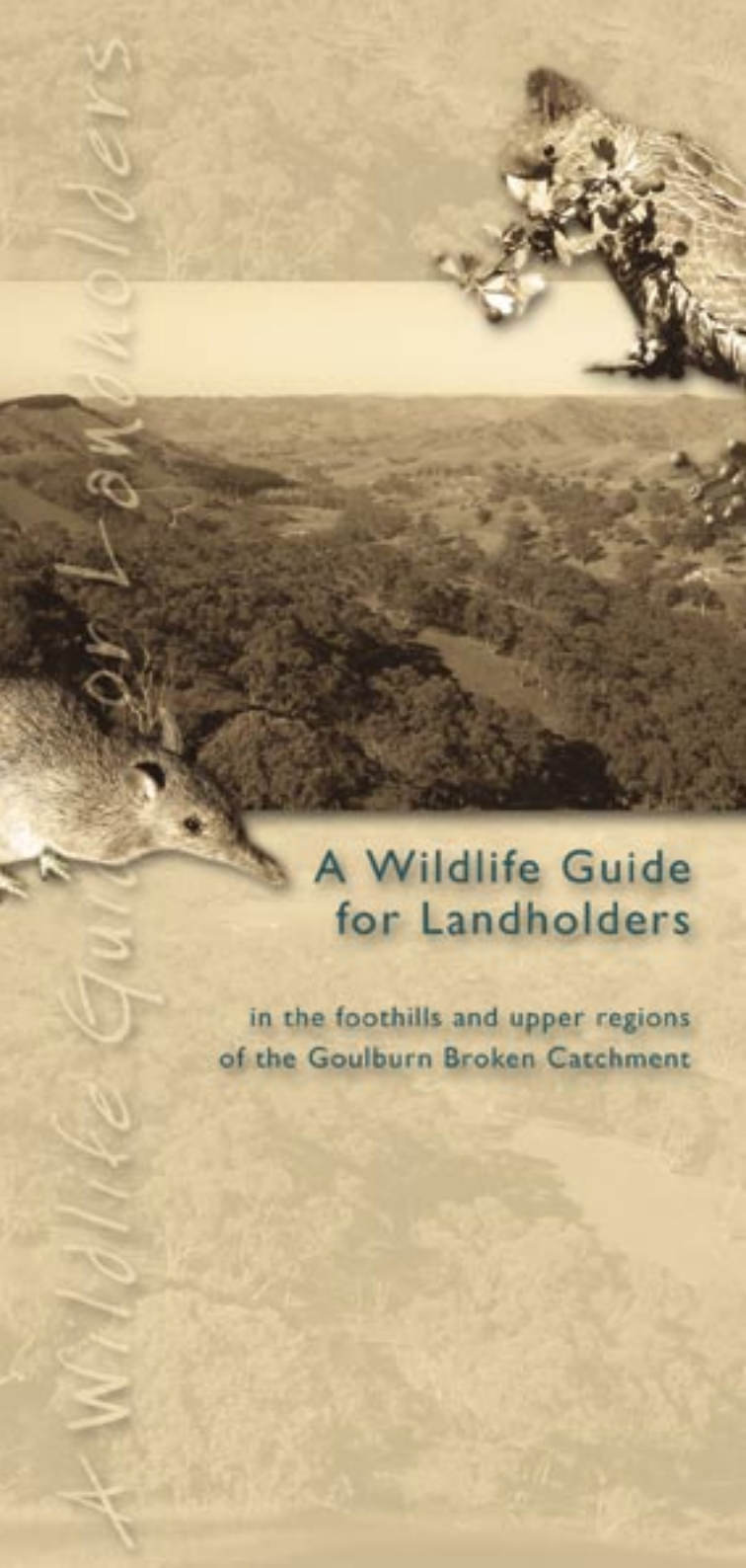




A Wildlife Guide for Landholders

in the foothills and upper regions
of the Goulburn Broken Catchment

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Figure 1: The Goulburn Broken Catchment, highlighting the foothills and upper regions. The species listed in this booklet are found in the darkened area of the catchment (but may not be exclusive to this area).

About this booklet

1. About this booklet

This booklet provides an insight into some of the wildlife species and habitat types that occur in the upper regions of the Goulburn Broken Catchment, including information about each species' needs, threats and ways we can help them survive. Each wildlife species is colour-coded to match the particular habitat where it is most likely to be seen. The booklet aims to help landholders to protect and appreciate the diversity of the natural environment of the area. The **Further Reading** section at the end of the booklet highlights where to find more detailed information.

Then and now

Over 200 years ago, the foothills and upper regions of what is now the Goulburn Broken Catchment (**see Figure 1**) supported a diversity of plants, animals and habitats. Tall, damp forests occurred at higher elevations, whilst the foothills and valley slopes supported open grassy woodlands. Distinct vegetation was associated with natural springs, bogs, wetlands, billabongs and streams and extensive networks of woodlands lined the foothills. All fauna groups including frogs, reptiles, birds and mammals were represented throughout the different habitats.

European occupation led to extensive clearing for agriculture across the foothills, post-war harvesting for firewood and timber, altered river flows due to dam and lake construction, and the introduction of domestic stock, Rabbits and non-native predators (Foxes and Cats).

These activities have had major impacts in some areas, less in others (**see Table 1**). For example, the extensive vegetation remaining on public land in the region is not representative of all the different types of vegetation that once existed. The open grassy woodlands have largely been cleared and wildlife species adapted to these areas, such as the Striped Legless Lizard, are now threatened with extinction. Many small marsupials are still at risk of predation, and some, such as the Brush-tailed Phascogale, have suffered localised extinctions within the area.

Table 1: Percentage remaining of vegetation types in the foothills and upper regions of the Goulburn Broken Catchment. Source: DSE/DPI GIS Corporate Geospatial Database.

Vegetation Type	Pre-European Distribution (ha)	Current Distribution (ha)	Percentage remaining
Open Woodland and Grassland ¹	411,401	77,946	19%
Riparian Vegetation ²	73,527	24,316	33%
Foothill Forest ³	444,340	303,019	68%
Upland/Montane Vegetation ⁴	200,089	197,838	98.8%

1. Includes Plains Grassy Woodland and Grassland Ecological Vegetation Communities (EVCs), including Grassy Woodland, Valley Grassy Forest and Grassy Dry Forest within Central Victorian Uplands, Highlands Northern Fall and Southern Fall Bioregions.
2. Includes Billabongs, Swamps, Streamside Vegetation EVCs, including Creekline Grassy Woodland and Mosaics, Riparian Forest Complexes Mosaics and Swamp Scrub Complexes within Central Victorian Uplands, Highlands Northern Fall and Southern Fall Bioregions.
3. Includes Box Ironbark EVC and Mosaics, Dry Foothill Forests, Herb-rich Woodland EVC and Mosaics within Central Victorian Uplands, Highlands Northern Fall and Southern Fall and Victorian Alps Bioregions.
4. Includes Upland and Montane EVCs, such as Montane Dry Woodland, Montane Moist Forest and Wet and Damp Forests within Highlands Southern Fall, Victorian Alps and Central Victorian Uplands Bioregions.

Vegetation types

3. What is the significance of so many different vegetation types?

As you travel through the Upper Goulburn landscape from Yea to Seymour, or Alexandra to Mansfield, you may notice changes in the natural vegetation. These changes occur because of a number of factors, including soil type, whether the land faces north or south (its 'aspect'), the height above sea level and average rainfall. Consider the changes in altitude from over 1800 metres at Mt. Buller to less than 150 metres on the floodplain near Yea; the change in average rainfall – 1350mm at Marysville to just 680mm at Broadford. Just as we might sow crops, graze land, plant orchards or vineyards in certain parts of the landscape, our natural vegetation is also adapted to specific environments.

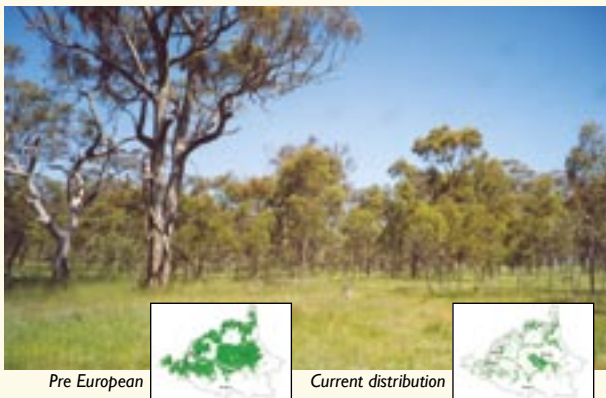
The variety of these vegetation types provides many different habitat opportunities for our native fauna. Some animals, like the Striped Legless Lizard, are habitat specialists, adapted to specific vegetation types only. The Striped Legless Lizard finds all the resources it needs, including shelter and food, in open grassy woodlands and predominantly native grasslands. Other animals are generalists. Sugar Gliders live in tall damp forests, but can also be found in dry forest and woodland areas. Many birds move through different vegetation types, searching for shelter and food.



Native vegetation naturally adapts to changes in the environment. These changes include soil type, altitude, aspect and rainfall.

To ensure the continuing survival of all the wildlife species in the region, it is important to recognise the different vegetation types and the varying habitat attributes of each. The following pages provide an overview of this.

Grassy Woodlands and Grasslands



Location: Grassy Woodlands and Grasslands were once widespread in the upper Goulburn Broken Catchment occupying the lower slopes and rounded hills from Yea to Mansfield, as well as on the basalt plateaux north of Kilmore.

Structure: Grassy Woodlands consist of a eucalypt overstorey with canopy gaps which allow enough light to penetrate to ground level to enable a dense suite of grasses, sedges, lilies, orchids and herbs to flourish. Red Gum, various box eucalypt species including Grey, Yellow, Red and White Box, and sometimes Red Stringybark, can be present individually or in combination. Some middle layer species, such as peas and wattles, may be present, particularly where Grassy Woodland is close to heathy forest or riparian forest.

