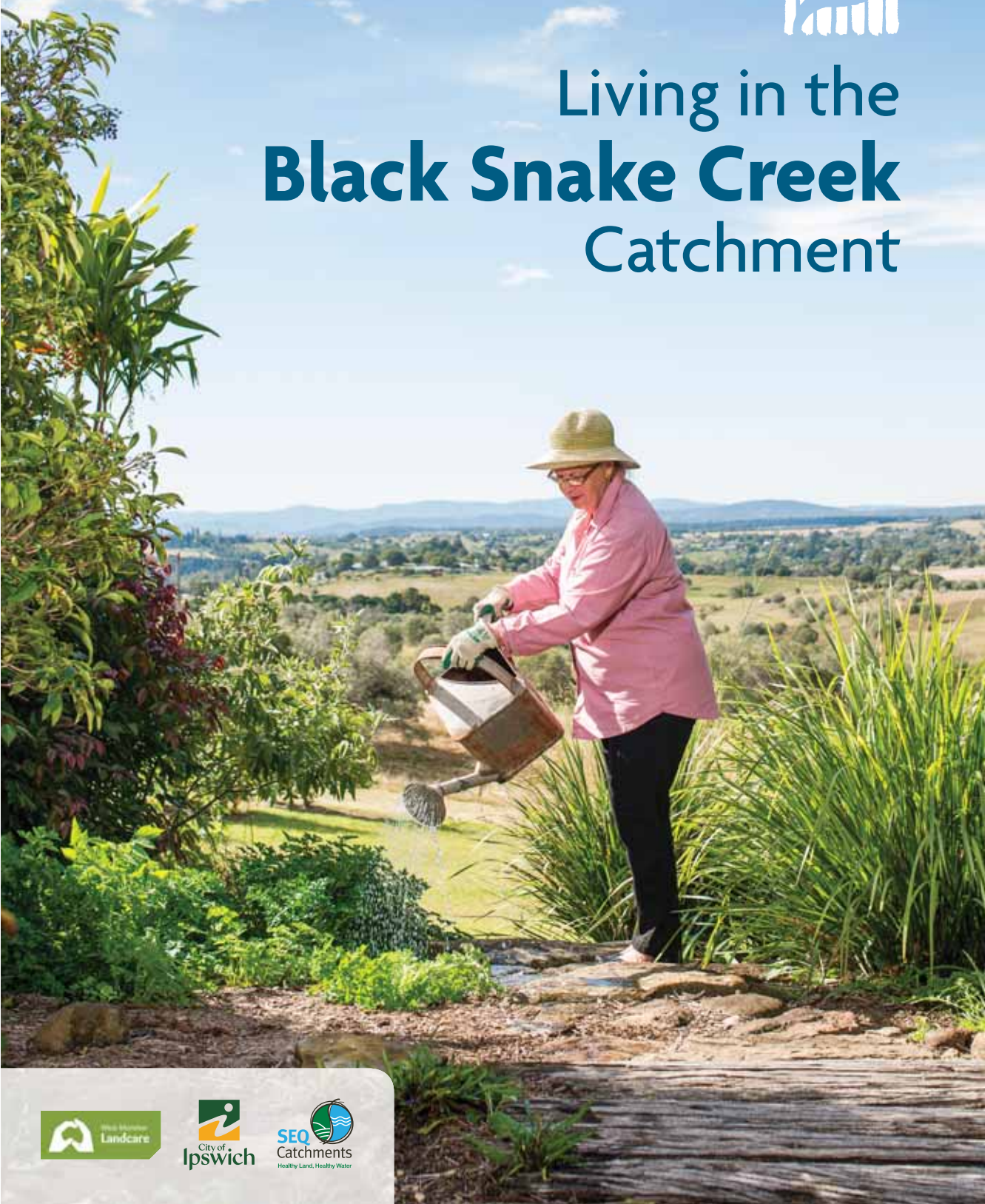




Living in the **Black Snake Creek** Catchment



ACKNOWLEDGMENTS

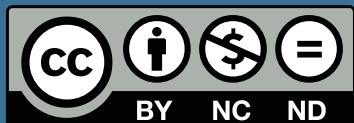
West Moreton Landcare, Ipswich City Council and SEQ Catchments acknowledge the Traditional Owners of the land on which we walk, live and work, the Jagera People and pays respect to Elders both past and present. The Jagera People have occupied and cared for the traditional lands around Black Snake Creek for countless generations and today maintain an interest in the surrounding lands; these interests are best described as 'Caring for Country'.

Compiling author, Jessica Walker, would like to thank all contributors including Bob Hampson of West Moreton Landcare, Phil Smith, Emma O'Neill and the graphic design team of Ipswich City Council and Apanie Wood of SEQ Catchments. A special thank you to local artist Sharon Harper-Greentree who offered the inclusion of a number of her artistic works in this publication.

All photos, unless otherwise acknowledged, are courtesy of SEQ Catchments or Ipswich City Council.

DISCLAIMER

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West Moreton Landcare is a community group of volunteers who work together in the local area to protect and restore our natural places. Regular meetings provide a social occasion to share stories and learn from each other.



SEQ Catchments is a community, not-for-profit organisation that works to promote the sustainable use of our land and waterways.

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Black Snake Creek catchment

The valleys and hills of this region fall within both Ipswich City Council and Somerset Regional Council areas. While this booklet has an upper catchment and Marburg focus, the land management issues discussed are equally relevant to those who live downstream.



RURAL LIFESTYLE

COMMUNITY SPIRIT



HISTORIC TOWN



PRODUCTIVE LANDSCAPE



RECREATION

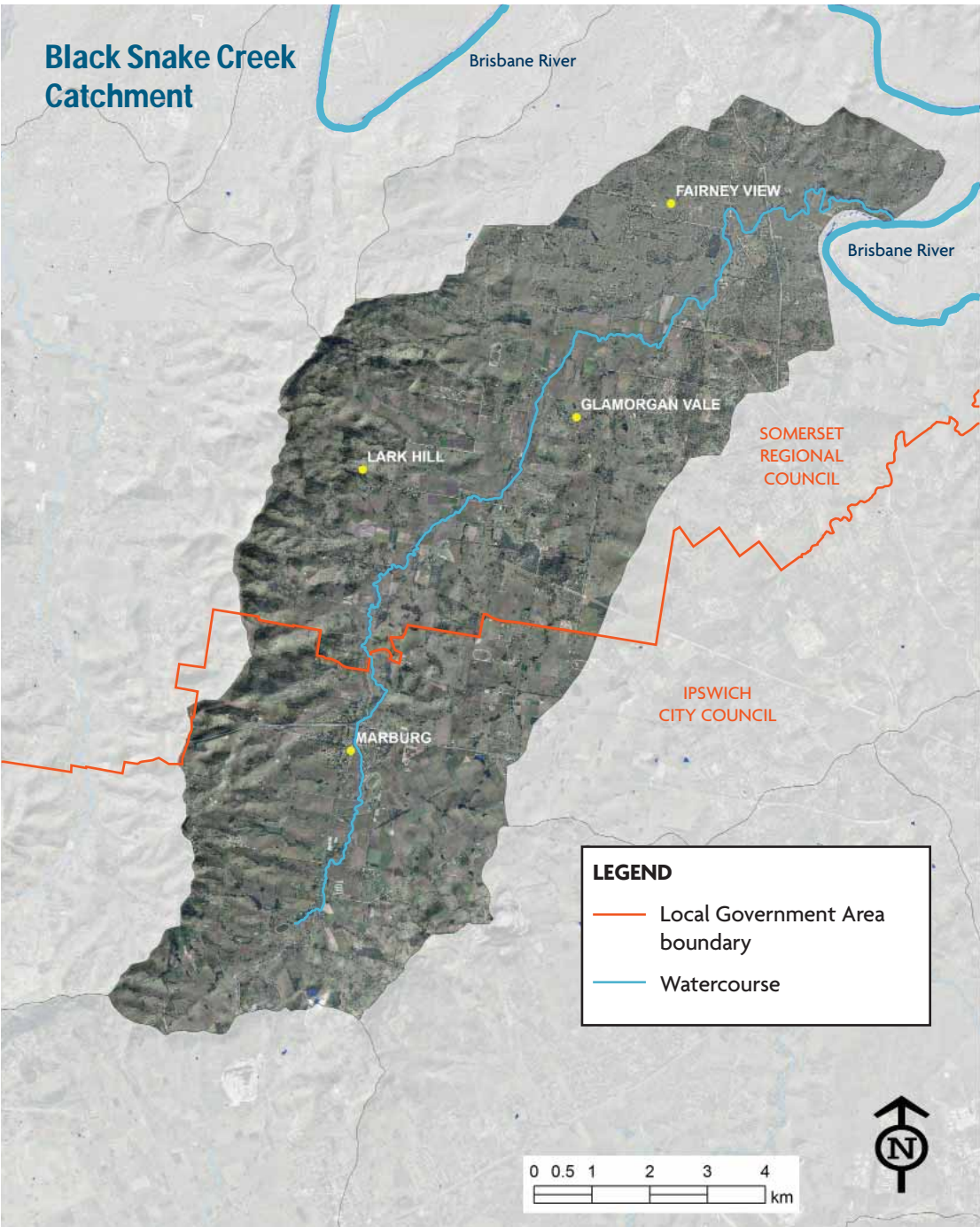


NATURAL BEAUTY



Black Snake Creek?

