



KIT 7 – PART 2

FAUNA OF SOUTHWEST QLD



Queensland
Government



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The following profiles have been designed to highlight the diversity of animals across the arid and semi-arid areas of southern Queensland, particularly focusing on the Mulga Lands and southern Brigalow Belt bioregions. They have been designed to avoid technical terms where possible, and help you to identify species or at least species groups. Useful resources are also provided.

Given there is such high diversity across these areas it would be difficult to deal with every species in this text, so we have divided them into manageable groups and selected individual species profiles to provide detailed examples within each group.

A broad overview has been provided for the following groups and subgroups:

1. FROGS

- Tree frogs
- Ground or burrowing frogs

2. REPTILES

- Freshwater turtles
- Lizards
 - Geckos
 - Flap-footed lizards (Pygopids)
 - Skinks
 - Dragons (Agamids)
 - Goannas or monitors (Varanids)
- Snakes
 - Blind snakes
 - Pythons
 - Solid-toothed snakes (Colubrids)
 - Venomous snakes (Elapids)

3. BIRDS

- Passerines – perching birds
- Non-passerines – most other birds

4. MAMMALS

- Monotremes (echidna and platypus)
- Marsupials
 - Macropods (kangaroos, wallabies, bettongs)
 - Possums, gliders, wombats and koala
 - Carnivorous marsupials (Dasyurids)
 - Bandicoots and bilbies
- Placental mammals (Eutherians)
 - Bats
 - Rodents
 - Carnivorous placental mammals (dingos, dogs, foxes and cats)
 - Rabbit and hare
 - Ungulates (camels, pigs, goats, horses, cattle and donkeys)

FROGS (AMPHIBIANS)

Australian frogs are a very diverse group of animals and can be found even in the driest areas, with some 55 species calling south-west Queensland home. The many different strategies which frogs use to survive and breed across inland Queensland make them very interesting.

However, they are a problematic group to study as most of them are impossible to detect unless there have been decent rains. Frogs are an important part of the food chain and have been shown to be good indicators of the health of the environment. Many of you will be familiar with the common species you see around the house and shed, like the green tree frog, which is often attracted by the moisture in your bathroom. Here we will briefly highlight some of the other species you probably share your property with. Frogs can be broadly separated into tree frogs (those with enlarged discs on their fingers and toes) and ground or burrowing frogs.

TREE FROGS

'Tree frog' is a simplified term for part of a family of frogs called Hylids. The group (Genus) they belong to is '*Litoria*' which have a variety of skin textures but generally have enlarged, adhesive toe discs (some can be quite small) that help them climb trees and rocks. Contrary to what the name suggests, tree frogs aren't always found in trees or climbing for that matter, with a number of species spending much or all of their time on or near the ground (eg broad-palmed rocket frog).

During dry periods, tree frogs find refuges such as tree hollows, soil cracks, and dense vegetation to prevent themselves from drying out. When it rains they emerge from their shelter to breed, depositing their eggs in water such as temporary and permanent pools, creeks, dams, etc. Tadpoles rapidly hatch and then race to develop and change (metamorphose) into a frog before the water dries up. During these wet spells there is typically an explosion of insects like mosquitoes, flies and moths, which provide a great food source for the adults and emerging young frogs.

A common sight around the homestead is the common green tree frog (*Litoria caerulea*, below top). The broad-palmed rocket frog (*L. latopalmata*, below left) spends much of its time on the ground however fits into the tree frog family. The desert tree frog or naked tree frog (*L. rubella*, below right) is another familiar sight, especially in bathrooms!



GROUND OR BURROWING FROGS

As their names suggests, these frogs are burrowers or at the very least shelter beneath thick ground cover or in soil cracks. Burrowing allows these frogs to escape hot dry conditions underground, where they can remain buried for many years, possibly tens of years, until it rains again. This makes them superbly adapted to the drier areas where they dominate the frog fauna. This group of burrowing frogs is characterised by species with round squat bodies and short muscular limbs making many of them look like balls with legs!