Remnants of this vegetation type may consist only of the original native grasses and herb layer with the trees removed (sometimes referred to as 'artefact native grassland') or the overstorey of old trees may remain, but with the native ground layer removed.

Habitat qualities: Examples of this vegetation type where both the tree and native ground layer remain in good condition are rare and therefore valuable. Because of their occurrence low in the landscape, and on fertile soils, they support a wide variety of wildlife species. Some of the dominant eucalypts such as Yellow Box and White Box provide important nectar sources for nectar-feeders, including the endangered Swift Parrot and Regent Honeyeater. Many insectivorous species of birds migrate to the woodlands in winter from higher country. Embedded or surface rocks may be present, and these, along with fallen timber, and soil cracks during summer, provide shelter and food supply for many smaller species of wildlife and invertebrates. Often the trees present in this vegetation type exist as paddock trees and are very old (pre-European). They provide many crucial habitat features for wildlife, including hollows, where many species shelter and breed, and nectar for birds from flowering.

Management issues: Regeneration of eucalypts is necessary to replace the gradual loss of the old trees. Increasing the extent of these woodlands through protection and revegetation is essential if we wish them to survive in the long-term. Even where most of the trees have gone, many woodlands and grasslands remain extremely important for native plants and animals if they retain their native ground cover and habitat elements, such as rocks and logs. Any site with native grass cover should be retained in that condition and managed to ensure that the grasses do not become too dense or rank. This management will require some grazing or burning.

Wetlands and Streams



Pre European



Current distribution



Location: Streams traverse the whole landscape from mountain top to the foothill and plains country. Deep silty loams on creek flats and floodplains typically produce thick riparian forests. Associated swamps, billabongs and wetlands are highly productive, containing a large diversity of plants and invertebrate life, which in turn provides for many wildlife species. Some sub-catchments in the drier foothills have creeklines which can be ephemeral (dry out). Bogs (or springs) occur on the plateaux of the main ranges, throughout the Highlands and Strathbogie areas (see separate text box below).

Structure: Riparian vegetation varies with altitude, rainfall, geology and hydrology, but in its natural state, it usually contains a diverse mixture of trees, shrubs, grasses, sedges and herbaceous ground covers. The presence of water and fertile soils usually results in highly productive natural environments in terms of plant growth. This, in turn, creates an abundance of food for organisms higher up in the food chain. In addition, aquatic vegetation such as reeds and sedges provide a range of structural layers within the water body itself.

Habitat qualities: Generally, streamside, wetland and bog environments are very productive and provide for a large range and high density of wildlife species. Some species will reside there, while many visit to obtain water and food. Predators such as Brown Goshawks move through watercourse areas to prey on other birds, and Powerful Owls take advantage of high densities of possum prey in riparian vegetation. Aquatic vegetation and instream habitat provide feeding and breeding areas for a vast range of species, particularly native fish, invertebrates, waterbirds and frogs.

Management issues: Issues such as water extraction and dams that change natural flows, sediment deposition through the loss of native vegetation, construction of dams and other barriers preventing fish migration, loss of shelter for fish due to the removal of fallen logs, and predation and competition from introduced species, all affect the quality and functioning of our wetlands and streams. As well as the vegetation, other habitat components, such as fallen timber are important and need to be retained both within the water and around edges.

Bogs or Natural Springs

Extensive bog systems occur on the plateaux of the main ranges, throughout the Highlands and Strathbogie areas. The principal substrate component of these areas is usually peat. Pure peat is entirely made up of dead plant remains with no mineral matter. It takes a long time for quantities of dead plant material to accumulate because of the short, cool growing season of the area. Bogs in the Upper Goulburn area occur on a combination of peat and saturated sandy clay soils. They can be characterised by an almost impenetrable shrubland of Baeckea and Prickly Tea-tree with a dense ground cover of moss, including Sphagnum, ferns, smaller sedges and herbs. They are a unique type of habitat, small in area, and with a restricted distribution, making them naturally rare.

Foothill Forests

Foothill Forests



Pre European



Current distribution



Location: This vegetation type occurs mostly in the foothills and low hills of the upper catchment, generally in sites with shallow soils. They are more often found on the exposed northerly and westerly slopes and ridges.

Structure: This vegetation type is largely made up of combinations of Red Box, Yellow Box, Red Stringybark, Long-leaf Box and Broad-leafed Peppermint, as well as a range of understorey species. It includes Dry Foothill Forests, Box-Ironbark and Herb-rich Forest vegetation types. (Box-Ironbark vegetation and its associated wildlife are described in more detail in *A Wildlife Guide for Landholders in the plains and box-ironbark regions of the Goulburn Broken Catchment*. Refer to the Further Reading section at the end of the booklet for details.)

Habitat qualities: Foothill forests often support relatively low densities of native wildlife because they generally grow on poor soils. Much of this forest type has been burnt and cut over in the past and therefore contains few large trees. Relatively, it does not contain many nectar-rich species of eucalypts. Because of their extent in the Upper Catchment, however, and their role in providing large habitat linkages across the landscape, these forests are extremely valuable for wildlife conservation.

Management issues: Current threats to Foothill Forests include habitat fragmentation and degradation. Such degradation can include the loss of understorey species, loss of tussock grasses in the ground layer, loss of hollow-bearing trees, weed invasion and feral predators. Over-grazing by kangaroos can also be an issue in some areas.

Photos by Rebecca Nicholl



Boggy areas play a vital role in the hydrological cycle, having an important filtering effect, while also acting as 'sponges' in the landscape, absorbing and holding water. During particularly dry years, they become 'drought refuges' for wildlife, due to their ability to retain water. They support a whole range of plant species, including several threatened species. These areas are at risk by cattle grazing, deliberate clearing, and dam creation, and are becoming increasingly rare. Protection of these areas (e.g through fencing) is crucial if they are to continue to support a unique vegetation type with its associated threatened plant species, and play the vital role of retaining moisture in the landscape.

Moist Foothills and Mountain Forests



Pre European

Current distribution

Location: Moist Foothill and Mountain Forests occur in the gullies and wet areas on the Strathbogie plateau and on the slopes of the main ranges. More often, this vegetation type can be found on the protected southerly and easterly slopes. Mountain Forests occur in the higher altitude parts of the region.

Structure: Tall eucalypts with a diversity of understorey ferns, tall shrubs and mosses are characteristic of this vegetation type. Non-eucalypt species that provide plenty of shade and food include Silver Wattle, Blanket-leaf, Musk Daisy-bush, Hazel Pomaderris, Austral Mulberry and Prickly Currant-bush.

Habitat qualities: A high diversity of bird life and mammals occur in these forests. Owls and gliders depend on old, hollow-bearing trees and standing dead trees for nesting. The ground layer is rich in organic matter, allowing ground-dwelling animals such as bandicoots, bush rats and lyrebirds to exist. The understorey shrubs provide food for many insectivorous and fruit-eating animals, while the tree-ferns support a specialised community of other ferns and mosses growing on their trunks.

Management issues: Broadscale management issues in this vegetation type include forestry practices, fire management, environmental weed control and introduced predators. Global warming threatens vegetation, and its associated fauna species that are adapted to higher, colder climates.

In the Spotlight

5. Wildlife Species in the Spotlight

The following pages contain information on some of the wildlife found in the upper regions of the Goulburn Broken Catchment. The species were selected because they either have particular needs or are faced with particular threats. By managing and maintaining populations of the following species we will also help to protect many other wildlife species in our area.

When using this booklet in the field, firstly determine what type of habitat you are in. Each habitat type is colour-coded for easy access. These questions may help you:

Are you in open, rolling hill country with embedded rocks, native grasses or large trees present?

Grassy Woodland and Grasslands



Are you close to a river or wetland?

Wetlands and Streams



Is the area north or west facing with stringybarks and box trees?

Dry Foothill Forests



Is it south or east facing or perhaps in a gully with tall gum-like trees and thick undergrowth?

Moist Foothill and Mountain Forests



Each species has been colour coded to reflect the habitat type that it is most likely to be observed in. Where particular species move through several different habitats, they have been allocated two or more colours.

Common Imperial Blue

Common Imperial Blue

Jalmenus evagoras evagoras



Description: This butterfly has pale metallic blue and black on the upper side of the wings, contrasting with the underside, which is light brown with black markings. Its wingspan is 32 – 37mm, and it has distinctive hairstreaks or tails, present at the base of the hind wings. The larvae (caterpillars) are up to 18mm long, smoky green to black with yellowish-green, orange or brown bands (insert above). The gregarious larvae feed openly during the day on the leaves of young wattles, often causing considerable defoliation. Adults fly from November to March.

Habitat Needs: This butterfly requires open forests and woodlands with regenerating wattles, and is not uncommon in urban fringes.

Threats:

- The absence of naturally maturing habitats and a diverse age structure in vegetation including young wattle regrowth;
- Absence of the small black ants (*Iridomyrmex* species) that protect the larvae from being eaten by predators and parasites (for example, wasps).

Things to note:

- The larvae are protected from predation by small black ants, which also attend the pupae.
- The females lay eggs on suitable larvae food plants (young wattles), usually where they have detected the presence of the small black ants.
- This species is in the egg stage of its life cycle during winter. Eggs are laid in clusters in crevices, often near the base of potential food trees for the larvae.
- The larvae will often pupate (build a cocoon) in communal webs, containing up to 100 individuals.
- The larvae release amino acids that are an important food source for the ants.

Things to do for this species:

- Promote natural regeneration of wattles by fencing off remnant vegetation.
- Avoid the use of pesticides, and allow ant colonies to flourish.

Similar species: Ictinus Blue (*Jalmenus ictinus*) – a slightly smaller species which also feeds on wattles. This species is uncommon in Victoria, the larvae and pupae are not gregarious, and they are attended by the larger meat ant (also an *Iridomyrmex* species).