The name anecdotally comes from the abundance of Red-bellied Black Snakes which used to be found in the area. However, their numbers have declined over time due to land use change.



We're all connected in the catchment

Black Snake Creek provides a physical link between Tallegalla, Marburg and Glamorgan Vale; it snakes through the landscape collecting runoff from rain which has fallen on slopes and creek flats and carries it downstream to the Brisbane River which eventually flows into Moreton Bay. The land that surrounds the creek is bounded by hills and forms the Black Snake Creek catchment.

A catchment can be thought of as a unit of the landscape, with the water, soil and many activities in a catchment being connected. The way you manage your property impacts the surrounding environment such as the quality of the water which runs off your property and into the creek downstream. Actions on your property can either improve or be harmful to those living downstream.

Understanding your property and where it fits into the catchment can help you better manage your land in a way that enhances the health of the Black Snake Creek catchment. It is the cumulative impact of all our individual, everyday decisions and actions which can make Black Snake Creek the healthiest and most beautiful that it can be.

What is a catchment?

We all live in a catchment. A catchment is an area of the landscape which is drained by a creek or watercourse. Rain that falls in the catchment flows over the land and finds its way into progressively bigger streams and rivers and then generally into the ocean. Some rain also soaks into the soil, staying underground and continues to feed the creeks in times of low rainfall.

A land of droughts and flooding rains

As with all waterways, times of flood and dry naturally occur in creeks such as Black Snake Creek. While we can't stop floods from occurring, the Marburg detention basin was built to withhold or 'detain' water in times of high flow and helps to reduce the severity of flood flows through Marburg.

From Black Snake Creek to our region's water supply

Black Snake Creek flows into the Brisbane River near Fairney View. This is upstream of both the Mt Crosby Weir which supplies over 50% of South East Queensland's water including those on town water in Marburg and the access point for part of the Glamorgan Vale water supply scheme which supplies water to other areas of the Black Snake Creek Catchment. This means that water quality and salinity issues in Black Snake Creek are important not just for those people who live in the catchment, but also right across South East Queensland.



Catchments of major watercourses flowing into northern Moreton Bay



A beautiful healthy landscape

GETTING TO KNOW YOUR LAND

(p. 9)



WORKING TOGETHER TO REDUCE SALINITY

(p. 13)



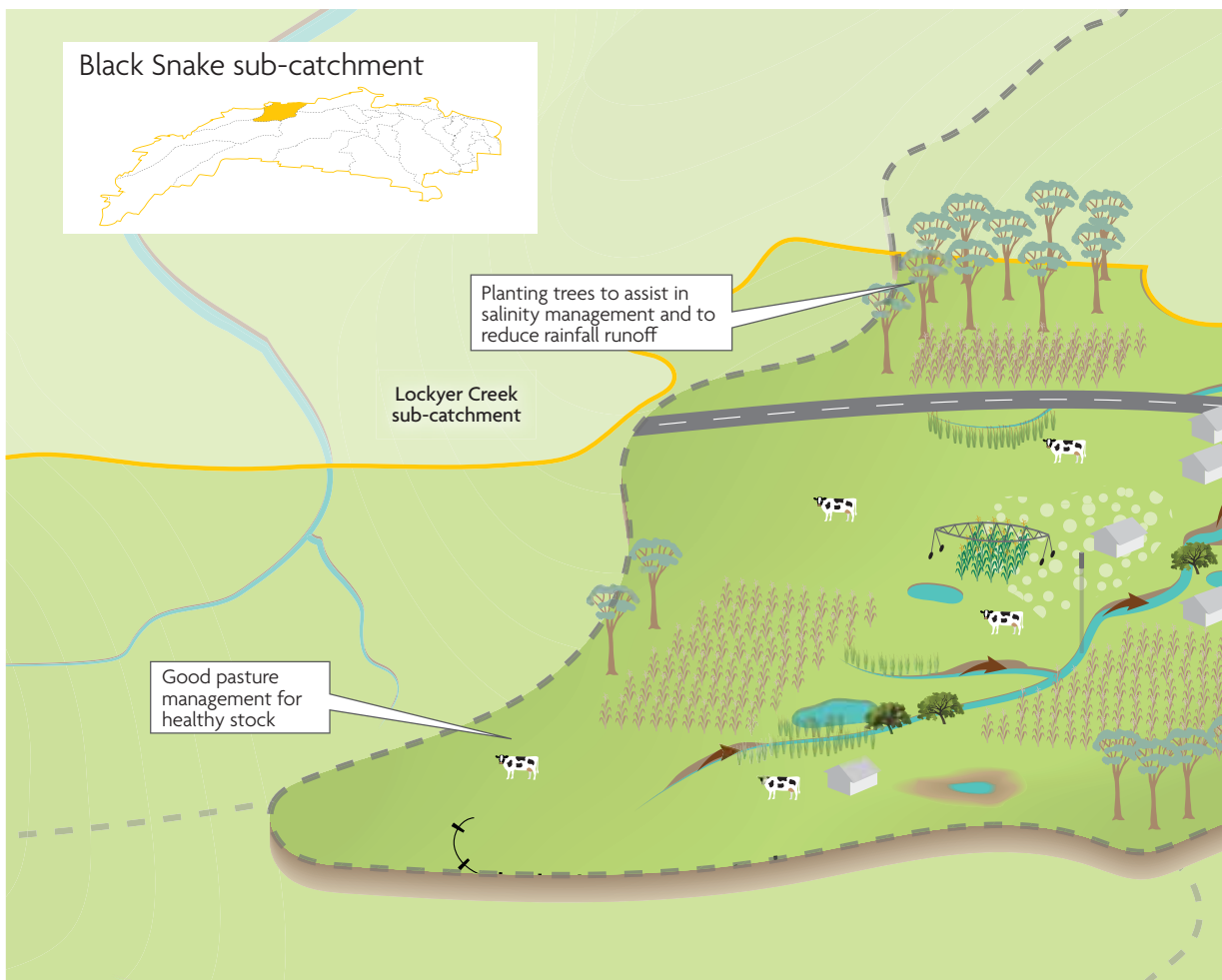
Image by B Hampson

SHARING YOUR PLACE WITH UNIQUE WILDLIFE

(p. 19)



Image by C Charker



BEAUTIFUL AND HEALTHY CREEK AND GULLY AREAS

(p. 27)



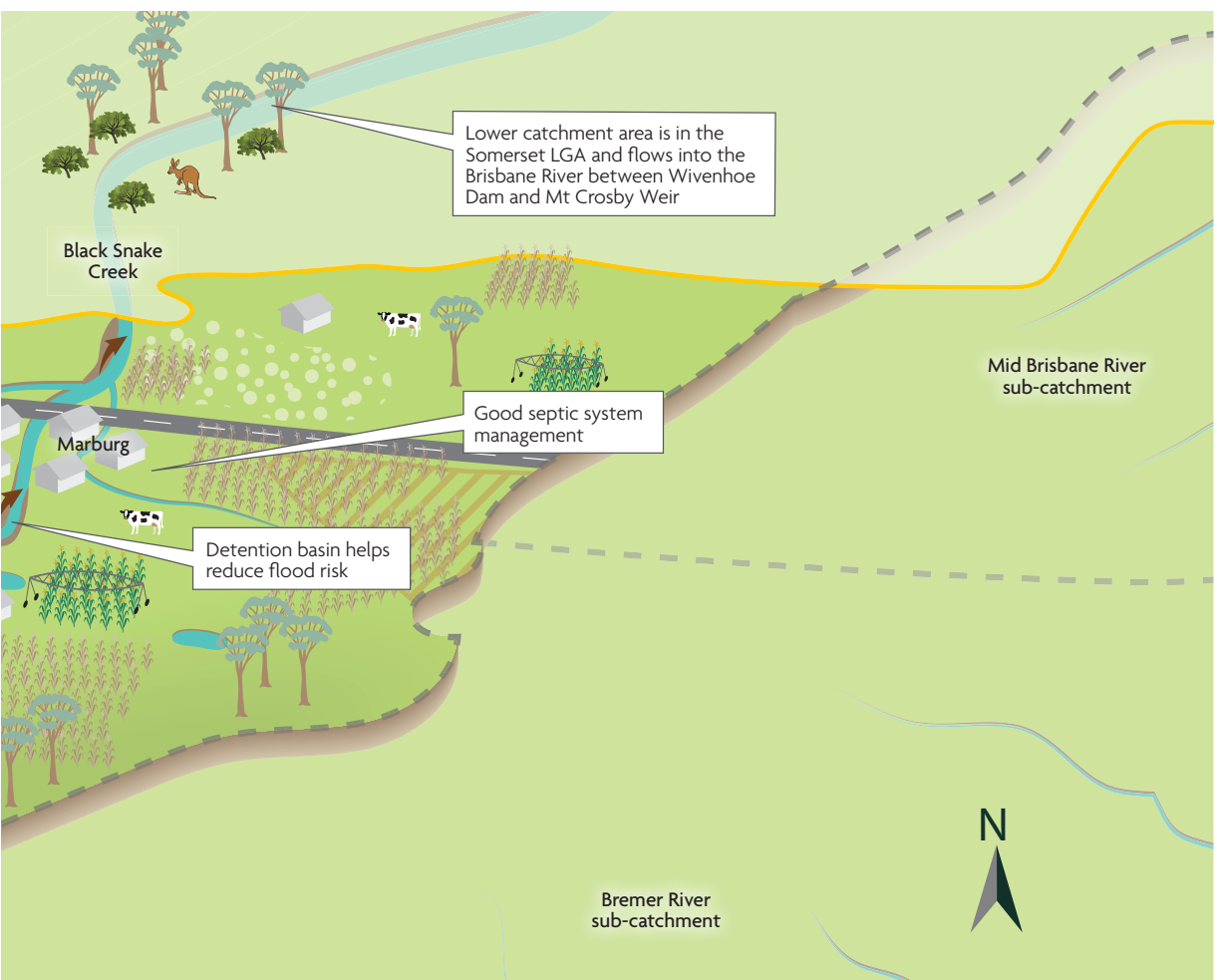
HEALTHY PASTURES FOR HEALTHY STOCK

(p. 31)