Whilst buried underground many of these frogs go into what is called aestivation (a type of hibernation) where they will remain until enough rain falls or they are disturbed. During the right conditions such as appropriate amount of rain at the correct time of year, some of the burrowing frogs can emerge in massive numbers to madly feed and breed until conditions begin to dry out and they bury themselves once more. Breeding mostly in temporary water bodies, these species have remarkably rapid development from egg through the tadpole stage to young frogs. Although unfortunately the pools often dry up before the frogs have developed, which provides a feast for many other animals.

The burrowing and ground frogs that are listed demonstrate the high diversity this group has in south-west Queensland. This diversity is often overlooked as they only emerge for short periods, and are therefore rarely seen.

“Burrowing allows these frogs to escape hot dry conditions...”

GROUND OR BURROWING FROGS CONT.

Horizontally from top left, froglet species (*Crinia sp.*); salmon striped frog* (*Limnodynastes salmini*); spotted marsh frog (*L. tasmaniensis*); ornate burrowing frog* (*Platyplectrum ornatum*); rough collared frog* (*Cyclorana verrucosa*); water holding frog* (*C. platycephala*); eastern snapping frog (*C. novaehollandiae*); grassland collared frog* (*C. cultripes*); superb collared frog (*C. brevipes*); the introduced cane toad* (*Rhinella marina*); holy cross frog* (*Notaden bennetti*); and the eastern metal-eyed frog (*Neobatrachus sudelli*).



*Photos: Harry Hines

FAUNA SPECIES PROFILES

HOLY CROSS FROG *Notaden bennetti*



DESCRIPTION

Small (up to 55mm), very distinctive, brightly coloured and ping-pong ball like best describes this frog. It is a rounded frog with short, stubby limbs. Adults are yellow, olive or green

(as pictured above) with a distinctive cross-shaped pattern of black, white and red spots and warts (which resembles a dot painting). Juveniles are bright yellow or bluey-green with the cross pattern like the adults. Males usually call while floating in water and sound owl-like with a long series of 'whoop-woop'.

OCCURRENCE

Found in arid and semi-arid areas including in the Brigalow Belt south, Mulga Lands and Channel Country bioregions.

WIDER DISTRIBUTION

Widespread, and locally common in arid and semi-arid areas west of the Great Dividing Range, particularly in NSW and north into southern Qld.

HABITAT REQUIREMENTS

This frog is supremely adapted to surviving in arid and semi-arid environments. It is found in a range of habitat types on slopes and plains throughout its range. To survive in the harsh environment in which they live they spend much of their lives deep underground, only emerging after good rains to frantically eat and breed. This means soil condition is very important for this species as they need to be able to bury themselves to survive. They also need access to temporary standing pools after rains to allow the



rapidly developing tadpoles to turn (metamorphose) into small frogs. If these pools dry up too rapidly or are trampled the tadpoles will perish.

NOTES

This frog clearly gets its common names (holy cross frog or crucifix frog) from its cross pattern on its back. This species exudes a thick, sticky white 'glue' from their warty backs when harassed. The purpose of this 'glue' is unknown but it probably deters predators. It is also being investigated for medical use as it has been found to be stronger than current non-toxic medical adhesives. Known to feed on insects, they especially seem to like termites and



ants. Their burrowing habit helps water infiltration and soil aeration.

SIMILAR SPECIES

The holy cross frog is so distinctively patterned that it is unlikely to be confused with any other species.

FAUNA SPECIES PROFILES

DESERT TREE FROG

Litoria rubella



DESCRIPTION

A fairly small (up to 40mm), tree frog with enlarged pads or discs on the ends of its fingers and toes which are slightly webbed. Back colour varies greatly from pale grey to reddish-brown, occasionally with darker flecking. A dark band or stripe runs along the side of the head and body, from the nostril, through the eye, over the tympanum (the ear 'disc' in frogs) and onto the flanks. The belly is white, cream or slightly yellowish and granular (slightly bumpy), with breeding males often having a grey throat. The groin is typically lemon-yellow.

OCCURRENCE

Found throughout all bioregions in southern Qld, including Brigalow Belt, Mulga Lands and the Channel Country.

WIDER DISTRIBUTION

The desert tree frog is the most widely spread frog in Australia, occupying over three-quarters of the mainland. It occupies all states and territories except for Tasmania.

HABITAT REQUIREMENTS

A generalist species utilising many different habitats across its broad area of extent. By day they make use of any available shelter, including inside hollow logs, beneath peeling bark, deep down soil cracks and frequently found sheltering around human habitation in pipes, sheds and



bathrooms. At night, you can find this adept climber sitting in a good vantage point, waiting to catch insects.