Gray's Blind Snake

Gray's Blind Snake



Ramphotyphlops nigrescens

Description: Blind snakes are worm-like creatures with a rounded head and tail, very small mouth, no obvious eyes (dark spots under scales) and smooth, shiny scales. General appearance and body shape is similar to a large 'scrubby' worm. Gray's Blind Snake averages about 40cm in total length. Colour is generally darker shades of brown to black above with lighter cream or pink belly.

Habitat Needs: They may be found in bushland and woodland areas with natural and intact ground litter and vegetation layers, large woody debris or rocks, and where termites are present. The main food of blind snakes is termites and ants.

Threats:

- Habitat loss through clearing of native vegetation;
- Removal of fallen timber.

Things to note:

- Blind snakes are non-venomous and harmless.
- They are seldom seen and most are encountered during soil turning activities or while moving logs or rocks.
- Blind snakes spend most of their time underground but are sometimes seen above ground on warm nights following rain.
- Termites contribute greatly to the ecology of areas where they occur. They are major decomposers of dead wood, returning nutrients to the soil. Whilst protecting dwellings from termites is advisable, they should not be persecuted in natural bushland areas away from dwellings.

Things to do for this species:

- Retain and/or increase large logs and branches on the ground.
- Retain and increase the extent of all layers of vegetation, especially the shrub and ground layers, in bushland remnants.

Similar species: Woodland Blind Snake

Golden Sun Moth

Golden Sun Moth

Synemon plana



Description: A small, diurnal moth, with a wingspan of 35mm for males and 30mm for females. The forewings of the male (left) are dark brown and grey, the hindwings are bronzy-brown and black. The females (right) have bright orange hindwings with black spots around the edges.

Habitat Needs: The Golden Sun Moth occurs in native grasslands and grassy woodlands dominated by wallaby grass species from the genus *Austrodanthonia*. Open spaces between the grass tussocks are important as the females deposit single eggs between the grass and the soil.

Threats:

- Loss and degradation to native grasslands and grassy woodlands;
- Habitat fragmentation – due to their poor dispersal ability they are unable to colonise suitable habitat that becomes isolated from other areas;
- Use of pesticides on native pastures to control the larvae of various invertebrates, and use of fertilisers which promote exotic species;
- Lack of active management of native grassland and grassy woodland habitats to promote wallaby grasses.

Things to note:

- This species is listed nationally as 'critically endangered'.
- The females are semi-flightless, they wait in one spot and flash their bright orange wings to attract a mate.
- It has a life cycle of 2-3 years.
- The adults only live for 2 days and do not have a functional mouth.
- The native grassland habitat suitable for the Golden Sun Moth needs to have at least 40% cover of wallaby grass.
- A reserve at Mt Piper, near Broadford, includes the habitat of the Golden Sun Moth.

Things to do for this species:

- Protect native grassland habitat.
- Avoid the use of pesticides and fertilisers in potential grassland habitat.

Similar species: Nil.

Striped Legless Lizard

Striped Legless Lizard



Description: A snake-like, pencil-thin lizard, up to 30cm long from head to tail. It has distinctive ear-openings (unlike a snake) and longitudinal dark brown stripes on a light brown body. It may be active by day, depending on temperature. The Striped Legless Lizard lays two eggs in spring or summer and spends time hidden in grass tussocks, under rocks and logs or in cracks in the ground.

Habitat Needs: It occurs in lowland, native tussock grasslands and grassy woodlands with a good ground cover of tussock grasses and embedded and/or surface rocks. It prefers sites where there has been little disturbance from fertiliser, cultivation or grazing.

Threats:

- Habitat loss and degradation;
- Removal of fallen timber and rocks;
- Prolonged heavy grazing of native grasses by livestock;
- Introduced predators such as Cats and Foxes.

Things to note:

- This species is listed as endangered in Victoria. Nationally, it is vulnerable.
- The Striped Legless Lizard has recently been recorded in the Yea and Alexandra areas.
- This lizard is often mistaken for a small snake, but the visible ear opening is an indicator that it is a lizard.
- The Melbourne Zoo is undertaking a breeding program for this species.
- The application of spring burning when the soil moisture generally is high means that lizards cannot escape the fire by hiding in soil cracks. Cracks in the soil usually appear during drier months (particularly summer), and provide a refuge for lizards from fire and predators.

Things to do for this species:

- Protect rocky areas with native grasses and graze only intermittently.
- Leave fallen timber on the ground.
- Avoid burning when the ground is not cracked.
- The Upper Goulburn Catchment Group are involved in a Striped Legless Lizard project. Contact your local Landcare group or the Goulburn Broken Catchment Management Authority (details at back of book) for more information.

Similar species: Olive Legless Lizard, blind snakes (see page 23), juvenile brown snake.

Regent Honeyeater

Xanthomyza phrygia



Description: A medium-sized (22 cm) honeyeater with a vivid lace patterning of black and yellow on the wings and upperparts, and jet black head and throat. It has a pinkish eye patch of bare skin. The call of the Regent Honeyeater is complex, but includes a soft, warbling “quippa-plonk-quip, quip”.

Habitat Needs: This species has declined significantly in range in the past 200 years, most notably in the last 30 years. In the Goulburn Broken Catchment it is mostly associated with box and ironbark forests and fertile woodlands around Benalla and the Warby Ranges during winter and spring. In summer, it is usually found in foothill valleys in the mid and upper Goulburn areas, and has occasionally been recorded breeding in the Upper Catchment. Its main habitat features include flowering eucalypts, principally Mugga Ironbark, White Box or Yellow Box, and an abundance of larger trees.

Threats:

- Loss of large trees, fragmentation, and lack of regeneration of habitat;
- Exclusion by Noisy Miners, wattlebirds and friarbirds;
- Poor nesting success as a result of predation by other birds.

Things to note:

- This species is critically endangered in Victoria. Nationally, it is endangered.
- It is estimated that there are only 1500 Regent Honeyeaters left in the world.
- Regent Honeyeaters are prone to attack by Noisy Miners and other aggressive birds.
- This species recently successfully nested and raised young in the Alexandra district.

Things to do for this species:

- For more information about this species, contact the ‘Regent Honeyeater Project’ (details at the back of this booklet).

Similar species: New Holland Honeyeater

White-eared Honeyeater

White-eared Honeyeater



McCann Collection,
Department of Sustainability and Environment

Lichenostomus leucotis

Description: A medium-sized (20 cm) honeyeater that has a distinctive white ear patch, black throat, yellowish belly and olive-green back. It has a variety of calls, including a machine-gun like 'chock-chock-chock'.

Habitat Needs: Found in a wide variety of forests and woodlands in the Upper Goulburn Catchment, especially those with a dense understorey. This species prefer sites that have eucalypts with peeling bark, for example, Swamp Gum and Manna Gum. It generally lives in well-connected areas of habitat.

Threats:

- Loss of understorey vegetation;
- Habitat fragmentation;
- Lack of vegetated corridors for movement;
- Predation of eggs.

Things to note:

- The White-eared Honeyeater feeds on nectar, pollen, insects and insect-carbohydrates such as lerp, honeydew and manna.

Things to do for this species:

- Encourage dense understorey as nesting habitat.
- Establish habitat corridors at least 40 m wide between isolated patches of habitat.

Similar species: White-naped Honeyeater; Lewin's Honeyeater.

Common Bent-winged Bat

Common Bent-winged Bat

Miniopterus schreibersii



Description: A mouse-sized bat (52-58mm long) with a body that is dark to reddish-brown above and lighter below. It has smallish rounded ears and a hairy head, with very small eyes and a short, blunt snout/nose.

Habitat Needs: The Common Bent-winged Bat is a cave bat, but will also use man-made structures such as mineshafts and road culverts, for roosting. They forage for food in a wide range of habitats including wet and dry sclerophyll forests, open woodlands and grasslands. Their diet consists of insects caught on the wing, especially moths.

Threats:

- Habitat loss and degradation;
- Predation by owls, feral Cats and Foxes;
- Restricted access to caves, changes to cave environments;
- Human disturbance of caves.

Things to note:

- This species is listed as vulnerable in Victoria.
- Small numbers of colonies of this bat are known throughout the Upper Goulburn Broken Catchment area. Any new sightings would be very significant.
- The Common Bent-winged Bat is very sensitive to disturbance by humans, and habitat loss.
- Females give birth to a single young (December to January) which is carried on the female's belly for a short time and then left in the maternity cave until weaned.
- Several different populations will use a maternity cave, dispersing to other territories during the year.

Things to do for this species:

- Avoid disturbing known sites where this species is known to exist.
- Approach cave areas with care and caution.

Similar species: Eastern Horse-shoe Bat (vulnerable in Victoria) also roosts and breeds in caves.

Gang-gang Cockatoo



Viridans Pty Ltd

Callocephalon fimbriatum

Description: The male is a deep grey with a striking dark pink-red crest, whilst the female is a paler grey with a grey crest and red and yellow barred undersides. It has a creaking flight call, which is described as a 'rusty hinge'. When feeding it gives quiet, creaking calls and a frequent clue to its presence is the sound of dropping seeds as it feeds quietly in tree-tops.

Habitat Needs: During the breeding season, this species is found in wetter habitats in forests, and in snow gum woodlands. In winter, they migrate to lower altitudes and are often seen in gardens. They feed on wattle, eucalypts and cypress-pine seed pods, garden seeds such as hawthorn, 'spitfire' larvae and leaf-gall larvae. They require large trees (over 60 cm diameter) with hollows for nesting.

Threats:

- Loss of large trees containing hollows for nesting;
- Loss of understorey wattles as a food source.

Things to note:

- The Gang-gang can be a messy eater, and fallen leaves, fruits or small twigs under flowering or fruiting trees can be a sign of their presence in the canopy.