KEEPING WEEDS UNDER CONTROL

(p. 35)



Marburg – a vibrant and green community

BIRD-FRIENDLY BACKYARDS

(p. 23)



Image by A Morrison

SAFE SEPTIC SYSTEMS

(p. 39)



RICH HISTORIC PAST

(p. 8)



BEAUTIFUL GREEN COMMUNITY SPACES

(p. 18)

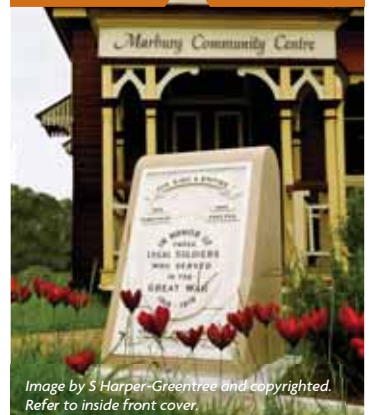


Image by S Harper-Greentree and copyrighted. Refer to inside front cover.

VIBRANT CONNECTED COMMUNITY

(p. 17)



Historic Black Snake Creek

The Black Snake Creek catchment has a long human history, with the Jagera People being the traditional custodians of the area for thousands of years.

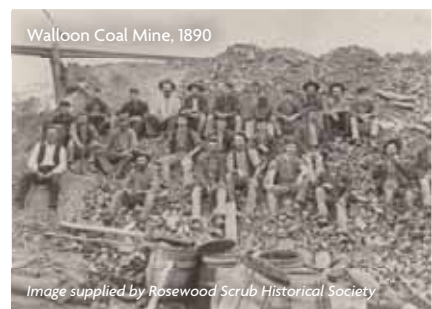
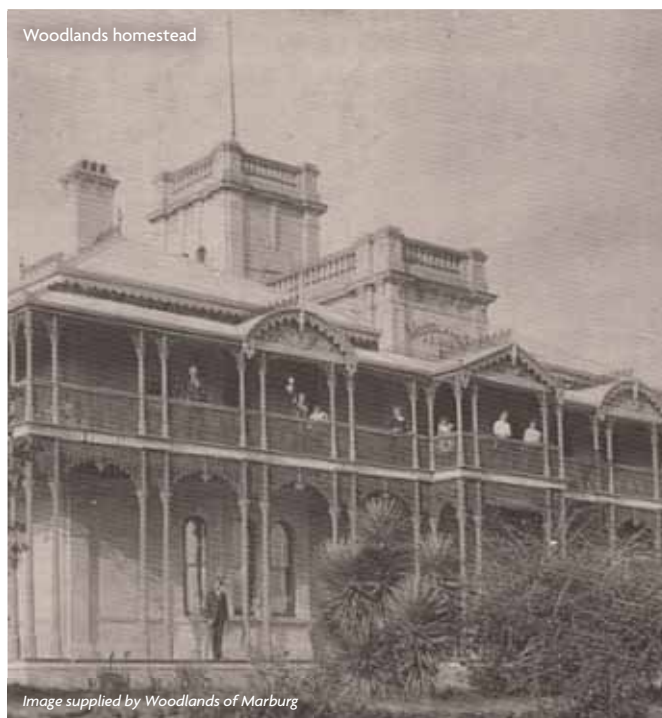
Europeans, arriving as settlers to the newly declared Queensland colony, took up land in the Black Snake Creek catchment in the 1860s. The landscape that greeted them was covered in thick, almost impenetrable dry rainforest which they called *Rosewood Scrub*. These original settlers were predominantly of German origin (their names live on in many of the local street names). Numerous British and Irish settlers established farms on the more open plains.

These settlers busily felled the scrub for timber and cleared the land, initially for dairying, general cropping and sugar cane. The agricultural productivity fuelled prosperity in the region, with Marburg being the first town in the Queensland colony to be connected to electricity. The plantation-style grand estate house of the Woodlands of Marburg reflects this period's prosperity and dates from 1890.

Marburg was a bustling regional town and by 1900 it housed a courthouse, police barracks, post office, two hotels, five churches, a state school, a School of Arts, several stores, a blacksmith, coach builder, sawmills, two creameries, a sugar mill and refinery and a rum distillery.

Coal mining became an important industry of the area after the First World War and although only a few of the region's coal mines were actually located within the Black Snake Creek catchment, many residents worked in the nearby mines.

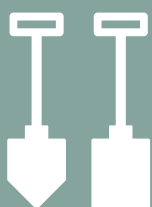
The rapid development of the region brought with it associated land and water quality issues. In the early 1900s the owners of the rum distillery was taken to the Supreme Court by the local Walloon Divisional Board for using Black Snake Creek as a place to dispose of 'dunder' (a waste product of distillation). This resulted in a 'perpetual injunction' being granted by the Chief Justice to prevent any further pollution from the distillery.



Getting to know your land

Black Snake Creek catchment has a textured, diverse landscape including creek flats, rolling hills and steep gullies. The underlying soil and the lay of the land are major determinants of what grows well on your land and its capability to support different activities. Some areas are more suited to grazing while others, such as steep slopes and creek areas, are more sensitive to disturbance and degradation and therefore need appropriate management.

Understanding your land and managing it within its capabilities will result in a healthier and more productive property and catchment.



SOILS

Soils vary in their texture, nutrient levels and chemistry (such as acidity and salinity) between different locations. The soil type is strongly influenced by geology, or the underlying rock and the historical weathering processes which have acted on the soil through time. The type of soils you have on your property plays a large role in determining what pasture and vegetation will grow (different plants prefer different types of soil) and how erodible the soil is (some soils are more prone to erosion).

SLOPE

Rain falling on steep areas runs off more quickly than on flat ground giving the rain less time to soak into the soil. This can contribute to more runoff and these areas being more susceptible to erosion and soil loss.



SOIL TYPES AND FARM DAMS

A failed dam is a waste of time and effort, so ensuring your soil type is suitable for building a dam is essential for its success. Some soils do not seal in water very well and others are more prone to erosion or cracking which could compromise your dam wall. Understanding your soils and their limitations will allow you to better plan and manage your land according to its capabilities.



ASPECT

The direction your property faces (such as north or south) can affect the amount and intensity of sunlight the ground receives. This will influence what plants are more suitable for planting and grow best.

CLIMATE

Temperature and rainfall (both quantity and when it falls across the year) are major determinants of what vegetation will grow and what land use best suits your property. Black Snake Creek catchment experiences a subtropical climate with hot and humid summers and short, mild winters with occasional frosts.

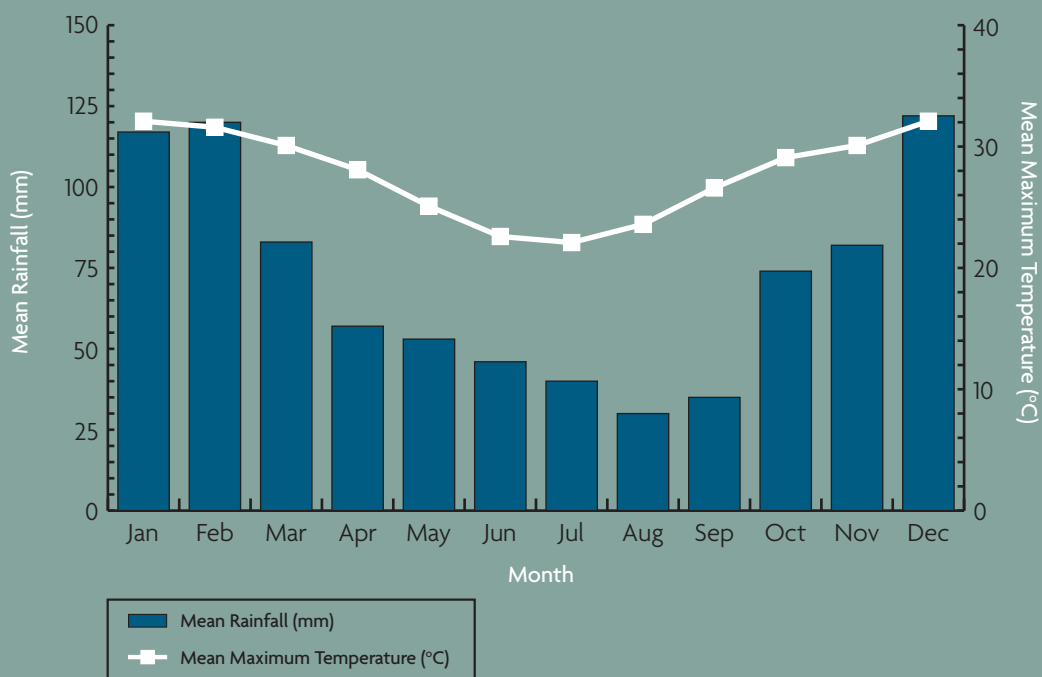


LAND MANAGEMENT HISTORY

Overworked or degraded land is likely to be less productive.



