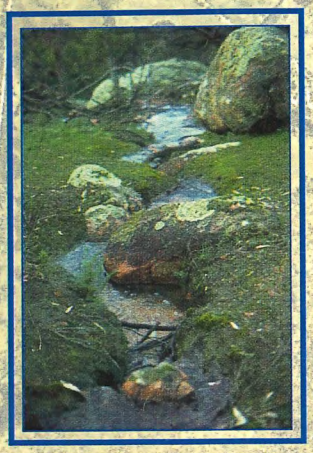
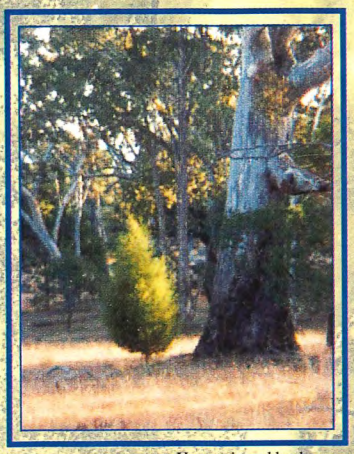


Seasonal creekbed

Bunjil and His Dogs



Young pine, old redgum

THE BLACK RANGE

Information and Management Guide

Compiled by the
Black Range Land Management Group
with the assistance of the
Australian Federal Government
through the
The Natural Heritage Trust
and the
Victorian Government
through the
Australian Heritage Fund

CAROLE + PETER BRAZIER .

THE BLACK RANGE

Introduction

Attitudes towards the environment have evolved in the recent past.

Driven partly by necessity as land becomes more unstable and less productive, and partly by inclination as land becomes a more diversified asset to most of us, the community's comprehension of the land has broadened.

The Black Range Guide springs from both of these perceptions.

sheet erosion

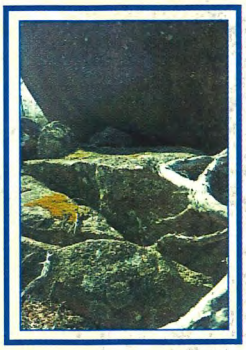
rabbit infestation

pretty weeds

The Black Range is unstable, unproductive and has an adverse effect on the catchment.

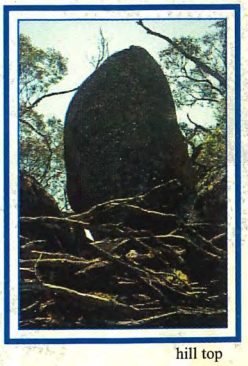
The overall situation has improved over the past twenty years on those properties that have been managed along conservation lines. It has also deteriorated on those which have not.

Productivity in Black Range terms does not concern agriculture directly, but feeds that appetite that humans have for natural landscape and a frame of reference outside strictly human interests.



tor

gentle slopes



hill top

We have come to understand, as a community, that none have an independent existence on the land. The conditions on one bit of land effects the condition of the land around it, effect the local catchment, effect the total viability of our land. We begin to understand that a body that has cancer in only one organ cannot be described as healthy.

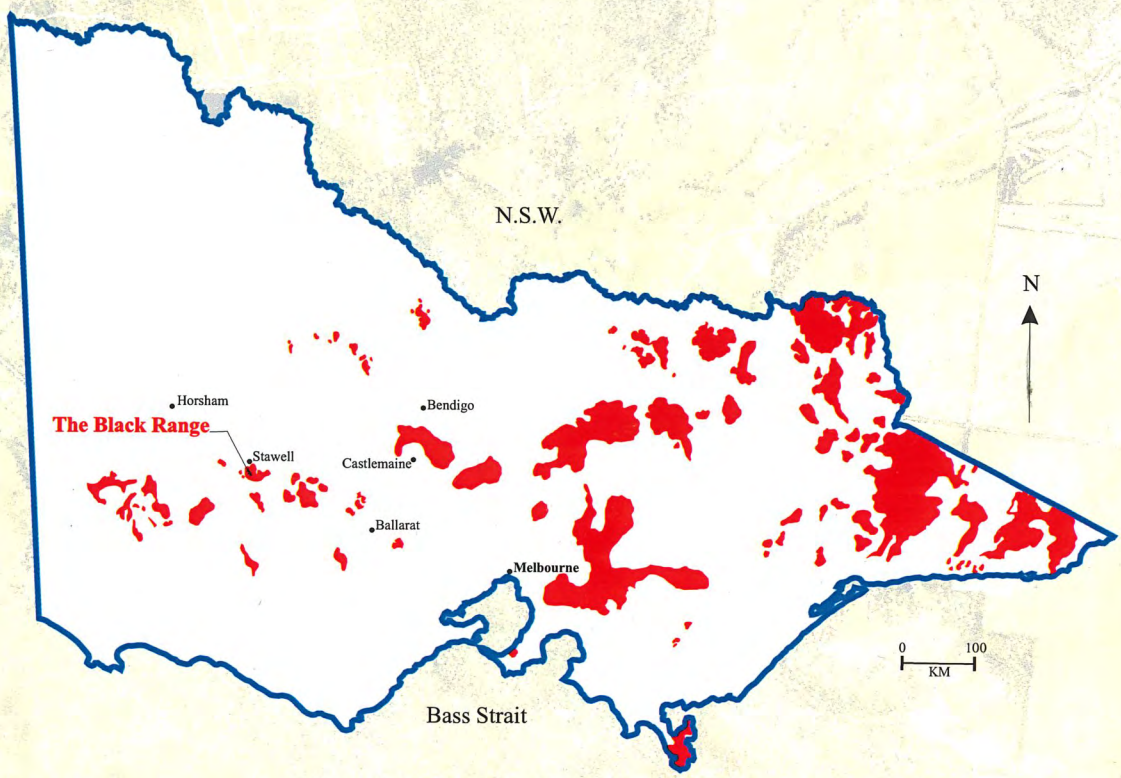
It is hoped that the Black Range Guide will contribute to the attitudes and practices prerequisite to a rich future, if only in a modest and local way. No land is isolated. What each of us do is a contribution, one way or the other, to our collective fate.

all photo credits: back cover

I Overview

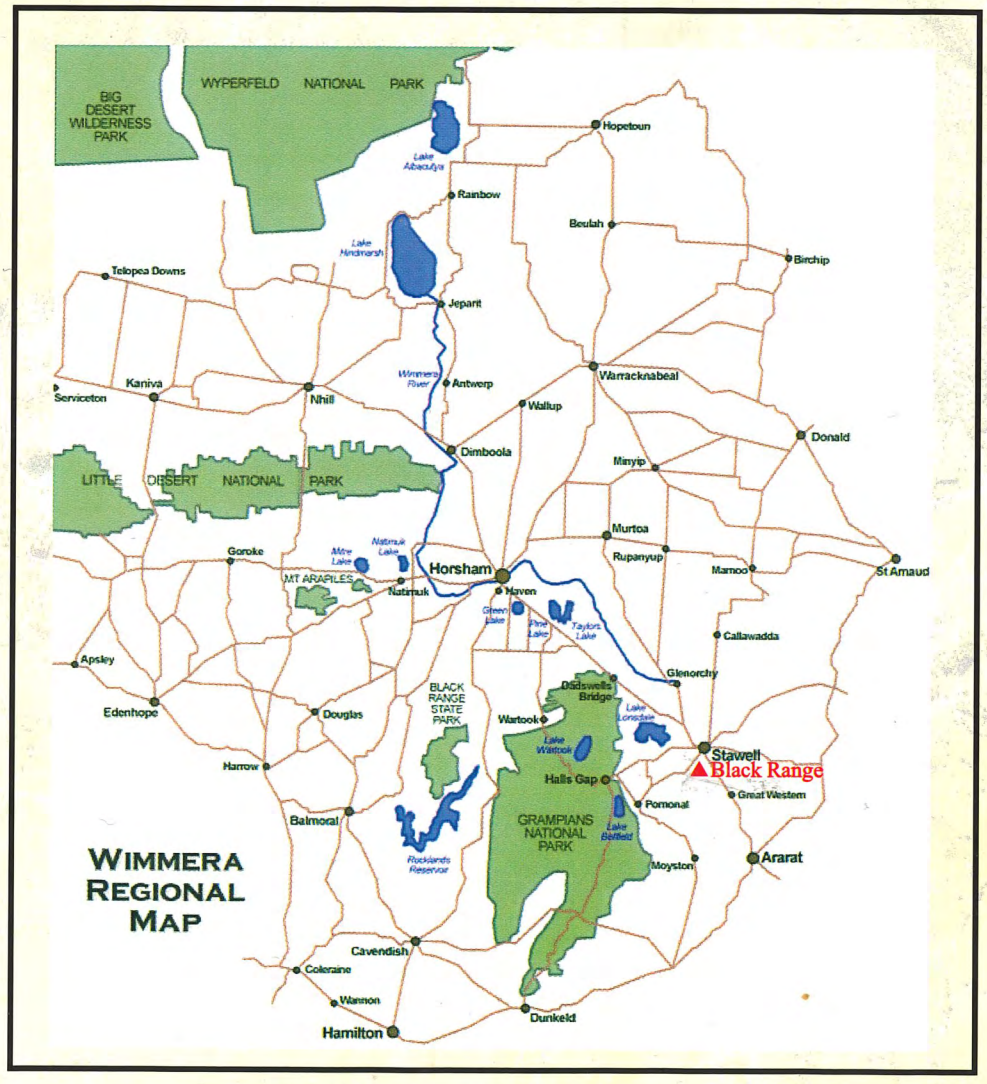
II A Closer Look

III Details



Victoria's Granite Extrusions

based on data from *Physiography of Victoria*, E. Sherbon Hills, 1975



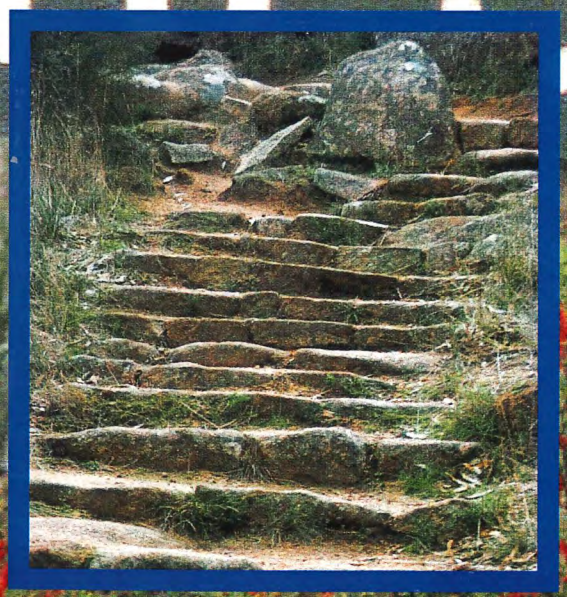
Location of the Black Range

detail: Bunjil's torso

"Bunjil created
land and the water,
the plants and the animals,
the laws and the religion
of the Koori people."

from a sign at the site

Bunjil's Shelter Scenic Reserve



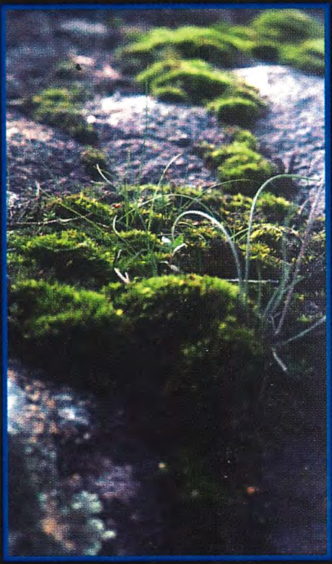
Managed by the Brambuk Cultural Centre and DNRE, Bunjil's Reserve contains the only bi-chrome Aboriginal painting in Victoria. The site gives the public access to an important part of our history, a striking image of Bunjil, and perhaps the best bit of bush in the Black Range. The Reserve draws thousands of visitors each year, many from overseas. There are picnic facilities, a bush walk, and tours.

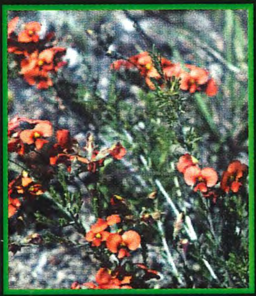










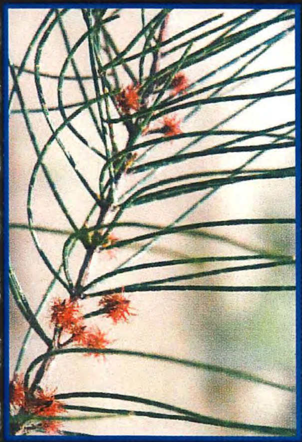
Bio-diversity in the Black Range

Relatively large numbers of species of plant and animal survive in the Black Range - a granite hills herb-rich landscape. The continuation of this diversity depends on low levels of human impact and high degrees of conservation management.



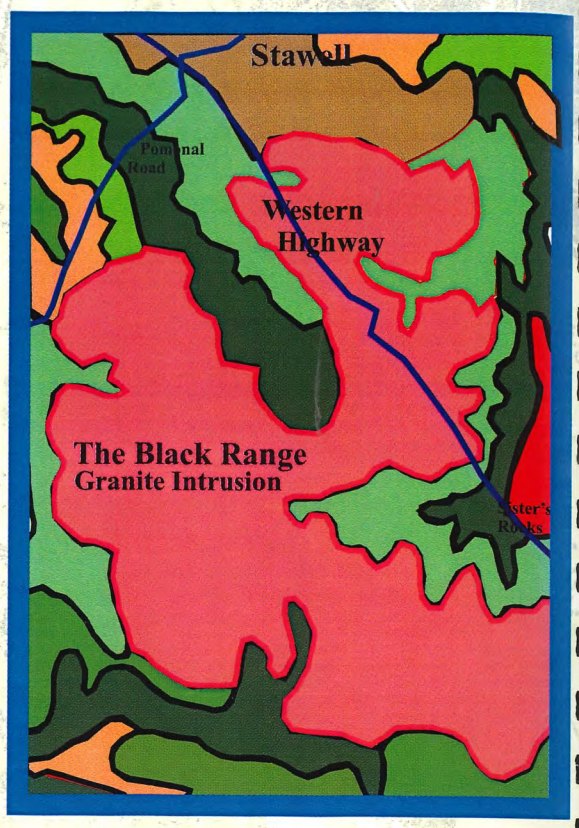


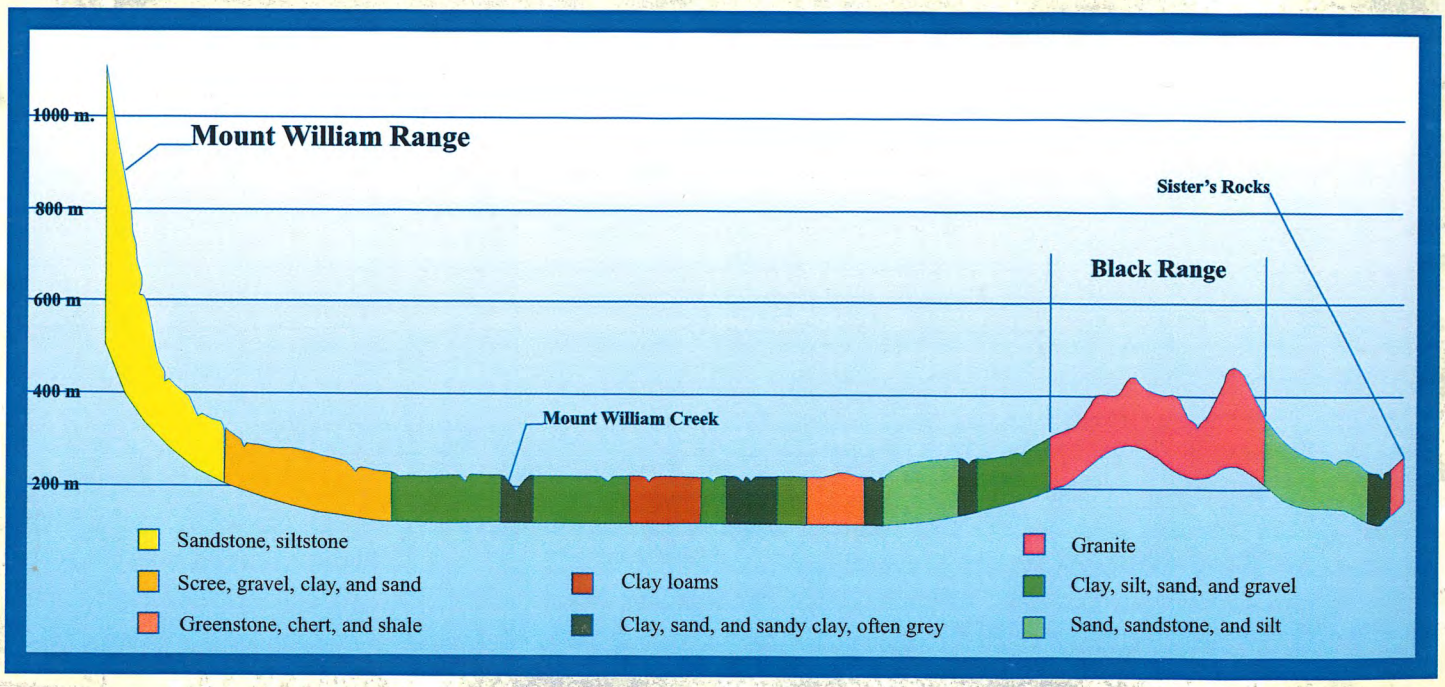




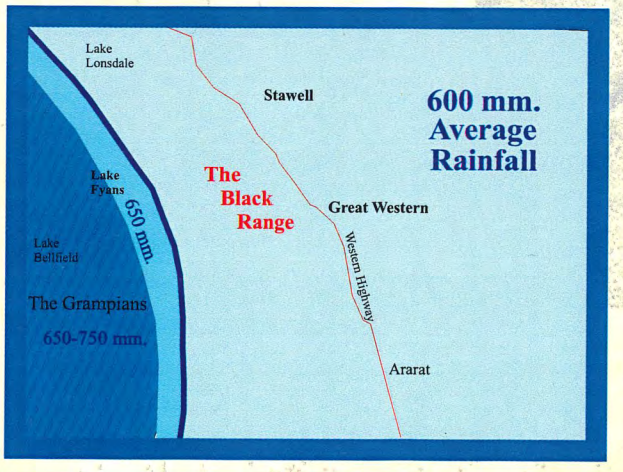

Short Version; Long History

The Black Range probably dates from the lower Devonian which means that it has been around from between 350-400 million years ago. A volcanic intrusion (which forced itself between the existing sandstones, shales, and mudstones formed between 450-550 million years ago), the Black Range cooled slowly underground, which accounts for the large particles common in the sands and rocks of this deposit. Erosion eventually revealed the Black Range and began the process of decomposition. The large tors of the Black Range, the soil (granite sand), and the bed-rock are all examples of granite decomposed through varying exposures to the weather.

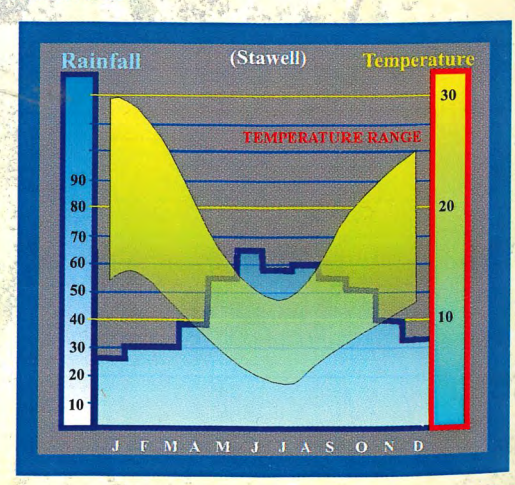




Geology and Weather



This is a broad map of the area's rainfall. In fact, the Black Range has a lower rainfall than the average for the area, because of air currents created by the Range and surrounding formations which tend to sweep moisture bearing clouds away.



Soil type 4

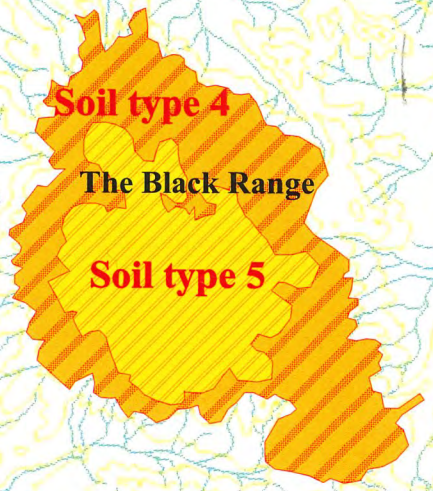
Areas with poor capability...considerable engineering difficulties during development and/or management are necessary to minimise the impact on the environment. High risk of adverse effects to land and water is always present. Extensive conservation measures are required. Skilled management is essential.

Soil type 5

Areas with very poor capability...Limitations cannot easily be overcome with current technology. Severe deterioration of the environment will probably occur if use is attempted in these areas. Severe risk of adverse effects to land and/or water is always present.

from Land Inventory of the Wimmera Systems and Rocklands Water Supply Catchments, Land Protection Service , Conservation, Forests, and Lands, Victoria 1985

Soils in the Black Range are either in Land Capability Class 4 or in Class 5. The steep slopes are Class 5



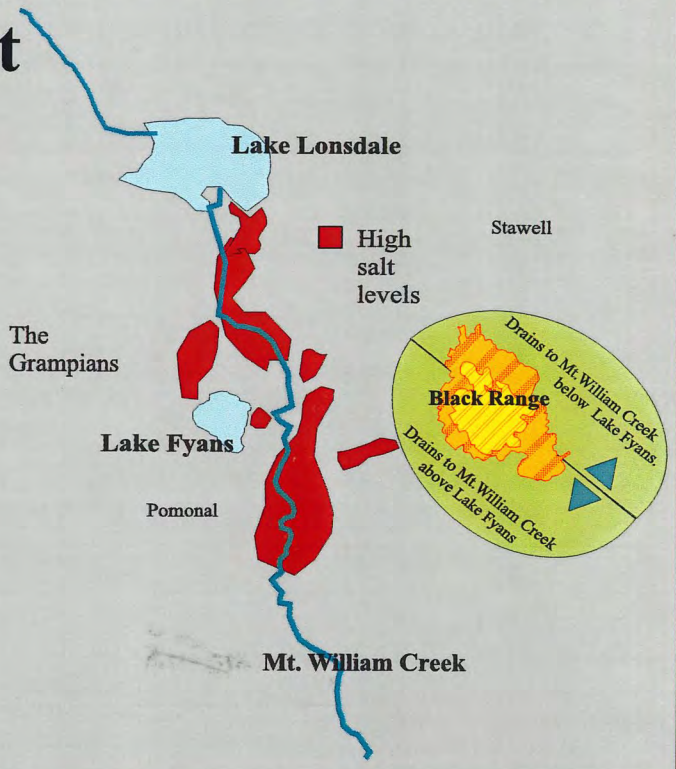
and the gentler slopes tend to be class 4 with localized areas of Class 5.

Role in the Local Catchment

An example of poorly vegetated land, common in the Range, that contributes to high water run off and therefore to salinity levels in the local catchment.

...the majority of the salt load is believed to be from the contact metamorphics of the granite. That is, the marine sediments that have been scorched/baked due to the intrusion of a granite body, which now makes up the Black Range.

from Stream E.C.Surveys of the Upper Wimmera Catchment 1994/95, Elder & Hocking, Centre for Land Protection Research, Bendigo.



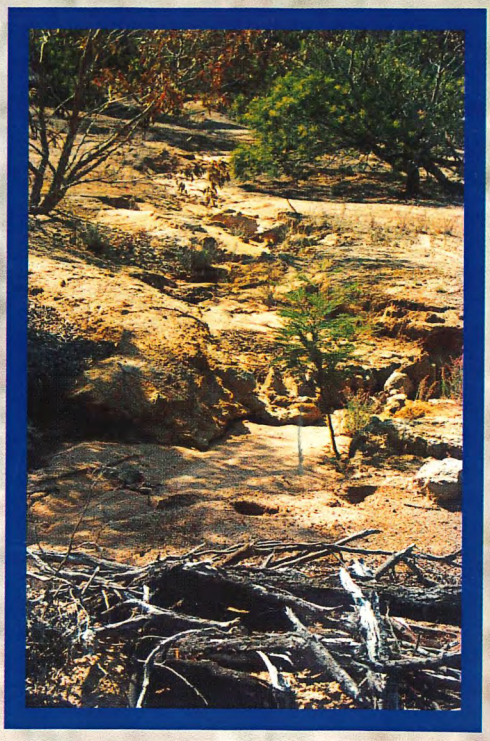
It is apparent that the dominant LMU's contributing to the catchment salt load are the Sedimentary Rises and Granitic Terrain.

from the Mt. William Creek Catchment Surface Water Salinity Survey. HydrTechnology, Technical Note No. TN/88/93, Harrison & McAuley.

The results of the salinity survey of streams in the catchment shows that all the high salt contributing sub-catchments occur in the east of the catchment draining predominately sedimentary Rises and Granitic Terrain.

from Hydrogeological Assessment of Salinity Processes - Mount William Creek Catchment. Rural Water Corproation, Harrison

Sheet is the most common form of erosion in the Black Range. Sheet erosion is pernicious because its symptoms are relatively subtle, but it moves more sand down the slopes than all the rest of erosion types put together.
Fortunately, it responds quickly to re-vegetation management and can be stabilized within a season or so of being planted out.

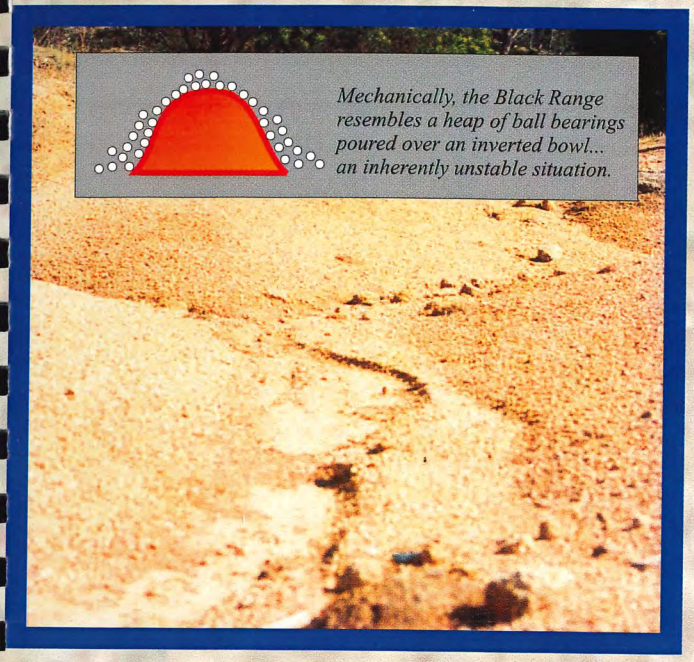


Unfortunately, this is a typical creek bed in the Black Range. The bottom is lined with sand that moves down the Range after rains, and the side cuts are actively expanding. Even here re-vegetation is a good first management response. These creek beds will stabilize eventually after re-planting. The most active sites may require re-forming for an initial stabilization.

Erosion

Compaction in these sands causes a hard crust on the surface over compressed sand. Nothing will grow and it is always in the process of washing down the hill. A very common problem in Range, compaction is caused by a variety of things ranging from driving heavy vehicles over the the ground to the accumulated effect of the hard hoofs of European grazing animals.

Heavy dust storms like the one above are not common in the Black Range, or even caused by it alone: but the Range does disappear in the winds - particularly on sparsely vegetated ground, after cultivation, and along drives during dry weather.