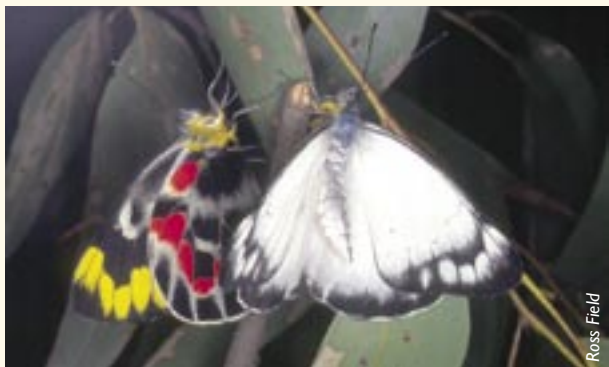
Things to do for this species:

- Plant wattles and understorey species to provide a food source.
- Retain large hollow bearing eucalypts.

Similar species: Galah.

Imperial White Butterfly

Delias harpaluce



Description: A large white butterfly with red, white and yellow patterns on the underside of the wings. It has a wingspan of 60-70mm. The caterpillar is up to 43mm long, dark brown with a black head and white hairs on the body. Adults can be found throughout the year but are more common in the warmer months (September to March).

Habitat Needs: They require open forest habitats with mistletoes present on eucalypts and wattles, particularly in tall forests.

Threats:

- Loss and removal of mistletoe.

Things to note:

- Females lay large clusters of yellow eggs on mistletoe, which is the food plant for the emerging larvae.
- Adults feed on flower nectar, including mistletoe flowers.
- The large conspicuous larvae can defoliate the mistletoe and will pupate in a striking communal web.
- This species is part of a large group of mistletoe-dependent butterflies.

Things to do for this species:

- Mistletoes are a vital habitat component for this species to exist in the area. Ensuring mistletoes are permitted to flourish is therefore vital.

Similar species: Wood White Butterfly – a common species that doesn't form the large colonies of pupae like Imperial Whites.

Lesser Long-eared Bat

Lesser Long-eared Bat



Lindy Lumsden

Nyctophilus geoffroyi

Description: A small (40-50 cm, with a similar length tail; 5-14 g) microbat (i.e. insectivorous bat) with pale grey-brown fur on the back, and paler grey to white fur below. The ears are large and are folded in a concertina fashion when the bat is at rest. The nose has an expanded fleshy noseleaf, with a distinctive Y-shaped groove.

Habitat Needs: The Lesser Long-eared Bat inhabits a wide range of habitat types, including forests, woodlands, and farmland with remnant patches and/or scattered trees. They mostly eat small invertebrates caught on the wing, or gleaned off vegetation or taken off the ground.

Threats:

- Loss of large live and dead trees;
- Removal of fallen timber;
- Use of pesticides.

Things to note:

- This species can be found roosting in buildings, but prefers tree hollows, or under bark.
- This species has a slow, fluttery, undulating flight.
- Insect eating bats, such as this one, can consume up to half their body weight in food in one night. They feed on mosquitoes, moths, beetles, grasshoppers and spiders and are nature's nocturnal (active at night) insect controllers.
- Bats comprise approximately one third of the mammal fauna in the Goulburn Broken Catchment. Most (13) of the species found in the area roost in tree hollows or fallen timber.
- Large paddock trees (living and dead) are important habitat for bats.
- Female usually give birth to two young (furless 'jelly beans!') in late spring to summer, which are carried on her belly for a short time.

Things to do for this species:

- Leave dead trees standing as they provide important shelter for hollow-dependant wildlife, such as bats.

Similar species: Gould's Long-eared Bat – larger, with a less elaborate noseleaf.

Crested Shrike-tit

Crested Shrike-tit

Falcunculus frontatus



McCann Collection,
Department of Sustainability and Environment

Description: A smallish (16 cm), sturdy bird with large head and stout beak. It features a distinctive black and white head and crest, a yellow breast, and an olive-green back. Males have a black throat, while females feature an olive throat. They are usually seen in pairs or groups of three, often calling with quiet chuckling notes or a sad, slow descending 'peer, peer' whistle.

Habitat Needs: A eucalypt-dependent species found in most vegetation types in the Catchment, but especially common in riparian vegetation. They prefer sites containing many mature trees with patches of understorey or saplings. They occur mostly in patches larger than 5 ha, along waterways with vegetation wider than about 50 m, or in well-linked roadside vegetation. Crested Shrike-tits are rarely found in sites more than 1 km from other suitable habitat.

Threats:

- Loss of large trees and understorey, and limited regeneration;
- Fragmentation of habitat leading to isolation;
- Harassment from Noisy Miners;
- Egg predation by other bird species.

Things to note:

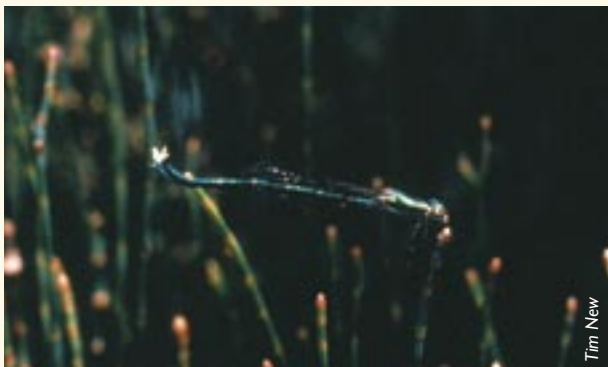
- Crested Shrike-tits are generally found in the tree canopy where they may be heard or seen tearing at bark or leaf bundles in search of insects.
- The male bird is attractive and inquisitive and can often be seen peering at his reflection in windows.

Things to do for this species:

- Crested Shrike-tits will benefit from the linking of patches of vegetation over 5 hectares and widening of vegetation corridors along creeks to at least 50 metres.

Similar species: Golden Whistler (refer to Page 38)

Hemiphlebia Damselfly



Hemiphlebia mirabilis

Description: A small insect with a wingspan of 22mm and a total length of 24mm. It is bright metallic green with white anal appendages. Adults emerge from pupae between December and February.

Habitat Needs: This insect requires seasonally flooded wetlands and billabongs with emergent sedges and rushes.

Threats:

- Clearing and draining of wetland habitats along the Goulburn River floodplain;
- River regulation through weirs that interrupt the natural flooding pattern of rivers;
- Cattle grazing that affects the diversity of plants growing in wetland areas, compacts and muddies the soil, and increases nutrients, causing a decline in water quality and, potentially, algal blooms.

Things to note:

- This insect is listed as 'vulnerable' in the State.
- It has only been recorded in two locations in Victoria – at Wilsons Promontory in the south, and the upper Goulburn River floodplains around Yea and Alexandra.
- It has been described as a 'living fossil', as it has unique structural features at its adult and larval stages.
- Adults exhibit unusual display behaviour, performing intricate abdomen flicking motions as they walk up and down plant stems.
- Adults will shelter in reed beds, well away from water.

Things to do for this species:

- Fence off swamps, dams or billabongs on your property.
- Promote growth of sedges and rushes around wetland areas for habitat and to filter water quality.
- Join Friends of Yea Wetlands, PO Box 231, Yea, 3717 or email: secretary@yeawetlands.org.au.

Similar species: Nil

Latham's Snipe

Gallinago hardwickii



Viridans Pty Ltd and Mike Carter

Description: A medium-sized (28-31 cm) wading bird with a long (7.5 cm) straight bill. Latham's Snipe has a dark head stripe and pale eyebrow. Its upper parts are rufous, black and buff, with cream edges to the feathers. The throat is mottled brown with a white underside. If frightened, it gives a short, rasping 'chak'.

Habitat Needs: The Latham's Snipe requires damp areas such as soft wet ground around freshwater and saline wetlands, bogs and marshes, where it forages for worms and aquatic larvae by probing its bill into the mud. It tends to hide in the cover of freshwater vegetation by day, coming out to feed at night.

Threats:

- Clearing and draining of wetland habitats, including locally, in Japan and along its migration path.

Things to note:

- This species is listed as near threatened in Victoria (See page 48 for description).
- The Latham's Snipe migrates from breeding grounds in Japan to spend the summer in southern Australia.
- The bill tip is extremely sensitive and it is used to locate and seize prey in the mud.
- The word 'sniper' had its origins in snipe hunting, and refers to the habit of hiding in cover to shoot at the bird as it is flushed.
- Snipe are found on all continents except Antarctica.

Things to do for this species:

- Fence off swamps, dams or billabongs.
- Promote growth of sedges and rushes around wetland areas for habitat and to filter water quality.
- Report sightings of this bird to Birds Australia, BOCA or the Victorian Wildlife Atlas (details at back of book).

Similar species: Nil.

Mountain Galaxias



Department of Sustainability and Environment

Galaxias olidus

Description: A small stocky fish between 60-90mm, but can be up to 145mm long. It is variable in colour, usually yellowish-green to brown, lighter below with dark grey-green blotches or bands on its body. Its fins are generally green to grey-green.

Habitat Needs: Mountain Galaxias require flowing, well-oxygenated streams, often in hill country, with abundant snags (fallen logs) and riparian vegetation shading the creek or river.

Threats:

- Loss and degradation of riparian vegetation;
- Proliferation of willows and poplars along streams;
- Predation by trout;
- Removal of snags from streams;
- Dredging of waterways;
- Siltation, sediment and chemical pollution;
- Changes to natural flows, resulting in degraded water quality, lower oxygen levels and higher water temperatures;
- Fouling of water in small streams by unrestricted stock access.

Things to note:

- The conservation status of this species is 'data deficient' (see Page 48 for description).
- The Mountain Galaxias spawns in spring and occasionally through to autumn.
- Eggs are laid under small boulders so that they stick to the bottom of the boulder. Siltation of streams from lack of vegetation results in these boulders being covered by silt with no opportunities for egg sites.
- This fish occurs either alone or in small loose shoals (groups).
- The Galaxias will locally die out when the stream dries out in summer, although they have been known to survive amongst moist leaves in a dried-out stream.

Things to do for this species:

- Fence off streams to prevent degradation of streamside and in-stream habitats.
- Remove willows and other exotic trees from the water's edge and replace with indigenous vegetation.
- Leave fallen logs in streams.
- Refrain from pumping water from small streams in the summer.