NOTES

The desert tree frog (sometimes known as the naked tree frog) frequently takes up residence around houses and sheds making this species, along with the green tree frog, one of the most familiar sights to people living in drier parts of Australia. The desert tree frog breeds after summer rains and can be found calling from any vantage point (trees, shrubs, rocks, cut banks, etc)



near temporary or permanent water bodies (dams, lakes, swamps, etc).

SIMILAR SPECIES

In south-west Qld the desert tree frog is unlikely to be confused with any other species.

The emerald spotted tree frog (also common around human habitation) has bold black and yellow marbling in the armpits, groin and the hind side of the thighs. The broad palmed rocket frog is a predominantly ground dwelling species with reduced toe pads. It also has a more pointed nose and black and yellow on the back of the thighs.

REPTILES (Reptilia)

Australia is often known as the ‘land of reptiles’ because of the high diversity found here, particularly in the arid and semi-arid areas where they seem to thrive. Well over 200 species of reptile call south-west Queensland home, with many people recognising some of the more common of these, like bearded dragons and sand goannas.

Reptiles are a group of animals that breath air, have a skin covered in scales (or scutes as they are called in crocodiles) and are ectothermic (or ‘cold blooded’), which simply means they warm up from external heat sources such as the sun or a warm rock. Unlike frogs, which all follow very similar body structure, reptiles exhibit some very different body forms from the well recognised four-legged lizard to those that have lost their legs like snakes and legless lizards. The following briefly outlines many of the groups of reptiles found in south-western Queensland, with some more detailed profiles provided for selected species.

“...they warm up from external heat sources such as the sun or a warm rock.”

FRESHWATER TURTLES

Freshwater turtles, as their name suggests, live in creeks, rivers, wetlands and dams, have webbed feet with claws and a neck (that can be short or long depending on the species) that folds sideways into a hard shell. Like frogs, turtles in arid parts of Australia have adapted to survive extended periods without water, meaning they can be found in and around most drainage lines and dams in arid and semi-arid areas. Turtles like the eastern long-neck turtle survive dry conditions by simply burying themselves deep in the mud until the creeks, rivers and dams refill once more. At times they can also be found wandering long distances from water, travelling over land in search of a new water-body to call home. Turtles feed in the water on both animal and plant material, helping to keep waterways clear of water weeds and sick or dying animals. They emerge to bask in the sun on the bank or on protruding rocks and logs, and lay eggs in burrows out of the water on the banks.

Freshwater turtles in south-west Queensland can be divided broadly into **long-neck turtles** (~two species) and **short-neck turtles** (three + species).



SHORT-NECK TURTLE



LONG-NECK TURTLE

Sometimes referred to as a 'snake-neck turtle'

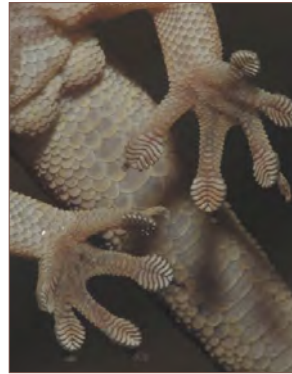
“ They emerge to bask in the sun on the bank or on protruding rocks and logs... ”

LIZARDS

This is the most widespread and diverse group of reptiles with five distinct sub-groups or families. Some of these families contain the animals most people are familiar with, like geckos and goannas while others will contain more secretive animals that are less well known.

1. GECKOS

Geckos are nocturnal lizards with large, unblinking eyes and soft skin with small rounded scales that are often beautifully patterned. All geckos prey on insects, with some species also feeding on sap and soft fruits. They all lay one or two eggs, in moist places such as the soil under logs and leaf litter. There are more than 33 species in south-west Queensland that can be simply separated into climbing or arboreal geckos and ground geckos.



Arboreal geckos spend much of their time climbing around on trees, rocks, logs and other structures utilising specially expanded toe pads that can even allow them to

climb up glass! During the day they typically shelter under peeling bark, in tree and rock crevices and in tree hollows; without these they are usually absent from the landscape.