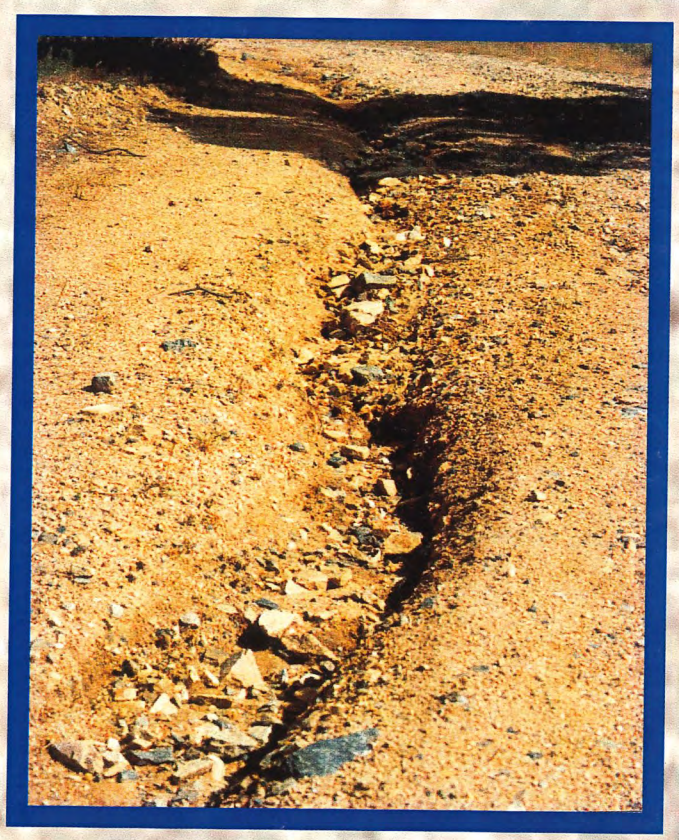
It takes very little to cause erosion and a great deal of time, effort and money to deal with it.

Without exception, tracks that have been opened into the Range look like this along parts of their lengths. This one is on a fairly gentle slope. Higher in the Range, tracks are in much worse condition. The continuous impression left by tyres invites erosion. Heavy vehicles invariably encourage erosion, soil compaction, and destruction of the under-story. Even with a light vehicle, thought and caution should be applied before forays into the bush. Wet conditions amplify the damage.

Waterlogged in the winter. Because of clearing and subsequent related activities, many of the lower slopes of the Range are waterlogged much of the winter.

Planting such areas with 'wet land' trees and bushes reduces the amount of water in the soil, which in turn reduces run off (which reduces the catchment's salt problems) and stabilizes the ground.

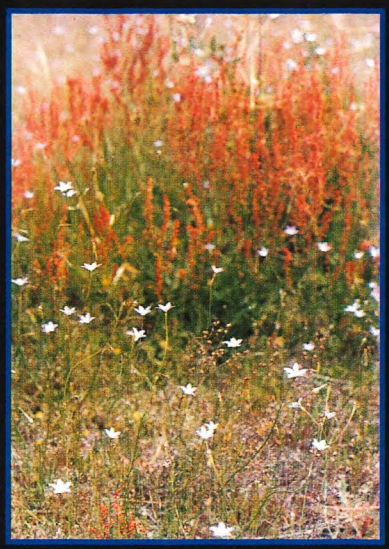
The particular mess illustrated above was caused by a combination of sheep grazing and rabbit infestation. Areas where vehicles have been bogged are likely to resemble this situation.



Typical of the erosion caused by motor bikes, rabbit baiting trails and tyre slippage, these mini-gullies can turn into even bigger problems after rains. One wet winter and this little washout could turn quickly into serious gully erosion. Vehicles, even kangaroos---any continuous path up the slopes of the Black Range is likely to end up with this result.

Summer and winter, the steep slopes of the Black Range will not tolerate being driven over. Driveways, bush tracks, work sites in the Range are management challenges and involve continuous maintenance. Best to avoid the problem by staying out of the Range above the 360 m. above sea level mark. And being very careful below it.






Various Pests

A great variety of challenges: pretty weeds, the rabbit, the fox, and all the rest.

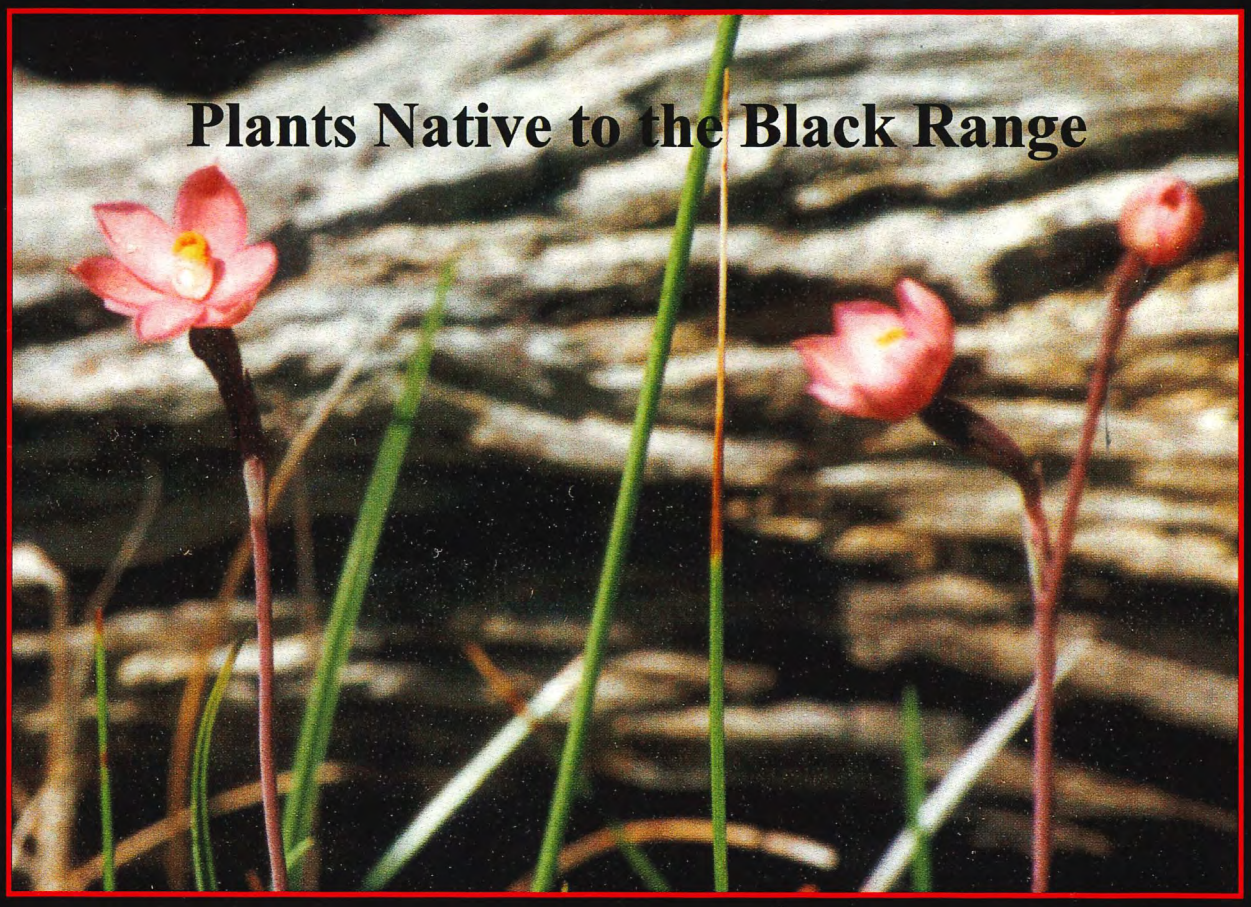






II A Closer Look

Plants Native to the Black Range



KEY TO THE SYMBOLS USED IN THE PLANT LIST

STATUS OF PLANTS

- A — Locally Abundant
- C — Locally Common
- LR — Locally Rare
- LE — Locally Endangered

TYPE OF PLANT

- Grass
- Annual Herb
- Perennial Herb
- Shrub
- Orchid
- Tree

METHODS OF REGENERATION

- Self seeding
- Broadcast seeding
- Tube stock
- Division
- Cuttings

GENERAL PREFERRED CONDITIONS

- Full sun
- Shade
- Wet or seasonally wet
- Dry
- Wide variety of conditions

Species/Status Regeneration

Acacia acinacea
Gold Dust Wattle

LR

Acacia genistifolia
Spreading Wattle

LR

lower slopes

Acacia gunnii
Plowshare Wattle

LR

gravelly clay

N/A

Acacia implexa
Lightwood

C

Acacia mearnsii
Late Black Wattle

A

Acacia melanoxylon
Blackwood

LR

Regeneration Species/Status

Acacia mitchelli
Mitchell's Wattle

poor sands

LR

Acacia myrtifolia
Myrtle Wattle

poorer sands

LR

Acacia paradoxa
Hedge Wattle

C

Acacia pycnantha
Golden Wattle

shallow soils

LR

All Acacias set nitrogen in the soil. Most are vigorous colonizers of cleared land. All have relatively shallow roots so they are excellent binders of the soil. They are a plentiful source of food for many insects and provide habitat for nesting birds. Most make good garden plants.

Acacia verticillata
Prickly Moses

sandy soils

LR

Species/Status Regeneration

Acaena echinata
Sheep's Burr

C

Though a great nuisance sticking into socks, pants, and fingers, the seeds of Sheep's burr provide a protein-rich food source for grazing animals late in summer when little else is available.

Acrotriche serrulata
Honey Pots

LE

sands

Actinobole uliginosum
Flannel Cudweed

LE

sands

Adiantum aethiopicum
Common Maidenhair

LE

rock crevasses

N/A

Agrostis avenacea
Common Blown Grass

C

Allocasuarina muellerana
Slaty She-oak

LR

rocky or sandy

Regeneration Species/Status

Allocasuarina misera
Dwarf She-oak

LR

rocky slopes

Allocasuarina verticillata
Drooping She-oak

C

rocky

Amphibromus archeri
Pointed swamp Wallaby-grass

N/A

LR

Amphibromus nervosus
Veined Swamp Wallaby-grass

LE

All grasses are good soil binders because of their dense relatively shallow root systems. Native grasses are best since they endure through summer and offer less bio-mass to burn in case of fire.

Amphipogon strictus var. *Setifer*
Grey-beard Grass

N/A

poor sands

LE

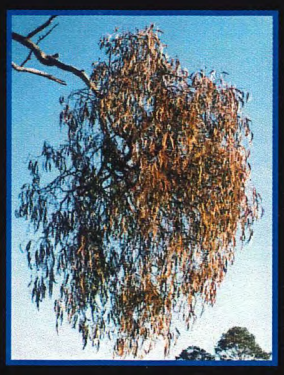
Amyema quandang
Grey Mistletoe

C

acacia hosts only

Amyema pendula
Drooping Mistletoe

C



Amyema preissii
Wire-leaf Mistletoe

LR

N/A

Angianthus preissianus
Salt Angianthus

LR

salt indicater

N/A

Aphelia pumilio
Dwarf Aphelia

C

N/A

Aristida behriana
Brush Wire-grass

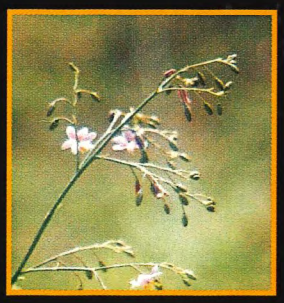
LE

Arthropodium fimbriatum
Nodding Chocolate-lily

C

Arthropodium strictum
Chocolate lily

C



Arthropodium milleflorum
Pale Vanilla-lily

LR

Asplenium flabellifolium
Necklace Fern

N/A

C

Astroloma conostephioides
Flame Heath

C

Species/Status Regeneration

Astroloma humifusum
Cranberry Heath

C

Austrodanthonia auriculata
Lobed Wallaby-grass

LR N/A

Austrodanthonia eriantha
Hill Wallaby-grass

LR N/A

Austrodanthonia geniculata
Kneed Wallaby-grass

C N/A

Austrodanthonia laevis
Smooth Wallaby-grass

C N/A

Austrodanthonia pilosa
Velvet Wallaby-grass

C N/A

Regeneration Species/Status

Austrodanthonia racemosa
Stiped Wallaby-grass

N/A rocky A

Austrodanthonia setacea
Bristly Wallaby-grass

N/A A

Austrodanthonia tenuior
Purplish Wallaby-grass

N/A LR

*** *Austrostipa* is the current name for the *stipa* family of grasses. Please refer to *stipa* in the plant list.**

Banksia marginata
Silver Banksia

sandy C

Banksias were thought to regenerate only after fire, but the local ones will regenerate anytime, if the rabbit and grazing pressure are removed. Along with she-oaks, waist to shoulder height trees are often targets used by adolescent kangaroos for boxing practice. This behaviour may be connected with keeping grazing land free of trees.

Billardiera cymosa
Sweet Apple-berry

sandy LE

Billardiera scandens
Common Apple-berry

N/A sandy LE

Species/Status Regeneration

Brachyloma daphnoides
Daphne Heath

C

sandy

Brachyscome cardiocarpa
Swamp Daisy

LR

Brachyscome diversifolia
Tall Daisy

LE

Brachyscome multifida
Cut-leaf Daisy

LE

rocky

Bracteantha bracteatum
Golden Everlasting

LE

rocky

N/A

Bracteantha viscosum

LE

rocky

N/A

Regeneration Species/Status

Brunonia australis
Blue Pincushion

C

Bulbine bulbosa
Bulbine Lily

C

Burchardia umbellata
Milkmaids

C

Bursaria lasiophylla
Hairy Bursaria

LE

N/A

Bursaria spinosa
Sweet bursaria

LR

rocky

Species/Status Regeneration

Caesia calliantha
Blue Grass Lily

LE

Caladenia caerulea
Blue Caladenia

LR

N/A

Caladenia carnea
Pink Fingers

LR

Most orchids in the Range are locally rare or endangered because of a long history of rabbit infestation. Rabbits eat the heads and leaves of most orchids long before they have a chance to reproduce.

Caladenia parva
Small Spider Orchid

LR

Regeneration Species/Status

Caladenia tentaculata
Mantis Orchid

LR

Callistemon rugulosis
Scarlet Bottlebrush

C

Callitris rhomboidea
Oyster Bay Pine

LR

rocky slopes

Another victim of rabbits, the Oyster Bay Pine was reduced to one small group in the Range. Reduced rabbit numbers and an active program of propagation have brought this indigenous softwood tree back from the brink of local extinction.

Calochilus robertsonii
Purple Beard Orchid

N/A

LR

rocky slopes

Species/Status Regeneration

Calytrix tetragona
Common Fringe-myrtle

LE

Carex breviculmis
Short-stem Sedge

LE

sedge

N/A

Carprobrotus modestus
Inland Pigface

C

succulent

Cassinia arcuata
Drooping Cassinia

LR

N/A

Cassytha glabella
Tangled Dodder Laurel

LR

Centrolepis aristata
Pointed Centrolepis

C

N/A

Centrolepis cephaloformis
Cushion Centrolepis

LE

N/A

Regeneration Species/Status

Centrolepis fascicularis
Tufted Centrolepis

LE

Centrolepis strigosa
Hairy Centrolepis

N/A

C

Chamaescilla corymbosa
Blue Squills

C

Cheilanthes austrotenuifolia
Rock Fern

A

rocky

Cheilanthes sieberi
Narrow Rock Fern

N/A

LE

rocky

Chloris truncata
Windmill Grass

N/A

LE

Chorizandra enodis
Black Bristle-sedge

LR

sedge

sand

Species/Status Regeneration

Chrysocephalum apiculatum
Common Everlasting

C

Chrysocephalum semipappavum
Clustered Everlasting

LR

Clematis aristata
Mountain Clematis

LE

root suckers

climber

Clematis microphylla
Small leafed Clematis

LR

climber

N/A

Comesperma calymega
Blue-spike Milkwort

LE

Regeneration Species/Status

Comesperma volubile
Love Creeper

LE

Convolvulus erubescens
Pink Bindweed

C

Correa reflexa
Common Correa

LR

Corybas incurvus
Slaty Helmet Orchid

LR

Cymbonotus preissianus
Austral Bear's Ears

N/A

LR

Cynoglosum suaveolens
Hound's Tongue

C

Species/Status Regeneration

Cyperus tenellus
Tiny Flat Sedge

LR

N/A

Cyrtostylis robusta
Large Gnat Orchid

LR

Daucus glochidiatus
Austral Carrot

C

N/A

Davesia brevifolia
Leafless Bitter Pea

LE

N/A

Davesia leptophylla
Narrow-leafed Bitter-pea

LE

Deyeuxia quadriseta
Reed Bent Grass

LR

N/A

Dianella revoluta
Black-anther Flax-lily

C

Regeneration Species/Status

Dianella longifolia
Pale Flax-lily

N/A

LE

Dichelachne micrantha
Short-hair Plume-grass

N/A

LE

Dichondra repens
Dichondra

C

Dillwynia glaberrima
Smooth Parrot-pea

N/A

LR

Dillwynia hispida
Red Parrot-pea

LR

Dillwynia sericea
Showy Parrot-pea

N/A

LR

Smaller shrubs of the understory play a vital role, sustaining many insects and birds with nectar and pollen. Browsing animals depend on them. They add to the variety of habitat for small animals.

Diuris orientis
formerly *corymbosa*
Wallflower Orchid

LE

Species/Status Regeneration

Diuris chryseopsis
Golden Moths

C

Diuris lanceolata x pardina
Leopard Moths

LE

Diuris pardina
Leopard Orchid

LE

Diuris sulphurea
Tiger Orchid

LE

Regeneration Species/Status

Dodonaea boroniifolia
Hairy Hopbush

LE

rocky

N/A

Dodonaea cuneata
Wedge leaf Hopbush

LR

rocky

Dodonaea procumbens
Trailing Hopbush

LE

NR

Drosera auriculata
Tall Sundew

LR

Drosera glanduligera
Scarlet Sundew

C

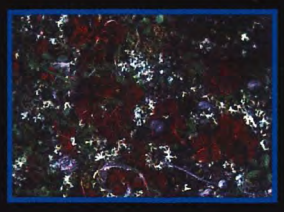
Drosera peltata
Pale Sundew

A

Species/Status Regeneration

Drosera pygmaea
Tiny Sundew

LR



Drosera whitakeri
Scented Sundew

C

The several varieties of Sundew present in the Range testify to poor soils. Sundews suppliment their diet by catching and digesting insects. In many places, they form a dense protective ground cover where little else will grow.

Eragrostis brownii
Common Love-grass

C

N/A

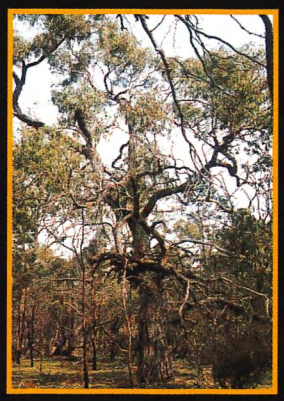
Eriochilus cucullatus
Parson's Bands

LE

N/A

Eucalyptus aromaphloia
Scentbark

A



Eucalyptus camaldulensis
River Red-gum

C

Regeneration Species/Status

Eucalyptus goniocalyx
Long-leafed Box or Bundy

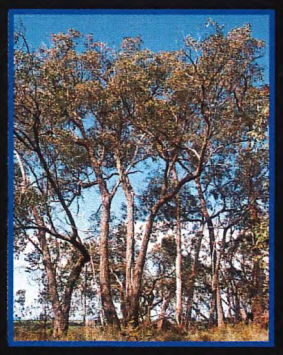
C

rocky

Eucalyptus leucoxylon
Yellow Gum

C

deeper soils



Eucalyptus macrorhyncha
Red Stringybark

LR

Buffering wind, feeding many animals, providing shelter and hollows for nesting, binding soil, sucking up vast quantities of ground water, contributing humus with leaves, fallen branches, and eventually the decomposing body of the tree itself, gum trees are the backbone of the bush.

Eucalyptus melliodora
Yellow Box

A

Eucalyptus obliqua
Messmate Stringybark

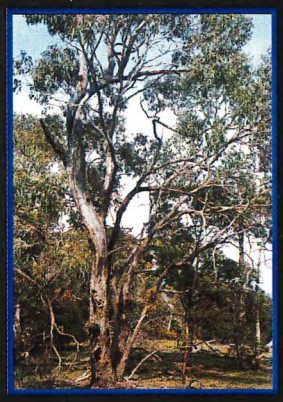
N/A

LR

Species/Status Regeneration

Eucalyptus ovata
Swamp Gum

C



Eucalyptus polyanthemos
Red Box

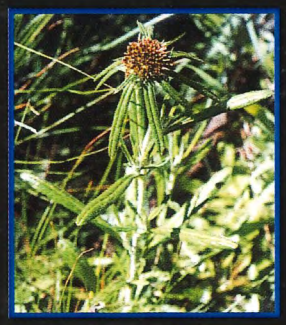
LR

rocky

N/A

Euchiton gymnocephalus
Creeping Cudweed

C



Euchiton involucratus
Star Cudweed

C

Eutaxia microphylla
Common Eutaxia

LR

Exocarpus cupressiformis
Cherry Ballart

C

Regeneration Species/Status

Galium gaudichaudii
Rough Bedstraw

C

rocky

Geranium retrorsum
Grassland Crane's Bill

C

Geranium solanderi
Austral Crane's Bill

C

Glossodia major
Wax-lip Orchid

C

Gnaphalium polycaulon
Indian Cudweed

N/A

C

Gompholobium hueglii
Common Wedge Pea

LE

Species/Status Regeneration

Gonocarpus elatus
Tall Raspwort

C

rocky

Gonocarpus tetragynus
Common Raspwort

A

N/A

Goodenia blackiana
Black's Goodenia

LR

Goodenia humilis
Swamp Goodenia

C

N/A

Goodenia geniculata
Bent Goodenia

C

Gratiola peruviana
Austral Brooklime

C

N/A

Grevillea alpina
Mountain Grevillea

LR

Regeneration Species/Status

Grevillea aquifolium
Variable Prickly Grevillea

LR

Hakea rostrata
Beaked Hakea

LR

The small, common and un-spectular often play an important role in regenerating land. The Raspworts, for example, are vigourous colonizers of degraded land. They are drought resistant and provide small areas of habitat where there may be few alternatives.

Haloragis heterophylla
Varied Raspwort

N/A

C

Hardenbergia violacea
Purple Coral-pea

C

Helichrysum leucopsidium
Satin Everlasting

LE

Hibbertia humifusa
Rising Star Guinea Flower

N/A

LR

NR

Species/Status Regeneration

Hibbertia riparia
Erect Guinea Flower

C

Hibbertia sericea
Silky guinea flower

LR

Hyalosperma demissum
Moss Sunray

LR

Hyalosperma praecox
Mayweed Sunray

C

Hybanthus floribundus
Shrub Violet

LE

N/A

Hydrocotyle callicarpa
Small Pennywort

C

N/A

Hydrocotyle foveolata
Yellow Pennywort

C

N/A

Regeneration Species/Status

Hydrocotyle hirta
Hairy Pennywort

N/A

C

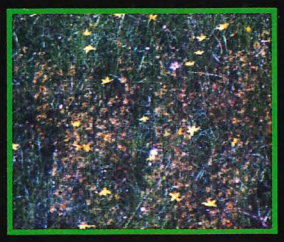
Hydocotyle laxiflora
Stinking Pennywort

C

Hypericum gramineum
Small St. John's Wort

C

Hypoxis glabella
Tiny Star



C

Indigofera australis
Indigo

LE

Isolepis fluitans
Floating Club-sedge

N/A

water

LR

sedge

Species/Status Regeneration

Isolepis marginata
Little Club-sedge

LR

sedge

water

N/A

Isopogon ceratophyllus
Horny Cone-bush

LE

sandy

Juncus holoschoenus
Joint-leaf Rush

C

sedge

Juncus subsecundus
Finger Rush

C

sedge

Slow to grow, the sedges are nonetheless excellent cover plants when established. They are very tough and offer dense cover for small animals.

Kennedia prostrata
Running Postman

C

rocky

Kunzea parvifolia
Violet Kunzea

LE

rocky

N/A

Regeneration Species/Status

Lagenifera gracilis
Slender Lagenifera

C

Lepidosperma carpoides
Black Rapier-sedge

C

sedge

rocky

Lepidosperma laterale
Variable Sword-sedge

LR

sedge

rocky

Leptorhynchos squamatus
Scaly Buttons

C

Any bare ground in the Range is apt to erode. Ground cover plants control erosion when they occur in sufficient communities. They tend to be specialized and therefore able to stabilize niche habitat.
They control moisture in the ground, prevent rain from striking the sand directly, bind the soil, and offer both shelter and nourishment to small ground dwelling animals.
They contribute to the diversity necessary for a healthy ecosystem.
Rare in many sites in the Black Range due to grazing pressure and compacted soils, ground cover plants are often the 'missing link' between vulnerable habitats and healthy ones.

Species/Status Regeneration

Leptospermum continentale
Prickly Tea-tree

A

N/A

Leptospermum lanigerum
Wooly Tea-tree

LE

N/A

Leptospermum myrsinoides
Silky Tea-tree

A

Those species of tea-tree that grow in wet conditions respond especially well to broadcast seeding by hand. Mature fruit identifiable by darker colour and cracking heads, can be picked from parent plants and scattered in any seasonally wet area where they will regenerate readily. Mature communities of tea-tree support large numbers of smaller animals and give necessary protection to other, more delicate, ground cover plants.

Leptospermum scoparium
Manuka

LR

rocky

Regeneration Species/Status

Leucopogon virgatus
Common Beard-heath

LR

Lisanthe strigosa
Peach Heath

LR

Lomandra filiformis
Wattle Mat-rush

C

sandy

Lomandra multiflora
Many-flowered Mat-rush

N/A

LR

tussock

Lomandra nana
Dwarf Mat-rush

LR

tussock

Lomandra sororia
Small Mat-rush

N/A

LE

tussock

Luzula meridionalis
Common Woodrush

N/A

C

tussock

Species/Status Regeneration

Lycopus australis
Australian Gipsywort

LE

N/A

Lythrum hyssopifolia
Small Loosestrife

C

Melaleuca decussata
Totem Poles

LR

Melaleuca parvistaminae
Rough-barked Honey-myrtle

LE

Microlaena stipoides
Weeping Grass

C

N/A

Micromyrtus ciliata
Heath-myrtle

LE

Regeneration Species/Status

Microseris lanceolata
Yam Daisy

LR

Yam daisies were harvested by the Koori because of the large tuber beneath the ground. Once common, the yam daisy has been decimated by grazing, although they do come back when that pressure is reduced.

Microtis unifolia
Common Onion Orchid

C

Millotia muelleri
Common Bow-flower

N/A

LR

Millotia tenuifolia
Soft Millotia

N/A

C

Mitrasacme paradoxa
Wiry Mitrewort

N/A

Species/Status Regeneration

Myoporum viscosum
Sticky Boobialla

LE

Myriccephalus rhizosephalus
Woolly-heads

LR

Myriophyllum integrifolium
Tiny Water-milfoil

LE

?

in water

N/A

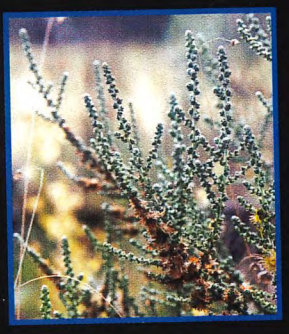
Neurachne alopecuroidea
Fox-tail Mulga Grass

C

sandy

Olearia floribunda
Heath Daisy-bush

LE



Olearia ramulosa
Twiggy Daisy-bush

LE

rocky

N/A

Opercularia varia
Variable Stinkweed

LR

N/A

Regeneration Species/Status

Ophioglossum lusitanicum
Austral Adder's Tongue

C

Oxalis perenans
Grassland Wood Sorrel

C

Ozothamnus obcordatus
Grey Everlasting

C

rocky

Pelargonium rodneyanum
Magenta Stork's-bill

A

Locally rare and locally endangered plants are usually in low numbers because of past management practices and past rabbit populations. Often unable to regenerate spontaneously because species numbers are too low to be viable, these plants are prime candidates for propagation. Tube stock is generally a successful method. Often a garden environment is the most reliable place to get these diminished species to re-establish.

Pentapogon quadrifidus
Five-awned Speargrass

C

Species/Status Regeneration

Persoonia rigida
Stiff Geebung

LR

rocky

Pimelia curviflora
Curved Rice-flower

LR

sandy

Pimelia humilis
Dwarf Rice-flower

C

sandy

Platylobium obtusangulum
Common Flat-pea

LR

Pleurosorus rutifolius
Blanket Fern

LR

rocky crevices

The number of perennial herbs and shrubs on the locally rare and endangered list goes a long way towards accounting for the disappearance of many of the smaller native animals. Deprived of habitat and food sources, smaller marsupials have largely disappeared from the Black Range. A healthy under story must be in place before there is any possibility of successfully re-introducing this missing section of native fauna.