Similar species: Barred Galaxias, a critically endangered species occurring in some of the headwater creeks of the Upper Goulburn. Also, young specimens of the introduced trout. Trout have two dorsal (back) fins, including a large one centred in the middle of their back. Mountain Galaxias only have one small dorsal fin located towards the tail end.

Plains Brown Tree frog

Litoria parawingii



Peter Robertson

Description: A medium-sized brown frog measuring up to 3.5cm in length. The adults are pale brown or cream above, and yellowish, cream or white below, with a granular-looking belly. Two broad, dark stripes run from behind the eyes to the hind legs and a dark stripe runs from the nose to the shoulder. The pupil is horizontal. The call is a repeated, high-pitched 'creee-creee-creee'.

Habitat Needs: The Plains Brown Tree Frog occurs in a wide range of habitats with medium to high rainfall, including alpine areas. It may be found in dams, ponds, creeks and wetlands. It is also often found in gardens.

Threats:

- Habitat loss, habitat modification by drainage and cultivation;
- Viral, bacterial and fungal diseases;
- Habitat degradation from salinity and increased nutrients;
- Habitat degradation by grazing stock
- Use of herbicides and pesticides;
- Predation of eggs and tadpoles by introduced fish, for example Brown Trout and Mosquito Fish.

Things to note:

- The distribution of the Plains Brown Tree Frog and Southern Brown Tree Frog overlaps in the south-western area of the Goulburn Broken Catchment. The Southern Brown Tree Frog has a much wider distribution than the Plains Brown Tree Frog. The two species have been known to interbreed and produce sterile offspring.
- Frogs are an important part of the food chain. They feed on invertebrates and provide a food source for birds such as herons and kingfishers.

Things to do for this species:

- Fence off wetland areas to prevent degradation of habitat.
- Encourage reeds and sedges to grow around wetlands and dams. This provides shelter and breeding opportunities for frogs.
- Avoid the use of chemicals around wetland areas to prevent contaminating frog habitat.
- Do not dispose of pet fish in wetlands or waterways.

Similar species: Southern Brown Tree Frog (see above).

Platypus

Platypus



Australian Platypus Conservancy - Peter Marsack

Description: An unusual looking and unique mammal that lives mainly in the water. Known as a monotreme, it is one of only two species of mammal (the other is the Echidna) that lays eggs. The Platypus has short dense fur, a duck bill and flattened tail.

Habitat Needs: Platypus inhabit a wide variety of streams and lakes, but need permanent water. They prefer shallow water for access to bottom-dwelling invertebrates on which they prey. They also prefer steep vegetated banks with soft soils to build burrows for shelter and breeding. Platypus are most commonly found at sites with numerous native trees close to the water and abundant vegetation litter and logs in the water.

Threats:

- Poor water quality as a result of sedimentation and salinity;
- Entanglement in nets, fishing line and plastics often leading to death;
- Removal of snags and logs from streams;
- Loss of riparian and in-stream native vegetation;
- Spread of willows along stream banks;
- Reduced natural stream flows.

Things to note:

- Few people get to see this unique animal in the wild and having a Platypus in your stream can result in a special and rare experience.
- If their pools dry out in summer, platypus may die.

Things to do for this species:

- To encourage Platypus to your streams, fence off waterways and establish continuous native vegetation along the banks. Remove willows and other exotic vegetation and leave logs and snags to encourage invertebrates as a food source. Try to retain creek pools in summer.
- To learn more about this species, join 'Friends of the Platypus' (contact details at end of booklet).

Similar species: The swimming style of the Platypus may be confused with the native Water Rat. The Water Rat has an obvious white tip on its tail.

River Blackfish

Gadopsis marmoratus



Description: This species may be pale green, yellowish, brown or black in colour. They usually have a marbled pattern with larger dark blotches. The underside is pale yellow, blue or purple-grey. The upper jaw is longer than the lower. This species usually measures around 30 cm in length, but can be up to 60 cm long.

Habitat Needs: River Blackfish require slow-flowing, well-oxygenated waters with abundant snags and aquatic vegetation. Shaded streams containing small hollow logs are needed for egg laying. Eggs may be smothered by sedimentation.

Threats:

- Removal of snags;
- Loss of riparian vegetation to provide food, or future snags;
- Sedimentation of pools;
- European Carp.

Things to note:

- The conservation status of this species is 'declining' (see Page 48 for description).
- A territorial fish with a limited home range that will only move about 10 metres from their home area.
- The presence of River Blackfish is a good indicator of stream health.

Things to do for this species:

- Fence off streams and plant understorey species along the edges for protection.
- Remove willows and other exotic trees from the water's edge and replace with indigenous vegetation.
- Where streams need revegetation to provide riparian habitat, establish habitat strips at least 50 metres wide.
- Add snags to streams and rivers to provide habitat opportunities for native fish.

Similar species: Nil

Sacred Kingfisher

Sacred Kingfisher



McCann Collection,
Department of Sustainability and Environment

Todiramphus sanctus

Description: A strikingly marked medium-sized (20-23cm) kingfisher with a large head and bill. It has a pale wedge mark in front of the eyes, a dark band from eye to nape, and a white to light brown collar on the back of the neck. It has blue shoulders, a bright blue rump and a short, deep blue tail. The female is greener above with whiter collar and underparts. Their call is a distinctive 'dek dek dek'.

Habitat Needs: The Sacred Kingfisher lives in a range of forest and woodland habitats that have many trees with large hollows. They are more often found near waterways. They prefer patches greater than 10 hectares and streamside vegetation more than 50 metres wide.

Threats:

- Removal and degradation of streamside vegetation;
- Loss of old trees with hollows.

Things to note:

- The Sacred Kingfisher is a migratory species and will be seen in the area in spring and summer.
- It hunts over land, swooping down from a branch, wire or post to seize large insects and small reptiles.
- They lay their eggs in tree hollows, tree termite nests, or in a tunnel in a bank.
- During the breeding season their persistent call gives away their presence.

Things to do for this species:

- Retain hollow-bearing trees.
- Fence streamside vegetation and link existing native vegetation with wide (50 m) corridors.

Similar species:

Azure Kingfisher. Azure Kingfishers are a dark purplish-blue above. Sacred Kingfishers are larger, and have a longer tail.

Southern Bell Frog

Litoria raniformis



Description: A large (up to 8.5 cm) bright green frog with a distinct tympanum (ear). It has a warty back with brown, gold or black blotches and a white granular-looking belly. A pale stripe formed by a fold of skin runs from the eye along each flank, and the back toes are almost fully webbed. The pupil is horizontal. Its call is a short growl repeated every few seconds.

Habitat Needs: The Southern Bell Frog occurs in a wide range of habitats, including swamps, wetlands and dams in lowland woodlands, grasslands and open forests. Eggs and tadpoles need permanent, still water in lakes, lagoons, swamps and dams. These areas need to be connected by reeds and sedges.

Threats:

- This species is nationally Endangered. It is listed as vulnerable in Victoria.
- Habitat loss, habitat modification by drainage and habitat degradation from grazing;
- Habitat degradation from salinity and nutrients;
- Use of herbicides and pesticides;
- Predation of eggs and tadpoles by introduced fish, including Brown Trout and Mosquito Fish;
- Viral, bacterial and fungal disease.

Things to note:

- The Southern Bell Frog is one of the largest frogs in Victoria, largely preying on other frogs.
- It is also known as the Growling Grass Frog, because of the nature of its call.
- It is one of the few frogs to be active by day.
- It breeds October-January and lays eggs in open water in a jelly raft.
- The Southern Bell Frog has rarely been seen in recent times in the upper Goulburn Broken Catchment and its status is unknown. To report records, please contact your local DSE office.

Things to do for this species:

- Protect wetlands on your property by fencing around them and encourage reeds and sedges around the wetland edges to increase the available habitat for frogs.

Similar species: Nil

White-bellied Sea-eagle



Viridans Pty Ltd and Mike Carter

Haliaeetus leucogaster

Description: A large (75-85 cm, wingspan 180-220 cm) bird of prey with a grey back and white head, breast and abdomen and a short wedge-shaped tail tipped with white. Juveniles are speckled slaty-brown with a paler face. In flight they have a white underside with black-tipped flight feathers.

Habitat Needs: White-bellied Sea-eagles inhabit the forested edges of inland waterways and large inland lakes, wetlands or water impoundments such as Lake Eildon, near Alexandra. They require large live or dead trees for nesting and roosting.

Threats:

- This species is sensitive to disturbance and will readily abandon nests and young;
- Entanglement in fishing gear;
- Food chain contamination of fish by heavy metals;
- Increased turbidity and sedimentation of water from land use practices making food collection difficult;
- Drainage of wetlands.

Things to note:

- This species is listed as vulnerable in Victoria.
- It has taken advantage of the man-made Lake Eildon and regularly breeds there.
- It is known to move along the Goulburn River floodplain.
- It collects fish and waterbirds from the surface of the water, but does not dive into the water like the Osprey.
- Ironically, the proliferation of the introduced European Carp provides a reliable food source for the eagle.
- The thinning of White-bellied Sea-eagle eggshells has been linked to the past use of the now banned chemical DDT.

Similar species: Immature (young) White-bellied Sea-eagles could be mistaken for Wedge-tail Eagles.

Brush-tailed Phascogale

Brush-tailed Phascogale



Description: A nocturnal, carnivorous marsupial with a uniform deep grey on the head, back and flanks. It is pale cream underneath with large naked ears and a black bottle-brush tail up to 23 cm long. Adults may grow to 40 cm in length. They are extremely fast and agile, and feed on invertebrates on tree trunks, branches and the ground.

Habitat Needs: Brush-tailed Phascogales are found in dry forest and woodlands, especially those containing box, ironbark or stringybark eucalypts. They need well-linked bush habitat, and individual animals may range over 100 ha. However, in high quality habitat (often on roadsides), animals may only need about 5 ha to survive. Brush-tailed Phascogales require large trees and fallen timber for foraging. They nest in hollows with small entrance holes in live and dead trees.