LOCAL CLIMATE – AMBERLEY



CLIMATE CHANGE

Our climate is changing. Temperature and rainfall patterns, including in the Black Snake Creek region, are altering and it is predicted that both days and nights will get warmer. Severe weather events, including intense rainfall events and floods, as well as droughts are all predicted to increase.

Everybody can do their part and has a responsibility to work together towards minimizing future climate change and its impacts. This could include being more energy efficient, undertaking recycling in the household, managing your land so that you are prepared for the risk of more floods and droughts and planting more native trees.

Would you like more information on how to match your land to its capability? A list of resources is located at the back of this booklet and you can also speak with SEQ Catchments or West Moreton Landcare about up coming workshops and available information.



Working together to reduce salinity

Black Snake Creek catchment, along with many other regions of Australia, experiences salinity in the landscape. Salinity can seriously impact agriculture, reduce water quality in our creeks locally and downstream and alter which vegetation is able to grow.

SALINITY SPOTTING – WHAT CAN IT LOOK LIKE?

Areas of salinity can look different, depending on the lay of the land and how severe the salinity outbreak is. The following are a guide:

- Changes to pasture and tree species, with replacement by salt tolerant species
- Permanently or seasonally waterlogged ground surface (where the groundwater level has risen right up to the surface)
- Vegetation dieback in low lying areas
- Salt scalds or bare areas in severe cases



What is salinity?

Salinity can be a natural phenomenon, as some rocks and soils in the landscape have a higher salt content than others. When water from rainfall or irrigation flows down through the ground it can dissolve this naturally occurring salt and transport it through the landscape via groundwater. If this salty groundwater comes close to the surface it is called salinity. In severe cases, you can even see the salt where it has accumulated on the surface.

While the underlying salt can be natural, some land management practices such as excessive clearing of trees and over-application of

irrigation water can also exacerbate salinity issues. Removing deep-rooted trees means that less rainfall is used before it infiltrates into the groundwater (watertable). As more water enters the watertable it can cause it to rise, carrying the salts towards the surface, especially in lower parts of the catchment.

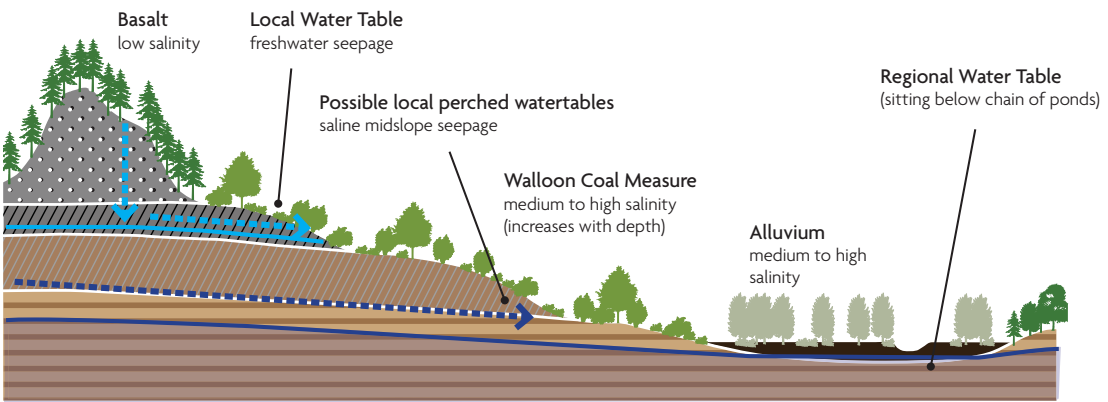
Many plants are not able to grow when their roots are affected by salty water. Having salty water close to the ground surface can result in salt sensitive vegetation dying off and pastures that are not as productive.

Geology can impact salinity in the landscape

Areas where salinity is experienced in the landscape are largely dependent on the underlying geology. The key geological formations of the Black Snake Creek catchment are basalt, alluvium, Walloon coal measures, Koukandowie formation and Gatton sandstone. A map showing their distribution is on page 15.

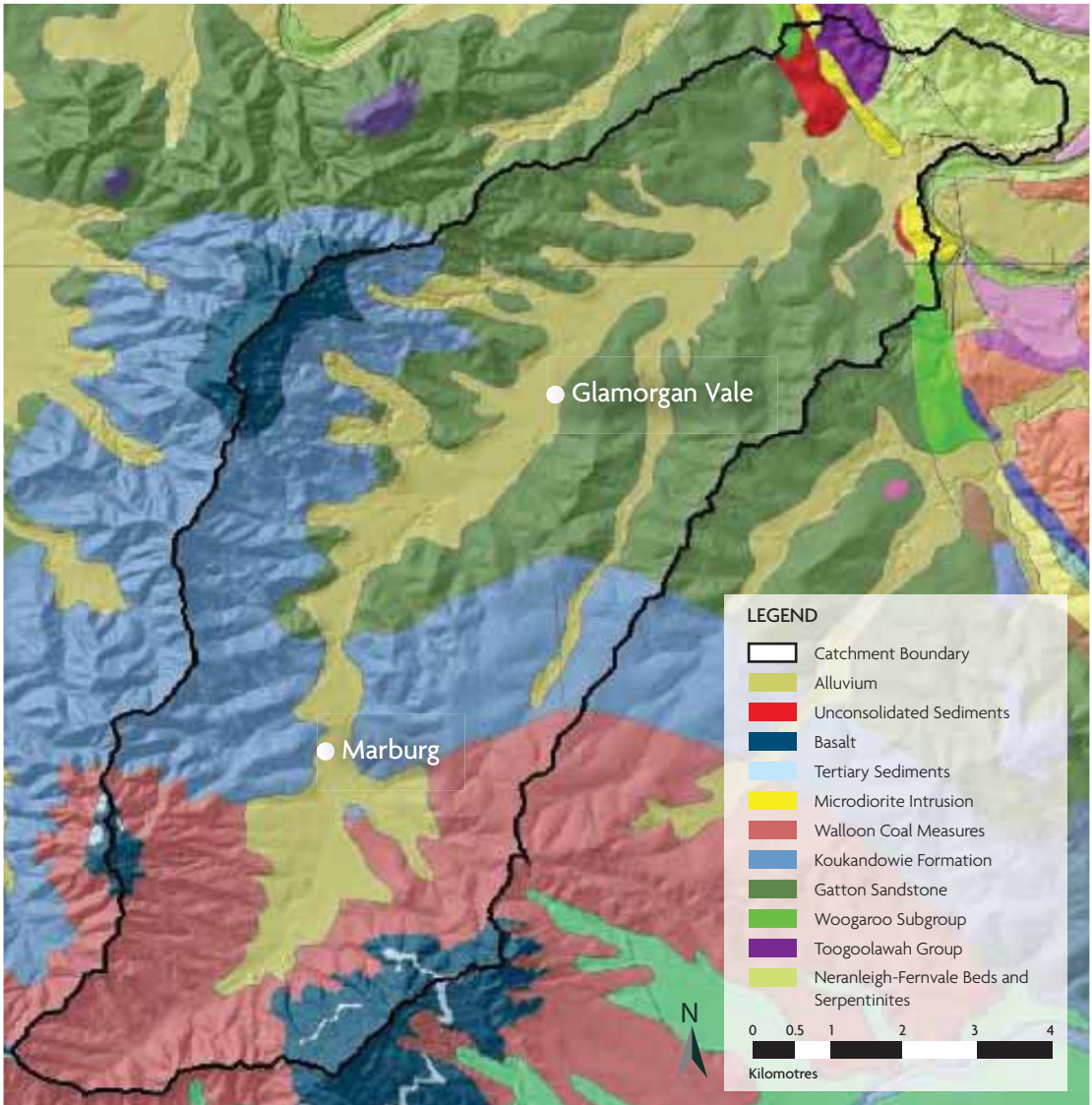
BASALT	Found on the top of the steep hills and ridges, primarily to the south and west of the catchment. In the Black Snake Creek catchment basalts have a low salt content.
ALLUVIUM	The material deposited by flowing water such as on creek floodplains. In the Black Snake Creek catchment it makes up the underlying material along the flatter areas flanking creeks and gullies and is the most severely salt affected area of the catchment.
WALLOON COAL MEASURES	Are comprised of coal seams which are embedded within other material such as sandstone and shale. They can have a high salt content and are found predominantly on the midslopes of the south of the catchment.
KOUKANDOWIE FORMATION AND GATTON SANDSTONE	Are found throughout the Black Snake Creek catchment. Their salt content varies, generally being low on the upper hill slopes although it increases in the underlying subsoils on the lower slopes.

When water moves through rocks of low salinity, such as the basalt found on the higher hills, freshwater may seep to the surface. However, if water moves through the more saline Walloon coal measures and seeps to the surface, this can result in saline water seepage.