Regeneration Species/Status

Poa rodwayi
Velvet Tussock-grass

C

Poa sieberana* var. *hirtella
Grey Tussock-grass

C

Podolepis jaceoides
Showy Podolepis

LR

Poranthera microphylla
Small Poranthera

LR

Pteridium esculentum
Austral Bracken

C

Traditionally viewed as a pest because it can replace grasses, bracken is excellent habitat for native fauna. It often grows in depressions where it binds soil and reduces the speed of water run off. It is one of the species that may be connected to fire management. Little is known about the optimum frequency and intensity of fires that might lead to regeneration. Research is being done. Danger to the built environment complicates the use of fire as a management method.

Species/Status Regeneration

Pterostylis concinna
Trim Greenhood

C

Pterostylis pedunculata
Maroonhood

LR

N/A

Pterostylis revoluta
Large Autumn Greenhood

LE

rocky

Ptilotus erubescens
Hairy Tails

LE

Ptilotus macrocephalus
Featherheads

LR

Regeneration Species/Status

Ptilotus spathulatus
Lamb's Tails

LE

Pultanaea daphnoides
Large-leafed Bush-pea

LE

rocky

Pultenaea humilis
Dwarf Bush-pea

N/A

LE

Pultenaea laxiflora
Loose Flower Bush-pea

N/A

LR

Pultenaea pedunculata
Matted Bush-pea

LR

Ranunculus robertsonii
Australian Buttercup

C

Species/Status Regeneration

Rumex brownii
Slender Dock

C

Schoenus apogon
Common Bog-sedge

C

Senecio glomeratus
Annual Fireweed

C

N/A

It is an important principle, when propagating plants, to use stock from the Black Range. Plants that are growing in the Range have had a long time to adopt to local conditions and, although local adaptions may be difficult to identify, they are present.
There may be odd cases where a species is so close to local extinction that importing the same species from elsewhere is justified, but the principle holds.

Senecio hispidulus
var. *dissectus*
Rough Fireweed

C

Senecio odoratus
Scented Groundsel

LR

N/A

rocky

Regeneration Species/Status

Senecio quadridentatus
Cotton Fireweed

A

Siloxerus multiflorus
Small Wrinklewort

C

Solanum laciniatum
Large Kangaroo Apple

LR

rocky

Solenogyne dominii
Smooth Solenogyne

N/A

C

Solenogyne gunii
Hairy Solenogyne

N/A

C

Spiranthes sinensis
Austral Ladies' Tresses

LE

Species/Status Regeneration

Stackhousia monogyna
Candles

C

rocky

Stackhousia viminea
Yellow Stackhousia

LR

N/A

Note: Stipas have been re-named Austrostipa

Stipa hemipogon
Half-bearded Spear-grass

LR

N/A

Stipa mollis
Soft Spear-grass

C

Stipa oligostachya
Fine-head Spear-grass

LR

N/A

Stipa scabra
Rough Spear-grass

C

rocky

Regeneration Species/Status

Stipa setacea
Corkscrew Spear-grass

LE

rocky

Stipa stuposa
Quizzical Spear-grass

N/A

LR

Stipa trichophylla
Hair-leaf Spear-grass

N/A

LE

Grasses, like most other plants in the Range, are now growing in altered conditions. Native grasses tend to be mixed in with introduced pasture grasses and most are growing on cleared land rather than more randomly scattered through the bush. Nonetheless, they are a welcome presence since they stabilize the land while restoration proceeds. Unfortunately, the 'extra' amount of grasses helps encourage over-populations of kangaroos.

Stuartina muelleri
Spoon Cudweed

N/A

C

Stylidium graminifolium
Trigger-plant

LE

Stylidium imundatum
Hundreds and Thousands

N/A

LR

Species/Status Regeneration

Tetratheca ciliata
Pink Bells

LE

rocky

Teucreum corymbosum
Forest Germander

LE

Thelymytra antennifera
Rabbit's Ears

C

Thelymitra aristata
Great Sun-orchid

LE

Thelymitra megcalyptra
Scented Sun-orchid

C

sandy

Thelymitra pauciflora
Slender Sun-orchid

C

Regeneration Species/Status

Thelymitra rubra
Salmon Sun-orchid

LE

Themeda triandra
Kangaroo Grass

C

rocky

Thysanotus patersonii
Twining Fringe-lily

C

Thysanotus tuberosus
Common Fringe-lily

N/A

LE

Tricoryne eliator
Yellow Rush-lily

C

Triglochin centrocarpa
Dwarf Arrow-grass

N/A

LR

in water

Species/Status Regeneration

Triglochin procera
Water ribbons

LE

in water

N/A

Utricularia beaugleholei
Violet Fairy's Aprons

LR

Utricularia dichotoma
Fairy's Aprons

LR

N/A

Velleia paradoxa
Spur Velleia

LR

New Holland Daisies, Pig Face, and Black Wattles are all exceptional plants for colonizing bare patches. All will tolerate compacted ground, no protection, and a wide range of growing conditions. New Holland Daisies and Pig Face are drought resistant as well, so they are excellent species of ground cover to introduce into difficult environments. Pig Face can be planted directly from cuttings, the other two establish well from broadcasting.

Villarsia reniformis
Running Marsh-flower

LR

in water

Viminaria juncea
Golden Spray

LE

Regeneration Species/Status

Viola hederacea
Ivy-leaf Violet

LR

Vittadinia cuneata
Fuzzy New Holland Daisy

LR

Vittadinia gracilis
Woolly New Holland Daisy

C

Wahlenbergia communis
Tufted Bluebell

C

Wahlenbergia gracilenta
Annual Bluebell

N/A

C

Species/Status Regeneration

Wahlenbergia luteola
Yellowish Bluebell

Wahlenbergia stricta
Tall Bluebell

Wurmbea dioica
Early Nancy

Xanthorrhoea Australis
Austral Grass-tree

Nothing is more certain than that this list of plants is incomplete. Beyond the absence of images of many species, new species are continually being discovered.
If a plant unrepresented here is discovered, the Department of Natural Resources and Environment can often identify plants from a good photograph or a sample of the plant if there are enough individuals to justify taking a sample. The State Herbarium is also happy to assist and can be contacted directly. If you take a clear photo of a plant please contact one of the members of the committee listed on the back page.

When collecting seeds or cuttings for purposes of propagation, it is important not to strip the 'parent' plant of seeds, or to take so many cuttings that the health of the original is compromised.

Notes on the Plant List

The photos used to illustrate this list were taken exclusively by landowners in the Black Range. Many were taken long before the Black Range Guide was undertaken and so lack the specific focus required to easily identify plants. Some plants really require two or more illustrations to make identification easy. Gum trees, for example, are difficult to distinguish in a photo; leaf details, and blossom details would be helpful. Hopefully, the next edition of the guide will have these additions.

Some plants are easiest to identify from blooms or seeds. Orchids and grasses are among the examples. In these cases, such details of the plant have been used which mean that identification is only easy at certain times of the year.

While it seems obvious that any plant growing in the bush would self-sow, that is not always the case. Sometimes individuals of a species are so rare that they will no longer regenerate perhaps because the plant has become too rare to sustain a population of an insect vector, or some other specific requirement for fertilization. Still others may not regenerate because the soil conditions have been modified away from their preferences. Superphosphate fertilizers, used for encouraging exotic pasture grasses is one common reason. Soil compaction is another.

Where land has been modified, almost everywhere in the Range, the microclimate in the soil necessary to sustain some species may be absent. Another reason for low regeneration rates is that the required environment for particular plants may be rare. Some plants need a certain degree of density around them before they will thrive. And finally, some do not regenerate because grazing or browsing animals are fond of the seedlings. European animals account for most of this harvest, but wallabies and kangaroos may also contribute.

In the process of restoring the bush, waves of re-establishment may be necessary. The reintroduction of trees may be the first step, followed by the larger shrubs, followed by smaller herbs.

Certainly more is known about plants than is presented in the plant list. Whole phyla (fungi, mosses, lichens) which are common and critical in the Range have been excluded. For that information, readers are directed to the reading lists at the end of the guide. Perhaps these plants can be included in the next edition of the guide along with more photographs.

Beyond that, we are to some extent exploring unknown territory since restoration of the bush has been so little practised. To some degree, we must depend on trial and error methods. To some degree, landowners in the Range who are regenerating bush are among the first people gathering the experience to facilitate the process.

Native Vertebrates in the Black Range

Key to Status Symbols

- A — Locally Abundant
- C — Locally Common
- LR — Locally Rare
- LE — Locally Endangered
- ? — Insufficient Data
- VV — Victorian Vulnerable
- NE — Nationally Endangered

As with the list of plants, the list of animals in the Black Range is incomplete. Crustaceans, insects, spiders, worms, and all the rest of the small creatures are not documented in the guide. Their importance is recognised. They are all quite vital to the ecosystem and support the larger animals represented here. They are simply beyond the capacity of this guide at this time. Indeed, it is estimated that 60% of insects remain unclassified, so it is perhaps understandable that they are excluded here.

As time goes by, perhaps information will become more complete. For now, it is hoped that by including the animals more familiar to us, the others will be represented somehow and that the bio-diversity of the Black Range will be indicated to some degree.

Species/Status	Preferred Habitat	Breeding period	Diet	Size
Short-beaked Echnida (C) *Tachyglossus aculeatus*	Wide range. Temporary camps under rocks, logs.	single egg July - Oct	ants & termites	to 45 cm

Monotreme Mammal

Marsupial Mammals

Yellow-footed Antechinus (A) *Antechinus flavipes*	Broad spectrum, prefers rocks and hollow logs, dead trees, and occasionally will move into a shed or dwelling.	Winter or spring, once annually. Litters up to 12	Mostly insects, may include anything from flowers to small birds	Head & body length 86-165 mm Tail 65-151 mm Weight 21-79 g

Southern Brown Bandicoot (LR) *Isoodon obesulus*	Dense vegetation - is fond of dense clumps of hedgewattle, grasses, occasionally tea-tree stands. Will live under rocks and down rabbit warrens even when occupied by rabbits.	Winter to summer. 2-3 litters of 2-4 annually	Earth-worms, Insects	Head & body length 280-660 mm Tail 90-140 mm Weight 400-1600 g

Sugar Glider (LR) *Petaurus breviceps*	High to medium rainfall forests and woodlands Requires tree hollows for nesting and breeding where it lives in small groups. Requires thick bush with a variety of trees and flowering shrubs. Spends its time primarily in the tree canopy.	June - Janurary Usually two offspring at once each year	Inverte-brates. sugar exudates of wattles and eucalypts, nectar, pollen	Head & body length 16-21 cm Tail 16-21cm Weight 95-160 g

Koala (LE) *Phascolarctos cinereus*	Eucalypt forests. Needs continuous bush, becomes quickly stressed if forced to leave a patch of bush for new feeding grounds.	Summer One offspring annually	foliage of eucalypts, some non-eucalypts may contribute to diet	Head & body length 680-820 mm Weight 7-13.5 kg

Marsupial Mammals	Size	Diet	Breeding period	Preferred Habitat	Species/Status
	Head & body length 60-90 mm. Tail length 40-70 mm Weight 10-20 g	Insects, other inverte-brates	July-Feb. 8-10 young born per annual litter, usually five survive to weaning	Open grasslands, low shrublands. Sometimes seen in land cleared for agriculture; requires a fox and cat free environment.	**Fat-tailed Dunnart** LE *Sminthopsis crassicaudata*
	Head & body length 150-250 mm. Tail length 150-240 mm Weight 100-300 g	Large and small inverte-brates	May - June Litters of 5-8 young annually	Lowland woodlands, grassy woodlands	**Brush-tailed Phascogale** LE VV *Phascogale tapoatafa*
	Head & body length 65-80 mm. Tail length 70-80 mm Weight 10-14 g	Inverte-brates. pollen, sugar exudates, nectar	April-Feb. 1-4 young annually	Forests and woodlands in medium rainfall areas	**Feathertail Glider** LE *Acrobates pygmaeus*
	Head & body length 35-55cm Tail length 25-40 cm Weight 1.2-4.5 kg	leaves of eucalypts. shrubs, herbs. flowers and fruit	March-May Single offspring annually	Wide variety of habitat. Seeks shelter in hollow trees, sometimes in buildings.	**Common Brushtail Possum** A *Trichosurus vulpecula*
	Head & body length 30-35 cm Tail length 30-35 cm Weight 700-1100 g	leaves of eucalypts, tea-tree, paperbark, and wattles	April-December one to four young annually	Wide range of forests and woodlands. Medium to high rainfall areas.	**Common Ringtail Possum** LR *Pseudocherirus peregrinus*
	Head & body length 67-85 cm Tail length 64-86 cm Weight 10-20 kg	Wide range of shrubs, herbs, ferns, grass and fungi	Any time of year. Single young	Wide range of forests	**Black Wallaby** C *Wallabia bicolor*

Red-necked Wallaby
LR
Macropus rufogriseus

Woodlands, heathlands, open forests

Any time of year
Single young

Grasses and herbs

Head & body length 70-88 cm
Tail length 66-88 cm
Weight 12-34 kg

Eastern Grey Kangaroo
A
Macropus giganteus

Daytime - shelters in trees and shrubs. Late afternoon to early morning moves to open country to graze.

Throughout year, birth rates peak in summer

Grasses and forbs

Head to tail 958 - 1857 mm
Weight 3.5-66 kg

Western Grey Kangaroo
C
Macropus fuliginosus

Daytime - shelters in trees and shrubs. Late afternoon to early morning moves to open country to graze.

Throughout year, birth rates peak in summer

Grasses and forbs

Head to tail 971 - 2225 mm
Weight 4.5-53.5 kg

Species/Status	Preferred Habitat	Breeding period	Diet	Size

Placental Mammals

Swamp Rat
LR
Rattus lutreolus

Wet heathlands and riparian vegetation, usually with an abundance of sedges

Sept-Feb
May produce several litters in a year of 5 young

Corms and leaf bases of sedges, fungi, seeds, inverte-brates

Head & body length 122-197 mm
Tail length 56-147 mm
Weight 56-156 g

Chocolate Wattled Bat
?
Chalinolobus morio

Wide range of woodlands and forests

Sept-Dec
One or two young annually

Flying insects

Head & body length 65-75 mm
Tail length 40-50 mm
Weight 10-18 g

Lesser Long-eared Bat
?
Nyctophilus geoffroyi

Wide range of open forests and woodlands. Needs tree hollows or sheltered crevices for roosting and breeding

Late spring to summer
Two young

Flying insects

Head & body length 40-50 mm
Tail length 35-50 mm
Weight 7-12 g

	Size	Diet	Breeding period	Preferred Habitat	Species/Status
	Head & body length 36-46 mm Tail length 28-39 mm Weight 4-7 g	Flying insects	Nov.- Dec. Single young	Open forests and woodlands. Requires hollows or similar protection for roosting and breeding.	**Forest Bat** C ***Vespadelus regulus***
	Head & body length 85-100 mm Tail length 40-55 mm Weight 25-40 g	Flying and ground insects	Spring, early summer Single young	Open forests and woodlands. Requires hollows or similar protection for roosting and breeding.	**White-striped Freetail Bat** C ***Tadarida australis***
	Head & body length 85-100 mm Tail length 40-55 mm Weight 25-40 g	Flying insects	Unknown	Open forests and woodlands. Requires hollows or similar protection for roosting and breeding.	**Large Forest Bat** C ***Eptesicus sagittula***
	Head & body length 55-70 mm Tail length 40-50 mm Weight 14-26 g	Flying insects	Summer One or two young annually	A range of open forests near to water. Requires tree hollows or caves for roosting and breeding	**Eastern False Pipistrelle** ? ***Falsistrellus tasmaniensis***
	Head & body length 65-75 mm Tail length 40-50 mm Weight 10-18 g	Flying insects	Nov - Dec. Two young	A wide range of woodlands and forests. Requires tree hollows or similar cavities, may roost singly or in mobs of 30 or more.	**Gould's Wattled Bat** ? ***Chalinolobus gouldii***
	Head & body length 34-48 mm Tail length 27-35 mm Weight 3.5-6 g	Flying insects	Single young	Open forests and woodlands. Requires hollows or similar protection for roosting and breeding.	**Little Forest Bat** ? ***Vespadelus vulturnus***

Snakes

Species/Status	Preferred Habitat	Breeding period	Diet	Size	
Western Australian Blind Snake LR *Ramphotyphlops australis*	Undergound in sandy soils Low rainfall areas	Unknown Egg laying	Mostly ants and termites	Up to 50 cm long	
Little Whip Snake C *Suta flagellum*	Lowland woodlands and grasslands	Gives birth to 1-7 live young	Small skinks, perhaps frogs	Up to 50 cm long	
Eastern Brown Snake LR *Pseudonaja textilis*	A wide range of woodlands grasslands and open forests.	lays 20-40 eggs	small mammals and reptiles	up to 2 m long	
Red-bellied Black Snake C *Pseudechis porphyriacus*	Lowland forests and woodlands	5-16 live young	frogs small mammals and reptiles	up to 2 m long	

Lizards

Gould's Goanna LR *Varanus gouldii*	Sandy soils	Egg laying	Small mammals, birds, eggs, reptiles	Up to 1.5 m	
Bearded Dragon LR *Amphibolurus barbatus*	Various bush habitats	8-24 eggs	Insects, small lizards and snakes, vegetation, ground blossoms	up to 400 mm	
Tree Dragon LR *Amphibolurus muricatus*	Forest, woodlands, and heathlands with high to moderate rainfall. Logs, low shrubs	Egg laying	inverte-brates	up to 300 mm	
Marbled Gecko A *Phyllodactylus marmoratus*	Lowland woodlands and heathlands, chiefly in low rainfall areas	Two eggs in clutch	inverte-brates	to 140 mm	

	Size	Diet	Breeding	Preferred Habitat	Species/Status
	to 120 mm	inverte-brates	Egg laying	Ground dwelling in a range of lowland woodlands in low rainfall areas	Thick-tailed Gecko LR *Nephrurus milii*
	to 37 cm	inverte-brates, flowers, fleshy fruit, some carrion	Live young	Lowland woodlands and heathlands, chiefly in low rainfall areas	Stumpy-tailed Lizard A *Tiliqua rugosa*
	to 50 cm	inverte-brates, flowers, fleshy fruit, some carrion	Live young	range of forests, woodlands, heathlands in moderate rainfall areas	Common Blue-tongued Lizard LR *Tiliqua scincoides*
	to 150 mm	mostly anthropods	Lays 3-8 eggs	forests, woodlands, heathlands, mainly in higher rainfall areas	Eastern Three-lined Skink C *Bassiana duperreyi*
	to 120 mm	mostly anthropods	Egg laying	Woodlands, moderate to low rainfall	Boulenger's Skink C *Morethia boulengeri*
	to 105 mm	mostly anthropods	Lays eggs	under leaf litter, logs, loose rocks in wide range of forests, woodlands, heathlands	Garden Skink A *Lampropholis guichenoti*
	to 150 mm	mostly anthropods	Lays eggs	under leaf litter, logs, loose rocks in wide range of forests, woodlands, heathlands	Bougainville's Skink C *Lerista bougainvillii*
	to 330 mm	mostly anthropods	Lays eggs	Wide range of forests, woodlands	Large Striped Skink A *Ctenotus robustus*

Species/Status	Preferred Habitat	Breeding	Diet	Size	
Common Froglet C *Crinia signifera*	Range of forests, woodlands, grasslands	All year Eggs laid in water	Small anthropods	to 30 mm	
Southern Brown Tree Frog LR *Litoria ewingii*	Wide range of wetlands, may be found some distance from water	All year Eggs laid in water	Small anthropods	to 40 mm	
Bibron's Toadlet C *Pseudophryne bibronii*	Lowland woodlands and grasslands, not necessarily in or near water. Shelters under leaf litter.	March - June Eggs laid under leaf litter or in shallow burrows. Tadpoles hatch after eggs are inundated with water	Small anthropods	to 30 mm	
Southern Bullfrog C *Limnodynastes dumerilii*	Pools and slow streams in a variety of woodlands and heathlands.	Aug - April Eggs laid in still water.	Range of anthropods	to 70 mm	
Plains froglet C *Crinia parinsignifera*	Range of lowland woodlands and grasslands, especially in floodplains	Aug - Dec Feb - May Eggs laid in water	Range of anthropods	to 30 mm	
Common spadefoot toad C *Neobatrachus sudelli*	Woodlands, mallee and heathlands of low and intermediate rainfall. Spends much time underground emerging after rain.	Aug - Oct Mar -May Eggs laid in still water of clay pans and ponds	Range of anthropods	to 40 mm	

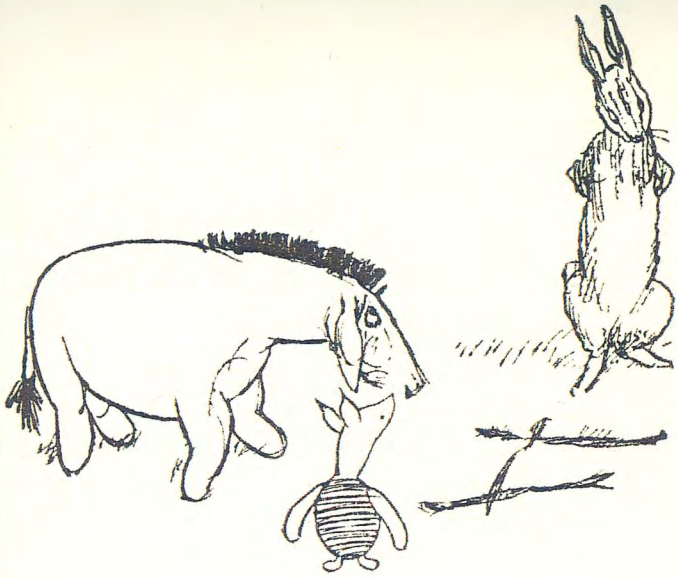
Birds of the Black Range

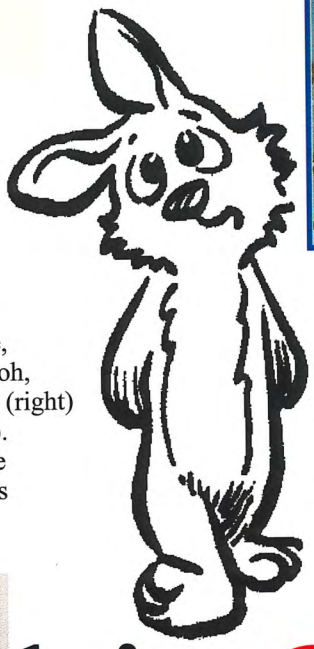
Because there are so many excellent books of Australian birds freely available, illustrations of birds are not included in this plan.

Babbler, White-browed
Bee-eater, Rainbow
Black-tailed Native Hen
Boobook, Southern
Budgerigar
Button-quail, Painted
Chat, White-fronted
Chough, White-winged
Cockatoo, Sulpher-crested
Cockatoo, Yellow-tail Black
Corella, Little
Corella, Long-billed
Cormorant, Little Pied
Cuckoo, Bronze, Horsfields
Cuckoo, Black-eared
Cuckoo, Fan-tailed
Cuckoo, Golden Bronze
Cuckoo, Pallid
Cuckoo-shrike, Black-faced
Cuckoo-shrike, Little
Cuckoo-shrike, White-bellied
Currawong, Grey
Currawong, Pied
Dotterel, Black-fronted
Dove, Peaceful
Duck Mountain
Duck, Wood
Duck, Pacific Black
Eagle, Little
Eagle, Wedge-tailed
Falcon, Brown
Falcon, Peregrine
Fantail, Grey
Finch, Red-browed
Firetail, Diamond
Flycatcher, Brown
Flycatcher, Restless
Frogmouth, Tawny
Galah
Goldfinch
Goshawk, Brown
Grebe, Australasian
Heron, White-faced
Heron, White-necked
Hobby, Australian
Honeyeater, Black-chined
Honeyeater, Brown-headed
Honeyeater, New Holland
Honeyeater, Painted
Honeyeater, Regent
Honeyeater, White-eared
Honeyeater, White-naped
Honeyeater, White-plumed
Honeyeater Yellow-faced
Honeyeater, Yellow-tufted
bis, White
Ibis, Straw-necked
Jacky Winter
Kestrel, Nankeen
Kingfisher, Sacred
Kite, Whistling
Kookaburra
Lorikeet, Musk
Lorikeet, Purple-crowned
Lorikeet, Rainbow
Magpie
Magpie Lark
Martin, Tree
Miner, Noisy
Mistletoebird
Oriele, Olive-backed
Owl, Barking
Owl, Barn
Owl, Masked
Owl, Powerful
Owlet Nightjar
Pardalote, Spotted
Pardalote, Striated
Parrot, Blue-winged
Parrot, Ground
Parrot, Red-rumped
Pigeon, Bronzewing
Pigeon, Crested
Pipit, Australian
Plover, Masked
Quail, Little
Quail, Painted Button
Quail-thrush, Spotted
Raven, Australian
Robin, Hooded
Robin, Red-capped
Robin, Scarlet
Robin, Yellow
Rosella, Crimson
Rosella, Eastern
Shelduck, Australian
Shrike-thrush, Grey
Shrike-tit, Crested
Silvereye
Sitella, Black-capped
Sitella, Varied
Songlark, Rufous
Spinebill, Eastern
Stone Curlew, Southern
Swallow, Welcome
Swift, Spine-tailed
Thornbill, Brown
Thornbill, Buffed-rumped
Thornbill, Striated
Thornbill, Yellow-rumped
Thrush, Bassian
Treecreeper, Brown
Treecreeper, White-throated
Triller, White-winged
Wagtail, Grey
Wagtail, Willy
Warbler, Speckled
Warbler, White-throated
Wattlebird, Little
Wattlebird, Red
Weebill
Whistler, Golden
Whistler, Rufous
Whiteface, Southern
Woodswallow, Dusky
Wren, Supurb Fairy
Wren, White-browed Scrub

Powerful Owl NE
Ninox strenua
(nationally endangered)

The Powerful Owl is one of the animal species at risk that are resident in the Black Range. It grows to 65 cm long. Sustained in the Range by a robust population of possums that form the principal item of its diet, and the presence of some large hollow nesting trees, the Powerful Owl is often heard at night---a deep 'wooo' or 'wu whoo'.





The little cuties: Most of us have grown up with a soft spot in our hearts for bunnies. As children, many eat their breakfast from crockery rimmed with rabbits. There is the Easter Bunny, often chocolate. Many European classics of children's literature feature a rabbit. They tend to be gentle, peaceful, lovable critters: Rabbit (above) from Winnie the Pooh, being a bossy exception to the more typical Rabbit from Pogo (right) or the flower bearing icon for good cheer (upper right corner). Rabbits are here because earlier settlers wanted Australia to be more like home. So the first skirmish in the battle with rabbits is won by the bunny. Do we really have to kill them?

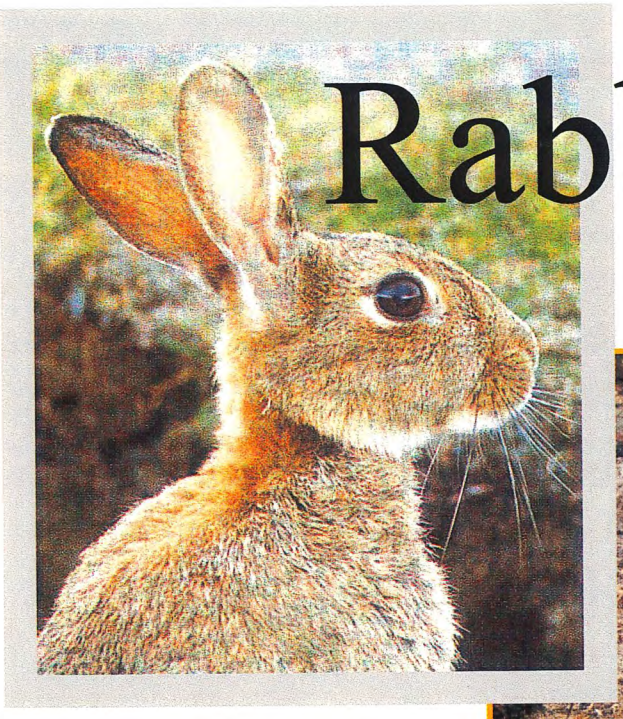
Rabbit control is easier if rabbits are thought of as destructive vermin. There are plenty of reasons to think about them that way.