Threats:

- Habitat loss through clearing of native vegetation;
- Fragmentation of remaining habitat;
- Predation by Cats and Foxes;
- Loss of older, hollow-bearing trees;
- Removal of fallen timber.

Things to note:

- This species is listed as vulnerable in Victoria.
- A single Brush-tailed Phascogale can use up to 40 different hollows in one year. Their preferred hollow size has an opening 3 to 4 cm wide, with a relatively large internal cavity for nesting.
- The Brush-tailed Phascogale is the largest mammal in which all males die when about one year old. They usually die of stress-related diseases after a brief mating season.
- This species will sometimes use nest boxes (see further reading on nest boxes at the back of this book).

Things to do for this species:

- Protect large, old trees.
- Protect remnant vegetation by fencing from stock.
- Link existing stands of vegetation with 50 metre wide corridors.
- Leave fallen logs on the ground as habitat.

Similar species: Nil.

Buff-rumped Thornbill



McCann Collection,
Department of Sustainability and Environment

Acanthiza reguloides

Description: A small (11 cm), very active bird with a buff scalloped head, greyish above with a buff rump and dark, pale-tipped tail. Adults have a pale eye. It is often seen in groups on the ground, in shrubs and in trees, and has a rapid, high-pitched tinkling call. It collects insects from the ground amongst leaves and branches.

Habitat Needs: The Buff-rumped Thornbill lives in a wide variety of open forests, woodlands and grasslands. They prefer patches larger than 10 ha with good linkages to other habitat patches that are less than 1 km apart. They are often seen on the ground, amongst grass tussocks and fallen timber, or in the lower branches of trees. The Buff-rumped Thornbill builds its nest in dry leaves and vegetation in the forks of trees, under bark, at the base of trees, or in tussocks.

Threats:

- Habitat loss;
- Habitat degradation, especially lack of understorey and ground vegetation;
- Removal of fallen timber;
- Predation of eggs.

Things to note:

- They feed in flocks of mixed species, including Scarlet Robins, Grey Fantail and Speckled Warblers.
- They are communal breeders, meaning that not only the parents but also older offspring and even unrelated birds may help to raise the young.

Things to do for this species:

- Retain and increase the numbers of large logs and branches on the ground.
- Retain all layers of vegetation, especially the shrub layers and native tussock grasses.
- Reduce threat of predation by controlling Foxes and Cats.
- Create corridors of 50 metres width to help their dispersal between isolated patches.

Similar species: Yellow-rumped Thornbill - has a bright yellow rump, rather than buff.

Jacky Lizard

Jacky Lizard

Amphibolurus muricatus



Description: A dragon-like lizard with a long tail, about twice that of the body length. Adult animals may reach a total length of 30cm. Mottled grey to dark brown above with irregular cross banding on the tail. They have many spiny scales on the side of the neck. Legs are robust and long enough to carry the body well off the ground when moving quickly.

Habitat Needs: Jacky Lizards are found mainly in dry forests and woodlands. They are often found in low shrubs or basking on and around fallen timber or rocky areas. Native shrub and grass layers with ground litter not only provide shelter, but also habitat for insects and spiders that Jacky Lizards eat.

Threats:

- Habitat loss through clearing of native vegetation;
- Habitat degradation from over-grazing and cultivation;
- Predation by Cats and Foxes;
- Removal of fallen timber.

Things to note:

- Smaller individuals of this species may be confused with the Mountain Dragon *Tympanocryptis diemensis* higher in the Goulburn Broken Catchment where their ranges overlap.

Things to do for this species:

- Retain fallen timber under paddock trees.
- Protect and/or allow native understorey and ground litter to persist in rocky areas, bushland and woodland.
- Control Foxes and Cats.

Similar species: Mountain Dragon (see above); Bearded Dragon – adults of this species reach over 30cm in total length and have a more obvious 'swollen' throat.

Marbled Gecko

Marbled Gecko



Phyllodactylus marmoratus

Description: A medium-sized lizard with enlarged pads on the feet, and a large eye with a vertical pupil. The length is about 7cm, including the tail. Its skin is grey or brown above and whitish below with a series of blackish markings forming a network pattern across the back. The Marbled Gecko is nocturnal (active at night).

Habitat Needs: Mostly tree-dwelling, it will shelter under the bark or in cracks of live and dead standing trees, or under logs. It is found in a wide range of vegetation and remnant types in the area, and is often common at sites with large numbers of standing or fallen dead trees. Marbled Geckos are more common in sites that are only lightly grazed.

Threats:

- Intensification of land use from low-intensity grazing to high-input farming;
- Removal of fallen timber;
- Removal of large trees or dead standing trees.

Things to note:

- Geckos mostly live in the warmer regions of Australia, but a few species have adapted to colder districts.
- A complex arrangement of extremely fine hairs on the footpads allows it to climb vertically on almost any surface, and it is often found on windows at night.
- Geckos are able to cast off their tails if attacked by a predator.

Things to do for this species:

- Protect part of the farm, especially rocky areas from fertiliser or ripping.
- Keep fallen timber, branches and leaf litter on the ground.

Similar species: Wood Gecko – has a distinctive diamond-shaped line on its back.

Scarlet Robin

Scarlet Robin

Petroica multicolor



Description: The adult male of the species (main photo) has a brilliant red breast, dark grey upperparts, a white wing patch and a small white patch above the bill. The female (insert) and immature males are pale brown above and buff brown below, with a small white mark above the bill. They are insect feeders and use perches from which to spot their prey.

Habitat Needs: Scarlet Robins are widespread, but uncommon insectivores in the Upper Catchment. Breeding pairs occupy territories of about 3 hectares in area and prefer patches at least 10 hectares in size. They prefer sites with some open ground, short, native ground cover, fallen timber and a medium-sized shrub layer.

Threats:

- Reduction in sizes of remnant patches;
- Depletion of understorey and native ground layers;
- Lack of regeneration of native plant species;
- Weed invasion of remnant bush patches.

Things to note:

- Scarlet Robins are sensitive to changes in patch size and quality.
- Bronze-cuckoos often lay their eggs in the nests of robins, including the Scarlet Robin and the closely related Flame Robin.
- The Scarlet Robin is a colourful feature of farmland in winter.
- They have declined significantly in abundance in the last 20 years (*New Atlas of Australian Birds*).

Things to do for this species:

- Protect and maintain understorey to provide feeding and nesting areas.
- Manage weeds in remnant patches to allow ground feeding.
- Leave fallen timber where it falls.

Similar species: Flame Robin – the Scarlet Robin has a larger white patch; Red-capped Robin.

White-throated Treecreeper

White-throated Treecreeper



McCann Collection,
Department of Sustainability and Environment

Climacteris leucophaea

Description: A small (16-17.5 cm) brown bird with a white throat, buff breast, and black and white streaking on the sides. The female has a small red spot on her neck. They are found in sedentary pairs or family parties, occasionally alone, quickly climbing trees, often by moving upwards in a spiral around the trunk. The call is a quick, high-pitched piping or trill.

Habitat Needs: The White-throated Treecreeper is found in a variety of habitats from rainforests and wetter eucalypt forest to woodlands near farmland. They forage on the trunks of trees for ants and other insects and nest in small tree hollows.

Threats:

- Loss of trees with hollows;
- Replacement of native forests with pine plantations;
- Habitat isolation – they prefer to move along corridors of trees when dispersing.

Things to note:

- Unlike the Brown Treecreeper, which overlaps its range, the White-throated Treecreeper spends almost all of its time feeding in the trees, rarely venturing down to the ground.
- In the non-breeding season, it can sometimes be found in mixed flocks with other insectivorous birds.
- The White-throated Treecreeper will occasionally nest in building cavities, mineshfts or nest boxes.

Things to do for this species:

- Create corridors at least 50 metres wide between isolated patches of habitat and natural corridors along roads and creeklines.
- In patches of vegetation where there are no hollows, install some nest boxes.

Similar species: Brown Treecreeper (see above); Red-browed Treecreeper.

Golden Whistler

Golden Whistler

Pachycephala pectoralis



Description: The Golden Whistler is 16 cm to 18 cm long. The male is a striking bird with a black head, white throat, yellow chest and an olive back (main photo). The female is grey-brown in colour (insert). The calls are a rich high-pitched piping and a single whistle.

Habitat Needs: This species is found in rainforests, forests, woodlands and riparian vegetation containing a wattle understorey. It is also found in human-made habitats such as golf-courses, parks and gardens. They prefer patches of vegetation to be greater than 1 hectare or streamside vegetation at least 20 metres wide along creeks.

Threats:

- Loss of large trees, understorey and limited regeneration.

Things to note:

- The male bird will call and display frequently during spring.
- Golden Whistlers pair during the mating season but are otherwise solitary.
- Males and females tend to return to the same breeding territory and winter territory in successive years.
- They eat insects and insect larvae, contributing to the health of native vegetation.
- Like currawongs and robins, this species is a local migrant, with some birds moving from the hills to the plains in winter.

Things to do for this species:

- Retain or encourage all layers of vegetation, especially the shrub layers, in bushland remnants.

Similar species: Crested Shrike-tit (refer to Page 22); Females could be mistaken for the Rufous Whistler or Grey Shrike-thrush (refer to Page 39).

Grey Shrike-thrush

Grey Shrike-thrush



McCann Collection,
Department of Sustainability and Environment

Colluricincla harmonica

Description: A medium (22 cm-26.5 cm) bird, coloured grey above with an olive-brown back, whitish grey below and a bright black eye. The male has a distinct white patch in front of the eye, which is less distinguishable in the female. It has a rich, melodious call.

Habitat Needs: Found in all ranges of habitats ranging from woodlands and riparian forests to parks and gardens. In the breeding season, they prefer riparian forests, dry forests and woodlands. They feed mostly on the ground on invertebrates and larvae in an open understorey. They tend to occur in open habitats such as woodlands and River Red Gum forests during the autumn and winter months. The Grey Shrike-thrush needs patches with understorey and native ground cover greater than 5 hectares in size.