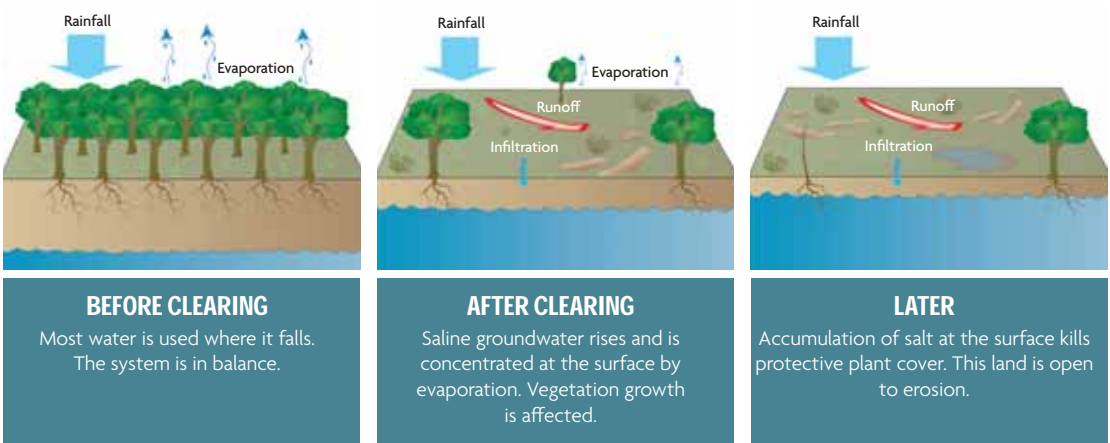
The underlying geology impacts the expression of salinity in the landscape

Geology of the Black Snake Creek catchment




Land use change can exacerbate salinity

Removing deep rooted trees results in less rainfall being taken up by plants before it flows into the groundwater (watertable), causing it to rise and carry the salts towards the surface in lower parts of the catchment.




Managing salinity – working together


Salinity is a whole of catchment issue. Often the actions in one area of the catchment, such as tree clearing, can contribute to salinity issues lower down the catchment. As a result, those landholders affected by salinity are often reliant on others in the catchment community to help manage the issue. Salinity is best managed through collective catchment action. More information on options to manage salinity is available on SEQ Catchments website.




Plant deep rooted trees throughout the catchment including on the hills, to use the rainwater where it falls and prevent it moving into the groundwater.



Select salt tolerant species in severely affected areas.



Be waterwise in the home. This includes installing water efficient devices to reduce the amount of water being delivered into the groundwater from septic systems.



Work together. The Black Snake Creek Reference Group is a great example of how local community members contributed to the development of an improvement plan for Upper Black Snake Creek.

Community spirit

Community spirit is a rich element of the rural life of Marburg and surrounds, with many active and vibrant community groups. These groups provide the opportunity to become involved in district activities, build and strengthen your community and foster social connections in the local area.

- Marburg and District Residents' Association
- West Moreton Landcare
- Marburg Show Society
- State Emergency Service
- Marburg Rural Fire Brigade
- Marburg Auxiliary Fire Brigade
- Marburg Pacing Association
- Rosewood Scrub Historical Society
- Various church groups
- And many others

Artist: Sharon Harper-Greentree
 Title: A spiritual place
 Medium: Graphite, conte crayon, charcoal and gouache on archival paper.
 Size: 600 x 900mm
 Image copyrighted. Refer to inside front cover.



Artist in residence Sharon Harper-Greentree

Sharon is a local Marburg resident with a long career in creative industries. She has a Bachelor of Arts (Fine Art and Visual Culture). After her first solo exhibition at the Graydon Gallery, New Farm, she was awarded a prestigious Regional Arts Development Fund grant for further development of conceptual works in relation to Black Snake Creek.

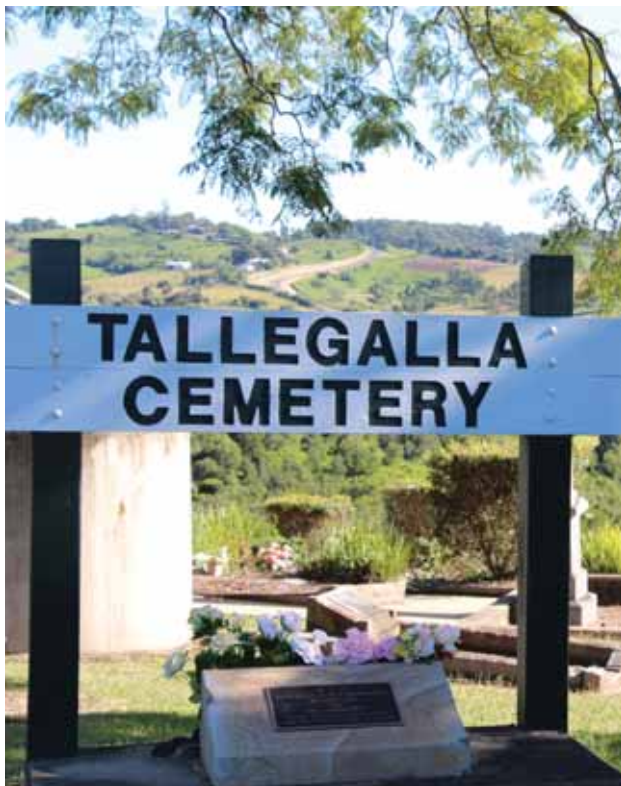
Sharon's recent work has focused on the environment of the Black Snake Creek catchment, particularly after the 2013 floods. Correlations between human skin and the earth's layers were made to reflect the importance of nurturing the natural and human environments. Sharon has developed a distinctive body of work featuring a vigorous, impasto painterly style. The result is a loose abstract form combining concepts based in creative research. Mediums used vary, including graphite, oils, acrylics and encaustic on linen and paper.



Our green community spaces

Community outdoor spaces, including our waterways, provide us with a great avenue to reconnect with each other and ourselves. Nature can mean different things to different people, whether it is your local creek where you walk with your dog, or your local park where you catch up with family and friends.

The Black Snake Creek catchment has numerous special outdoor places for residents to enjoy, from the Marburg community walkway and the Marburg town community park to the fantastic views over the catchment offered from the Tallegalla cemetery.



Creating space for our unique wildlife

Having native wildlife visit your property or seeing them in the landscape can be one of the most rewarding aspects of living in a rural setting. Black Snake Creek catchment is fortunate to have Echidnas, Red-neck Wallabies, Koalas, Eastern Grey Kangaroos, flying foxes, bandicoots, possums, lizards, many species of birds and countless more native animals that call this area home.

Whether you live on acreage or in an urban block, there are things you can do to promote these unique visits and to support our native wildlife.



KOALAS

These iconic animals are found across the Ipswich City Council area and occasionally within the Black Snake Creek catchment. Koalas are quite choosy when it comes to food, preferring only some types of gum trees. They also need substantial areas of mature trees in which to live and the ability to move safely between these. The majority of existing trees suitable for Koalas are located on private land, meaning Koalas rely on the cooperation of local residents for their food and shelter. We can do our bit through focusing our efforts on protecting and planting Koala food trees to create larger bush patches joined by vegetation corridors. In the Black Snake Creek catchment, planting along the creek line would provide Koalas a means to move through the highly modified environment.

Creating a wildlife friendly property

The easiest place to start is with what you already have. If you're fortunate to have patches of native trees or shrubs on your property work to retain and protect these and the wildlife it already supports. Things you could do include restricting stock access to these bush patches, managing weeds and providing space to allow these patches to expand naturally over time.

Keep logs, debris and leaf litter on the ground as they can provide perfect hiding places and homes for many animals.

Grow locally occurring native plants. Focus on locally occurring plants for your garden and choose a variety of species, as many different animals rely on a diverse selection of trees, grasses and shrubs for their food, shelter and survival.

Plant species selection will also be influenced by the location in the landscape you want to plant, with different species being suitable for creek lines or exposed hills. Short lists of plants which are suitable to the area can be found on page 22 and more information on what to plant is available from Council nurseries and your local Landcare group.

If you're thinking of larger plantings, you could consider working with neighbours to maximize your efforts. This may allow you to create vegetation corridors across your property boundaries and possibly join together bigger patches of bush which can allow animals to move safely through them.

Remember: If you are promoting the regrowth of bushland and planting areas for wildlife on your property, it is important to also consider bush fire risk to your house and other buildings. This includes preparing before the bushfire season – see the Ipswich City Council website and the Rural Fire Service Queensland's *Prepare, Act, Survive Information Guide* for more information.



Image by G Foley



Conservation partnerships with Ipswich City Council

Ipswich City Council offers landowners a choice of six conservation partnerships which provide a fantastic opportunity for those who wish to protect and enhance the natural environment and wildlife on their property. Partnership members become part of a network of dedicated landowners striving to improve our unique natural environment.

Support from Ipswich City Council can include: annual land management payments, newsletters and educational materials, weed control rebates, free native plants, tree guards, on-ground technical advice aimed at equipping landholders with knowledge to sustainably manage their property and eligibility for an annual Nature Conservation Grant.

There are six types of partnerships which cater for different property sizes, ecological values and commitment made by the landowner.

- Habitat Gardens Partnership
(more details on page 24)
- Land for Wildlife
- Nature Conservation Agreement
- Bushland Conservation Agreement
- Nature Corridors Agreement
- Waterways Conservation Agreement

These partnerships allow existing land uses to occur, just with an altered management outlook. All partnerships are voluntary, nonbinding, do not affect the sale of the property and can be terminated at the wish of the landholder and automatically once the property is sold. See the Ipswich City Council website for more information on each of the partnerships and to determine which may be suitable to your property.



All in a single tree

A single mature Queensland Blue Gum (*Eucalyptus tereticornis*) provides food and shelter for many animals and highlights the importance of protecting these large trees in the landscape.