Five species of closely related climbing velvet gecko (*Oedura*). Top left – southern spotted velvet gecko (*O. tryoni*); Below, left to right, marbled velvet gecko (*O. marmorata*); ocellated velvet gecko (*O. monilis*); zigzag velvet gecko (*O. rhombifer*); and the robust velvet gecko (*O. robusta*).

The velvet geckos all have enlarged toe pads to help them climb on tree trunks, logs and rock surfaces. They are also relatively flat (see far left two) to help them squeeze under bark and into crevices in timber and rock.



LIZARDS CONT.

Three species of tree dwelling jewelled gecko (*Strophurus*). Left to right: golden-tailed gecko (*S. taenicauda*) with its golden blaze; the eastern spiny-tailed gecko (*S. williamsi*) with its four rows of soft spines along the tail; and the spiny-tailed gecko (*S. krisalys*) with spines above its eyes as well as two rows on the tail. Like the velvet geckos, the jewelled geckos have large toe discs to help them climb around in trees. These jewelled geckos can often be found at night foraging in the foliage of trees and shrubs; sheltering during the day under peeling bark or sometimes camouflaged in the foliage.



These three species of tree dtellas (*Gehyra*) have expanded toe pads and claws arising from the top/centre of each pad. They like living on tree trunks, under bark and on fallen timber. They can also be found living around farm buildings. From left to right: common dtella (*G. dubia*); tree dtella (*G. variegata*); and the chain-backed tree dtella (*G. catenata*). The colouration and patterning of the tree dtellas can vary greatly even within species, so care is required when trying to identify them.



Ground geckos on the other hand don't have expanded toe pads but rather claws that allow them to dig and scramble around on rough surfaces such as rocks, logs and termite mounds. These geckos shelter under rocks and logs and in animal burrows with some particularly liking spider burrows to escape the heat of the day. This makes fallen timber, soil condition and structure particularly important for these geckos.

Three ground geckos that like to use spider burrows as shelter, include: clockwise from top left, beaked gecko (*Rhynchoedura ormsbyi*); the next two show different colour forms of the fat-tailed gecko (*Diplodactylus conspicillatus*), which is known to block the burrow with its tail to prevent predators getting in; and finally the tessellated gecko (*D. tessellatus*).



“Ground geckos have claws that allow them to dig and scramble on rough surfaces...”

LIZARDS CONT.

The four species of ground gecko provided here as examples all like sheltering under fallen timber, rocks and leaf litter but will also use burrows when they are available. The top two are different species – the thick-tailed gecko (*Underwoodisaurus mileri*) on the right, and the box pattern gecko (*Lucasium steindachneri*) on the left. The middle row shows two forms of a wood gecko species (*Diplodactylus vittatus*), while the bottom row shows three colour variations of the Bynoe's gecko (*Heteronotia binoei*).