Uncontrolled, they denude the land, scatter weeds, and compete (with complete success) for food and habitat with bush natives both plant and animal.

They cause erosion.

Rabbit Control

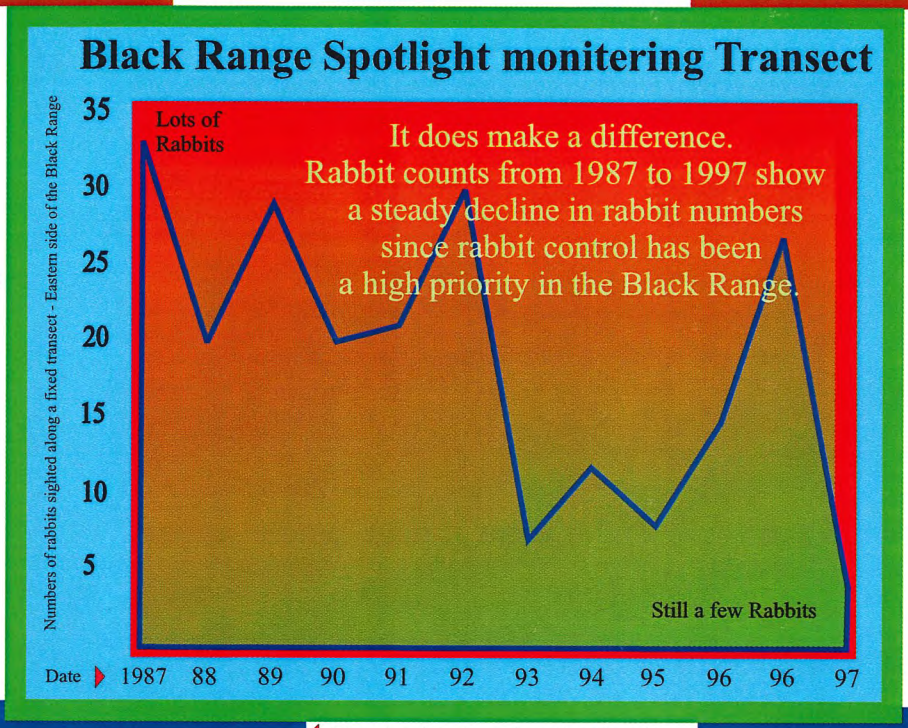
In the end, if rabbits are not controlled, there is nothing left to protect.



The Black Range is paradise for rabbits.
Easy digging. Abundant cover. No natural enemies to speak of. Easy food.
No end of perfect well-drained sites for a cosy, busy warren.
Rabbits could turn the Black Range into the biggest settlement of rabbits in the Wimmera. Unchecked, they can do it.

The bad old days before effective control.

Rabbit control is most successful when warren destruction along with one or more other control measures are carried out consecutively. The key to successful rabbit control is ensuring rabbit warrens are destroyed mainly by ripping and at the same time as neighbours. In a control program, the warren is the weakest link as rabbits require warrens for breeding.

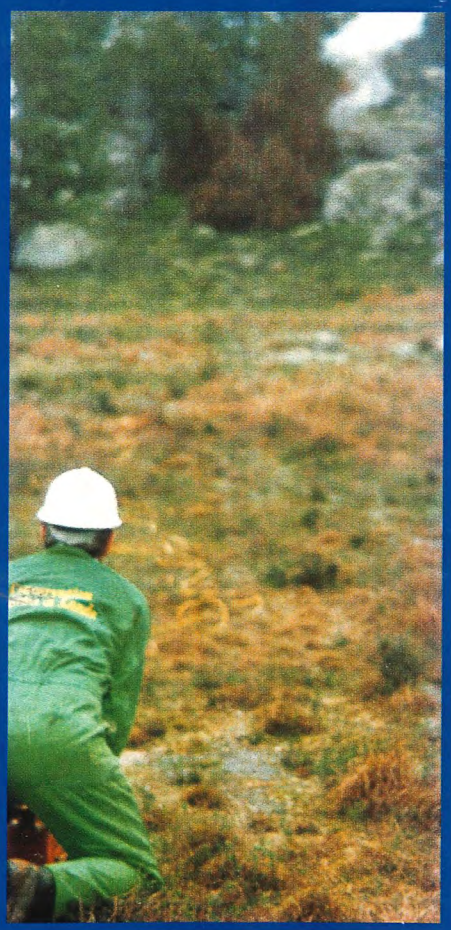


Ripping is best carried out using a bulldozer or an excavator to enable maximum ripping depth. Care needs to be taken to reduce the risk of soil erosion, native plant damage and weed spread. When done correctly the environmental impact of ripping is insignificant compared to the huge long term environmental gains that can be achieved by removing rabbits from the landscape

1080 bait trail. Effective against large rabbit numbers-in much of the Range the cutting disc causes erosion.

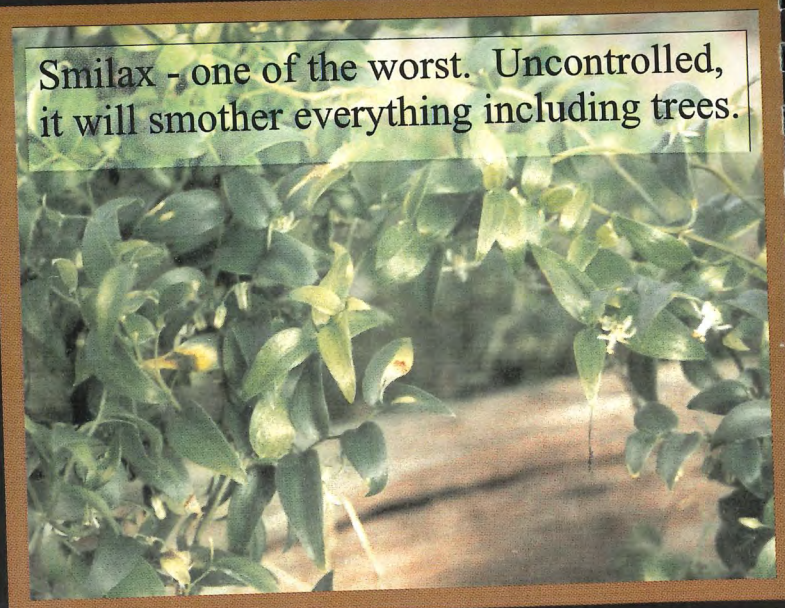
Fumigation is only effective if used in conjunction with ripping or rabbit harbour modification. Fumigation is labour intensive and best done with a team of three or more. It can be a dangerous method, if not done correctly. Safer techniques are currently being developed. Fumigants can also be poisonous to native animals. The risk of fumigating native animals can be greatly reduced by assessing warren entrances to look for signs of activity ie: scats and tracks.

Under the large tors of the Range, there are still rabbit warrens that have been active for years. They are difficult to access since the openings of holes is often well beyond an arm's length.
Explosives can be effective. Blowing warrens is the most expensive way to get rid of a rabbit. It requires a sympathetic explosives engineer, not always easy to find. It should only be applied in stubborn situations which allow no alternative.



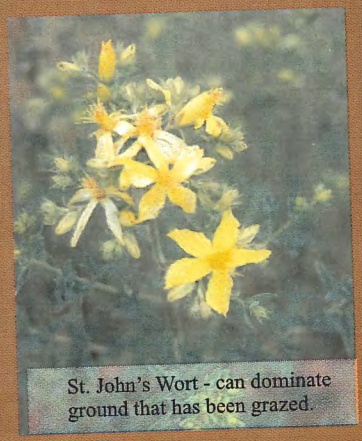
Patterson's Curse can still be controlled in the Range if not neglected.

Thistles come in a variety of species. They choke out native ground cover and then die. The Black Range is showered with thistle seeds every year from surrounding areas.

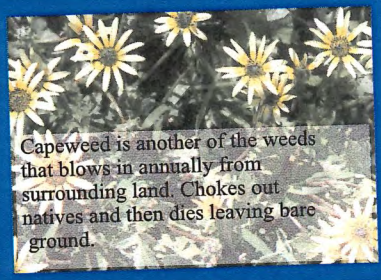


Smilax - one of the worst. Uncontrolled, it will smother everything including trees.

Cape tulip can get dense over large damp areas.



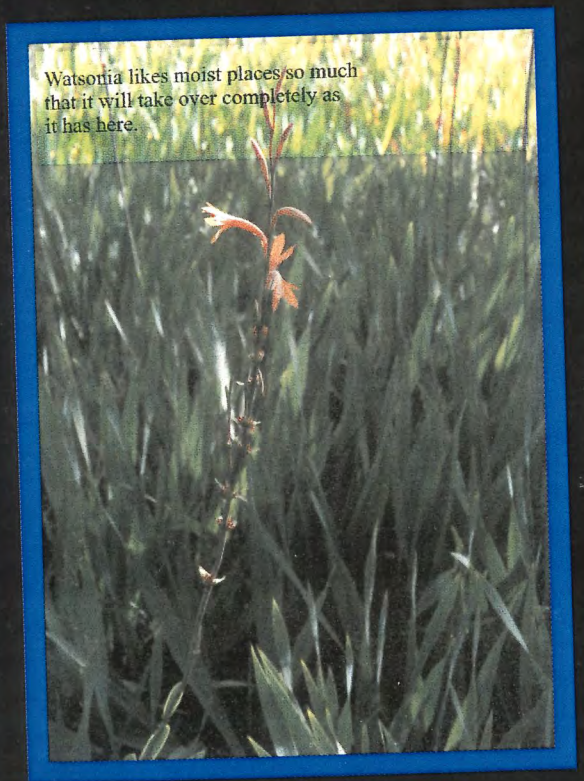
St. John's Wort - can dominate ground that has been grazed.



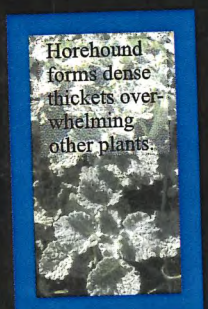
Capeweed is another of the weeds that blows in annually from surrounding land. Chokes out natives and then dies leaving bare ground.

Weeds

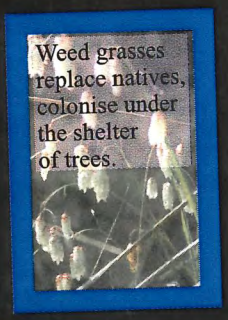
LOVE BARE AND DISTURBED GROUND, MOIST SPOTS, AROUND RABBIT WARRENS AND NUTRIENT ENRICHED SOILS



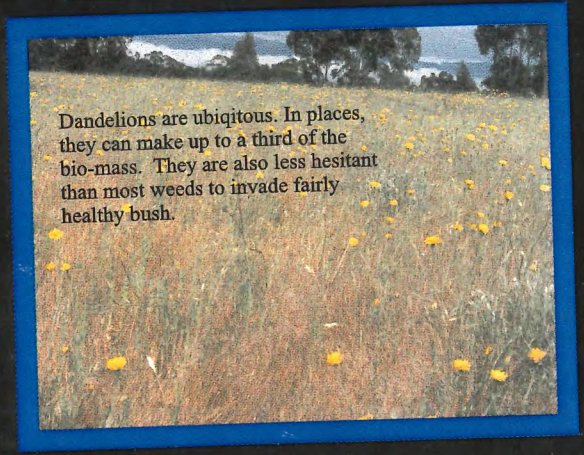
Watsonia likes moist places so much that it will take over completely as it has here.



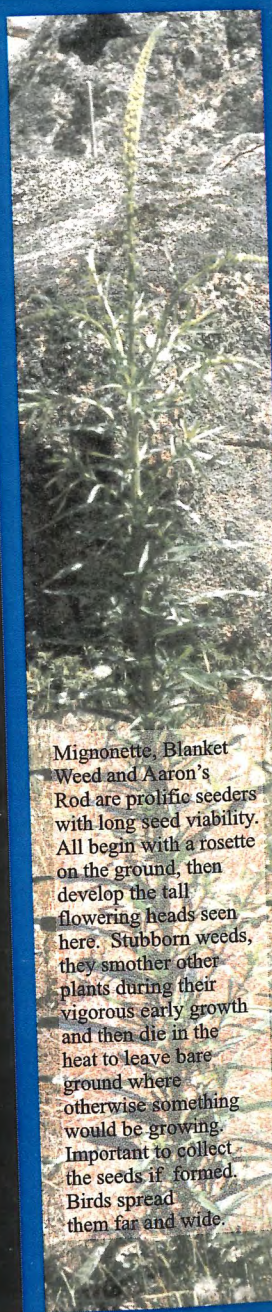
Horehound forms dense thickets overwhelming other plants.



Weed grasses replace natives, colonise under the shelter of trees.

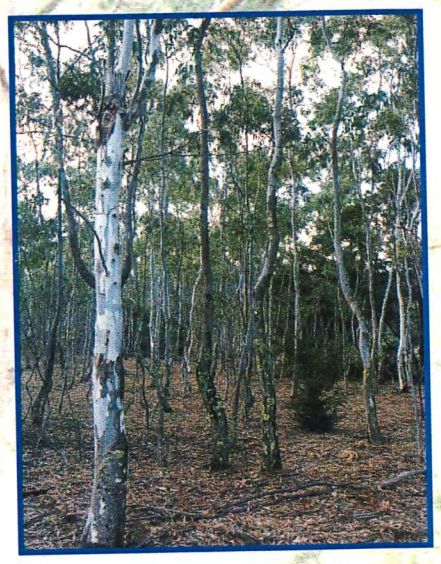


Dandelions are ubiqitous. In places, they can make up to a third of the bio-mass. They are also less hesitant than most weeds to invade fairly healthy bush.



Mignonette, Blanket Weed and Aaron's Rod are prolific seeders with long seed viability. All begin with a rosette on the ground, then develop the tall flowering heads seen here. Stubborn weeds, they smother other plants during their vigorous early growth and then die in the heat to leave bare ground where otherwise something would be growing. Important to collect the seeds if formed. Birds spread them far and wide.

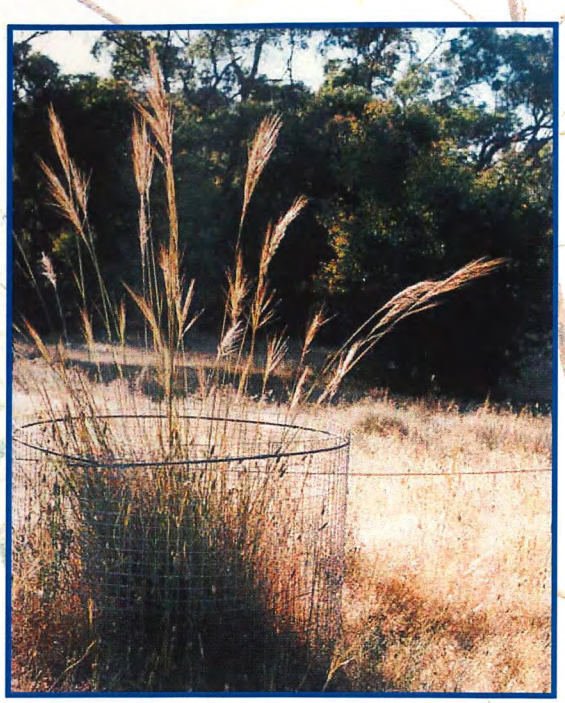
Buildings, Roads and Dams in the Black Range



Techniques of Regeneration

Reducing the grazing pressure is often enough to stimulate self-sown regeneration. Less trouble than any other sort of regeneration, self-sown stands germinate under good conditions for their species and come up where they will grow best.
Almost all the eucalypts, bansksia, the acacias, and lots of others will re-establish themselves given protection from rabbits, and sometimes from kangaroos and wallabies as well. This is probably the single best method of regeneration when it works.

There are situations and species of plant that will not self-sow usually because they have become too rare locally to sustain themselves or because the ecology that they prefer has been modified. Since they all have to be propagated by hand, this technique is labour intensive and there are costs involved. To give these 'pioneer' plants the best chance when they are re-introduced into the bush, protection is usually a good idea. Individual plant guards are commercially available, or can be made up from fencing materials. Rabbit-proof fences can be used where rabbit populations are a continuous threat. Unless the enclosures are quite small, kangaroos will continue to graze an enclosed area, except where a double standard height fence is constructed. Restricting areas from grazing by both rabbits and kangaroos makes a dramatic difference in both the bio-mass of an area, and the rate and number of plants on the ground.



A small 'cage' used to protect isolated plants or small colonies of rare plants.

Planting on the sunny side of a log. Logs give some protection against the wind, break down eventually into a useful mulch, and are used here as a method of controlling sheet erosion.

Erosion control and regeneration go hand in hand. Regeneration always has a role to play in erosion management. The before and after shots here show treatment in a creek bed site where gully erosion was active and tunnel erosion a threat. The first shot shows forming and lining the creek bed. The second shot shows the same site which was fenced, four years later, in a stable condition. Native grasses were broadcast here and shrubs were planted from tube stock.

Tube stock. An assortment of plants grown locally from locally selected seeds. Planting out is best between the first autumn rains and the end of August. This batch has been selected to plant in an enclosure back in the bush. Seed collection to right.

This barely identifiible twig is a sheoke sapling exposed to grazing because it's plastic membrane guard was blown away by the wind.

Sometimes the job is easier with a group. Planting out trees along a barren patch of roadside. These mesh protectors are preferable to the solid film ones which can cook young plants in our summer weather and tend to blow away.

More Pest Animals

Red Fox

Foxes predate on both native and domestic animals, usurp habitat, and are difficult to control because they are intelligent and cautious. There are baits available for foxes. The baits must be buried, placed along fox runs, and checked every few days. Fox baits are not completely successful, partly because they are often ignored for preferable food and partly because foxes are as apt to re-bury them as to eat them. They are nocturnal by habit. Shooting foxes is a skill which involves 'whistling' them up with a special fox whistle, or spotlighting, or both. A fox will eat practically anything of animal origin. During periods of shortage, they can survive happily eating insects. They are widespread. No area in Victoria is free of foxes, including cities. There is strong evidence to suggest that foxes are the single biggest direct threat to native flora, competing with the cat.

Cats

Though people who have pet cats sometimes find it difficult to accept, a valid definition of a feral cat is any cat beyond the verandah. The capacity to purr in a lap does not diminish the deadly hunter at the centre of a cat's nature. That nature means that all cats will hunt, even the best fed and most charming. Several landowners in the Range who have come with cats and later realized just how much damage they can do, report increases in bird and lizard populations very quickly after the cat is removed. It is best by far not to have a cat in or near the bush. If cats are kept they should be neutered and confined to their home by a cat enclosure. They should never be let out at night.
Completely wild cats are generally very healthy and grow to larger than usual sizes after a few generations in the bush. Like the fox, they can survive on anything of animal origin and like the fox, they are wide-spread. Control is by live trapping. Most vetenarians will dispose of feral cats free of charge, if there is difficulty with killing a trapped cat. Shooting is the other effective method of control. Cats are a continuous problem partly because of the irresponsible behaviour of dumping unwanted kittens in the bush or insufficient control of pets.

Black Rats

Because they have close resemblance to some native rats, black rats can be difficult to identify. They alone have bare tails longer than their bodies. Their colouration may vary considerably, not all being as dark as the pictured here. They compete effectively with native animals for food and for habitat. They are vectors for several nasty human deceases.
The Black Range has a large black rat population. They are quick breeders and can reach plague populations under the right conditions. They can be effectively poisoned, but should be positively identified before baits are set as several native animals, including antechinus, will take the bait as readily as will black rats. Rat poison is available at most hardware and farm supply businesses. Rats can also be trapped live.

House Mouse

Along with rats, mice have probably been in Austrialia since the First Fleet landed. They consume enormous amounts of food in the bush and consequently displace native animals. They occupy habitat which would otherwise be available to natives. They are probably the most noticable of the pests due to their enthusiasm for invading houses during the colder months where they contaminate food and add their characteristic mousey aroma. They can be poisoned or trapped either live or with the traditional mouse trap. Like many rodents, they have an enormous capacity to breed leading to the infamous mouse plagues of the Wimmera. They tend to be underestimated as a pest, but the amount of food that they take out of the bush makes the survival of native species very difficult.

House Sparrow

Perhaps suprisingly, the house sparrow wrecks havoc in the bush. Predictably, it competes for food with the large number of grain-eating native birds. Less obviously, it is a ferocious competitor for habitat--- not only does it occupy nesting sites needed by others, but it aggressively tears apart the nest of other birds. Waves of sparrows arrive in the bush yearly following out grain spilled from trucks delivering stock feed. If allowed to settle, house sparrows will begin to replace many smaller birds included those native finches to which they are related. Shooting seems to be the most effective control technique.

European Honey Bee

Honey bees are very effective about collecting honey and pollen which normally would feed a large variety of animals in the bush. They don't have to be feral to do it; beekeepers tend to follow the flowering times in the bush with their hives, so that just when natives are reproducing to take advantage of the greater food supply, bees remove their nutrition. Bees are also adept at forming new colonies in the bush favouring hollow trees which are the sole habitat for many native animals. Phostoxin tablets introduced into the entrances of hives are effective. It is not a good idea to allow managed hives either. That needs to be a co-operative policy since bees will fly 5 km for food.

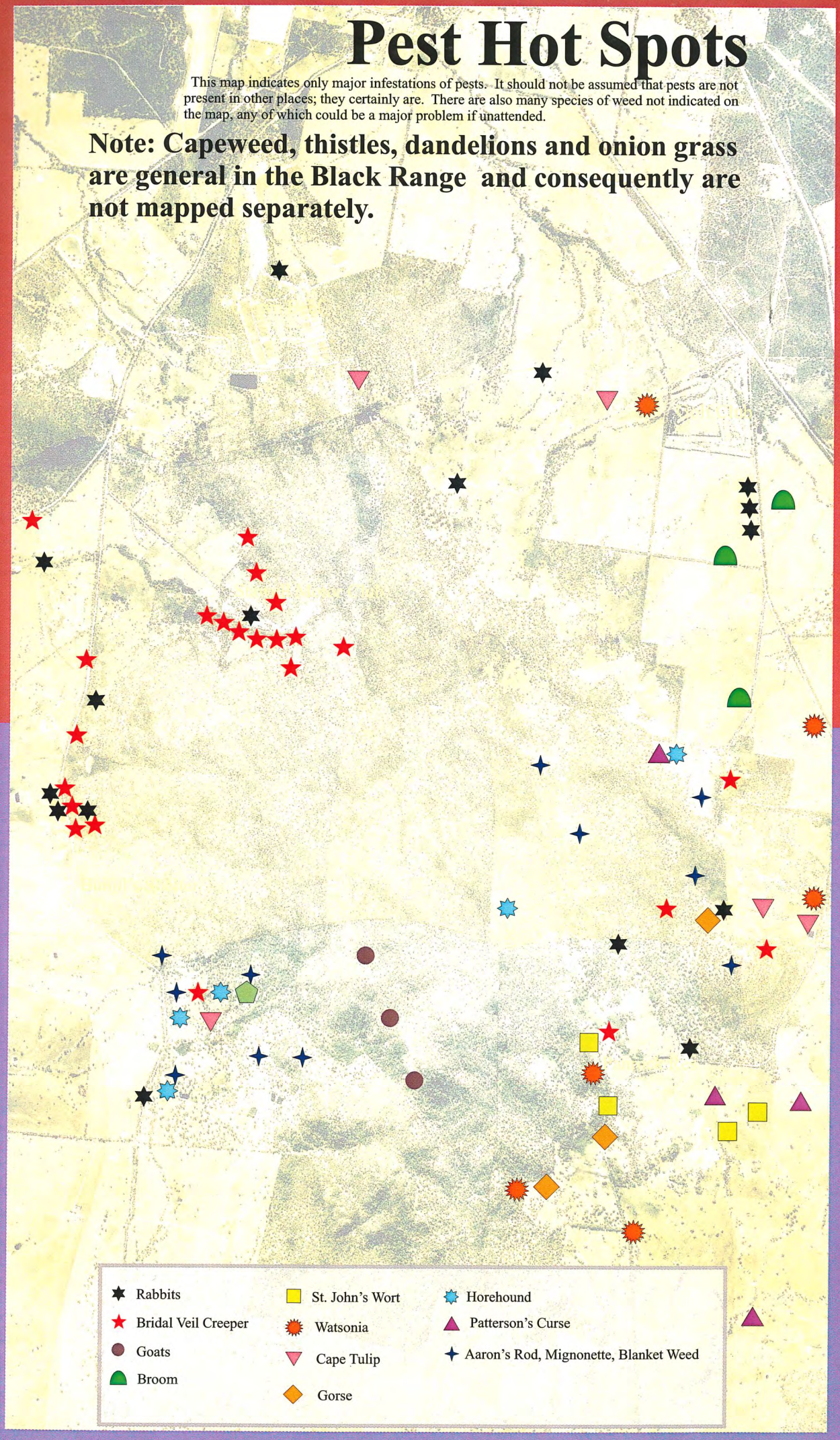
Feral Goat

Aptly know as the desert-makers, feral goats will eat almost any vegetable matter down to the lichens on the rocks. They can climb trees and cliffs. They are elusive, long- lived, can cover a lot of territory in a short time and gain from experience. There has been a resident population of feral goats in the Black Range for years, initiated by stock escaping from inadequate fencing and subsequent indifference of former owners. In common with other hoofed animals, they reduce the soil to dust consequently causing erosion in the most vulnerable steep slopes of the Black Range. The only effective method of control seems to be shooting which requires a heavy licensed rifle and the concurrent permission of all landowners. All attempts to remove them have failed, but they are so dangerous to the health of the bush that attempts must continue..

Pest Hot Spots

This map indicates only major infestations of pests. It should not be assumed that pests are not present in other places; they certainly are. There are also many species of weed not indicated on the map, any of which could be a major problem if unattended.

Note: Capeweed, thistles, dandelions and onion grass are general in the Black Range and consequently are not mapped separately.



You can get a kind of extra-terrestrial look about you when kitted up for control work. Left is a face mask with an assortment of filters, a set of safey glasses, a brimmed hat, and a sheet of plastic to mix poisons on. Right is an assortment of gloves. Surgical gloves give you a sense of feel. Good for handling chemicals. Dish washing gloves for mixing stronger poisons. Heavy duty chemical resistant for chloropictrin (Larvicide).
All of this stuff is dangerous. Some of it is really dangerous. Always wear approved breathing apparatus with appropriate filters when decanting fumigants. Wear washable cotton clothing when working around poisons whether they are for rabbits or weeds. Rubber boots should be worn; they should be inside the pant leg. Wash your hands well after handling. Store in a restricted well ventilated area with provision for spills. Ring your local council to find out where and when to dispose of emptied containers. Don't spill, but just in case, wear appropriate gloves, and have ready provision for containing any spills. Use as little poison as possible to deal with any target. Be careful. You are liable for misuse of F7 chemicals which include all the poisons mentioned here.

safety gear

The Poisons Page

Always follow the directions on any container of poison very carefully. The instructions are a legal document. Failing to follow the directions leaves you legally unprotected and can cause serious health risks.

poisons for rabbits

Carrots are used as the carrier for 1080. 1080 is usually laid on a trail, but that practice caused erosion in the Black Range. 1080 can be a useful technique for localized areas of high rabbit activity. Broadcasting by hand allows fine control of carrot distribution, but you have to have special permission from the Dept. of Natural Resources to do it. The Dept. is the only outlet for 1080 so you will need to make arrangements to have the carrots you provide chopped and poisoneded with 1080. 1080 threatens several non-target species (wallabies, bandicoots) directly and others (hawks and owls) with secondary poisoning. Also lethal to dogs and foxes. It is important to pick up dead rabbits after 1080 poisoning. Pindone is available, which is 2-pivalyl-1, 3-indandione on oats. Some species of birds which do not husk seeds when feeding are vulnerable. Two poisons for rabbits are chloropictrin and aluminum phosphide, both fumigants. Aluminum phosphide (Gastion) is light and can be applied by a single person on a walk with a shovel. It is relatively safe, when used as directed, and certainly kills anything down the warren into which it is successfully introduced. Warrens need to be completely sealed, hard to do in dry weather. Can be used with only the smoke function of a fumigator to make sure warrens are sealed. Larvicide, used in a fumigator, is really nasty stuff. But it does kill rabbits. Good if you need it. You will have to have an Agricultural Chemical User's Permit to use either Gastion or Larvicide. Contact the local TAFE campus to inquire about the next available course.

weed sprays

Roundup Biactive is supposed to be the most environmentally sensitive weedicide. Effective against almost all weeds, an inert dye can be added to help tell what you have already sprayed or missed. This version of Roundup is meant to be frog friendly, but any poison is suspect. It can be difficult to find out the truth about chemicals. The Roundup before this version remained active in the sandy soils of the Range for up to a year when it was reputed to break down within two weeks.