Fruits, flowers and seeds

A food source for a variety of honeyeaters, parrots, pigeons, rosellas and galahs. In addition, many small insects feed on the fruits, flowers and seeds which in turn provide a food source for many small birds



Leaves

A major food source for Koalas and tree dwelling mammals including Greater Gliders and Brushtail Possums. Many small insects also feed on the leaves.



Mistletoe

An important source of food and nesting sites for many birds and animals. Leaves and flowers provide a rich supply of nutrients.



Hollows

Hollows in old trees provide nest sites and shelter for birds and animals including parrots, owls, treecreepers, frogs, possums, gliders and bats.



Bark

Shedding bark and larger gaps provide important habitat for invertebrates, geckos, frogs, micro-bats and other small mammals.

Native plants suitable for the Black Snake Creek area

For the creek line

Big trees

- Blue Gum or Forest Red Gum (*Eucalyptus tereticornis*)
- Moreton Bay Ash (*Corymbia tessellaris*)
- Gum Topped Box (*Eucalyptus moluccana*)

Medium Trees

- Brigalow (*Acacia harpophylla*)
- Black Tea-tree (*Melaleuca bracteata*)
- Weeping Bottlebrush (*Melaleuca viminalis*)
- River She-oak (*Casuarina cunninghamiana*)
- Creek Sandpaper Fig (*Ficus coronata*)

For the hills

- Brigalow (*Acacia harpophylla*)
- Rosewood or Scaly Bark (*Acacia fasciculifera*)
- Foam Bark (*Jagera pseudorhus*)
- Crows Ash (*Flindersia australis*)
- Small-leaved Tuckeroo (*Cupaniopsis parvifolia*)
- Bailey's Cypress (*Callitris baileyi*)

Creating a bird-friendly backyard

The Black Snake Creek area is blessed with many beautiful native birds. Even small backyards, when designed and planted well, can attract birds and contribute to their food, water, shelter and nesting needs.

Tips for a bird-friendly garden

Create shelter – multi-layered dense planting of ground covers, small and medium shrubs and trees can provide shelter for both small and large birds.

Select locally occurring native plants – these have adapted to the climate and soil conditions of Black Snake Creek area, and form part of the diet of the local birds.

Plant for seasonality – to provide food across the year, choose species that fruit and seed in different seasons.

The *Birds in Backyards* website is laden with practical design tips and lists of attractive native plant options to make your garden the most bird-friendly it can be.

Be patient – it takes time for trees and shrubs to grow and dense shelter to mature.

Every garden can contribute to the landscape of habitat for birds and other animals. You may like to talk and work with neighbours to create larger bird-friendly areas and potential corridors that connect and provide shelter to local reserves and parks. Take a ‘birds-eye-view’ of your neighborhood (such as through Google Maps or aerial photographs) to see how your backyard connects with others in the area.

BOB'S BACKYARD

Bob designed and planted his garden with the goal of attracting small local birds. Native shrubs were planted to provide thick cover and a safe nesting and shelter place. Now, the garden is a haven for native birds, with up to 20 different species nesting and raising young in the garden each year. Superb and Red Backed Fairy Wrens, Double-barred Finches, Yellow Rumped Thornbills and several different honeyeaters now call this garden home. Some shrubs have five or six nests in each – communal high-rise living.



NATIVE SHRUBS AND GRASSES FOR ATTRACTING SMALL NATIVE BIRDS TO YOUR GARDEN

- Birds Nest Bush – also known as Black-fruited Thornbush (*Pittosporum viscidum*)
- Native Holly (*Alchornea ilicifolia*)
- Native Lime (*Citrus australis* and *Citrus australasica*)
- Coffee Bush (*Breynia oblongifolia*)
- Prickly Currant Bush (*Carissa ovata*)
- Stout Bamboo Grass (*Austrostipa ramosissima*)
- Hookey Grass (*Ancistrachne uncinulata*)
- Native Thistle (*Stemmacantha australis*)



Image by S Armytage

HABITAT GARDENS PARTNERSHIP - IPSWICH CITY COUNCIL

Landowners with small blocks (under 1 hectare) can partner with Ipswich City Council to create a native bird and animal friendly garden. Through the Habitat Gardens Partnership, participants are eligible for assistance with environmental weed control and a number of free native plants. Contact Ipswich City Council for more information.



Image by S Gardner



IPSWICH CITY COUNCIL'S FREE PLANT PROGRAM

As an Ipswich City Council area resident (both renters and owners) you are entitled to a number of free plants each financial year. Speak with Council or visit one of Council's nurseries to gain advice on what plants are best suited to your yard and to collect your free trees. Get planting!



Image by R Lawrence





- A Hawker: catches insect prey on the wing
- B Seed-eater: cracks seeds from grass, shrubs and/or tall trees
- C Nectar-feeder: drinks nectar from the flowers of shrubs and trees
- D Insect-eater: looks for insects in shrubs and trees
- E Meat-eater: hunts for prey like lizards, frogs and other birds throughout the garden
- F Pouncer: pounces on its prey from a height
- G Ground forager: hunts for its food (like invertebrates or seeds) on the ground in grass or mulch
- H Sallier: flies into the air to catch prey
- I Introduced: found around artificial structures
- J Bird of prey

Working for a beautiful and healthy creek

Waterways, creeks and wetlands are some of the most beautiful parts of the landscape, providing cool shady areas for the community to enjoy and a haven for native wildlife. They are also one of the most sensitive areas of our landscape and require special care to keep them healthy.

Having creek banks in good condition with plenty of thick vegetation contributes to a healthy waterway. Plants along the creek bank reduce erosion of the banks (their roots hold the soil

together) and act as a filter to capture soil when rainfall runs off from the land into the water.

These plants also offer an important place for wildlife to live and are often some of the last remaining corridors of continuous vegetation allowing animals to move across the landscape.

Trees also provide cover over the creek and reduce temperature extremes and algae growth and create a healthy waterway environment.

SPOTTED IN BLACK SNAKE CREEK

Native fish observed in Black Snake Creek include:

- Carp Gudgeon (*Hypseleotris species*)
- Eel-tailed Catfish (*Tandanus tandanus*)
- Glassfish or Perchlet (*Ambassis agassizii*)
- Long-finned Eel (*Anguilla reinhardtii*)
- Eastern Rainbow Fish (*Melanotaenia splendida*)
- Fire Tailed Gudgeon (*Hypseleotris species*)
- Spangled Perch (*Leiopotherapon unicolor*)

Glassfish
Image by B Hampson



Doing your bit to keep Black Snake Creek healthy

There are actions and activities that all of us can undertake to make and keep Black Snake Creek as beautiful and healthy as it can be.

- Make sure litter and chemicals such as paints, oils and household cleaning products stay out of the stormwater drains and curbing as these flow into our creeks and waterways.
- Restrict stock access to the creek and tributaries, as stock tend to 'pug up' the banks, create dirty water and cause erosion. This can be achieved by fencing the creek line and providing alternative off-stream stock watering points.
- Manage farm tracks and road crossings of the creek to minimise erosion and keep water clean.
- Establish a healthy creek line by planting native trees and shrubs on the bank.
- Woody debris in the water provides vital shelter for fish, yabbies and other native animals.



Riparian Zones



Image developed with IAN Library

The area next to a creek or river is called the riparian zone (from the Latin word for river bank – ‘ripa’)

- Roots hold the soil together reducing erosion.
- Trees shade the water helping to moderate water temperature.
- Trees and vegetation provide an environment for animals to live and a corridor for their movement.



Image by B Hampson



MARBURG COMMUNITY WALKWAY

The creation of a paved path and planting of native trees in 2015 transformed this previously unused and overgrown area of town into a green space for all the community to enjoy. The on-ground works were a joint venture between West Moreton Landcare, Ipswich City Council, SEQ Catchments and the Queensland and Australian Governments.