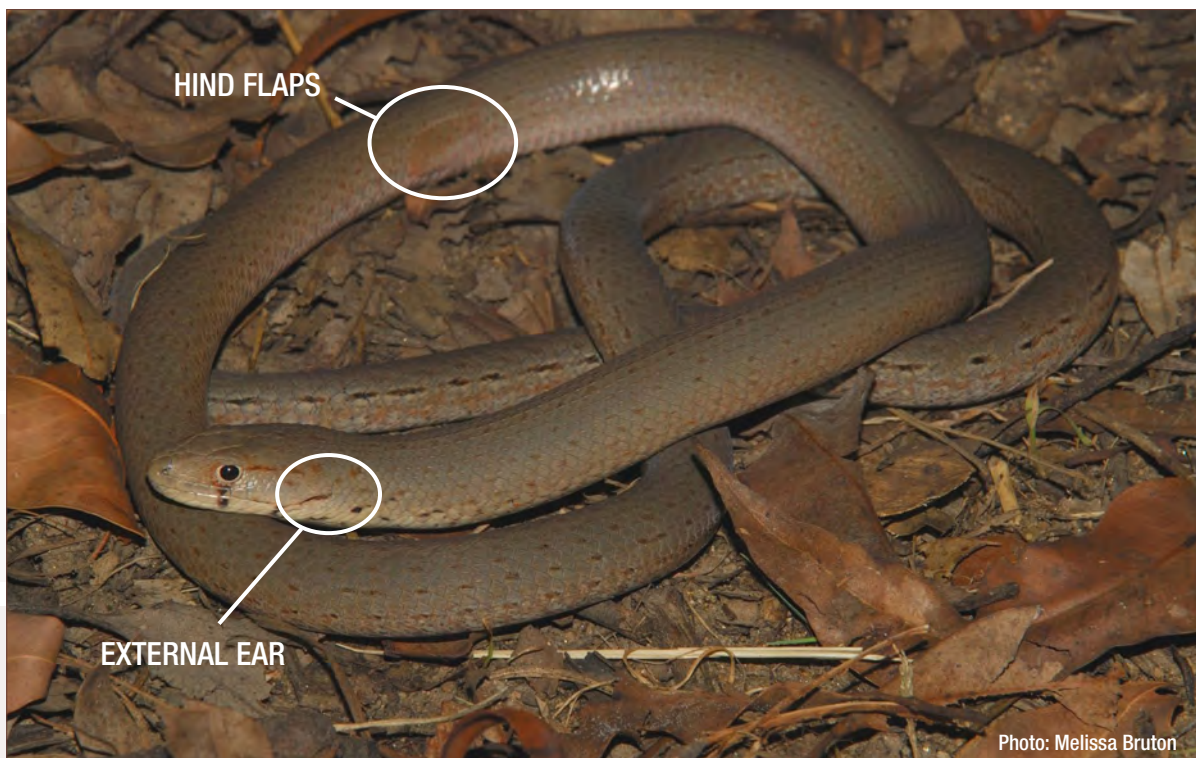


2. FLAP-FOOTED LIZARDS

Being limbless, at first glance this group of lizard are often mistaken for snakes; with some using this to their advantage to scare off would be predators by 'rearing up' and tongue flicking like a small venomous snake. Unfortunately, this mistaken identity often gets species of this completely harmless group killed. Flap-footed lizards are actually closely related to geckos and unlike snakes have visible ear openings; hind flaps as remains of legs; an original tail much longer than the body; and a fleshy tongue that can be split to look forked like a snake's.

I'M NOT A SNAKE! BUT HOW DO YOU TELL?

- Snakes don't have external ear openings, I do!
- Snakes don't have legs; I have hind flaps that I often hold flat against my body. You can find them about mid way along my body, and they are usually much closer to my head than my tail tip.
- Snakes have short tails; my original tail is much longer than my body and starts near my hind flaps, although I can drop my tail.
- Snakes have thin forked tongues; mine is thick and fleshy.



COMMON SCALY-FOOT

LIZARDS CONT.

A small selection of flap-footed lizards, are pictured here. Clockwise from top left, brigalow scaly-foot (*Paradelma orientalis*); eastern hooded scaly-foot (*Pygopus schraderi*); Burton's leg-less lizard (*Lialis burtonis*) unique with its wedge shaped head, it feeds on skinks; and the small-sized collared delma (*Delma torquata*).



3. SKINKS

A well recognised group of lizards, skinks are diverse, with more than 100 species in south-west Queensland, forming the major component of the reptile fauna across the broad range of habitats they inhabit. Terrestrial species dominate, with ones that burrow in friable soils, those associated with fallen timber or rocky areas and those that have a preference for leaf litter and grassy habitats. Then there are those that have adapted to climb, utilising trees, logs and rock outcrops.

Given this vast array of habitats that they exploit, skinks also show an amazing array of body shapes. Many of the small burrowing species have reduced the size of their limbs or lost them altogether and are often referred to as leg-less lizards. Others have the typical four-legged skink appearance, with every imaginable body shape in-between. Many skinks are difficult to differentiate from each other with highly variable patterning within species. Often only a close examination of their scales can determine their identity. The following shows some of the diversity within the skink fauna of the south-west Queensland.

'Legless' lizards have reduced the size of their limbs and elongated their bodies so they can almost swim through soil. Typically, legless lizards are fairly small skinks which can be found under logs, in litter and friable soils. Given the right conditions these skinks can be fairly common. Below, left to right, eastern mulch slider (*Lerista fragilis*), a close up showing the pointed snout of the speckled short-limb slider (*Lerista punctatovittata*); and the yellow belly of a three-toed skink (*Saiphos equalis*).