Spot spraying can accomplish a lot. Cheaper and more effective in most situations than any other method. It is not likely to spray natives growing in amongst the weeds. It is light-- with a backpack. Which needn't be filled right up. One person can make a lot of impact fairly quickly. And it saves poison, which is expensive and never ideal in the bush. Passing through the bush on foot is much easier on the landscape than any other method.

Roundup Biactive can be sprayed from a tank onto larger dense outcrops and sprayed on a boom although that technique is limited to a few places on the lower slopes.

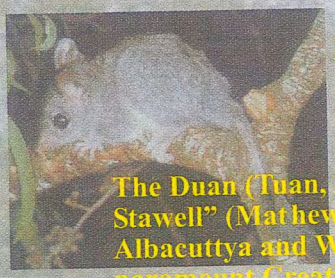
III Details

ABORIGINAL PRESENCE IN THE BLACK RANGE

TRADITIONAL ABORIGINAL ASSOCIATIONS

At the time of European settlement, the Black Range at Stawell was within the Djab Wurrung language area. It appears to have been peripheral to the clan areas of the Boner balug (Pomonal - Moyston), the Jacalet (Halls Gap - Mokepilly), the Poit balug (Great Western) and the Parn balug (5km SW of Great Western) (Clark 1990: 112 & 122). These clans essentially were focused in the valleys of the Mt William and Concongella Creeks and hence the Black Range can be seen as common to all four groups. Being close to the boundary of the Djab Wurrung and Jardwadjali at Lake Lonsdale, the range was doubtless also significant to the Jardwadjali clans of the Barbardin balug, Konenicen balug and Pobbiberer balug whose country lay to the north of Stawell (Clark 1990: 256).

A clan estate was a defined area of country that was owned by clan members who "shared a historical, linguistic, religious and genealogical identity (Clark in Bird 1990: 8). Each clan had a distinctive dialect and usually some distinctive cultural trait (such as method of burial). Each clan also had its' own *mi-yur*, or spirit home (Mathews 1904: 287 [*mir* = totem, Howitt 1904: 122]). At burial, the head of the deceased was or ientated towards his or her mi-yur. Estimates of the number of people per clan range from 20 to 120 (Dawson 1881, Lourandos 1977).



MYTHOLOGY

The Duan (Tuan, Dooen; a phascogale) started chasing the Kangaroo from woodlands "somewhere around Stawell" (Mathews 1904). This myth records the making of the Wimmera River, and Lakes Hindmarsh, Albacuttya and Wonga. It also incorporates some of the exploits of the Bram-bram-bult brothers, the two paramount Creation Beings from the Wimmera.

PLACE NAMES

The BlackRange at Stawell was not "Burrunj" as is sometimes claimed (eg. Burrong speed way). This name refers to the Black Range to the west of the Grampians near Toolondo. The name for these hills is unknown though clearly such a prominent feature would have had its own distinctive name.

On an early map from around 1860-80 the only name on the Black Range is that of "Bunjil's" at the southern end of the range. Bunjil's shelter was not reported to authorities until 1957 (Massola 1957), though its existence was reported as early as the 1850's (Ord 1896) though by the 1890's the site was considered to be non - existent (ibid).

In his authoritative work on the Aborigines of South - eastern Australia, A. W. Howitt gave a short but specific reference to the site. As this account was given by a local Aboriginal, and, as it is the description which has been used to identify the figure of Bunjil, it is quoted at length here.

> *'All that I know of the beliefs of the Mukjarawaint is that Bunjil was once a man who was father of all the people, and that he was good, and did no harm to anyone. I may mention here as in one sense belonging to this part of my subject, that one of the Mukjarawaint said that at one time there was a figure of Bunjil and his dog painted in a small cave behind a large rock in the Black Range near Stawell, but I have not seen it, nor have I heard of anyone having seen it.'* *(Howitt 1904: 491)*

The Aboriginal art site now known as Bunjil's Shelter (AAV site No 7423/1) contains 13 motifs which include the red+white images of Bunjil and his two dogs, a standing figure in red and a number of drawings in red ochre and charcoal (Gunn 1983). The site is considered to be the most significant rock art site in the State as

- it is the only site for which we have any ethnographic interpretation,
- on the basis that the image is that of the highest deity of the religion of the Aborigines of SE Australia, this site would have been of paramount significance to them,
- it most likely that the site and the paintings would have been involved in secret initiation rituals for the members of the local clans within the broader eastern Grampians area,
- The paintings are unusually large for western Victoria and also unusual in that they are painted in both red and white (bichrome).

As a consequence of the probable ritual significance of the paintings and the site overall (the home of Bunjil) the whole south-western corner of the Black Range for roughly a kilometre around the shelter is accorded the highest archaeological significance

ABORIGINAL HISTORY

In the 1830's smallpox and venereal disease spread quickly into the interior after their introduction into the mainland by coastal whalers. As a result, by the time of the first settlers and the first records of Aboriginal numbers in the 1840's, the observed Aboriginal population was already devastated (Butlin 1983). This number was further reduced following an unsuccessful campaign of guerilla hostility towards the invading settlers (Christie 1979).

By 1841, there were typically between 20 and 60 members in a clan with the total number of Djab Wurrung between 2500 & 5000. Within ten years they were reduced to around 250 people through introduced disease, changes in diet, extra tribal fighting and shooting by settlers (Clark 1990: 103 104). By 1877 there were only 12 Djab Wurrung speakers within their traditional country, the remainder having been taken to missions at Lake Condah, Framlingham and Correnderk (ibid.). Around 1900, local Aborigines helping with station-work continued to camp along Mt William Creek (Campbell McMurtrie, pers. comm., 1982).

The last known corroboree in the area was held in Stawell in 1857, when a group of about 100 Aborigines performed near the present racecourse site on Pleasant Creek (Murray & White 1983: 12). This site is 4 kilometres north of the Black Range.

Today, the Black Range area lies at the apex of the Brambuk, Goolum-Goolum, Ballarat and Framlingham Community boundaries but is within the area of the Framlingham Aboriginal Trust Cooperative, Purnim. The Community Areas are defined in the Schedule to the Act for the Federal Aboriginal and Torres Strait Islander Protection Act 1984: Part II.

Recommended Reading

BUTLIN, N. G. 1983 Our original aggression. George Allen & Unwin, Sydney.

CLARK, I. D. 1990 Aboriginal languages and clans: an historical atlas of Western and Central Victoria, 1800 - 1900. Monash Publications in Geography Number 37. Monash University, Victoria.

CHRISTIE, M. 1979 Aborigines in Colonial Victoria. Sydney University Press, Sydney.

DAWSON, J. 1881 Australian Aborigines. George Robinson, Melbourne.

GUNN, R. G. 1983 Bunjil's Cave Aboriginal rock art site. Occasional Report Series No 13. VAS, Melbourne.

---- 1988 Bunjil's Cave: documentation of recent vandalism. Report to VAS.

HOWITT, A. W. 1904 The native tribes of South Eastern Australia. MacMillan, London.

LOURANDOS, H. 1977 Aboriginal spatial organisation and population: south -western Victoria reconsidered. Archaeology & Physical Anthropology in Oceania 12: 202-225.

MASSOLA, A. 1957 Bunjil's cave found. Victorian Naturalist 74: 19-22.

---- 1968 Bunjil's cave: myth, legends and superstitions of the Aborigines of south -eastern Australia. Lansdowne Press, Melbourne.

MATHEWS, R. H. 1904 Ethnological notes on the Ab original tribes of New South Wales and Victoria. Journ. & Proc. Roy. Soc. NSW. 38: 203 – 281.

MURRAY, R. & K. WHITE 1983 The golden years of Stawell. Lothian, Port Melbourne.

ORD, M. 1986 Stawell past and present. Stawell News & P. C. Chronicle, St awell.

STONE, A. C. 1911 The Aborigines of Lake Boga, Victoria. Proc. Roy. Soc. Vic. 23: 433-468.

Text prepared and contributed by Ben Gunn.

Europeans

Until the arrival of Europeans, the Black Range was part of the territory of the Djab Wrrung people.

It is thought that the name of the Range derived from the fact that it was one of the last refuges of local Aboriginals before they were finally displaced completely, decimated by imported diseases and genocide, by the occupation of their traditional land.

There is evidence that the Black Range was an important part of their territory. Scarred trees, stone implements, rock wells and, most striking, the image of Bunjil located in the Bunjil's Shelter Scenic Reserve on the western slopes indicate that the area was particularly significant. Though uncertain, it is thought that the site of the painting may have played a role in male initiation ceremonies. It is certain that the image of Bunjil is the only bichrome Aboriginal image in Victoria.

Major Mitchell returned glowing reports regarding the potential of western Victoria for grazing which were followed by selection. The Range formed part of a large property known as Lexington. During this period, the first subdivision occurred --- an allotment given as a retirement package to a shepherd who worked on the property.

In the 1850's, gold was discovered and consequently, the Black Range was subdivided into smaller allotments. At one time, the Black Range was densely populated---a tent city. It was during this period that the first serious clearing began. When the gold fever abated, the Range was grazed again and used as a convenient source of firewood, structural timber, stone, sand, resin and tannin marketed in near-by Stawell. The Catholic Church in Stawell is built from Black Range granite. Until quite recently, there have been a number of sand quarries.

There were a number of farms in the Range. Tobacco, jute, fruit, and vegetables were grown. Bees were kept; birds were trapped for the pet market.

For a while, there was a state school near the Churchill Crossing intersection with the Panrock Road on the eastern side of the Range.

Though grazing might have been successful for a period of time, the poor soil and steep slopes of the Range were soon exhausted and became known as 'rubbishy country.' At the end of its use as grazing land, the better land managers used the Range only for emergency grazing during droughts or for a short period of the year.

Today, the legacy of past use is land that is quite fragile, prone to erosion, infestation by rabbits and weeds, quite incapable of stabilizing itself unaided.

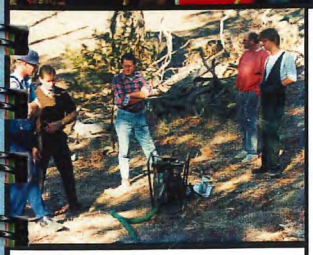
Since the 1970's, grazing has steadily declined. No one makes a living from grazing the Range anymore; few keep stock.

Some relatively benign forms of agriculture seem to be successful on the lower slopes of the Black Range, notably vineyards and growing native plants.

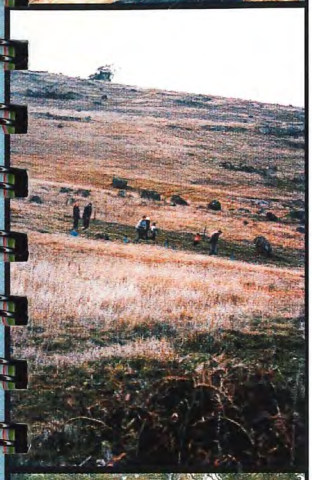
But, in the end, the Black Range is only really good at being bush, good at supporting the native flora and fauna that have adapted over hundreds of thousands of years to difficult conditions now made more difficult by the modification of the original environment.



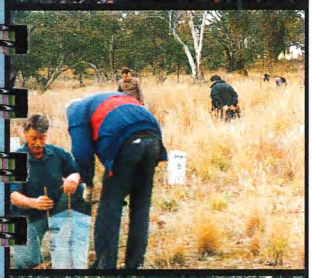

The Black Range LandCare Group



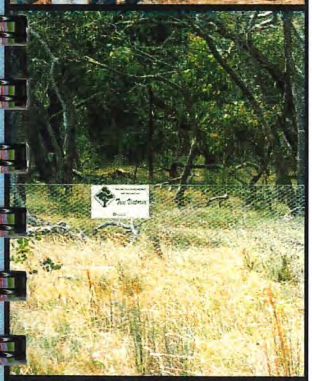
In March of 1986, the regional office of the Department of Conservation Forests and Lands called a meeting of all Black Range landholders to discuss the problem of rabbits in the Range. At that time rabbit numbers were enormous. Six volunteer landholders formed a steering committee to try to develop a community elected committee of the newly formed Black Range Land Management (LandCare) Group. Official LandCare membership was presented to the group in December 1987 by the then Minister for Conservation and Lands, Joan Kirner in a short ceremony at the Bunjil's Cave Reserve. On the same occasion, at the request of the group, the Minister also set in progress the government acquisition of a 270 acre piece of land across the top of the highest point in the Range.



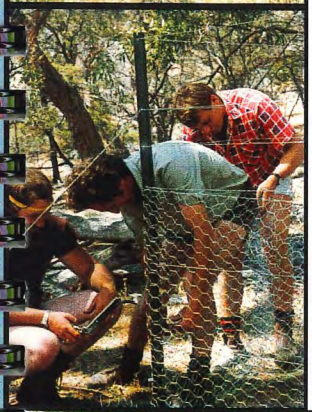
For many years, the primary concern of the group was with the eradication of rabbits. Of parallel concern were rabbit numbers and the effect on native fauna of rabbit control. The group spent much time communicating with research institutes and government organizations in the search for effective methods of control unlikely to affect non-target species. Poison and fumigation programs as well as coordinated rabbit counts were part of the regular activities of the group. With the release of the rabbit calici-virus in the range, rabbit control re-focused on rabbit harbour destruction.



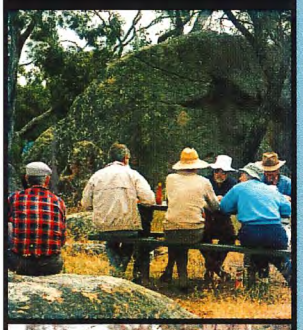
Hand in hand with the eradication of rabbits went the aim of reintroducing the plants of the understory, lost over many years of over-grazing from sheep, rabbits and, more recently, goats and 'roos. It became apparent that a great many plant species were represented by only a very few specimens across the Range and that the vegetation coverage prior to European settlement would have been very different. With the growth and development of LandCare came grants to the group from government bodies such as One Billion Trees, Tree Victoria, Save The Bush, Greening Australia Victoria and the National Heritage Trust. The first grant to the group was in 1990 and enabled the process of re-vegetation to begin. Nurseries were engaged to propagate several thousand indigenous plants each year. The state government's LandMate program, along with various work experience and employment programs, was added to the efforts of the group to carry out weed eradication and exclosure construction across the Range. Group working-bees to find and catalogue rare and endangered species, collect seed, erect rabbit-proof enclosures and plant out tubestock have been regular activities ever since.

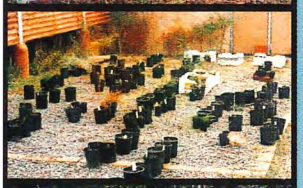
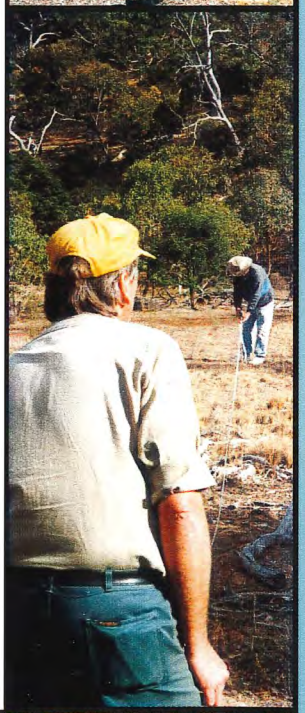


From the outset, the aims have also included the wider focus of encouraging responsible land management in the Black Range. Monthly meetings are at the premises of the Grange Golf Club and residents new to the Range are encouraged to become members of the group. Liaison with non-member landowners, Shire Council, the Department of Conservation and Natural Resources, Project Platypus and other local organizations to achieve good land use practices has been one of the group's constant activities. Roadside weed eradication, planting on public land and volunteer cleanups have all been carried out with this aim in mind.



The development of a Black Range Management Guide was seen as essential to an integrated approach to the problems faced by landholders as well as a means of focusing group activities towards a set of achievable goals. The resulting presentation has coordinated research and expertise gathered over more than a decade, by landholders and others, about a threatened and fragile environment in grave need of nurture and protection.




The Built Environment

By its very nature, living in the bush generates a series of conflicts. Our cultural history assures us that freehold land is just that---any owner has the right to do as they see fit on their own land.

However. our heritage was developed in faraway situations enveloped in a very different environment.

Most of us live in and around the Range because the life style, for lack of a better term, attracts us for one reason or another. We all like a bit more space, peace and quiet. Most of us are attracted to the natural elements that are part and parcel of the Black Range.

It seems a great privilege to own a bit of the bush. The proportion of humanity that has access to this kind of environment is minute and growing smaller every day. Keeping that in mind, it may be necessary to accept the responsibilities as well as the pleasure of our occupation.

If living somewhere reduces its original attraction, what has been gained? If our lack of attention contributes to the degradation of the land we occupy, we will seem as ill-informed as the land managers of the last century who have handed down most of the problems that we endure in the Black Range specifically and Australia as a whole.

One of the easiest mistakes to make is to project our dreams of life 'away from it all' onto our holdings. We all expect easy access for our vehicles and delight in unimpeded views. Although possible, this is likely to cause problems. The first is erosion. Driving over any slope in the Range will cause erosion. The ground is compacted which destroys all the vegetation. In driveways, it is kept clear by passing wheels which is the point of a driveway after all. The finer particles of the sand are lost due to a combination of tyres bringing the finest particles of sand to the top which are then either blown away in the dry months or washed away in the wet ones. The larger particles then have even less to restrain them and they too begin to wash.

Drives and bush tracks are dramatic examples of erosion through the range.

The most predictable place to find erosion in the Range is on driveways. The combination of sandy soil, continuous bare ground, slopes and continuous traffic are conditions that might define propensity for erosion. Drives that are as short as possible, as level as possible, well drained, and covered with a more stable coating than sand are less trouble than their opposites.

A fairly inexpensive way to lessen the dangers of runoff is a variation on the speed hump. If placed to turn water off the drive at regular intervals, 'speed humps' will insure that run-off does not build up sufficient velocity to scour. Drainage ditches that run beside the drive will merely shift the problem from the bed of the drive to its edge. Over time, the entire bed of the drive will need to be reformed which is expensive, requires material to be brought in and the process will need to be repeated.

Soaks, which can appear almost anywhere in the Range because they are caused partly by the configuration of the rock beneath the surface, should be avoided. Ridges tend to be more stable, but even there a slope will cause erosion.

Bush tracks are trouble too. Most maintenance can be carried out on foot. It takes a little more time and effort at the moment, but in the long run, it is efficient since the damage done by driving into the bush regularly causes problems that cost more time, effort, and money than they save. When driving into the bush is unavoidable, less damage is caused if a different route is taken every time.

Fire protection is another challenge. Clearing can be kept to a minimum by erecting fire walls--- even a 400 mm high structure can stop a fire burning across the ground. These low walls can be constructed of any fire resistant material. Drives can double as firebreaks if their location is carefully planned. Concentrating buildings into the smallest possible area limits the space to be protected. Appropriate planting around building sites can be effective. Low growing ground covers are good. The indigenous Pig Face is useful. The external cladding of buildings should be fire resistant. Eaves can be lined. Fire pumps and a source of water should be in close proximity to buildings and access drives. Buildings above the ground, on stumps, are more vulnerable that buildings on slabs. Plant litter should be reduced around buildings. Eucalypts need to be 10 meters or so from buildings, partly for fire control, partly because they tend to drop branches. Officers of the CFA are willing to give specific advice.

Gardens should be fenced against wildlife or an attitude of sharing the garden and its produce with native animals is necessary. Complete protection means high fences and a covering net over the top. They can climb; they can fly; they can dig. Conservation management should take pains to avoid situations that put landowners into conflict with the environment. Ornamental gardens can be created with indigenous plants, many of which respond very well to pruning. A maintained indigenous plant often bares very little resemblance to it's counterpart growing in the bush.

Gardens tend to be water intense users. It is now being recognized that dams often have a detrimental effect on water systems in the big picture. It is difficult to store enough water through tank storage to maintain an exotic garden. It might be a good idea to plan a 'dry garden'. Gardens can also provide habitat for frogs, lizards and small mammals if they are planned that way. Moving large quantities of rocks from the bush into the garden is attractive, but it reduces the habitat in the bush.

If domestic animals are kept, proper storage for their feed should exclude access by rodents. Rats and mice are likely to build up in large numbers around any source of available food. Food for grazing animals often contains weeds, so provision for storing and setting out hay should take this fact into account. A horse in the bush is likely to leave enduring evidence of its passing and can cause erosion in steep terrain. Their droppings also contribute to the spread of weeds.

We can live here, but perhaps it is safer, less expensive, and more responsible to consider the health of the bush first before implementing modification or imposing our passions, pets, or hobbies on the bush.

Fauna Survey

Fauna Survey Group, Field Naturalists Club of Victoria
Fauna Survey of Black Range via Stawell

Interim Report: April 2000 - May 2001

Methods: Elliott trapping, cage trapping, pit-fall trapping, harp trapping, stagwatching, spotlighting, bird spotting, rock and log turning, artificial habitat, general observation and owl pellet analysis.

Effort:

Method	Trap nights completed
Elliott trap	1015
Cage trap	588
Pitfall trap	390
Harp trap	32
Spotlight hours	22

Results: See attached lists of species recorded for each site.

Discussion: To date, 140 species of vertabrates have been recorded as follows: (Numbers in brackets represent number of species recorded with Atlas of Victorian Wildlife as of 22/3/2000 prior to this survey.)

Mammals	26 (19)
Birds	94 (10)
Reptiles	16 (11)
Frogs	4 (2)

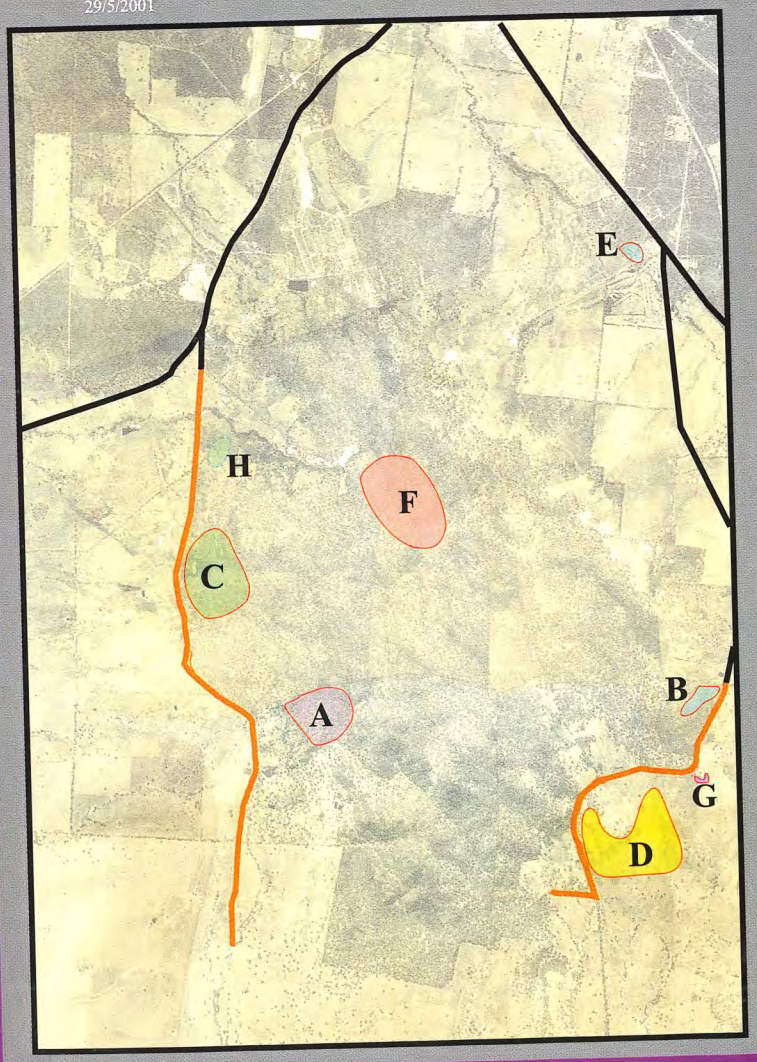
One threatened species, the Powerful Owl, has been recorded at four sites. Another threatened species, the Brush-tailed Phascogale, has been recorded by Neil Marriott whilst crossing a road adjacent to the Brazier property on 23/5/2001.

Two other mammals recorded during the survey are vulnerable to modern farming methods; their presence on these properties is significant. These are the Fat-tailed Dunnart and the Southern Brown Bandicoot.

The capture rate of the Yellow-footed Antechinus in the area is very much higher than in other parts of the state in which the FSG has worked. The properties that make up the Black Range LandCare Group mare represent some of the best habitat for this species in Victoria.

The list of woodland birds recorded is significant, considering that habitat for these species is under threat in many parts of Australia.

Peter Homan
Fauna Survey Group
29/5/2001



A B C D E F G H

Mammals

Eastern Grey Kangaroo
Red-necked Wallaby
Black Wallaby
Southern Brown Bandicoot
Yellow-footed Antechinus
Fat-tailed Dunnart
Brush-tailed Phascogale
Short-beaked Echnida
Brushtail Possum
Ringtail Possum
Sugar Glider
Feathertail Glider
Swamp Rat
Black Rat
House Mouse
European Rabbit
Brown Hare
Fox
Large Forest Bat
Little Forest Bat
Eastern False Pipistrelle
Chocolate Wattled Bat
Gould's Wattled Bat
Southern Forest Bat
White-striped Freetail Bat
Lesser Long-eared Bat

Reptiles and Frogs

Marbled Gecko
Thick-tailed Gecko
Gould's Goanna
Tree Dragon
Bearded Dragon
Common Blue-tongued Lizard
Stumpy-tailed Lizard
Garden Skink
Bouganville's Skink
Boulenger's Skink
Large Striped Skink
Eastern Three-lined Skink
Red-bellied Black Snake
Eastern Brown Snake
Little Whip Snake
West Australian Blind Snake

Bibron's Froglet
Southern Brown Tree Frog
Southern Bull Frog
Common Froglet

Rabbit Control

Extracts from RESOURCE PROTECTION GUIDELINES - RABBIT CONTROL Wimmera
Published by the Dept. of Natural Resources and Environment, East Melbourne
http://www.vic.gov.au

Planning an integrated control program

Use integrated rabbit control methods wherever possible to achieve maximum effectiveness, taking into account site conditions and site values.

If there is risk that proposed control works will adversely affect any of the listed THREATENED species, implement less destructive options or, alternatively, postpone control works at the site and consult NRE.

Where other listed species (not THREATENED) are suspected or found to be at risk, try to avoid harm to individual animals, and minimise damage or disturbance to roosts, shelter-sites,nests, burrows or other habitat components.

If there is a need to leave warrens untreated, mark them for later re-examination and possible treatment. If in doubt, consult NRE before commencing control works.

Seek further details on fauna or flora thought to be at risk in the control area, as the susceptibility of some species may fluctuate with season, time of year, time of day, local characteristics of the site, or other factors.

Do not remove native vegetation on roadsides to provide track access etc. for poisoning operations and the like. Do not remove native vegetation on roadsides for rabbit control purposes unless the intent of the Native Vegetation Retention Controls to protect and conserve vegetation is followed and damage to native vegetation is minimised. A local municipal Planning Permit may be required.

Rabbit poisoning programs

Where possible, run rabbit and fox control programs together, so that the effect of prey switching by foxes is mitigated, and so that secondary poisoning of foxes may enhance their control.

Avoid poisoning of rabbits during August-December in areas where birds of prey (including large owls) are likely to be feeding young, as these species may depend heavily upon rabbits for prey at this time.