STOCK CAN PUG UP WATERWAYS LEADING TO EROSION AND POOR WATER QUALITY

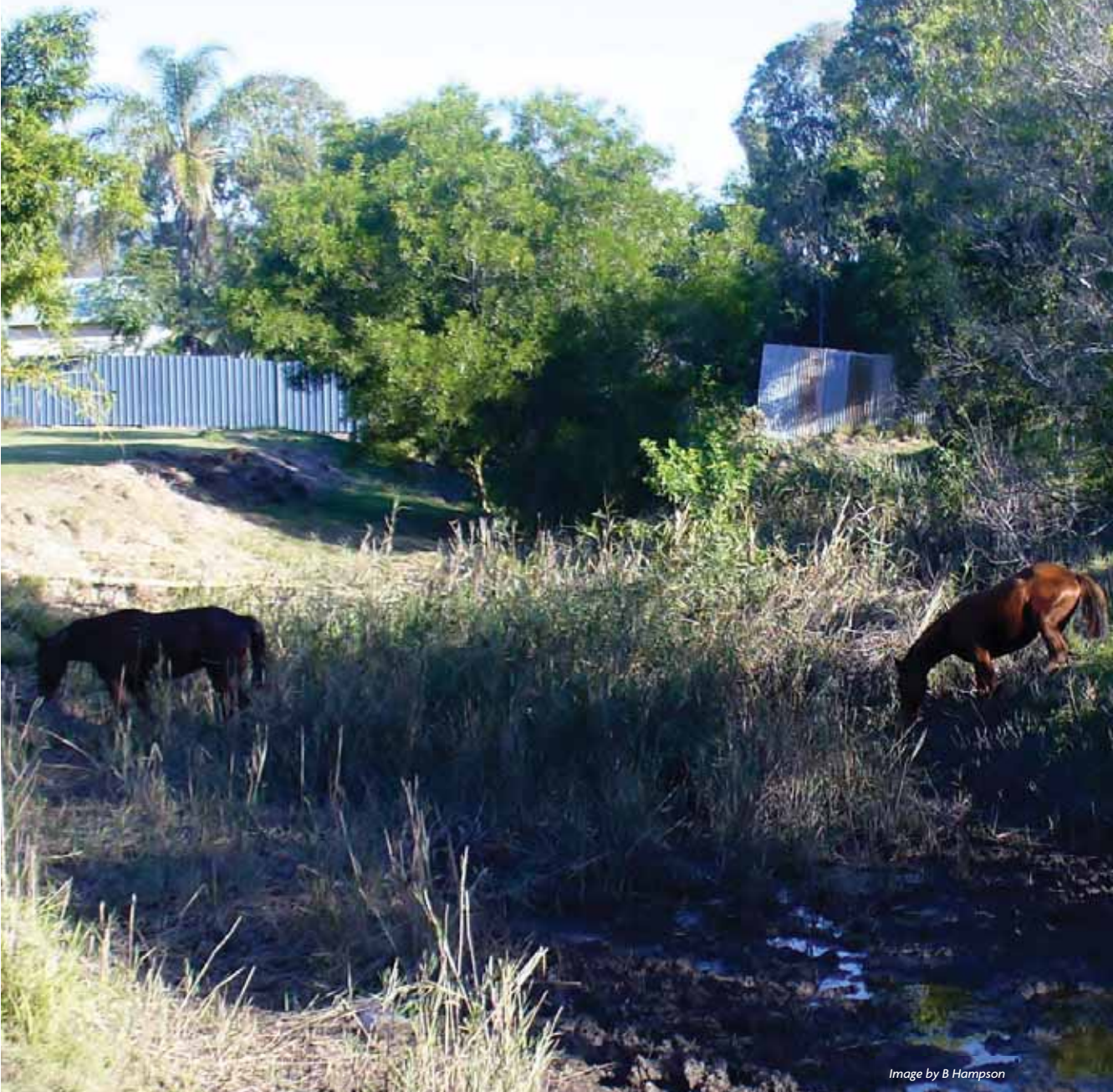


Image by B Hampson

Government Regulations

Recognising that waterways are sensitive areas the Queensland Government regulates certain activities which can be undertaken within the creek zone (such as earthworks, creek crossings and works which might cause a barrier to fish moving along the creek). Before starting works, be sure to seek advice from relevant government departments.

Healthy pasture for healthy stock

Living in a rural catchment like Black Snake Creek can offer the opportunity for landowners to keep horses, cattle and other livestock. Caring for your property and pastures well is equally as important as caring for your animals and can lead to:



Healthier Stock

Manage stock nutrition and dietary needs through good pastures and fewer weeds.



Saving Money

Lower your feed bills by growing more grass for a longer period of the year.



Clean Water

Provide cleaner water for your stock and a healthier catchment.



Happier Neighbours

Fewer flies and less dust, mud and manure build up.



Increased Property Value

A well-managed property is also a beautiful, valuable property.

Some areas of your property will be more suitable to grazing and pasture production than others. More sensitive areas of your land, such as steep slopes and creek banks, can easily be over grazed and eroded, leading to loss of your valuable soil and degradation of your land. Careful management of these areas is needed.



WHAT SIDE OF THE FENCE DO YOU LIVE ON?

Overgrazing reduces the ability of your pasture to provide feed into the future. It can be difficult for your pasture to regrow after overgrazing and can also allow undesirable grasses and weeds to dominate which reduces the productivity of your pastures.



TIPS FOR LOOKING AFTER YOUR PASTURE

- Seek advice from others. If you are new to the area, talk with local landholders about the pasture species they have found to be successful.
- Maximise cover and minimize bare ground to provide feed and reduce the likelihood of erosion and loss of your precious top soil.
- Avoid overgrazing. A good tip is the rule of thirds – only allow stock to graze a third of the above ground grass weight.
- Get to know your pasture species as all are not equal. Some pasture species are more nutritious and can provide more feed. Others can even be harmful to some stock if not managed well, with horses and cows having different digestive systems and therefore different pasture tolerances. Setaria, Green Panic and Kikuyu grasses need to be managed for horses and Johnson grass for cattle.
- Control weeds. Some weeds are toxic to stock (such as Fireweed and Mother of Millions) and they all compete with your pasture for water and nutrients.
- Regular spelling, or giving your pastures a rest from grazing by excluding stock, allows pasture to recover and is the cheapest form of pasture rejuvenation.
- Monitor your pastures. Keep note of how pasture in your paddocks changes across the year and how different grazing management influences your pasture productivity. Photographs are a useful monitoring tool. Make a long term plan. Match stocking rate (how many animals you have) to your land's capacity to ensure you have enough feed during times of low pasture growth such as winter or drought. It is easier to maintain a healthy pasture than it is to restore degraded land.

SEQ Catchments and your local West Moreton Landcare group have plenty of information on how to manage your property for healthy pastures and healthy stock.

AIM FOR PASTURES THAT SATISFY THE THREE Ps

Palatable: Livestock like to eat it

Productive: Grows a large amount of foliage over time

Perennial: Present all year round (i.e. doesn't just grow for one season). These grasses are more resilient to fluctuating seasonal conditions and grazing pressures.



Autumn is a good time to look at your pastures as many are flowering and seeding, making it easier to identify them. Identifying grasses can be challenging, but information is available from SEQ Catchments or speak with other landowners in the area.





FENCING TIPS

- Electric fences can be a cheap and good alternative to traditional post and wire fences, especially to create internal paddocks. They can allow targeted pasture and grazing management through their ease of relocation. In areas prone to flooding, they are also less likely to collect flood debris and are cheaper to mend and replace.
- Fencing off the creek zone allows you to manage stock access to this sensitive area. This will keep the creek bank in better condition and improve water quality. Alternative off-stream watering points should be provided for stock needs.
- Wildlife friendly fences. There are fencing options you can choose to reduce the risk of wildlife becoming entangled and injured. This could be as simple as switching the top barbed wire for plain wire or hanging reflective material (old CDs work well) along the top wire. See the Wildlife Friendly Fencing Project website for more tips.



Image by Marilyn Peddle

Keeping weeds under control

What is a weed and why all the fuss?

Put simply, a weed is a plant in the wrong place. Even native plants can become weeds when they've spread beyond their natural range.

Some noxious weeds have serious impacts to our agricultural industries; they can reduce pasture productivity (Giant Rats Tail) and can even be poisonous to horses, cows and other stock (Fireweed).

Other weeds threaten our beautiful bushland. These environmental weeds can change the area they invade such as by smothering and killing native trees (Cat's Claw) or choking waterways (Salvinia).

More information on weed identification and management options can be found on the Queensland Department of Agriculture and Fisheries and SEQ Catchments' websites.



CAT'S CLAW - ARE YOU SEEING YELLOW?

Cat's Claw vine (*Dolichandra unguis-cati*) was introduced from South America as a garden plant, often being used to keep outdoor toilets cool and shady! However, its ability to spread rapidly and climb allows it to smother trees and its spread is causing havoc in many areas of South East Queensland, especially along waterways. If you're seeing yellow this spring on your property it could be Cat's Claw.





Image by Harry Rose

GIANT RAT'S TAIL

Giant Rat's Tail (*Sporobolus pyramidalis* and *Sporobolus natalensis*) grass is a prolific seeder and can spread rapidly through grazing land and dramatically reduce pasture productivity, meaning your land can not support the same number of stock.



FIREWEED

Fireweed (*Senecia madagascariensis*) is a serious pasture weed which can make grazing animals ill after they eat it, can taint the milk of dairy cows and even result in stock death. It is a prolific seeder, being able to produce up to one million seeds per hectare. Heavy infestations often result from neglect of treating it when it is a small issue and when pasture is in poor condition, such as through over grazing or drought.



Managing weeds on your property

The first step is getting to know your property, what plants you have where, and observing if they spread over time. Learning about weeds can help you identify them and match the best method to treat them. There is information available freely from Ipswich City Council and SEQ Catchments on weeds common to your local area and recommendations for how to treat them.

Avoid weed spread! While weed control might not be cheap, it is cheaper now than later when they may cover a larger area. Talking and working with your neighbours to develop a coordinated approach can maximize your effort and help to prevent reinfestation.

Keeping pest animals under control

A pest animal can be any animal which is either not native to the area (introduced) or which has become feral or wild (with no identified owner). Their ability to adapt to diverse landscapes and conditions, the absence of natural predators to keep them under control and their often high breeding rates can enable their spread and establishment in many areas including the Black Snake Creek catchment.

Pest animals move across the landscape not recognising property boundaries in their search for food, water and shelter. As a result, pest animals are best managed through coordinated collective action at a catchment level or broader scale. Information on pest animals and options to control them can be found on the Queensland Department of Agriculture and Fisheries website.



FOXES

European Red Foxes are found throughout the Black Snake Creek catchment. They are a hardy species and are considered to be one of the greatest long term threats to many of our small native animals and ground nesting birds. They are also known to be a menace to pets and even young stock. You can report fox activity to Ipswich City Council.

