of vegetation	<p>Resist the urge to clean up the understorey. Retain organic litter and fallen timber as habitat for a range of invertebrates, reptiles, birds and mammals.</p>
<input checked="" type="checkbox"/> Improve connectivity between patches of native vegetation in the landscape	<p>Protect and manage natural regeneration and revegetation.</p>
<input checked="" type="checkbox"/> Maintain native vegetation in large patches (over 5 ha) with a large area to edge ratio	<p>This helps maintain viability and minimise threats and edge effects.</p>
<input checked="" type="checkbox"/> Develop and implement fire management plans	<p>Ensure your fire management plans and the fire regime (frequency, extent, intensity and timing) considers different vegetation types on your property. Implement mosaic or patch-burning at property and catchment scales to maximise biodiversity values.</p>
<input checked="" type="checkbox"/> Identify and control priority weeds and pests	<p>Adopting a strategic and coordinated approach will ensure effective control of environmental weeds and & pest animals.</p>
<input checked="" type="checkbox"/> Monitor the condition of native vegetation	<p>Observe and record flora and fauna to monitor changes in habitats over time.</p>



Eastern Bristlebird
Photo: Grant Fraser

Follow the 3 R s principles of bushland regeneration

Retain and protect all existing native vegetation communities on your property.

Restore the condition of native vegetation through strategic fencing, fire management, ecological thinning, weed control and encourage **natural regeneration** at all times.

Revegetate key areas to enhance diversity and improve the viability and connectivity of existing vegetation.

Protecting waterways and wetlands

Creeks, rivers and wetlands are often the keystone ecosystems in the landscape – where they are not managed properly, other land based systems can rapidly deteriorate.

Where land is bordering waterways, such as rivers or creeks, or wetlands, landholders are encouraged to adopt sustainable practices, such as those outlined below.

<p><input checked="" type="checkbox"/> Provide buffer zones around waterways, springs and wetlands</p>	<p>This ensures that land use and management practices do not impact on riparian and aquatic ecosystems.</p>
<p><input checked="" type="checkbox"/> Protect and enhance native vegetation along river banks</p>	<p>This helps minimise streambank erosion, filter nutrients, provide habitat, maintain healthy aquatic functions and protect water quality.</p>
<p><input checked="" type="checkbox"/> Protect wetlands and floodplain features</p>	<p>Allows natural flooding and inundation to occur.</p>
<p><input checked="" type="checkbox"/> Where possible, permanent waterholes at key locations in the landscape should be protected from weeds, pests, fire and unmanaged grazing.</p>	<p>This ensures they continue to provide refuge and habitat values.</p>
<p><input checked="" type="checkbox"/> Manage dams as artificial wetlands</p>	<p>Use strategic fencing and establish alternative watering points. Provide vegetative buffers by encouraging regeneration and revegetation.</p>
<p><input checked="" type="checkbox"/> Leave snags and large woody debris in streams</p>	<p>This provides habitat and helps to control erosion.</p>



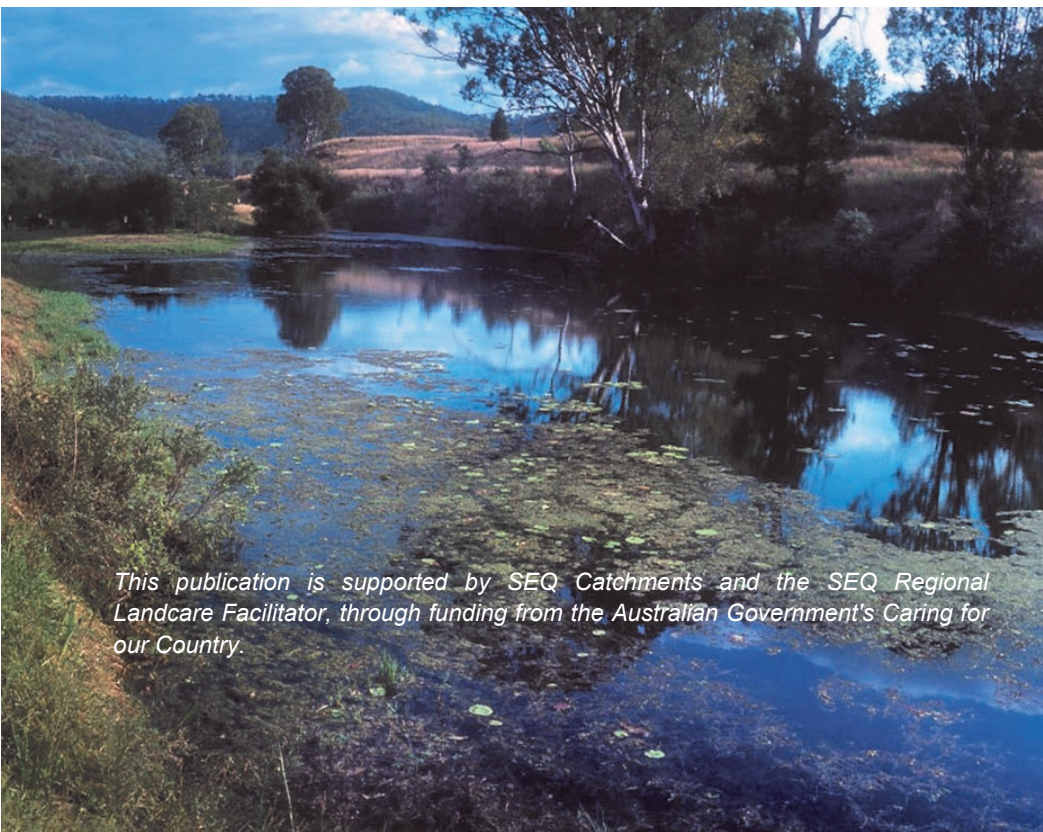
Tall open forest with rainforest understorey, Bellthorpe

For more information

Contact SEQ Catchments at
Phone: (07) 3211 4404

Email:

admin@seqcatchments.com.au
www.seqcatchments.com.au



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