Small litter skinks are common in many areas, where they can be found foraging through leaf litter or basking in a warm spot on a log. The three examples provided below are particularly common; clockwise from top right, Boulenger's skink (*Morethia boulengeri*), the open-litter rainbow skink (*Carlia pectoralis*) and Burnett's skink (*Lygisaurus foliorum*).



“...skinks also show an amazing array of body shapes.”

LIZARDS CONT.

The 'striped skinks' (*Ctenotus*) are a diverse group of ground dwelling skinks with well developed legs, long slender tails and glossy smooth scales. Below are a just a few examples of the species within this group.



ROBUST STRIPED SKINK (*C. robustus*)



LEONHARDI'S SKINK (*C. leonhardii*)



LEOPARD SKINK (*C. pantherinus*)



INGRAM'S STRIPED SKINK (*C. ingrami*)



SHORT-CLAWED CTENOTUS (*C. brachyonyx*)



BROWN-BLAZED CTENOTUS (*C. allotropis*)



These three example species of small arboreal (climbing) skink (*Cryptoblepharus*) can be found on logs, tree trunks and rocks. With highly variable patterning they are very difficult to distinguish from each other. Anti-clockwise, from top left, the elegant snake-eyed skink (*C. pulcher*); the ragged snake-eyed skink (*C. pannosus*); and the inland snake-eyed skink (*C. australis*).



Larger skinks tend to be less common in most environments as they require larger areas to forage. A few of these larger species live in communal groups, like the yakka skink (*Egernia rugosa*, see profile), the eastern rock skink (*Liopholis modesta*, top left) and the tree skink (*E. striolata*, top right), while the blue-tongue lizard (*Tiliqua scincoides*, bottom left) is solitary. The closely related shingleback (*T. rugosa*, bottom right) is also solitary, except in the spring, when pairs meet to breed. Pairs mate for life and will meet each and every spring.

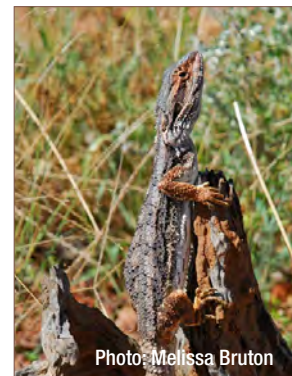


LIZARDS CONT.

4. DRAGONS

Dragons are another one of the well recognised lizard groups, including species like the bearded dragon and frill-neck lizard ('frilly'). Dragons are easily distinguished by their long tapering tails, large well developed legs, rough skin and a wedge-shaped head. The highest diversity of dragons occurs in the drier areas of Australia, with some 25 species found in south-west Queensland. They are usually active during the day, with most of them being mainly terrestrial (ground dwelling) and a few that are arboreal (climbing). All dragons lay clutches of eggs (from two to 20+ depending on species) in burrows, often excavated in an open warm position.

Dragons are a familiar group to most people with both bearded dragons (*Pogona barbata*, below right) and Burns' dragon or ta ta lizard (*Amphibolurus burnsi*, below left), often seen basking on fence posts and alongside the road. There are also many other smaller species well adapted to dry areas, like the central netted dragon (*Ctenophorus nuchalis*, centre).



5. GOANNAS OR MONITORS

Goannas or monitors, as they are sometimes known, are a group of moderate-sized to very large lizards with loose skin, a slender forked snake-like tongue and well developed powerful limbs brandishing sharp claws. There are over 10 species found in south-west Queensland, varying in size from the familiar sand goanna to the much smaller, more cryptic climbing species that utilise tree hollows and peeling bark as shelter.

Goannas are predators of almost everything from insects to small mammals, birds and other reptiles, with prey items for each species being determined mostly by size. Many of them will also scavenge food. All lay eggs (clutch sizes vary) in a burrow or termite mounds, which provide perfect climate-controlled conditions for incubation.



Left: The familiar sight of a sand goanna (*Varanus panoptes*) basking in the sun outside its burrow, dug under the end of a fallen tree. Right: A freckled monitor (*V. tristis*), a rarely seen, widespread, small monitor, that is quick to retreat to shelter when approached.