Carry out pre-poison monitoring to detect native fauna at risk, and modify operations accordingly.

Do not prepare or lay poison carrot baits within 50 m of any river, creek or other water body. Use bait stations in areas where there are risks of poisoning non-target native fauna.

Do not lay poison baits within 100 m of known possum habitat (determined by spotlight assessment). Set decoy trails to deter non-target poisoning.

Lay poison bait trails as late in the day as practical and promptly remove or bury baits remaining the next day, where native fauna is likely to be affected.

Remove dead rabbits early in the morning to reduce the risk of secondary poisoning of non-tarqet species.

Warren fumigation and destruction

Always use warren-spotting and warren-marking (on foot or using a minimal-impact light vehicle) in preference to spotting from moving machinery.

Examine warren entrances for tracks or signs of use by native fauna, particularly threatened species. If present or suspected, defer ripping or fumigation.

Inspect the site for regeneration of threatened flora or significant remnants. If present or suspected, defer ripping.

Where treatment is deferred, mark warrens for subsequent (next day or later) reassessment. If necessary, seek NRE advice.

Select ripping equipment which will:

-permit ready access to the control site, whilst causing minimum damage to trees or other vegetation (e.g. back hoe);

-minimise soil compaction; and

avoid unnecessary soil disturbance and site scarring.

On steep slopes or more erodible soils, ensure that the final cross rip follows the contour where safe to do so, and revegetate as soon as practicable after ripping.

Seek advice from NRE prior to ripping in any area containing rare or sensitive vegetation types.

Carry out poisoning or ripping operations to remove rabbits immediately prior to planned revegetation and/or regeneration works.

Maintain follow-up rabbit and pest plant control operations until revegetation is well established (check biodiversity and cultural information sources).

If necessary to remove habitat material from over warren systems, aim for minimum disturbance.

Replace or relocate debris in a natural context, where practical, rather than scattering over open ground or burning.

Clean and inspect machinery and equipment (including low-loaders), clothing, footwear, and passenger vehicles for soil and plant material (especially seeds) before moving between control areas.

Undertake follow-up monitoring of disturbed sites at six-monthly intervals (or more frequently) for the first year, in order to detect and control any noxious or newly-invading pest plants.

Caring for cultural values

Do not undertake ripping on or near archeological sites.

Clearly mark known sites (with temporary tags) ahead of any control program to minimise risk of disturbance.

Do not drive vehicles (including quadrunners) over archeological sites.

Check during all ripping operations for unearthed archeological fragments (see Table 3) and, if found, cease ripping immediately within 50 m of the site.

For further advice or information, contact North West Region Aboriginal Cultural Heritage office (Post Office, Beverford, Victoria 3590, telephone 0350 376 510).

Do not undertake ripping on or near historic sites.

Clearly mark known sites (with temporary tags) ahead of any control program to minimise of disturbance.

Further reading:

Christidis, L. & Boles, W. (1994) The taxonomy and species of birds of Australia and its Territories. Royal Australasian Ornithologists Union Monograph 2, RAOU, Victoria.

CMA & NRE (2000) Wimmera Rabbit Action Plan. Wimmera Catchment Management Authority and Department of Natural Resources & Environment, Victoria.

Cogger, H. G. (1 992) Reptiles & Amphibians of Australia (5th edn.). Reed Books.

Cooke, B.D. (1981) Rabbit control and the conservation of native Mallee vegetation on roadsides in South Australia. Aust. Wild. Res., 8, 627_36.

Coventry, A.J. & Robertson, P. (1991) The snakes of Victoria-a guide to their identification. Conservation & Environment and Museum of Victoria.

Emison, W. B., Beardsell, C. M., Norman, F. I., Loyn, R. H. & Sennett, S. C. (1987) Atlas of Victorian Birds. Department of Conservation, Forests & Lands, Melbourne.

Hero, J_M., Littlejohn, M. & Marantelli, J. (1991) Frogwatch Field Guide to Victorian Frogs. Department of Conservation and Environment, Victoria.

Menkhorst, P. W. (ed.) (1 995) Mammals of Victoria-distribution, ecology and conservation. Oxford University Press; Department of Conservation & Natural Resources, Melbourne.

NRE (1997) Victoria's Biodiversity. Department of Natural Resources & Environment, Victoria.

NRE (1999) Threatened vertebrate fauna in Victoria- a systematic list of vertebrate fauna considered extinct, at risk of extinction or in major decline in Victoria. Department of Natural Resources and Environment, Victoria.

Williams, K., Parer, I., Coman, B., Burley, J. & Braysher, M. (1995) Managing vertebrate pests: rabbits. Bureau of Resource Sciences and CSIRO Division of Wildlife Ecology. Australian Government Publishing Service, Canberra.

Wimmera Regional Catchment and Land Protection Board (1997) Wimmera Regional Catchment Strategy.

The following plans are also in preparation for the Wimmera:

Wimmera Regional Vegetation Plan (Wimmera CMA, draft)

Wimmera Weed Action Plan (NRE and Wimmera CMA, draft)

Local Fauna at Risk from Rabbit Control Measures

Animal	Eats rabbits or rabbit carcasses	Occupies rabbit burrows	Needs dead or fallen timber habitat.	Needs rock or litter habitat.	Burrows in ground	May eat baits
Echidna		■	■	■	■	
Yellow-footed Antechinus			■	■		
Brush-tailed Phascogale			■	■		
Fat-tailed Dunnart			■	■		
Bandicoot		■	■	■	■	■
Brush Tail Possum			■			■
Feathertail Glider			■			
Western Grey Kangaroo			■			■
Eastern Grey Kangaroo			■			■
Red-necked Wallaby			■			■
Black Wallaby			■			■
Black Kite	■					
Brown Goshawk	■					
Wedge-tailed Eagle	■					
Little Eagle	■					
Brown Falcon	■					
Bush Stone-curlew			■			
Powerful Owl (endangered)	■					
Barking Owl	■					
Marbled Gecko			■	■		
Thick-tailed Gecko			■	■		
Legless Lizard			■	■		
Tree Dragon			■	■		
Eastern Bearded Dragon			■	■		
Sand Goanna	■	■	■		■	
Large Striped Skink			■	■	■	
Eastern Brown Snake		■	■	■		
Common Froglet			■	■		
Bibron's Toadlet				■		
Brown Tree Frog			■	■		

Herb-rich woodlands, of which the Black Range is an example, are endangered. They have been reduced to 9.9% of their original areas. Clearing has been the major contributor to this decline, but rabbit populations have also played a major role in decimating the fauna presence, which has in turn, reduced the fauna numbers and distribution.

The Black Range is listed specifically as an area of high rabbit impact. It is also one of the few areas remaining which has a reasonable variety of wildlife, much of which is vulnerable to rabbit control techniques. In addition, the sands of the Black Range are prone to damage by compaction and erosion.

Sharp turns and tight manoeuvering with control equipment should be avoided. Disturbance of fallen timber, understory plants and ground debris should be avoided. Sites likely to harbour Bandicoots should be avoided.

Remnant bush is sensitive to damage by its very nature. It is isolated, so the effect of damage done cannot be made up for in surrounding similar habitats---there aren't any.

Rabbits have to be controlled, but all care should be exercised to avoid compromising the environment further that it has already been compromised.

Extracts from RESOURCE PROTECTION GUIDELINES - RABBIT CONTROL Wimmera
Published by the Dept. of Natural Resources and Environment, East Melbourne
http://www.vic.gov.au

Weeds in the Black Range

Weeds in the Wimmera Catchment are classified according to their priority in the entire region. It is the landholder's legal obligation to control plants with a priority classification. Those weeds are indicated in red.

Some weeds are a particular problem in the Black Range because they are extremely aggressive environmental threats with a great capacity to spread under local conditions. They should not be tolerated and are underlined.

A final group of weeds are capable of invading undisturbed bushland. They are indicated in blue.

All weeds listed here should be a priority for control by landowners. Though there are many other weeds in the Range if the ones on this list were eliminated, it would transform the landscape.

Patterson's Curse	*Echium lycopsis & Echium vugare*
St John's Wort	*Hypericum perforatum*
Bridal Creeper	*Asparagus asparagoides*
Horehound	*Marribium vulgare*
One-leaf Cape Tulip	*Homeria breyniana*
Boneseed	*Chrysanthemoides moniliferum*
Stinkwort	*Inula graveolens*
Wild Watsoni	*Watsonia bulbillifera*
Spiny Rush	*Juncus acutus*
Topped Lavender	*Lavendula stoechas*
Spiny Broom	*Calycotome spinosa*
Flax-leaved Broom	*Genista linifolia*
Cape/Montpelier Broom	*Genista monspessulana*
Soursobs	*Oxalis pes-caprae*
Wild Mignonette	*Reseda luteola*
Sweet Briar	*Rosa rubinigosa*
Blackberry	*Rubus fruticosis*
Creeping Bluebell	*Solya heterophylla*
Great Mullein	*Verbascum thapsus*
Aaron's Rod	*Verbascum virgatum*
Capeweed	*Arctotheca calendula*
Smooth Cat's Ear/Dandelion	*Hypochoeris glabra*
Thistle sp. various	Thistles
Blowfly Grass	*Briza maxima*
Shivery Grass	*Briza minor*
Perrenial Veldt Grass	*Ehraphrata calycina*
Phallaris	*Phallaris aquatica*

Plants Not to Plant

The following list of plants should not be introduced into the Black Range because they compromise the environment in one way or another. They are all available from commercial nurseries. The species highlighted in red are available from local nurseries; ones highlighted with blue are Australian natives that are invasive in our environment.

Acacia baileyana	Cootamundra Wattle
Acacia decurrens	Early Black Wattle
Acacia elata	Cedar Wattle
Acacia floribunda	White Sallow Wattle
Acacia iteaphylla	Flinders Ranges Wattle
Acacia longifolia	Sallow Wattle
Acacia podalyriifolia	Mt Morgan Wattle
Acacia pravissima	Ovens Wattle
Acacia prominens	Golden Rain Wattle
Acacia saligna	Golden Wreath Wattle
Acacia sophorae	Coast Wattle
Agapanthus praecox	Agapanthus
Agrostis stolonifera	Creeping Bent
Arbutus unedo	Strawberry Tree
Baeckea virgata	Tall Baeckea
Cortaderia jubata	Pink Pampas Grass
Cortaderia selloana	Pampas Grass
Cotoneaster divaricata	Cotoneaster
Cotoneaster glaucophyllus	Cotoneaster
Cotoneaster horizontalis	Cotoneaster
Cotoneaster pannosus	Cotoneaster
Cotoneaster sp. (prostrate)	Cotoneaster
Crataegus monogyna	Hawthorn
Cynodon dactylon	Couch
Cytisus multiflorus	White Spanish Broom
Cystisus palmensis	Tagasaste
Cytisus scoparius	English Broom
Delairea odorata	Cape Ivy
Erica baccans	Berry-flower Heath
Erica lusitanica	Spanish Heath
Erica melanthera	Erica
Erica quadrangularis	Erica
Festuca arundinacea	Tall Fescue
Fraximus rotundifolia ssp. *rotundifolia*	Desert Ash
Freesia leichtlinii	Fressia
Gazania linearis	Gazania
Genista linifolia	Flax-leaf Broom
Genista monspessulana	Montpellier Broom
Gladiolus tristis	Evening-flower Gladiolus
Grevillea rosmarinifolia	Rosemary Grevillea
Hakea drupacea	Sweet-scented Hakea
Hakea laurina	Pin-cushion Hakea
Hakea decurrens	Needle Hakea
Hakea suaveolens	Sweet Hakea
Hypericum calycinum	Large-flowered St Johns Wort
Ilex aquifolium	Holly
Kennedia rubicunda	Dusky Coral-pea
Leptospermum laevigatum	Coast Tea-tree
Leptospermum petersonii	Lemon-scented Tea-tree
Leucanthemum maximum	Shasta Daisy
Leycesteria Formosa	Himalayan Honeysuckle
Ligustrum lucidum	Large-leaf Privet
Ligustrum sinensis	Chinese Privet
Ligustrum vulgare	European Privet
Melaleuca armillaris	Giant Honey-myrtle
Melaleuca hypericifolia	Red Honey-myrtle
Myosotis sylvatica	Wood Forget-me-not
Myrsiphyllum asparagoides	Bridal Creeper
Myrsiphyllum scandens	Myrsiphyllum
Paraserianthes lophantha syn. *Albizzia lophantha*	Cape Wattle
Passiflora cinnabarina	Red Passion-flower
Pennisetum alopecuroides	Swamp Foxtail-grass
Pennisetum clandestinum	Kikuyu
Phalaris aquatica	Toowoomba Canary-grass
Pinus radiata	Monterey Pine
Pittosporum undulatum	Sweet Pittosporum
Platanus hybrida	Plane Tree
Populus nigra var. *italica*	Lombardy Poplar
Protasparagus densiflorus	Protasparagus
Romulea bulbocodium	Romulea
Rosa sp. *(Branxholme)*	Rose
Salix alba	White Willow
Salix babylonica	Weeping Willow
Salix cinerea	Grey Sallow
Schinus molle	Pepper Tree
Sollya heterophylla	Bluebell Creeper
Spartium junceum	Spanish Broom
Thryptomeme calycina	Grampians Thryptomeme
Tradescantia albiflora	Wandering Jew
Ulmus x hollandica	Dutch Elm
Verbascum creticum	Cretan Mullein
Verbascum thapsus	Great Mullein
Viola odorata	Common Violet
Watsonia marginata	Watsonia
Watsonia versfeldii	Watsonia
Zantedeschia aethiopoica	White Arum Lily

Black Range Vegetation Surveys

Background

- The Black Range Landcare Group is undertaking a management plan for the Black Range. As part of the baseline information for the Black Range Plan, botanical surveys of sites in and around the range were undertaken. Plant lists and other information collected from these surveys will be used in the whole range plan and individual property management plans.

- Fourteen botanical surveys in and around the range were carried out in spring 2000 by Jane and Neil Marriott. It is envisaged that several more surveys will be carried out to complete a snapshot of remnant vegetation in the range.

- The 14 sites were not primarily chosen for their diversity or intactness. They were generally selected to give a representative sample of vegetation types and management regimes found in and around the range. Sites with varying degrees of degradation will provide various scenarios for management and lend themselves to the monitoring of changes in future years.

- Landowners were consulted to determine an appropriate site for the survey and an area 20m x 20m was selected to record all the plant species present. For plants unable to be identified on site specimens were taken and identified with references. This can be a most time consuming task and in a few cases identification was not possible.All plants present at the time of survey are recorded for each site with their scientific and common name and a denotation in the first column of whether the species is listed as rare or threatened. Weeds are listed separately

- Notes on the site description, about the present health and management of the site and management recommendations were made for each site surveyed.

- All the survey sites (will) have a photo, a site map and a galvanised star picket to mark the centre of the 20m x 20m quadrat site.

- Some surveys of grassland sites in the range have previously been undertaken and recorded in "Remnant Wimmera Grassy Woodlands " by Marriott & Marriott. These include sites at the Brazier, Dennis/Davis and Marriott properties.

- The surveys lead to at least 12 extra species being recorded for the Black Range. It could be expected that with further surveys/activities this will increase. Several additional records of plants uncommon in the Black Range were recorded.The Black Range Remnant Vegetation Survey

Quadrat SITE 1
Date Survey October 2000

Landowner Lee and Leigh Edwards
Location/Fire Map reference
Address Churchill Crossing Rd
Site Map Yes

Vegetation Community
Red Stringybark Grassy (Heathy)Woodland.

Site Description/Past Management
This area would originally have had denser stands of Red Stringybark trees as can be seen on the more intact adjoining road reserve. However the ground flora is similar to that on the road reserve but with fewer shrub species due to regular (annual) mowing of the area for fire control. Grassy species are the most numerous.

Intactness
Weeds There is a small amount of Briza maxima and other introduced grasses but their cover is less than 10 % and not swamping indigenous plants in this quadrat. Elsewhere on the property, particularly along the roadside and along the septic line weeds are a problem that need addressing to prevent further spread.
Other The tree and to a lesser extent the shrub layer in the quadrat and surrounding area has been modified by regular mowing and tree removal to reduce fuel loads in conjunction with the dwelling. The ground flora remains relatively intact.

Dominant Species Present
Austrostipa species
Eucalyptus macrorhyncha
Goodenia geniculata

Significant Species

Quadrat sp. Total indigenous – 51/Weeds - 6

Biodiversity/Intactness rating 7/10

Management Recommendations

1. To prevent rank weed growth over septic line spreading, mulching with straw or weed mat would be quite effective.
2. Establishing a weed line around infested areas beyond which weeds are removed would be helpful to retain the integrity of the diverse flora on the lower sections of the block. This line could be marked with a series of stakes and an initial demonstration and identification of targeted weeds could be useful.

Monitoring

- In early summer the area is mowed to reduce flammable material and it is interesting to see the effect of this management. The ground flora is as rich as elsewhere however there is a paucity of shrubby species such as Brachyloma daphnoides and Platylobium obtusangulum. The Edwards are happy to mow round specific shrubs which could be staked to protect them. It will be interesting to see any long term effects of this mowing regime.

Comments

- The diversity on this relatively small block is excellent with 51 species recorded, and could be increased by a thorough survey of the whole property. Orchid species are particularly abundant. Whilst none of the plants are listed as rare or threatened, the diversity of species in a relatively small area is significant.

- If the other blocks along Churchill Rd are as rich this property, it is an important node for the appropriate management and protection of remnant vegetation, particularly as none of the landholders are members of the Landcare Group. A workshop by the BRLC Group for these landholders on plant identification and management would be a positive step.

Quadrat 1, Edwards
Acacia paradoxa
Acacia pycnantha
Acaena echinata
Arthropodium strictum
Astroloma humifusum
Austrodanthonia caespitosa

Hedge Wattle
Golden Wattle
Sheep's Burr
Chocolate Lily
Cranberry Heath
Common Wallaby-grass

Calytrix tetragona
Chamaescilla corymbosa
Cheilanthes austrotenuifolia
Cyrtostylis reniformis
Daucus glochidiatus
Dianella revoluta
Diuris pardina
Drosera peltata
Drosera
Elymus scaber
Eucalyptus goniocalyx
Eucalyptus macrorhyncha
Goodenia geniculata
Grevillea alpina
Hydrocotyle laxiflora
Hypericum gramineum
Leptorhynchos squamatus
Leptospermum myrsinoides
Leucopogon virgatus
Lomandra multiflora
Lomandra sororia
Microlaena stipoides
Microtis unifolia
Neurachne alopecurioides
Pelargonium rodneyanum
Pimelia humilis
Platylobium obtusangulum
Poa sieberiana
Pultenaea pedunculata
Schoenus apogon
Stuartina muelleri
Thelymitra antennifera
Thelymitra pauciflora
Thelymitra rubra
Thysanotus patersonii
Wurmbea dioica

Common Fringe-myrtle
Blue Stars
Green Rock Fern
Mosquito Orchid
Austral Carrot
Black-anther Flax-lily
Leopard Orchid
Tall Sundew
Climbing Sundew
Tall Wheat-grass
Long-leaf Box
Red Stringybark
Bent Goodenia
Mountain Grevillea
Stinking Pennywort
Small St Johns Wort
Scaly Buttons(hairy)
Heath Tea-tree
Common Beard-heath
Many-flowered Mat-rush
Small Mat-rush
Weeping Grass
Common Onion Orchid
Fox-tail Mulga Grass
Magenta Storks-bill
Common Rice-flower
Common Flat-pea
Grey Tussock Grass
Matted Bush-pea
Common Bog-sedge
Spoon Cudweed
Rabbits-ears
Slender Sun-orchid
Salmon Sun-orchid
Twining Fringe-lily
Common Early Nancy

Weeds
Aira cupaniana – Small Hair-grass
Briza maxima – Large Quaking-grass
Plantago myuros - small hairyPlantain
Hypochoeris radicata – Cats-ear
Bartsia parentucella – Common Bartsia
Arctotheca calendula - Capeweed

Some other plants recorded elsewhere on the property

Brachyscome *
Bulbine bulbosa
Euchiton involucratus
Lagenifera gracilis
Ozothamnus obcordatus
Podolepis jaceoides
Tricoryne elatior
Viola hederacea

Swamp Daisy
Bulbine lily
Star Cudweed
Slender Lagenifera
Grey Everlasting
Showy Podolepis
Yellow Rush Lily
Ivy-leaf Violet

Black Range Remnant Vegetation Survey

Quadrat SITE 2
Date Survey October 2000

Landowner Public Road Reserve
Location/Fire Map reference
Address Panrock Rd, cutting ?km from Western H'way
Site Map No
Photo Yes

Vegetation Community
Red Stringybark Heathy Woodland

Site Description/Present Management
This quadrat is located on the road reserve at the top of a cutting exposing red clay subsoil. The road reserve is approximately 10m wide with the road cutting on one side and grazed paddocks on the east side. There has been only marginal disturbance of vegetation during road construction. On the narrow road reserve on the west side of the road vegetation seems quite different with a tall, dense, heathy woodland.

Intactness
Weeds There is a moderate weed spread from the neighboring paddock with a 2m strip adjoining the fence which could be described as moderately weedy, with exotic annual pasture grasses the main invader. The remainder of the reserve has few weeds.
Other There was no evidence of rabbits in this section of road reserve.

Dominant Species Present
Astroloma conostephioides
Brachyloma daphnoides
Dianella revoluta
Eucalyptus macroryncha
Gonocarpus tetragynus
Platylobium obtusangulum

Significant Species
Austrostipa hemipogon – rare in Victoria
Bursaria lasiocarpa

1. Although the weeds invading the roadside from the paddock are a significant problem, it is impractical to undertake any weed control in such an extensive area. Encouraging the adjoining landowner to plough or spray a 'weed break' in such situations could be helpful. Spraying or burning of weeds along the weedy strip on the roadside would be difficult.

Monitoring
It will be interesting to monitor the rapidity and spread of the weed invasion in this strip of vegetation to test the importance of size in the viability of remnants.

Comments
- squads of lorikeets were observed flying up and down along the corridor of roadside vegetation.
- there was evidence of echidna digging.
- there was a large volume of traffic using the road – approx. 20 cars in 1 hr.
- on the 2m wide strip of vegetation on the other side of the road vegetation was very diverse and weed invasion would be expected to be greater but this is not the case. Perhaps this could be checked and monitored next year.

Quadrat 2, Panrock Road Reserve

Acacia pycnantha
Acaena echinata
Acrotriche serrulata
Arthropodium strictum
Astroloma conostephioides
Austrodanthonia caespitosa
Austrostipa hemipogon
Brachyloma daphnoides
Brunonia australis
Bursaria lasiophylla
Caladenia tentaculata
Calytrix tetragona
Chamaescilla corymbosa
Cyrtostylis reniformis
Dianella revoluta
Elymus scaber
Eucalyptus goniocalyx
Eucalyptus macrorhyncha
Gonocarpus elatus
Gonocarpus tetragynus
Goodenia geniculata
Grevillea alpina
Hibbertia stricta
Kennedia prostrata
Lepidosperma carphoides
Lomandra filiformis
Lomandra multiflora
Lomandra sororia
Oxalis perennans
Ozothamnus obcordatus
Pimelia humilis
Pimelia linifolia
Platylobium obtusangulum
Pultenaea laxiflora
Tetratheca ciliata
Thelymitra pauciflora
Thysanotus patersonii

Golden Wattle
Sheep's Burr
Honey-pots
Chocolate Lily
Flame Heath
Common Wallaby-grass
Half-beard Spear-grass
Daphne Heath
Blue Pincushion
Hairy Bursaria
Mantis Orchid
Common Fringe-myrtle
Blue Stars
Mosquito orchid
Black-anther Flax-lily
Tall Wheat-grass
Long-leaf Box
Red Stringybark
Tall Raspwort
Common Raspwort
Bent Goodenia
Mountain Grevillea
Upright Guinea-flower
Running Postman
Black Rapier-sedge
Wattle Mat-rush
Many-flowered Mat-rush
Small Mat-rush
Grassland Wood-sorrel
Grey Everlasting
Common Rice-flower
Slender Rice-flower
Common Flat-pea
Loose-flower Bush-pea
Pink-bells
Slender Sun-orchid
Twining Fringe-lily

Weeds
Aira cupaniana – Small Hair-grass
Arctotheca calendula - Capeweed
Briza maxima – Tall Quaking Grass
Bromus sp - Brome
Ehrharta longifolia – Annual Veldt-grass
Holcus lanatus – Yorkshire Fog
Hypochoeris sp– Catsear
Plantago myuros – Mouse Plantain
Trifolium arvense - Hares-foot Clover

Black Range Remnant Vegetation Survey

Quadrat SITE 3
Date Survey October 2000

Landowner Mark & Jenny Farrer
Location/Fire Map reference
Address approx 150 m beyond Farrers new home, on footslopes of mountain above a large flat rock outcrop.
Site Map No
Photo No

Vegetation Community
Yellow Box Grassy Woodland

Site Description/Present Management
This area has been ungrazed for a number of years and although by no means pristine, it has a lower diversity and higher weed count than might be expected of a reasonably rugged rocky area that would have been fairly inaccessible to stock. The tree, shrub and ground flora layers of vegetation are present.

Intactness
Weeds There are quite a number of weeds affecting the integrity and intactness of the site. Weeds like Veldt Grass, Briza maxima, Bromus and Thistles are reasonably widespread and constitute approximately 20% of vegetation cover.
Other There is little evidence of rabbits, however the effects of past land management or kangaroo grazing mean there are areas bare of vegetation which are lacking regeneration. The site is fairly harsh with an exposed aspect and shallow soils which would reduce regeneration.

Dominant Species Present
Austrodanthonia spp.
Austrostipa spp.
Brachyloma daphnoides
Hyalosperma praecox

Biodiversity/Intactness rating 6/10

Management Recommendations

1. As there are a large variety of weeds spread across a large area there is little chance of preventing their spread downslope but a 'line' may be drawn, above which weeds, or certain types of weeds are sprayed. Depending on the spread of Veldt grass, it may be worth eradication measures as its capacity to smother and take over remnant vegetation is great.

Monitoring

- To determine the appropriate management of this area of remnant vegetation it would be necessary to assess the range and extent of weeds higher up the mountain.
- The small population of Helichrysum leucopsidium (presently one site 1.5m x 1.5m) is uncommon in the range and this species should be propagated for establishing in gardens in the range and to recolonise areas surrounding this site to ensure its survival. Replanted specimens can be marked to distinguish them from plants which have regenerated naturally.

Comments

- Compared to other survey sites in the Black Range, this site seemed harsh and dry and this could account for the less than expected plant diversity and vegetation cover. Lots of moths and butterflies were landing on the Brachyloma daphnoides including the metallic blue moth – Satin-green Forester (food plant- Hibbertia spp).

- Quadrat 3, Farrer

Acacia mearnsii
Arthropodium strictum
Astroloma humifusum
Austrodanthonia setacea
Austrostipa densiflora
Austrostipa scabra
Brachyloma daphnoides
Burchardia umbellulata
Carex inversa
Chamaescilla corymbosa
Cheilanthes austrotenuifolia
Crassula sieberiana
Cynoglossum suaveolens
Drosera peltata
Eucalypytus melliodora
Helichrysum leucopsidium
Hyalopsperma praecox
Hydrocotyle laxiflora
Hypericum gramineum
Lepidosperma carphoides
Lomandra filiformis
Microlaena stipoides
Microtis unifolia
Ophioglossum lusitanicum
Oxalis perennans
Poranthera microphylla
Rumex dumosus
Senecio tenuiflorus?
Tricoryne elatior
Triptilodiscus pygmaeus
Wahlenbergia luteola
Wahlenbergia sp

Black Wattle
Chocolate-lily
Cranberry Heath
Bristly Wallaby-grass
Dense Spear-grass
Rough Spear-grass
Daphne Heath
Milkmaids
Common Sedge
Blue Stars
Green Rock Fern
Australian Stonecrop
Sweet Hounds-tongue
Tall Sundew
Yellow Box
Satin Everlasting
Mayweed Sunray
Stinking Pennywort
Small St Johns Wort
Black Rapier-sedge
Wattle Mat-rush
Weeping Grass
Common Onion Orchi
Austral Adders-tongue
Grassland Wood-sorrel
Small Poranthera
Wiry Dock
Slender Groundsel
Yellow Rush-lily
Common Sunray
Yellowish Bluebell
Bluebell

Weeds
**Chickweed
**Thistle
Arctotheca calendula - Capeweed
Bartsia parentucella – Common Bartsia
Briza maxima – Large Quaking-grass
Briza minor – Small Quaking-grass
Bromus sp - Bromus
Ehrharta longifolia – Annual Veldt-grass
Hypochoeris sp – Cats-ear
Petrorhagia velutina – Proliferous Pink
Plantago myuros - Mouse Plantain
Trifolium arvense – Hares-foot Clover

Black Range Remnant Vegetation Survey

Quadrat SITE 4
Date Survey October 2000

Landowner Neil Marriott
Location/Fire Map reference
Address Panrock Rd
Site Map Yes
Photo Yes

Vegetation Community
Scentbark Heathy Woodland

Site Description/Present Management
The site has been ungrazed for 10+ years and has regenerated well. Ground flora vegetation is quite dense, healthy and there are very few weeds and moderate diversity. The area would have had more tree cover originally and these are regenerating well, at present fairly widely spaced. The ground flora is close to its original diversity and extent. The shrub layer is naturally sparse.