Threats:

- Loss of mature trees and native ground cover;
- Loss of fallen timber;
- Habitat fragmentation;
- Predation from feral Cats and Foxes.

Things to note:

- The Grey Shrike-thrush is an inquisitive bird and can become quite tame around habitation, nesting close to houses.
- It is a good bird to have around the house as it consumes a large number of defoliating insects and their larvae.
- They store food in tree crevices.
- The song of the Grey Shrike-thrush is very evocative of the Australian bush.

Things to do for this species:

- Retain or encourage all layers of vegetation, especially the shrub and ground layers, in bushland remnants.
- Connect large patches of vegetation by establishing 40 metre-wide corridors of local trees and shrubs.

Similar species: Female Golden Whistler (refer to Page 38)

Sugar Glider

Sugar Glider

Petaurus breviceps



McCann Collection,
Department of Sustainability and Environment

Description: A nocturnal, arboreal and gliding marsupial, similar to the related Squirrel Glider, but smaller. A distinctive characteristic is the fur-covered gliding membrane that stretches between the wrists and the ankles. The fur on the upper side of the body is grey, with black fur around the eyes, the ears and in a stripe along the top of the head and upper back. The underside is pale grey or creamy yellow. Adults may grow up to 42 cm in length. They can glide up to 90 m.

Habitat Needs: They inhabit a wide range of forests and woodlands, and will sometimes overlap in their range with the Squirrel Glider. They require tree hollows for daytime roosts and breeding. A wattle understorey is very important as a food source, and they require well-linked vegetation.

Threats:

- Habitat loss through clearing of native vegetation;
- Predation from Cats and Foxes;
- Fragmentation of remaining habitat;
- Entanglement on barbed wire fences;
- Loss of older, hollow-bearing trees.

Things to note:

- A colony of Sugar Gliders has been known to eat up to 18,000 scarab beetles per hectare in a season.
- They also eat nectar, pollen, and gum sap oozing from the tree trunk. Look for scraping wounds on tree trunks where they have chewed grooves into the bark to collect this.
- Sugar Gliders can live in narrow roadside reserves as long as they have a good supply of healthy eucalypts and wattles as a food source.
- They have several calls, including a shrill yapping call that sounds like a small dog, and the young may hiss if threatened.
- This species will readily use nest boxes if insufficient tree hollows are available (see further reading on nest boxes at the back of this booklet).

Things to do for this species:

- Protect and connect remnant vegetation on your property. Encourage a wattle understorey.
- Reduce the use of barbed wire for fencing, particularly as the top wire.
- Control feral Foxes and Cats, and keep domestic Cats inside at night.

Similar species: Squirrel Glider (see above) - found almost exclusively in the lower part of the Catchment.

Agile Antechinus

Agile Antechinus



Description: The Agile Antechinus is a small (mouse size) carnivorous marsupial. It is grey-brown above and lighter underneath with a furred tail about the same length as the body. Unlike mice (which are rodents), the antechinus has an angled jaw ending in a pointed nose with a row of small sharp teeth.

Habitat Needs: The Agile Antechinus occurs in forests and woodlands. Dense undergrowth and forest floor litter are important and hollows, either in logs on the ground or in standing trees, provide nest sites.

Threats:

- Habitat loss through clearing of native vegetation;
- Fragmentation of remaining habitat;
- Predation by Cats and Foxes;
- Loss of older, hollow-bearing trees;
- Removal of fallen timber.

Things to note:

- The Agile Antechinus is a good climber and will feed and nest in hollow trees as well as on the ground.
- In drier box forest and woodland to the north of the Upper Goulburn, the Agile Antechinus is replaced by the larger Yellow-footed Antechinus, and in the upper end of the Catchment in higher, wetter forest they are replaced by the Dusky Antechinus.
- The Agile Antechinus will occasionally enter dwellings in bush settings and may be mistaken for House Mice. However, antechinus, being carnivorous and without rodent teeth, cause much less damage than introduced House Mice.
- The Antechinus has a regular, short life cycle. Mating occurs over a short period in late winter, after which all males die. The females give birth and nurture the next generation to maturity by mid summer. Most adult females also die after young become independent.

Things to do for this species:

- Retain and/or increase large logs and branches on the ground.
- Retain all layers of vegetation, especially the shrub and ground layers, in bushland remnants where antechinus occur.
- Control foxes and cats.

Similar species: Dusky Antechinus (see above); House Mouse (see above).

Bush Rat

Bush Rat

Rattus fuscipes



Description: Bush Rats have grey-brown soft, dense fur above, with lighter grey or brown underside. Adults are a little smaller than the introduced Black Rat, but can be readily recognised by their tail, which is the same length as the body length.

Habitat Needs: Bush Rats are very closely associated with moderate to dense ground cover in a range of vegetation types. Other habitat features include soil, in which burrows can be made, and often fallen timber or rocks. Bush Rats are still common in damper forested areas in the Upper Goulburn Catchment, but unlikely to be encountered in agricultural zones where bushland and particularly, native ground layer vegetation, has been removed. Fungi form an important part of their diet, as well as the opportunistic taking of invertebrates, bush fruits and other plant material.

Threats:

- Fragmentation of remaining habitat;
- Predation by Cats and Foxes;
- Habitat loss through clearing of native vegetation;
- Removal of fallen timber.

Things to note:

- Bush Rats are nocturnal and seldom seen in the wild, but are easily trapped and have been well studied.
- They rarely invade human premises, unlike the introduced Black Rat.
- Bush Rats can occur on the upper slopes of Lake Mountain, where they can remain over winter in vegetation beneath the snow.
- Other native rat species which may be encountered in the Upper Goulburn also have tails shorter than body length.

Things to consider doing:

- Retain all layers of vegetation, especially the shrub and ground layers, in bushland remnants where Bush Rats occur.
- Retain and increase the occurrence of large logs and branches on the ground.

Similar species: Swamp Rat – browner fur, tail shorter than body length; Black Rat (see above).

Greater Glider

Greater Glider



Description: The largest of the gliding possums, the Greater Glider can be over 1m in total length, but over half this will be its long fluffy tail. Individuals can be coloured from all black to all white, but in the Upper Goulburn most have a black or dark brown back and tail with a white or cream belly.

Habitat Needs: Greater Gliders are common in wetter forests of the Upper Goulburn Catchment, particularly in those dominated by Mountain Ash, Stringybark, Peppermint, and Manna Gum.

Threats:

- Loss of old growth forest during timber harvesting;
- Predation by Cats and Foxes – gliders are vulnerable when glides bring them onto or close to the ground;
- Loss of older, hollow-bearing trees;
- Fragmentation of older forest.

Things to note:

- Greater Gliders live in family groups. Home ranges are usually only one or two hectares.
- Eucalypt leaves make up 100 percent of Greater Glider diet. Koalas are the only other mammals that exclusively feed on gum leaves.
- Greater Gliders can glide over 100 m in one glide and change direction at will.
- Unlike other gliders, Greater Gliders are silent.
- Although they are good climbers, Greater Gliders may spend long periods of time feeding in a single tree, and will often remain motionless when viewed with a spotlight.

Things to do for this species:

- Retain large hollow-bearing eucalypts
- Establish corridors more than 50 m wide between larger patches of habitat where gliders occur.

Similar species: Yellow-bellied Glider – Highly vocal, ears are bare (Greater Glider is silent and ears are furred).

Long-nosed Bandicoot

Long-nosed Bandicoot

Perameles nasuta



McCann Collection,
Department of Sustainability and Environment

Description: A medium-sized (57cm long) mostly nocturnal marsupial. Its fur is grey-brown on the back and sides, and creamy-white on the belly, chin and feet. They have a long pointed snout. The tail is narrow and about half the size of the head to body length. The rump is noticeably arched and higher than the shoulders.

Habitat Needs: The Long-nosed Bandicoot inhabits forests, woodlands and heathlands in higher rainfall areas. They are commonly found alongside streams and damper areas with dense ground or shrub cover. They eat invertebrates, tubers, seeds and fungi.

Threats:

- Habitat fragmentation or loss of connectivity between habitat;
- Removal of fallen timber;
- Clearing of understorey and dense ground cover for cultivation;
- Predation by Foxes and Cats.

Things to note:

- Long-nosed Bandicoots are thought to play an important role in the forest ecosystem, as they disperse mycorrhizal fungi (fungi that attaches to roots of plant to help the plant take up nutrients), essential for the health of certain plants.
- Look out for conical-shaped holes in the soil, made with their long pointed snout when they're looking for food. These holes will be evidence of their presence in your area.

Things to do for this species:

- Control of Cats and Foxes is important for this species continuing survival.

Similar species: Long-nosed Potoroo, endangered in Victoria. While it has not been recorded from the area (the nearest known occurrence is east Gippsland), suitable habitat exists in the area.

Powerful Owl

Powerful Owl



McCann Collection,
Department of Sustainability and Environment

Ninox strenua

Description: The largest owl in Australia (60-66 cm), with the male being slightly larger. They are mottled grey-brown above, and white below with grey-brown barring. The legs are feathered and the feet yellow. The call is a loud and low 'who-hoo' that carries a long way.

Habitat Needs: Powerful Owls require a large home range (300 – 1200 hectares) in old forest or woodland. They prefer dense gullies for roosting, and large, old trees with hollows for nesting. They require a good supply of arboreal prey, such as possums and gliders. They are known to roost in softwood plantations adjacent to native forest.

Threats:

- Loss of large hollow-bearing trees;
- Clearing of mature forests for forestry.

Things to note:

- This species is listed as endangered in Victoria. Nationally it is Rare.
- During the breeding season, the male Powerful Owl will hunt alone, and over a year up to 300 prey items will be needed to sustain a family of four.
- The Powerful Owl is often seen roosting on a branch holding the remains of a possum in its talons (claws).
- They will also eat flying-foxes, currawongs, magpies and lorikeets.
- There maybe less than 25 breeding pairs of Powerful Owl in the Upper Goulburn area.