RABBITS

Rabbits are Australia's most destructive introduced pest animal, both for agricultural industries and the environment. Their large and complex warrens can injure livestock and reduce the productivity of agricultural land. Their activity can also lead to soil erosion and native vegetation loss. If you suspect rabbit activity of your property, you can contact the Darling Downs - Moreton Rabbit Board.





FIRE ANTS

These small but aggressive pest ants can inflict a very painful sting. If they become permanently established in Queensland they could reduce our use of public parks, sports fields and green spaces, impact agricultural productivity and also cause havoc for some of our native animals.

Fire Ants have been found and controlled near Marburg. To continue to keep the Black Snake Creek catchment free from Fire Ants is everyone's responsibility. It is important to be aware of restrictions that apply, including the movement of plants and soil into the area from restricted suburbs in Ipswich, neighbouring local government areas and other parts of South East Queensland. If you suspect Fire Ant activity contact the Queensland Department of Agriculture and Fisheries.

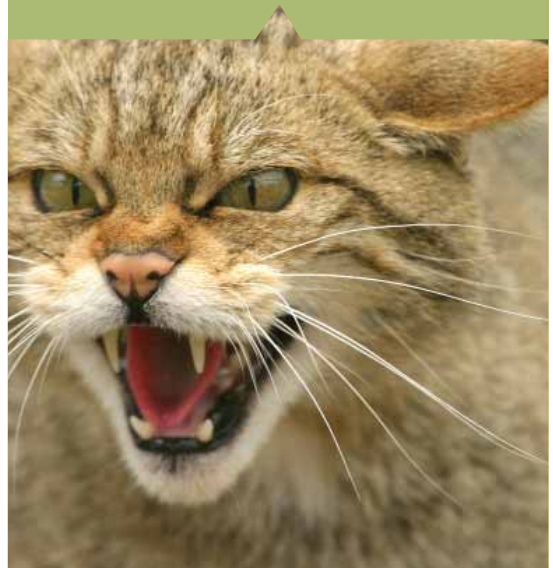
WILD DOGS

Wild dogs in the Black Snake Creek area are likely to be either domestic dogs which have become feral or hybrids of these feral dogs with dingoes. They are the top predator in Australia. Working in packs they are capable of harassing domestic pets and livestock, prey on native animals including larger species such as kangaroos and Koalas and are a threat to human safety.



CATS

Cats are an instinctive predator and while the domestic cat can be a gentle household pet, they are also efficient carnivorous hunters. Cats (both feral and domestic) are one of the greatest threats to Australia's native wildlife through their hunting of small animals and birds. If you are a cat owner you can reduce the risk to native animals by keeping your cat inside at night, desexing your cat and attaching a bell to prevent it stalking animals.



Septic systems – keeping them healthy and odour free

Septic systems are a part of life for residents of the Black Snake Creek catchment as there is no reticulated sewer network. These on-site sewage systems treat domestic wastewater.

Septic systems rely on good bacteria to break down and treat your wastewater. Therefore, it's important to look after them and make sure the system works the best that it can.

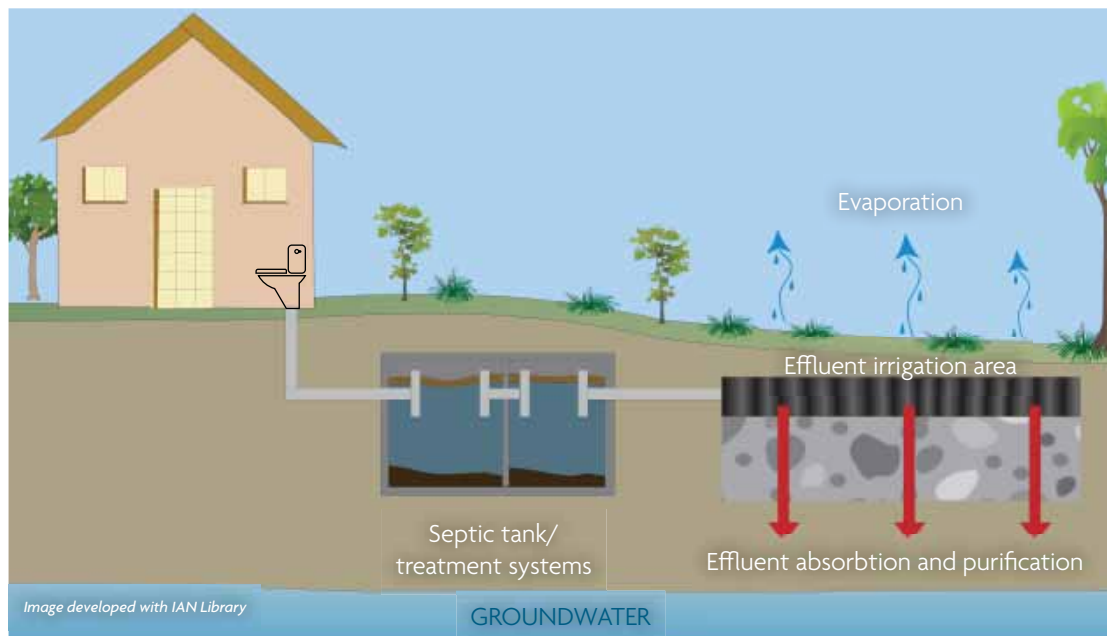
A well maintained septic system should not have an unpleasant smell.



EARLY WARNING SIGNS OF PROBLEMS

If you notice any of these early warning signs, be sure to contact a licensed contractor for an inspection:

- Unpleasant smells
- Damp or soggy ground around the system or trenches
- Slow draining or backed up toilets and drains
- Dark green grass around the septic trenches



Tips for keeping your septic system healthy

- Improve the water efficiency of your household. With less water entering the system there is less wastewater that needs to be treated therefore the system has a lower risk of being overloaded.
- Avoid planting trees near the system and trenches so roots don't damage pipes which could result in leakages
- Use septic system friendly cleaners and chemicals. Harsh chemicals can interfere and even kill the good bacteria in the septic system.
- Regular maintenance by a licensed contractor is important to keep the system cleaned and pumped out.

Avoid use of

- Bleach
- Disinfectant
- Antibiotics
- Chemical cleaners
- Pesticides and herbicides
- Caustic soda



TOWN WATER IN BUT NO SEWAGE SYSTEM OUT

Marburg is in an unusual situation – houses are connected to town water, which brings water into the catchment, but there is no exit for this water except through individual septic systems (no town sewage network). This results in more water entering the groundwater than would naturally occur and can contribute to a rising watertable.

Managing the quantity of water which passes through Marburg's collective septic systems is an important component in managing watertable levels in the area.



Further reading

Further information is available on all the topics covered in this booklet. The following suggested resources provide more details – Happy reading.

Black Snake Creek background information

Upper Black Snake Creek Improvement Plan – A total water cycle management approach to the management of the Upper Black Snake Creek Catchment. (2014). Available from the Ipswich City Council website.

Black Snake Creek Waterway Health and Water Quality Assessment. (2011). Produced by RPS Australia East Pty Ltd.

Black Snake Creek Project – Natural Resource Assets and Sustainable Land Use in the Black Snake Creek Catchment. (2008). Produced by SEQ Catchments and available from their website.

Land capability and pasture management

Pasture management for South-East Queensland. (2013). Compiled by Damien O’Sullivan and produced by SEQ Catchments and Queensland Department of Agriculture, Fisheries and Forestry. Available from SEQ Catchments’ website.

SEQ Catchments’ *Healthy Land, Healthy Horses* website has a diversity of resources for horse owners, pasture management, plants poisonous to horses and sustainable land management practices.

Land management and bush fire preparation information

Living in Somerset. (2013). Produced by SEQ Catchments and available from their website.

Prepare, Act, Survive Information Guide. Produced by the Rural Fire Service Queensland and available from their website.

Creating a space for wildlife and bird friendly gardens

Birds in Backyards website by Bird Life Australia is laden with tips on creating, designing and planting a bird friendly garden.

Land for Wildlife South East Queensland website has information “notes” on planning and undertaking effective revegetation and beginners’ guides to observing wildlife.

Healthy and diverse waterways

Land for Wildlife South East Queensland website has an abundance of information “notes” detailing water body management, including creek zone restoration and creating wildlife friendly dams.

Healthy Waterways website has a diversity of information on managing erosion in waterways, and water health report cards for many of the creek catchments in South-east Queensland.

Weed and pest animal management

Queensland Department of Agriculture and Fisheries website has factsheets and photo guides to assist with the identification of and management options for pest animals.

Invasive Animals CRC website has information on pest animal research and scientific publications.

Managing salinity

SEQ Catchments has three factsheets covering salinity management in the Lockyer Valley: *Causes of salinity, Why manage on-site wastewater? and Why manage salinity?* These can be accessed from SEQ Catchments’ website.

Strategic approach to determining salinity mitigation investment for Woolshed and Plain Creek catchments 2007 to 2012. (2007). Compiled by Roger Shaw and produced by SEQ Catchments. Available on the SEQ Catchments’ website. Plain and Woolshed Creeks are neighbouring catchments to Black Snake Creek and have similar salinity processes.

Landscape and Salinity Assessment of the Black Snake Creek Catchment (2006). Compiled by M. Ellis and R. Bigwood and produced by the Department of Natural Resources and Water. Contact SEQ Catchments or West Moreton Landcare to view a copy.