Intactness
Weeds. There are very few weeds in this area of the property.
Other There is no rabbit disturbance but the area is quite heavily grazed by kangaroos.

Dominant Species Present
Astroloma conostephioides
Goodenia geniculata
Haloragis heterophylla
Hibbertia stricta
Micolaena stipoides
Themeda triandra

Significant Species
Isopogon ceratophyllus - uncommon in the Black Range

Quadrat sp. Total indigenous – 49, Weeds – 4.

Biodiversity/Intactness rating 9/10

Management Recommendations
- The existing management should continue.
- Individual guards could be placed around orchids or other palatable species to ensure they flower and set seed to regenerate

Comments

- There is an excellent cover of either vegetation or moss/lichen and no bare areas. At the time of survey there were inky black toadstools. There were lots of birds in this area.

Quadrat 4, N Marriott

Acacia mearnsii
Acaena echinata
Allocasuarina verticillata
Arthropodium strictum
Astroloma humifusum
Austrodanthonia geniculata
Austrodanthonia pilosa var. pilosa
Austrostipa densiflora
Austrostipa mollis
Austrostipa scabra
Bulbine bulbosa
Centrolepis strigosa
Chamaescilla corymbosa
Cheilanthes austrotenuifolia
Daucus glochidiata
Dillwynia hispida
Diuris lanceolata
Drosera glanduligera
Drosera peltata
Eucalyptus aromophloia
Gonocarpus elatus
Gonocarpus tetragynus
Goodenia geniculata
Goodenia humilis
Hibbertia stricta
Hydrocotyle laxiflora
Hypericum gramineum
Hypoxis glaberra
Isopogon ceratophyllus
Lepidosperma carphoides
Lomandra filiformis
Lomandra nana
Microlaena stipoides
Microtis unifolia
Neurachne alopecurioides
Oxalis perennans
Pelargonium rodneyanum
Pimelia humilis
Platylobium obtusangulum
Poranthera microphylla
Solenogyne dominii
Thelymitra antennifera
Thelymitra pauciflora
Thysanotus patersonii
Tricoryne elatior
Triptilodiscus pygmaea
Viola hederacea
Wahlenbergia stricta
Wurmbea dioica

Black Wattle
Sheep's Burr
Drooping She-oak
Chocolate Lily
Cranberry Heath
Kneed Wallaby-grass
Velvet Wallaby-grass?
Dense Spear-grass
Supple Spear-grass
Rough Spear-grass
Yellow Bulbine-lily
Hairy Centrolepis
Blue Stars
Green Rock Fern
Austral Carrot
Red Parrot-pea
Golden Moths
Scarlet Sundew
Tall Sundew
Scentbark
Tall Raspwort
Common Raspwort
Bent Goodenia
Swamp Goodenia
Upright Guinea-flower
Stinking Pennywort
Small St Johns Wor
Tiny Star
Horny Cone-bush
Black Rapier-sedge
Wattle Mat-rush
Dwarf Mat-rush
Weeping Grass
Common Onion Orchid
Fox-tail Mulga grass
Grassland Wood-sorrel
Magenta Storks-bill
Common Rice-flower
Common Flat-pea
Small Poranthera
Solenogyne
Rabbits-ears
Slender Sun-orchid
Twining Fringe-lily
Yellow Rush-lily
Common Sunray
Ivy-leaf Violet
Tall Bluebell
Common Early Nancy

Weeds
Briza minor – Small Quaking-grass
Centaureum sp - Centuary
Trifolium arvense – Hare's Foot Clover
** -Chickweed

Black Range Remnant Vegetation Survey

Quadrat SITE 5
Date Survey October 2000

Landowner Jane Marriott
Location/Fire Map reference
Address Panrock Rd
Site Map Yes

Vegetation Community
Yellow Box/Scentbark Grassy Woodland

Site Description/Present Management
This small strip adjoining the road reserve is more diverse than other nearby more degraded areas areas, probably because of the regeneration occuring from the road reserve. The section of the quadrat furthest from the fenceline is degraded with intrroduced grasses. A recent telecom line was put through this section with (supposedly) minimal disturbance. The spreading of Briza maxima from the road reserve is a problem and hand weeding and spraying has been regularly applied to stop the spread of Briza onto the property in this area.

Intactness
Weeds There are few weeds along the fenceline section with Briza maxima being the major threat but with<5% cover. Introduced Bromes and Vulpia comprise 50% cover in the degraded upper section of the quadrat.
Other The impact from the baring of soil for the telecom line on weeds or regeneration will be monitored.

Dominant Species Present
Austrodanthonia spp.
Austostipa spp.

Significant Species
Austrostipa setacea – rare in Victoria

Quadrat sp. Total indigenous – 20, Weeds - 12

Biodiversity/Intactness rating 7/10 & 4/10

Management Recommendations

- Caladenia tentaculata occurs just outside the fenceline and seed could be collected and spread in this area to encourage regeneration

adrat 5, J. Marriott

	Acaena echinata	Sheep's Burr
	Astroloma humifusum	Cranberry Heath
	Austrodanthonia geniculata	Kneed Wallaby-grass
	Austrodanthonia racemosa	Striped Wallaby-grass
	Austrostipa scabra	Rough Spear-grass
r	Austrostipa setaceae	Corkscrew Spear-grass
	Cheilanthes austrotenuifolia	Green Rock Fern
	Convolvulus erubescens	Pink Bindweed
	Drosera peltata	Tall Sundew
	Drosera whittakerii	Scented Sundew
	Eucalyptus aromophloia	Scentbark
	Eucalyptus melliodora	Yellow Gum
	Gonocarpus elatus	Tall Raspwort
	Hyalosperma praecox	Mayweed Sunray
	Hypericum gramineum	Small St Johns Wort
	Lomandra nana	Dwarf Mat-rush
	Ophioglossum lusitan	Austral adders-tongue
	Solenogyne dominii	Solenogyne
	Thelymitra pauciflora	Slender Sun-orchid
	Tricoryne elatior	Yellow Rush-lily
	Wahlenbergia stricta	Tall Bluebell 20

Weeds
Aira cupaniana – Small Hair-grass
Arctotheca calendula - Capeweed
Briza maxima – Large Quaking-grass
Briza minima – Small Quaking-grass
Bromus sp. - Brome
Corkscrew
Fescue
Hypochoerus sp. – Dandelion
Petrorhahia velutina – Proliferous Pink
Romulea rosea - Onion Weed
Trifolium – white clover*
Trifolium – yellow clover*

Black Range Remnant Vegetation Survey

Quadrat SITE 6
Date Survey October 2000

Landowner Graham & Barb Walker
Location/Fire Map reference
Address Caravan Park, corner Western H'way and Panrock Rd
Site Map Yes
Photo No

Vegetation Community
Grassy Woodland

Site Description/Present Management
This small strip inside the fenceline along the Western H'way was substantially cleared 10 + years ago but in the last several years the regeneration of ground flora has been encouraged. Tree cover is minimal but the shrub and ground flora are approaching their original extent. Plantings of indigenous and non indigenous native plants have taken place in this area.

Intactness
Weeds. There is a moderate variety of weeds but they constitute only about 10% cover. The infestation of Briza maxima covers an area about 4m2.
Other Plantings of non –indigenous plants and their spread are a problem in this area

Dominant Species Present
Chrysocephalum apiculatum
Themeda triandra
Haloragis heterophylla
Austrodanthonia spp.
Microlaena stipoides
Pimelia humilis

Significant Species

Quadrat sp. Total Indigenous – 47, Weeds - 10

Biodiversity/Intactness rating 6/10

Management Recommendations
1. No further plantings of indigenous or other plants should take place here as the regeneration of the Kangaroo Grass and other indigenous ground flora is a feature. The existing non-indigenous plantings could be gradually removed.
2. Labels naming the various species in this area could be a good educative feature for visitors to the caravan park.

Monitoring
- annual surveys to determine additional new species would indicate the effectiveness of natural regeneration.
- at present the regeneration has been principally of ground flora, however there are numerous wattle seedlings and their spread/dominance will need to be monitored.

Comments

- previous management of the caravan park with planting of native plants shows how often best efforts at any given time may in the long term be detrimental. Previous owners had a love for the bush and 'enhanced' the park with plantings of native plants. These native plants unfortunately included plants we now know as environmental weeds, which readily reproduce and spread in their new environment. Today the owners and the Landcare Group are kept busy pulling up, spraying or chopping out plants

Arthropodium strictum
Astroloma humifusum
Austrodanthonia caespitosa
Austrodanthonia geniculata
Austrodanthonia pilosa ssp pilosa
Austrostipa densiflora
Brachyloma daphnoides
Brunonia australis
Caladenia tentaculata
Centrolepis strigosa
Chamaescilla corymbosa
Cheilanthes austrotenuifolia
Dianella revoluta
Diuris pardina
Drosera peltata
Eragrostis elongata
Eucalyptus goniocalyx
Eucalyptus macrorhyncha
Geranium retrorsum
Gompholobium huegelii
Gonocarpus elatus
Goodenia geniculata
Grevillea alpina
Hibbertia stricta
Lagenifera gracilis
Lomandra multiflora
Lomandra sororia
Microlaena stipoides
Microceris scapigera
Microtis unifolia
Neurachne alopecurioides
Oxalis perennans
Pelargonium rodneyanum
Pimelia humilis
Platylobium obtusangulum
Poa sieberiana
Pultenaea pedunculata
Solenogyne dominii
Thelymitra pauciflora
Triptilodiscus pygmaeus
Wurmbea dioica

Chocolate Lily
Cranberry Heath
Common Wallaby-grass
Kneed Wallaby-grass
Velvet Wallaby-grass
Dense Spear-grass
Daphne Heath
Blue Pincushion
Mantis Orchid
Hairy Centrolepis
Blue Stars
Green Rock Fern
Black-anther Flax-lily
Leopard Orchid
Tall Sundew
Close-headed Love-grass
Long-leaf Box
Red Stringybark
Grassland Cranesbill
Common Wedge-pea
Tall Raspwort
Bent Goodenia
Mountain Grevillea
Upright Guinea-flower
Slender Lagenifera
Many-flowered Mat-rush
Small Mat-rush
Weeping Grass
Yam Daisy
Common Onion Orchid
Fox-tail Mulga grass
Grassland Wood-sorrel
Magenta Storks-bill
Common Rice-flower
Common Flat-pea
Grey Tussock Grass
Matted Bush-pea
Solenogyne
Slender Sun-orchid
Common Sunray
Common Early Nancy

Planted indigenous
Acacia mitchelii, Eutaxia microphylla, Acacia myrtifolia, Banksia marginata
Planted non-indigenous
Grevillea rosmarinifloia, Callistemon, Conothamnus

Weeds
Aira cupaniana – Small Hair-grass
Briza maxima – Large Quaking-grass
Trifolium yellow
Arctotheca calendula - Capeweed
Hypochoerus – Cats-ear
Romulea rosea - Onion Grass
Trifolium white
Plantago myuros – Mouse Plantain
Fescue
Canary Grass

Black Range Remnant Vegetation Survey

Quadrat SITE 7
Date Survey October 2000

Landowner Brazier
Location/Fire Map reference
Address Granny's Lane
Site Map Yes
Photo No

Vegetation Community
Sedge-rich Red Gum Woodland

Site Description/Present Management
This area is wet in a wet year such as we experienced this spring and is covered in sedges interspersed with . There are few grass species. Widely spaced large Red Gums are the only tree species. The area is in close to original condition with good diversity and low weed cover.

Intactness
Weeds Weeds are few and in small numbers, however the few patches of Briza maxima are a concern.
Other

Dominant Species Present
Astroloma conostephioides
Lomandra sp
Leptorrhynchus squamatus
Burchardia umbellulata
Lepidosperma sp

Significant Species

Quadrat sp. Total Indigenous – 39, Weeds - 5

Comments

Quadrat 7, Brazier

Acacia paradoxa	Hedge Wattle
Acacia pycnantha	Golden Wattle
Acaena echinata	Sheeps Burr
Acrotriche serrulata	Honey-pots
Arthropodium milleflorum	Pale Vanilla-lily
Arthropodium strictum	Chocolate Lily
Aphelia pumilio	Dwarf Aphelia
Astroloma humifusum	Cranberry Heath
Austrostipa trichophylla?	Spear-grass
Brachyscome uliginosa	Small Swamp Daisy
Bulbine bulbosa	Yellow Bulbine -lily
Burchardia umbellata	Milkmaids
Centrolepis strigosa	Hairy Centrolepis
Chamaescilla corymbosa	Blue Stars
Chorizandra enodis	Black Bristle-sedge
Dianella revoluta	Black-anther Flax-lily
Drosera peltata	Tall Sundew
Eucalyptus camaldulensis	River Red Gum
Gonocarpus elatus	Tall Raspwort
Gonocarpus tetragynus	Common Raspwort
Goodenia geniculata	Bent Goodenia
Haloragis heterophylla	Varied Raspwort
Hydrocotyle laxifloa	Stinking Pennywort
Hypericum gramineum	Small St Johns Wort
Hypoxis glaberra	Tiny Star
Lepidosperma sp	Sword-sedge
Leptoryhnchos tenuifolius	Wiry Buttons
Microceris scapigera	Yam Daisy
Microtis unifolia	Common Onion Orchid
Ophioglossum lusitanicum	Austral Adders-tongue
Ranunculus sp	Buttercup
Senecio	
Solenogyne dominii	Solenogyne
Tetratheca ciliata	Pink Bells
Thelymitra antennifera	Rabbits-ears
Thelymitra pauciflora	Slender Sun-orchid
Thelymitra rubra	Salmon Sun-orchid
Tricoryne elatior	Yellow Rush-lily
Utricularia violacea	Violet Bladderwort

Weeds
Aira cupaniana – Small Hair-grass
Briza maxima – Large Quaking-grass
Briza minor – Small Quaking-grass
Hypochoerus sp. – Cats-ear
Romulea rosea - Common Onion-grass

Black Range Remnant Vegetation Survey

Quadrat SITE 8
Date Survey October 2000

Landowner Lockie & Janice Campbell
Location/Fire Map reference
Address Bullocky Mary Rd
Site Map No

Vegetation Community
Yellow Gum/Long-leaf Box Heathy Woodland

Site Description/Present Management
This area of approximately 15m x 40m was fenced off with a tall fence to exclude kangaroo and rabbits. The area is near an old quarry site which has been denuded in the past. The area fenced showed considerable diversity that was likely to be enhanced by fencing. There is a good tree cover layer, shrubs are present and regenerating well and there is a diverse grassy and heathy ground flora.

Intactness
Weeds There is a variety of weeds but their cover is only 5-10%. Some weeds such as Veldt Grass and Briza maxima have the ability to spread and degrade the integrity of this little 'wildflower reserve.'
Other The whole area would have been cleared in conjunction with the quarry that operated there. There are small areas of compacted soil which are regenerating quite well.

Dominant Species Present
Austrodanthonia spp.
Calytrix alpestris
Eucalyptus goniocalyx
Eucalyptus melliodora

Significant Species

Quadrat sp. Total Indigenous – 69, Weeds - 8

Biodiversity/Intactness rating 8.5/10

Management Recommendations
1. Weeding out the most insidious weeds (Veldt Grass and Briza maxima) would help retain the integrity of the plot.
2. I would not recommend planting any (more) indigenous plants into the plot, so the plot represents the natural diversity of the area. Spreading or scattering the seeds of desired plants already growing in the plot would hasten the regeneration process. Culling species such as Acacia paradoxa, which could dominate the area and reduce access, would contribute to the education value of the exclosure.
3. Dodonea boroniifolia, a plant recently added to the rare list for Victoria is recorded on the property and it may be useful to plant a 'specimen' plant inside the exclosure.

Comments

- This site has a high species diversity as indicated by the total of 69 indigeneous species. This area has high diversity naturally, possibly as a result of protection from surrounding rocks and an accumulation of leaf litter to enrich the soil. The fence will certainly protect and enrich this diversity, in particular orchid species.
- With any sort of fencing there are likely to be some negative effects, one of the most common being the impediment of fences to wildlife. During the survey a young Chough seemed to be caught inside the exclosure as the rest of the family were making worried noises. In case the youngster wasn't able to clear the fence I lifted him over.
- Outside the exclosure, near the spring there were Casuarinas, a favourite wallaby food, eaten down to sticks.
- This block has two distinct vegetation types (and intermediates), one of which is evident in the exclosure ie heathy/grassy. Towards the back of the block there are large open woodland areas with a very sparse grassy understorey with virtually no shrub species. It would be interesting to further study this second open woodland area and determine why the ground flora is so sparse.

Quadrat 8, Campbell
Acacia genistifolia
Acacia implexa
Acacia paradoxa
Acacia pycnantha
Acrotriche serrulata
Arthropodium strictum
Astroloma humifusum
Austrodanthonia caespitosa
Austrodanthonia geniculata
Austrostipa densiflora
Austrostipa mollis
Billardiera
Brachyloma daphnoides
Bulbine bulbosa
Burchardia umbellata
Caesia calliantha
Caladenia tentaculata
Callitris rhomboidea
Calytrix tetragona
Carpobrotus*modestus
Chamaescilla corymbosa
Cheilanthes austrotenuifolia
Cyrtostylis reniformis
Dianella revoluta
Dillwynia glaberrima
Dillwynia hispida
Diuris pardina
Drosera glanduligera
Drosera peltata
Drosera whittakeri
Eucalyptus goniocalyx
Eucalyptus melliodora
Geranium retrorsum
Gompholobium huegelii
Gonocarpus elatus
Gonocarpus tetragynus
Goodenia geniculata
Grevillea alpina
Grevillea aquifolium
Hibbertia stricta
Hydrocotyle laxiflora
Hypoxis glabella
Kennedia prostrata
Lepidosperma carphoides
Leptospermum myrsinoides
Leucopogon virgatus
Lomandra filiformis
Lomandra nana
Microlaena stipoides
Microceris scapigera
Microtis unifolia
Neurachne alopecurioides
Ophioglossum lusitanicum
Oxalis perennans
Pelargonium rodneyanum
Pimelia humilis
Poa sieberiana
Poa clelandii
Senecio
Senecio glomeratus
Solenogyne dominii
Stuartina muelleriana
Tetratheca ciliata
Thysanotus patersonii
Thelymitra pauciflora
Tricoryne elatior
Triptilodiscus pygmaeus
Vittadenia gracilis
Wahlenbergia stricta
Wurmbea dioica

Spreading Wattle
Lightwood
Hedge Wattle
Golden Wattle
Honey-pots
Chocolate Lily
Cranberry Heath
Common Wallaby-grass
Kneed Wallaby-grass
Dense Spear-grass
Supple Spear-grass
Appleberry
Daphne Heath
Bulbine Lily
Milkmaid
Blue Grass-lily
Mantis Orchid
Oyster Bay Cypress-pine
Common Fringe-myrtle
Inland Pigface
Blue Stars
Green Rock Fern
Mosquito Orchid
Black-anther Flax-lily
Smooth Parrot-pea
Red Parrot-pea
Leopard Orchid
Scarlet Sundew
Tall Sundew
Scented Sundew
Long-leaf Box
Yellow Box
Grassland Cranesbill
Common Wedge-pea
Tall Raspwort
Common Raspwort
Bent Goodenia
Mountain Grevillea
Variable Prickly Grevillea
Upright Guinea-flower
Stinking Pennywort
Tiny Star
Running Postman
Black Rapier-sedge
Heath Tea-tree
Common Beard-heath
Wattle Mat-rush
Small Mat-rush
Weeping Grass
Yam Daisy
Common Onion Orchid
Fox-tail Mulga grass
Austral Adders-tongue
Grassland Wood-sorrel
Magenta Storks-bill
Common Rice-flower
Grey Tussock Grass
Matted Tussock-grass

Annual Fireweed
Solenogyne
Spoon Cudweed
Pink Bells
Twining Fringe-lily
Slender Sun-orchid
Yellow Rush-lily
Common Sunray
Woolly New Holland Daisy
Tall Bluebell
Common Early Nancy

Weeds
Aira cupaniana – Small Hair-grass
Briza major – Large Quaking-grass
Plantago myosurus – Mouse Plantain
Arctotheca calendula – Capeweed
Romulus rosea – Common Onion-grass
Hypochoerus sp – Cats-ear
Fescue
Ehrharta longiflora – Annual Veldt-grassBlack Range Remnant Vegetation Survey

Quadrat SITE 9

Vegetation Community
Scentbark/Yellow Box Grassy Woodland

Site Description/Past Management
A small creek runs along one side of the quadrat which adjoins the fenceline. It is part of an area which had been moderately grazed until fenced off in 1999. The richness of the flora along this small creekline which runs parallel to the rail line, indicates the wonderful diversity there would have been originally over the block. The creek and its proximity to the boundary have afforded it some protection from the effects of grazing and is one of the best areas for remnant vegetation. The area is threatened with weed invasions from both sides but seems to be holding its own.

Intactness
Weeds. Weed cover in this particular quadrat and in the area adjoining the rail line is about 15-30%, whilst elsewhere on the block it has a 70% cover of introduced grasses. Other There is little sign of rabbits in this area and because of its location across a creek has had little soil disturbance over the years.

Dominant Species Present
Austrostipa mollis
Austrostipa setacea
Austrodanthonia spp.

Significant Species
Austrostipa setacea – rare in Victoria

Quadrat sp. Total indigenous - 41, Weeds - 4

Biodiversity/Intactness rating 7/10

Management Recommendations
1. Perhaps hand broadcasting of seed collected from plants in the quadrat and surrounding area or the nearby roadside could be spread along the small creek line to increase the spread of species.
2. Weeds on the rail line have proliferated at an alarming rate over the last few years. Activities to clear gutters, drains etc and no attempt at weed management make weeds along this rail line a serious threat to significant vegetation along the rail reserve and on adjoining properties.
3. Since grazing was excluded the Watsonia which is thick on upstream properties has proliferated along the major creek line and is in urgent need of eradication before the vegetation along the creek is further infested.
4.Veldt Grass and Capeweed in the areas ripped for rabbits should be sprayed and thickly replanted with Black Wattles to try to outcompete the weeds

Monitoring
- The strip of remnant vegetation on the property adjoining the rail line needs to have the spread of weeds monitored and the most insidious ones eradicated if they threaten to smother areas rich with indigenous species.
- The low lying area adjoining the small creek had a very interesting variety of swampy vegetation, not common in the range and would be worth revisiting another year.

Comments
- In the area fenced from stock the Austrodanthonias or Wallaby Grasses are regenerating well. Vegetation along the larger creek is spreading and will provide a wonderful corridor for wildlife in years to come. Trees are also regenerating well in the fenced off area.

	Quadrat 9, Gardiner
Acacia paradoxa	Hedge Wattle
Acacia pycnantha	Golden Wattle
Acaena echinata	Sheep's Burr
Arthropodium strictum	Chocolate Lily
Astroloma humifusum	Cranberry Heath
Austrodanthonia caespitosa	Common Wallaby-grass
Austrodanthonia fulva	????
Austrodanthonia geniculata	Kneed Wallaby-grass
Austrodanthonia pilosa ssp pilosa	Velvet Wallaby-grass
Austrostipa scabra	Rough Spear-grass
Brachyloma daphnoides	Daphne Heath
Brunonia australis	Blue Pincushion
Burchardia umbellata	Milkmaids
Chamaescilla corymbosa	Blue Stars
Dianella revoluta	Black-anther Flax-lily
Drosera peltata	Tall Sundew
Eucalyptus aromophloia	Scentbark
Geranium retrorsum	Grassland Cranesbill
Gonocarpus tetragynus	Common Raspwort
Goodenia geniculata	Bent Goodenia
Hibbertia stricta	Upright Guinea-flower
Hyalosperma praecox	Mayweed Sunray
Hydrocotyle laxiflora	Stinking Pennywort
Hypoxis glabella	Tiny Star
Leucopogon virgatus	Common Beard-heath
Lomandra filiformis	Wattle Mat-rush
Lomandra nana	Small Mat-rush
Microlaena stipoides	Weeping Grass
Microceris scapigera	Yam Daisy
Microtis unifolia	Common Onion Orchid
Neurachne alopecurioides	Fox-tail Mulga grass
Pelargonium rodneyanum	Magenta Storks-bill
Pimelia humilis	Common Rice-flower
Poa sieberiana	Grey Tussock Grass
Schoenus apogon	Common Bog-sedge
Solenogyne dominii	Solenogyne
Stylidium inundatum	Hundreds and Thousands
Thelymitra pauciflora	Slender Sun-orchid
Themeda triandra	Kangaroo Grass
Triptilodiscus pygmaeus	Common Sunray
Wahlenbergia stricta	Tall Bluebell

Location/Fire Map reference
Address Bullocky Mary Rd
Site Map Yes

Vegetation Community
Yellow Box/Long-leaf Box Heathy Woodland

Site Description/Present Management
This quadrat is situated in an area which has been totally cleared and scalped some 15? years ago. Regeneration of indigenous species and weeds is taking place slowly on the depauperate granite/sandy soil. It will be interesting to monitor the long term rehabilitation of this site. At present the site has approximately 50% cover of vegetation, with leaf litter covering a further 20% and bare soil the remainder. There are areas surrounding this quadrat with remnant vegetation which in time may seed/sucker into this area.

Intactness
Weeds Most weeds occur near the base of the telegraph pole with a 20-30% cover of weed species here. Briza maxima, Hares-foot Clover and Mouse Plantain are the most common weeds. Elsewhere in the quadrat there are few weeds.
Other The area has been denuded of vegetation and topsoil with the bared areas slowly regenerating. Elsewhere on the property areas have experienced varying degrees of degradation but are regenerating well.

Dominant Species Present
Austrodanthonia *
Haloragis heterophylla
Grevillea alpina
Drosera peltata
Microtis unifolia

Significant Species

Quadrat sp. Total indigenous - 30, weeds - 6

Biodiversity/Intactness rating 3 /10

Management Recommendations
1. To observe the natural recovery processes in this quadrat with no management except for weed control would be useful. This could be compared to adjoining areas where various forms of intervention such as spreading seed or laying branches etc over the bare areas could be used for comparison.
Monitoring
- It will be interesting to monitor the spread of regeneration in this area and note any new species for the site, the most successful colonizers etc

Comments
The success of natural regeneration depends on the proximity of suitable species to recolonise the site. The surrounding areas have a diversity of vegetation which should spread into these bare areas.