Things to do for this species:

- Send any possible sightings to the Wildlife Atlas or contact the Flora and Fauna section of the D.S.E.
- Protect possible owl habitat by maintaining old trees in native vegetation.

Similar species: Barking Owl – smaller, more of a woodland species, very few records in the Upper Catchment.

Rufous Fantail

Rufous Fantail

Rhipidura rufifrons



Description: A medium (15 – 16.5 cm) flycatcher, with an orange-rufous forehead and eyebrow, bright rufous rump, and white spotted black chest. The call is a series of high pitched, descending squeaky notes. They feed by gleaning leaves and branches for insects.

Habitat Needs: The Rufous Fantail requires dense vegetation with thick understorey in the wetter areas of the catchment. It is more often found in the breeding season in rainforest, wet eucalypt forests and gullies.

Threats:

- Loss of understorey in wet forest habitat.

Things to note:

- Like the Grey Fantail, the Rufous Fantail is often seen flitting acrobatically through the trees catching insects.
- This species migrates within Australia and on migration may be seen in more open country.
- In winter, most Rufous Fantails are found in north Queensland.

Things to do for this species:

- Protect and encourage understorey in wet forest habitat.

Similar species: Grey Fantail

Superb Lyrebird

Superb Lyrebird



McCann Collection,
Department of Sustainability and Environment

Menura novaehollandiae

Description: A large (up to 1 m long) ground-feeding bird with a dark brown back, copper-coloured wings and a long tail. The male's tail is long and flowing with 12 lacy feathers and two curved glossy black and rufous lyre-shaped feathers, which it flicks over its head during its courtship dance. The song is a mix of melodious songs and mimicry.

Habitat Needs: Superb Lyrebirds are found in temperate rainforests and fern gullies in the forested areas of the Upper Goulburn Catchment. They require forested areas with open ground of leaf litter, which they rake over for insects. The nest is built either on the ground, in a stump, log or up to 25m in a tree fern or tree fork.

Threats:

- Predation by Foxes as well as feral and domestic Cats;
- Predation by domestic Dogs in habited areas;
- Loss of habitat through clearing.

Things to Note:

- The Superb Lyrebird is a superb mimic, and can mimic the calls of many birds.
- The male's courtship display is impressive as it calls from a vantage point to proclaim its territory to other males and to attract females, several of whom may build nests in or near its territory.
- In some areas of its range it will venture into gardens to forage for insects.

Things to do for this species:

- Undertake regular Fox control programs.
- Control domestic Cats, consider keeping them inside (at least at night) or in a run.
- Control domestic Dogs.

Similar species: Nil

6. Description of Conservation Status

'Threatened' is a general term to designate species whose survival is at risk. Threatened covers a range of categories including, 'extinct', 'critically extinct', 'endangered' and 'vulnerable'.

The conservation status supplied for each species in this booklet is based on its current status in Victoria. A brief definition of each status is supplied below. There are different conservation rating systems at a National and State level. Where a species is also considered threatened at a National level that status has also been supplied.

Extinct: Where there is no reasonable doubt that the last individual has died.

Critically Endangered: Facing extremely high risk of extinction in the wild in the immediate future.

Endangered: Not critically endangered, but facing a very high risk of extinction in the wild in the near future.

Vulnerable: Facing a high risk of extinction in the wild in the medium-term future.

Near threatened: Does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

Data deficient: There is inadequate information to meet a direct assessment of a species risk of extinction. Listing in this category indicates that more information is required and acknowledges that future investigations may possibly show the species is threatened.

Non-threatened: The species is currently considered secure at a State level, although it may be under threat and declining at regional or local scales.

Declining: Species that are known to be in decline through at least part of their range, but are still abundant enough or widespread enough that they are not listed as threatened at a State level.

For full listings of threatened species refer to:

Victoria – www.dse.vic.gov.au (select 'Plants and Animals')

National - www.ea.gov.au/epbc

7. Atlas of Victorian Wildlife

You can help monitor our wildlife by reporting any sightings of species to the Atlas of Victorian Wildlife database.

If you would like a kit to record the species you find on the Atlas of Victorian Wildlife contact your local Department of Sustainability and Environment office.

DSE also manage the state-wide flora database to which you can also contribute records and obtain lists and maps.

Useful Contacts

8. Useful Contacts

Department of Primary Industries / Department of Sustainability and Environment

Alexandra: (03) 5772 0200
Seymour: (03) 5735 4300
Benalla: (03) 5761 1611
Broadford: (03) 5784 0600
www.dse.vic.gov.au
www.dpi.vic.gov.au

Goulburn Broken Catchment Management Authority

Yea: (03) 5797 2001
www.gbcm.vic.gov.au

Trust for Nature

Benalla: (03) 5761 1558
www.tfn.org.au

Land for Wildlife

Department of Sustainability and Environment
Benalla: (03) 5761 1611
www.dse.vic.gov.au (select 'Plants and Animals' and then 'Native Plants and Animals' to find Land for Wildlife).

Goulburn Broken Indigenous Seedbank

Dookie College: (03) 5833 9200
www.landfood.unimelb.edu.au/seedbank/index.html

Birds Australia

Melbourne: (03) 9882 2622
www.birdsaustralia.com.au

Bird Observers Club of Australia

Melbourne: (03) 9877 5342
www.birdobservers.org.au

Field Naturalists Club of Victoria

Melbourne: (03) 9877 9860
home.vicnet.net.au/~fncv

Gould League of Victoria Inc.

Melbourne (03) 9532 0909
www.gould.edu.au

Greening Australia

Revegetation Guide
<http://www.greeningaustralia.org.au/GA/VIC/WhatsNew/revegetationguide.htm>

Friends of the Platypus

Whittlesea: (03) 9716 1626
www.totalretail.com/platypus

BEAM – Mitchell Environment Group

PO Box 310, Broadford 3658 (03) 5784 2041

Regent Honeyeater Project

Ray Thomas: (03) 5761 1515

Friends of Yea Wetlands

PO Box 231, Yea, 3717
Email: secretary@yeawetlands.org.au

Further Reading

9. Further Reading

Internet Resources:

Department of Environment and Heritage - Biodiversity Toolkit
www.deh.gov.au/biodiversity/toolbox/index.html

Greening Australia Victoria Revegetation Guide

<http://www.greeningaustralia.org.au/GA/VIC/WhatsNew/revegetationguide.htm>

How to Plan Wildlife Landscapes – A Guide for Community Organisations (pdf file – see below under ‘Platt, S. 2002’ for book version).

[http://www.dse.vic.gov.au/conservation and environment/living systems/](http://www.dse.vic.gov.au/conservation%20and%20environment/living%20systems/)

Identification and ecological information of butterflies, snakes, lizards, frogs and mammals via the Museum of Victoria collection

<http://www.museum.vic.gov.au/bioinformatics>

Books:

- Bennett, A., Brown, G., Lumsden, L., Hespe, D., Krasna, S. & Silins, J. 1998. Fragments for the Future: Wildlife in the Victorian Riverina (the Northern Plains). DNRE, Melbourne.
- Goulburn Broken Catchment Management Authority, 2003. A Wildlife Guide for Landholders in the plains and box-ironbark regions of the Goulburn Broken Catchment. GBCMA, Shepparton. Available from GBCMA offices in Shepparton, or DPI Office in Benalla.
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- Grant, J. 1997. The Nestbox Book. Gould League of Victoria.
- Lindenmayer, D., Claridge, A., Hazell, D., Michael, D., Crane, M., MacGregor, C. and Cunningham, R. 2003. Wildlife on Farms – How to conserve native animals. CSIRO Publishing, Collingwood.
- Platt, S. 2002. How to Plan Wildlife Landscapes: a guide for community organisations. DNRE, Melbourne.
- Semmens, Joan 2002. Bush Seasons – an affectionate study of a tiny bushland. Hyland House.

Fish:

- Koehn, J.D. & O'Connor, W.G. 1990. Biological Information for Management of Native Freshwater Fish in Victoria. Dept of Conservation and Environment, Melbourne.
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Reptiles and Amphibians:

- Brown, G. & Bennett, A. 1995. Reptiles in rural environments. A report to Murray Darling Basin Commission. DCNR, Melbourne.
- Cogger, H.G. 1992. Reptiles and Amphibians of Australia. Reed, Sydney.
- Coventry, A.J. & Robertson, P. 1991. The Snakes of Victoria. DCE and Museum of Victoria, Melbourne.
- Hero, J-M, Littlejohn, M. & Marantelli, G. 1991. Frogwatch Field Guide to Victorian Frogs. DCE, Melbourne.

Mammals:

- Churchill, S. 1998. Australian Bats. Reed New Holland, Sydney.
- Menkhorst, P.W. (ed.). 1995. Mammals of Victoria: Distribution, Ecology and Conservation. Oxford University Press and DNRE, Melbourne.
- Triggs, B. (1996). Tracks, Scats and Other Traces – A Field Guide to Australian Mammals. Oxford University Press Australia.

Birds:

- Barrett, G. 2000. Birds on Farms: Ecological Management for Agricultural Sustainability. Supplement to Wingspan Vol. 10 (4). Birds Australia, Melbourne.
- Bennett, A.F. & Ford, L.A. 1997. Land use, habitat change and the conservation of birds in fragmented rural environments: a landscape perspective from the Northern Plains, Victoria, Australia. Pacific Conservation Biology 3: 244-261.
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- Robinson, D. & Traill, B.J. 1996. Conserving woodland birds in the wheat and sheep belts of southern Australia. RAOU Conservation Statement No. 10. Birds Australia, Melbourne.
- Pizzey, G. & Knight, F. 2001. Field Guide to the Birds of Australia. Angus & Robertson, Sydney.

Notes



The Threatened Species Network is a community based program of the Commonwealth Government's Natural Heritage Trust and WWF Australia.