Quadrat Site 10

No. of Plants		
<5	Acacia genistifolia	Spreading Wattle
<5	Acacia pycnantha	Golden Wattle
<10	Arthropodium strictum	Chocolate Lily
<50	Austrodanthonia caespitosa	Common Wallaby-grass
<10	Austrodanthonia geniculata	Kneed Wallaby-grass
	Austrodanthonia pilosa ssp pilosa	Velvet Wallaby-grass
	Austrodanthonia setacea	Bristly Wallaby-grass
	Austrostipa trichophylla	Rough Spear-grass
<20	Brachyloma daphnoides	Daphne Heath
<10	Burchardia umbellata	Milkmaids
<5	Calytrix tetragonia	Common Fringe-myrtle
<20	Chamaescilla corymbosa	Blue Stars
20%	Cheilanthes austrotenuifolia	Green Rock Fern
>100	Drosera peltata	Tall Sundew
<5	Eragrostis elongata	Close-headed Love-grass
<5	Eucalyptus goniocalyx	Long-leaf Box
<5	Eucalyptus macrorhyncha	Red Stringybark
>100	Gonocarpus elatus	Tall Raspwort
<5	Goodenia geniculata	Bent Goodenia ?hairy under
<100	Grevillea alpina	Mountain Grevillea
<10	Hibbertia stricta	Upright Guinea-flower
<5	Hyalosperma praecox	Mayweed Sunray
<5	Lomandra nana	Small Mat-rush
<50	Microtis unifolia	Common Onion Orchid
<2	Neurachne alopecurioides	Fox-tail Mulga grass
<5	Pultenaea laxiflora	Loose-flower Bush-pea
<5	Schoenus apogon	Common Bog-sedge
<10	Thelymitra pauciflora	Slender Sun-orchid
<10	Tricoryne elatior	Yellow Rush-lily
>100	Triptilodiscus pygmaeus	Common Sunray

Weeds
10 % cover Aira cupaniana – Small Hair-grass
1% Centaurium erythraea – Common Centaury
1% Erodium?
5% Festuca sp. – Fescue
1% Hypochoris sp – Cats-ear
15% Plantago myuros – Mouse Plantain
5% Trifolium arvense – Hares-foot Clover

Black Range Remnant Vegetation Survey

Quadrat SITE 11
Date Survey October 2000

Site Description/Present Management
To compare vegetation in and out of a netting fence, ½ this quadrat is in Browns Lane Road Reserve and ½ in the Carter property. Both areas have similar tree cover, a moderate cover of ground flora but few shrub species. The road reserve is unused and has only pedestrian traffic. It would have had a history of rabbit grazing.

.

Intactness
Weeds There are small numbers and a limited variety of weeds in this site although some of those present can be invasive eg Briza maxima, Fog Grass and Red Brome.
Other There was considerable evidence of current grazing, most probably by kangaroos in both areas.

Dominant Species
Austrodanthonia fine
Gonocarpus elatus
Hydrocotyle laxiflora
Microlaena stipoides

Significant Species

Quadrat sp. Total indigenous roadside – 25, Weeds - 7
Carter – 23, Weeds –7

Biodiversity/Intactness rating 6/10

Management Recommendations
1. Any further plantings should take place out of the quadrat so effects of natural regeneration aren't confused with planting, however seed spreading of naturally growing nearby plants in both areas would be beneficial.

Monitoring
- his quadrat enables monitoring of one area with kangaroo access but where rabbits are (largely) excluded to one with rabbit and kangaroo access. With low rabbit numbers the differences aren't great but there is marginally greater diversity and density on the Carter side of the fence.

Comments
- In the lane outside the quadrat the unusual Senecio ? is found. Seed should be collected and dispersed around the area to increase the spread from just a few plants which could be naturally or otherwise eliminated.
- Several plants (in guards) have been planted in the quadrat section on the Carter property.

Quadrat 11 Road Reserve	
Acaena echinata	Sheep's Burr
Arthropodium strictum	Chocolate Lily
Austrodanthonia caespitosa	Common Wallaby-grass
Austrodanthonia geniculata	Kneed Wallaby-grass
Austrostipa scabra	Rough Spear-grass
Chamaescilla corymbosa	Blue Stars
Chielanthes austrotenuifolia	Green Rock Fern
Convulvulus erubescens	Pink Bindweed
Eucalyptus aromaphloia	Scentbark
Eucalyptus melliodora	Yellow Box
Gonocarpus elatus	Tall Raspwort
Hyalosperma praecox	Mayweed Sunray
Hydrocotyle laxiflora	Stinking Pennywort
Hypericum gramineum	Small St Johns Wort
Lagenifera gracilis	Slender Lagenifera
Microlaena stipoides	Weeping Grass
Microtis unifolia	Common Onion Orchid
Poa sieberiana	Grey Tussock Grass
Poranthera microphylla	Small Poranthera
Schoenus apogon	Common Bog-sedge
Senecio *	
Solenogyne dominii	Solenogyne
Tricoryne elatior	Yellow Rush-lily
Viola hederacea	Ivy-leaf Violet
Wahlenbergia sp	Bluebell

Quadrat 11,Carter	
Acaena echinata	Sheep's Burr
Astroloma humifusum	Cranberry Heath
Austrodanthonia caespitosa	Common Wallaby-grass
Austrodanthonia geniculata	Kneed Wallaby-grass
Burchardia umbellata	Milkmaids
Carex inversa	Common Sedge
Chielanthes austrotenuifolia	Green Rock Fern
Cynoglossum suavissimum	Sweet Hounds-tongue
Drosera peltata	Tall Sundew
Gonocarpus tetragynus	Common Raspwort
Gonocarpus elatus	Tall Raspwort
Hyalosperma praecox	Mayweed Sunray
Hydrocotyle laxiflora	Stinking Pennywort
Hypericum gramineum	Small St Johns Wort
Lagenifera gracilis	Slender Lagenifera
Lomandra nana	Dwarf Mat-rush
Microlaena stipoides	Weeping Grass
Microtis unifolia	Common Onion Orchid
Poranthera microphylla	Small Poranthera
Senecio*	
Schoenus apogon	Common Bog-sedge
Tricoryne elatior	Yellow Rush-lily
Wahlenbergia sp	Bluebell

Indigenous Planted (in guards)
Leptospermum continentale – Prickly Ti-tree Weeds

Weeds
Aira cupaniana – Small Hair-grass

Site Description/Present Management
To compare vegetation in and out of a netting fence, ½ this quadrat is in Browns Lane Road Reserve and ½ in the Carter property. Both areas have similar tree cover, a moderate cover of ground flora but few shrub species. The road reserve is unused and has only pedestrian traffic. It would have had a history of rabbit grazing.

Intactness
Weeds There are small numbers and a limited variety of weeds in this site although some of those present can be invasive eg Briza maxima, Fog Grass and Red Brome.
Other There was considerable evidence of current grazing, most probably by kangaroos in both areas.

Dominant Species
Austrodanthonia fine
Gonocarpus elatus
Hydrocotyle laxiflora
Microlaena stipoides

Significant Species

Quadrat sp. Total indigenous roadside – 25, Weeds - 7
Carter – 23, Weeds –7

Biodiversity/Intactness rating 6/10

Management Recommendations
1. Any further plantings should take place out of the quadrat so effects of natural regeneration aren't confused with planting, however seed spreading of naturally growing nearby plants in both areas would be beneficial.

Monitoring
- his quadrat enables monitoring of one area with kangaroo access but where rabbits are (largely) excluded to one with rabbit and kangaroo access. With low rabbit numbers the differences aren't great but there is marginally greater diversity and density on the Carter side of the fence.

Comments
- In the lane outside the quadrat the unusual Senecio ? is found. Seed should be collected and dispersed around the area to increase the spread from just a few plants which could be naturally or otherwise eliminated.
- Several plants (in guards) have been planted in the quadrat section on the Carter property.

Quadrat 11 Road Reserve
Acaena echinata
Arthropodium strictum
Austrodanthonia caespitosa
Austrodanthonia geniculata
Austrostipa scabra
Chamaescilla corymbosa
Chielanthes austrotenuifolia
Convulvulus erubescens
Eucalyptus aromaphloia
Eucalyptus melliodora
Gonocarpus elatus
Hyalosperma praecox
Hydrocotyle laxiflora
Hypericum gramineum
Lagenifera gracilis
Microlaena stipoides
Microtis unifolia
Poa sieberiana
Poranthera microphylla
Schoenus apogon
Senecio *
Solenogyne dominii
Tricoryne elatior
Viola hederacea
Wahlenbergia sp

Sheep's Burr
Chocolate Lily
Common Wallaby-grass
Kneed Wallaby-grass
Rough Spear-grass
Blue Stars
Green Rock Fern
Pink Bindweed
Scentbark
Yellow Box
Tall Raspwort
Mayweed Sunray
Stinking Pennywort
Small St Johns Wort
Slender Lagenifera
Weeping Grass
Common Onion Orchid
Grey Tussock Grass
Small Poranthera
Common Bog-sedge

Solenogyne
Yellow Rush-lily
Ivy-leaf Violet
Bluebell

Quadrat 11,Carter
Acaena echinata
Astroloma humifusum
Austrodanthonia caespitosa
Austrodanthonia geniculata
Burchardia umbellata
Carex inversa
Chielanthes austrotenuifolia
Cynoglossum suavissimum
Drosera peltata
Gonocarpus tetragynus
Gonocarpus elatus
Hyalosperma praecox
Hydrocotyle laxiflora
Hypericum gramineum
Lagenifera gracilis
Lomandra nana
Microlaena stipoides
Microtis unifolia
Poranthera microphylla
Senecio*
Schoenus apogon
Tricoryne elatior
Wahlenbergia sp

Sheep's Burr
Cranberry Heath
Common Wallaby-grass
Kneed Wallaby-grass
Milkmaids
Common Sedge
Green Rock Fern
Sweet Hounds-tongue
Tall Sundew
Common Raspwort
Tall Raspwort
Mayweed Sunray
Stinking Pennywort
Small St Johns Wort
Slender Lagenifera
Dwarf Mat-rush
Weeping Grass
Common Onion Orchid
Small Poranthera

Common Bog-sedge
Yellow Rush-lily
Bluebell

Indigenous Planted (in guards)
Leptospermum continentale – Prickly Ti-tree Weeds

Weeds
Aira cupaniana – Small Hair-grass

Vegetation Community

Site Description/Present Management
This small exclosure approximately 5m x5m was erected in ? to ?. There is a healthy and dense cover of ground flora and shrubs of 95%. This shrub layer is not evident in the surrounding more open grassy situations. There is a lot of leaf litter, mosses, including 2-3 sites with sphagnum moss. There is a limited diversity of species which probably reflects the small size of the site.

Intactness
Weeds There were only 3 weed species recorded in this quadrat and their cover would be <5%. Weed cover in and outside the exclosure was similar.
Other There was no sign of grazing or other disturbance, however the fence was low in one section and needs secure repair (wire).

Dominant Species Present
Arthropodium strictum
Leptospermum continentale
Microlaena stipoides
Poa sieberiana

Significant Species
Bossiaea prostrata – first record for the Black Range

Quadrat sp. Total indigenous 15, Weeds 3

Biodiversity/Intactness rating 9/10

Management Recommendations
1. It may be worthwhile at some stage to increase the size of this quadrat.

Monitoring
- some of the differences noted between in and outside the exclosure that can be monitored in future years are
  a) no Poa sieberiana outside,
  b) Microlaena stipoides outside were all eaten down and without seed heads,
  c) outside there were some scratchings/ground disturbance whilst inside there were none.
  d) outside there was a considerable amount of Bromus sp particularly in disturbed areas.

Comments

Quadrat 13, Kangaroo Proof Exclosure - Swamp

1	Acacia mearnsii	Black Wattle
3	Arthropodium strictum	Chocolate lily
+	Bossiaea prostrata	Creeping Bossiaea
2	Burchardia umbellata	Milkmaids
1	Drosera peltata	Tall Sundew
+	Eucalyptus ovata	Swamp Gum
+	Exocarpus cupressiformis	Cherry Ballart
2	Gonocarpus elatus	Tall Raspwort
2	Hydrocotyle laxiflora	Stinking Pennywort
3	Leptospermum continentale	Prickly Tea-tree
4	Microlaena stipoides	Weeping Grass
2	Poa sieberiana	Grey Tussock-grass
+	Poranthera microphylla	Small Raspwort
1	Schoenus apogon	Common Bog-sedge
1	Viola hederacea	Ivy-leaf Violet

Weeds
Briza minor – Small Quaking-grass

* - Scarlet Pimpernel<u>Black Range Vegetation Survey</u>

Quadrat SITE 14
Date Survey December 2000

Landowner Public – Basin Reserve
Location/Fire Map reference
Address Kangaroo Proof exclosure – Lower Basin Creek Scour
Site Map No
Photo from NE corner

Vegetation Community
Yellow Box Grassy Woodland

Site Description/Past Management/condition
This area ? x ? was fenced in ? to ? There is a noticeable difference in vegetation inside the exclosure with a healthy and prolific cover of grassy species, many forming large tussocks and in flower. There is a moderate diversity of species. There are few areas of bare soil inside the exclosure with vegetation cover 75% and lichen covering much of the remainder.

Intactness
Weeds Weeds have a less than 5% cover, with the presence of Briza maxima a worry for further spread. Most of the weeds occur on the lower ¼ of the site.
Other There is no sign of other disturbance and the area is regenerating well.

Dominant Species Present

Austrostipa hemipogon?
Austrostipa scabra
Goodenia geniculata
Neurachne alopecurioides

Significant Species
Ptilotus macrocephalus – uncommon in the range

Quadrat sp. Total indigenous 27/ Weeds 5

Biodiversity/Intactness rating 8 /10

Comments

- The most outstanding difference in plants in and outside the exclosure was the growth habit of Neurachne alopecurioides where inside it was a robust tussock with many flower spikes to outside where it was a prostrate mat bearing little resemblance to it enclosed relatives.

Quadrat 14, Kangaroo Proof Exclosure Scour Lower Basin Reserve

2	Acacia mearnsii	Black Wattle
1	Arthropodium fimbriatum	Chocolate Lily
1	Astroloma humifusum	Cranberry Heath
1	Austrodanthonia setacea	BristlyWallaby-grass
+	Austrodanthonia geniculata	Kneed Wallaby-grass
3 r	Austrostipa hemipogon	Rough Spear-grass
+	Austrostipa mollis	Supple Spear-grass
3	Austrostipa scabra	Rough Spear-grass
1	Brunonia australis	Blue Pincushion
+	Burchardia umbellata	Milkmaids
+	Cheilanthes austrotenuifolia	Green Rock Fern
+	Cynoglossum suaveolens	Sweet Hounds-tongue
+	Drosera peltata	Tall Sundew
2	Eucalyptus melliodora	Yellow Box
2	Gonocarpus elatus	Tall Raspwort
2	Goodenia geniculata	Bent Goodenia
+	Hydrocotyle laxiflora	Stinking Pennywort
+	Hypericum gramineum	Small St Johns Wort
+	Kennedia prostrata	Running Postman
+	Lomandra filiformis	Wattle Mat-rush
+	Lomandra nana	Small Mat-rush
+	Microtis unifolia	Common Onion Orchid
2	Neurachne alopecurioides	Fox-tail Mulga grass
+	Poranthera microphylla	Small Poranthera
2	Ptilotus macrocephalus	Feather-tails
+	Thelymitra pauciflora	Slender Sun-orchid
+	Tricoryne elatior	Yellow Rush-lily

Weeds

1	Briza maxima - Large Quaking-grass
1	Hypochoerus radicata – Catsear
1	Air cupaniana – Small Hair-grass
+	Centaurum erythraea – Common Centaury
1	Petrorhagia velutina – Proliferous Pink

Black Range Vegetation Survey

SITE 15
Date Survey October 2000

Landowner Public – Basin Reserve
Location/Fire Map reference
Address Ptilotus exclosure
Site Map No
Photo No

Vegetation Community
Grassy Woodland

Site Description/Past Management
This ? x ? exclosure was erected in ? to protect an area with a population of the rare Ptilotus erubescens from grazing.

This diversity of flora at this site was not assessed. Only general observations and the population of Ptilotus erubescens was recorded.

Management Recommendations
1. The species planted and surviving in the exclosure should be recorded to distinguish them from naturally regenerating species.

Monitoring

- There were 80 to 100 plants of Ptilotus erubescens in the exclosure. They were not yet in flower and a little difficult to locate as they only had a basal rosette. There was also a moderate quantity of Ptilotus erubescens outside the exclosure and an area could be pegged out and monitored to compare regeneration next year.
- There was more evidence of Stipa sp. and Neurachne alopecurioides in the exclosure than out.

Comments

- Ptilotus macrocephalus was also growing in the exclosure.
- The following are the indigenous plants that have been planted and are growing in this exclosure. Isopogon ceratophyllus,Callitris rhomboidea, Casuarina muelleriana, Acacia myrtifolia, Grevillea aquifolium, Dodonea boroniifolia, Melaleuca decussata, Leptospermum myrsinoides
- Weeds in the exclosure include Petrorhagia velutina and Briza maxima which covers an area 8m2 in the lower NE corner.

Acacia genistifolia	Spreading Wattle
Acacia paradoxa	Hedge Wattle
Acacia pycnantha	Golden Wattle
Acaena echinata	Sheep's Burr
Arthropodium strictum	Chocolate Lily
Astroloma humifusum	Cranberry Heath
Austrodanthonia caespitosa	Common Wallaby-grass
Austrodanthonia geniculata	Kneed Wallaby-grass
Austrodanthonia pilosa ssp pilosa	Velvet Wallaby-grass
Austrostipa densiflora	Dense Spear-grass
Brachyloma daphnoides	Daphne Heath
Brunonia australis	Blue Pincushion
Caladenia tentaculata	Mantis Orchid
Centrolepis strigosa	Hairy Centrolepis
Chamaescilla corymbosa	Blue Stars
Cheilanthes austrotenuifolia	Green Rock Fern
Dianella revoluta	Black-anther Flax-lily
Diuris pardina	Leopard Orchid
Drosera peltata	Tall Sundew
Eucalyptus goniocalyx	Long-leaf Box
Eucalyptus macrorhyncha	Red Stringybark
Geranium retrorsum	Grassland Cranesbill
Gompholobium huegeli	Common Wedge Pea
Gonocarpus elatus	Tall Raspwort
Goodenia geniculata	Bent Goodenia
Grevillea alpina	Mountain Grevillea
Hibbertia stricta	Upright Guinea-flower
Lagenifera gracilis	Slender Lagenifera
?Lomandra multiflora	Many-flowered Mat-rush
?Lomandra sororia	Small Mat-rush
Microlaena stipoides	Weeping Grass
Microceris scapigera	Yam Daisy
Microtis unifolia	Common Onion Orchid
Neurachne alopecurioides	Fox-tail Mulga grass
Oxalis perennans	Grasland Wood-sorrel
Pelargonium rodneyanum	Magenta Storks-bill
Pimelia humilis	Common Rice-flower
Platylobium obtusangulum	Common Flat-pea
Poa sieberiana/labill	Grey Tussock Grass
Pultenaea pedunculata	Matted Bush-pea
Solenogyne dominii	Solenogyne
Thelymitra pauciflora	Slender Sun-orchid
Triptilodiscus pygmaeus	Common Sunray
Wurmbea dioica	

Further Reading

Flora

Australian Ferns and Fern Allies, Jones & Clemesha. Reed Books, 1980
Flora of Victoria (4 volumes), Foreman & Walsh. Inkata Press, 1993 –2000
The Field Guide to the Wildflowers of Australia, D. Greig. New Holland, 1999
The Field Guide to the Orchids of New South Wales and Victoria, T. Bishop. UNSW, 2000
The Orchids of Victoria, Backhouse & Jeans. Melbourne University Press, 1995
Field Guide to Victoria's Native Grasslands, Scarlett, Wallbrink & McDougall. National Trust, 1992
Grassland Plants of South - Eastern Australia, Marriott & Marriott. Bloomings Books, 1998
Plains Wandering: exploring the grassy plains of south-eastern Australia, I.Lunt. et al VNPA/Trust For Nature
Eucalypts of Australia, Brooker & Kleinig. Bloomings Books, 2000
The Forgotten Forests – a field guide to Victoria's box and ironbark country, VNPA, 1994
Trees and Shrubs of South Eastern Australia, L. Costermans. Weldon, 1992
Mushrooms and Toadstools of Australia, Shepherd & Totterdell. Inkata Press, 198
Bringing Back The Bush, J. Bradley. New Holland, 1998
Bush Regeneration: recovering Australia's landscapes, R. Buchanan. TAFE Student Learning, 1989
Bushland On Farms, Davidson & Davidson. AGPS Press, 1992
From Seeds To Leaves, Stewart & Stewart. CSIRO, 1999
Management of Endangered Plants, S. Cropper. CSIRO, 1993
Managing Your Bushland, Hussey & Wallace. Dept. of Conservation &Land Management, 1993
Putting The Right Plant In The Right Place, Marriott, Marriott, Steere & Hajek. Dept. ofNRE, 1996
Spotting Soil Salting : a Victorian guide to salt indicator plants, Matters & Bozon. DCF&L, 1989

Fauna

The Mammals of Australia, R. Strahan. Australian Museum/Reed Books, 1998
Mammals of Victoria, P. Menkenhorst (ed.), Oxford, 1996
A Photographic Guide to the Mammals of Australia, Rowland & Strahan. New Holland, 1998
Reptiles and Amphibians of Australia, H.Cogger. Reed Books, 1992
The Rodents of Australia, Watts & Aslin. Angus & Robertson, 1998
Field Guide to Australian Birds, Pizzey & Knight. Angus & Robertson, 1997
Simpson and Day Field Guide to the Birds of Australia, Lifetime Distributors, 1993
The Slater Field Guide to Australian Birds, Landsdowne Publishing, 2000
Tracks, Scats and other Traces, B. Triggs. Oxford, 1996
Tree Hollows and Wildlife Conservation in Australia, Gibbons & Lindenmayer. CSIRO, 2001

Pests

Deadly Invasions – Introduced Species In Australia, Pyers, Dahlenburg & Gott, Cardigan Street Publishers, 1995
Field Guide to Weeds In Australia, Lamp & Collet. Inkata, 1999
Managing Vertebrate Pests: Rabbits, Williams, Parer, Coman, Burley & Braysher. Bureau of Rural Sciences, 1995
Noxious Weeds of Victoria, W. Parsons. Inkata Press, 1996
Winning The War On Weeds, M. Woolf. Kangaroo Press, 1999

The Built Environment

The Complete Australian Bushfire Book, J. Webster. Nelson, 1986
Living In The Bush – a bushfire survival workbook, CFA, 1998

Poisons and Safety

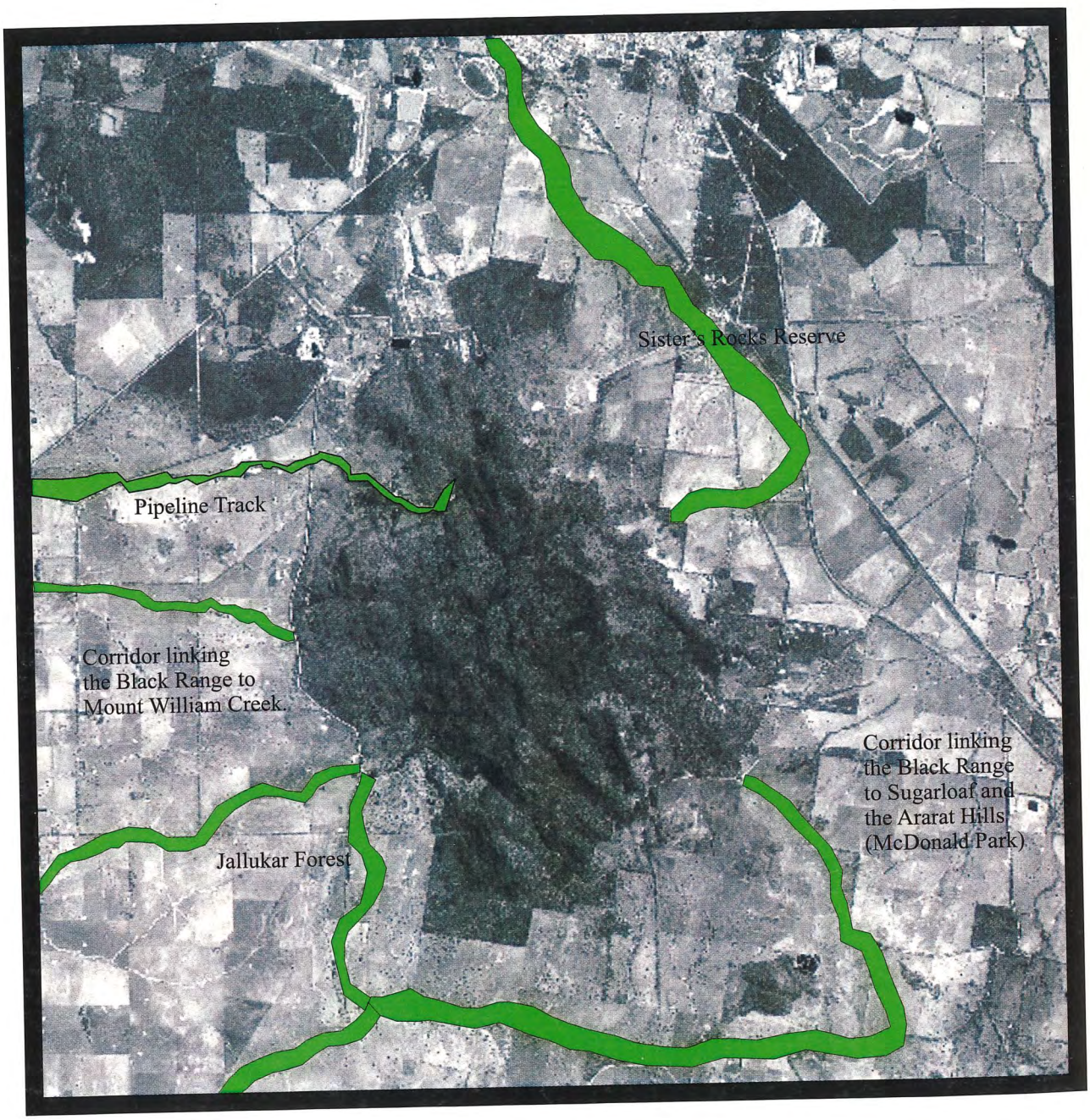
Practical Farming: Rural Safety – Chemicals and Dangerous Substances, Brown, Lawler & Smith. Inkata Press, 1995

Aboriginal Heritage

The People of Gariwerd: the Grampians Aboriginal heritage, G. Wettenhall. Aboriginal Affairs Victoria, 1999
Victorian Koorie Plants, Gott & Cameron. Aboriginal Keeping Place, Hamilton, 1991

Organisations With Publications of Interest

Australian Bush Heritage Fund
Bird Observers Club of Australia
Department of Conservation and Natural Resources
The Field Naturalists Club of Victoria
Greening Australia Victoria
The Society for Growing Native Plants
Trust For Nature
Victorian National Parks Association



Possible Wildlife Corridors
from the Black Range

Black Range Guide Committee Members:
Peter Brazier (Chair), Lockie Campbell, Anne Davis,
Elwyn Dennis, Mark Farrer, Neil Marriott, Graeme Walker

Designed and edited by Elwyn Dennis

Flora survey by Jane Marriott

Photos by Peter Brazier
Photos by Anne Davis
Photos by Elwyn Dennis
Photos by Mark Farrer
Photos by Lindy Lumsden
Photos by Neil Marriott
Photos by Ian McCann
Photos by Peter Menkhorst
Photo by Peter Robertson
Photos by anonoymous

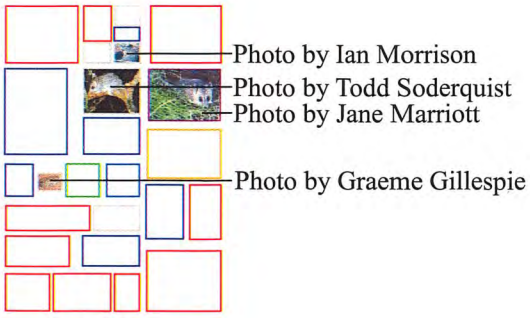


Photo by Ian Morrison
Photo by Todd Soderquist
Photo by Jane Marriott
Photo by Graeme Gillespie

p.3

Photo by Veridans

p.9

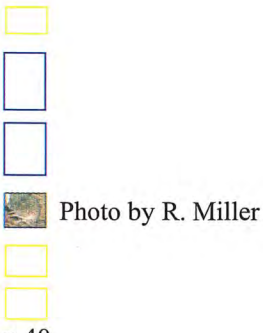


Photo by R. Miller

p.40

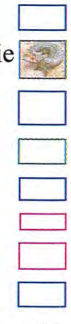


Photo by Graeme Gillespie

p.43

Special thanks to
The Field Naturalist Club of Victoria
for their help compiling the list of vertebrates resident in the Black Range,
Ben Gunn
for his assistance with the Aboriginal history of the Range

Correspondence to: The Black Range LandCare Group, Post Office Stawell West, Victoria, 3380