SNAKES

Snakes have to be the most feared group of animals in Australia, with many Australians believing the “only good snake is a dead one”. This fear of snakes is built upon the reputation of a few highly venomous snakes such as the eastern brown snake, which do deserve our respect. Historically, a bite from one of our highly venomous snakes would often result in death. These days with appropriate first aid (see box on “First Aid Treatment of Snake Bite”) and hospital treatment, there is no reason why anyone should die from a snake bite. Most people are very familiar with these highly venomous snakes, although identities are often mistaken, resulting in many harmless reptiles being unnecessarily killed.

All this aside, snakes play a very important ecological role as apex predators in Australian ecosystems. Many snakes feed on rodents, preventing their numbers from exploding, while others feed on venomous snakes. There are in fact four groups (or families) of snake in south-west Queensland, and many of them are not dangerous to humans.

“Snakes play a very important ecological role as apex predators...”

SNAKES CONT.

1. BLIND SNAKES

The completely harmless and non-venomous burrowing blind snakes are very rarely seen. These worm-like snakes eat the eggs and larvae of termites and ants. They really do look like earth worms, but have closely fitting glossy scales, eyes that are very small and covered by scales and a small spine on the bluntly rounded tail tip (only one species doesn't have this). Blind snakes range in size from small worm sized animals through to relatively large, thick animals at about 75cm long.

These very secretive snakes live in soil cavities and under thick leaf-litter and fallen timber, infrequently emerging at night onto the ground surface, and typically only after rain. There are probably at least 10 species of blind snake in south-western Queensland, with new species still likely to be discovered. Many of the species are very difficult to differentiate with only minor differences in snout profile and head scalation.



Three different species of **blind snake** (*Ramphotyphlops*) that look very similar as shown here. You may never actually see one of these snakes as they spend almost all their time underground or in rotting logs. But if you do find one digging in the garden or on a wet evening, they are completely harmless.



2. PYTHONS

Pythons are fairly bulky, relatively slow moving, moderate to large sized non-venomous snakes. All but two species (black-headed python and woma) have heat-sensory pits along the sides of their mouth. These heat pits help them detect warm-blooded prey like mammals and birds, while the black-headed python and woma feed predominantly on reptiles (snakes, dragons and goannas). All pythons constrict (or squeeze) their prey by placing coils of their body around the prey item and simply tightening them each time the animal breathes out.

Pythons are mostly nocturnal but can frequently be found moving and basking during the day. Most species spend much of their time on the ground yet almost all of them are very good climbers and can be found climbing in trees, shrubs and rocky outcrops. Pythons utilise a range of shelter sites including tree hollows, hollow logs, animal burrows (eg rabbits and bilbies), rock crevices and of course, rural buildings.

Pythons are unique amongst Australian snakes, exhibiting maternal care by coiling around their eggs to protect and incubate them until hatching. This takes roughly two months, during which the snake almost never leaves the clutch of eggs. There are about seven species of python found in south-west Queensland.



The carpet python, top right (*Morelia spilota*) is well known by most people and takes the typical form of most pythons with the definitive heat pits along the edge of the mouth; as does the Stimson's python, top left (*Antaresia stimsoni*) which resembles the spotted python (*Antaresia maculosa*) found further to the east. The only two pythons that don't have these heat pits are the woma, below left (*Aspidites ramsayi*) and the black-headed python, below right (*Aspidites melanocephalus*). Both these species are often confused for venomous snakes, so it is worth being familiar with them as they are both known to feed on other snakes, including venomous ones – a good snake to leave living around the homestead!

SNAKES CONT.

3. SOLID-TOOTHED SNAKES (COLUBRID SNAKES)

This is the dominant group of snakes throughout the rest of the world but Australia has very few species. In south-west Queensland there are only three species located mainly in the east – the green tree snake, the brown tree snake and the freshwater snake. Of these only the brown tree snake is weakly venomous with small ‘fangs’ in the rear of its mouth. The brown tree snake is not regarded as dangerous but a bite from any venomous snake should be treated seriously.

The three species located in south-west Queensland exhibit very different feeding preferences. The green tree snake is predominantly diurnal, feeding mainly on skinks and frogs. The brown tree snake (below right), also sometimes known as the ‘night tiger’, is nocturnal and feeds mainly on birds and small mammals. Both are very good climbers and spend a lot of their time in trees. The freshwater snake or keelback (below left) is found around wet areas, foraging on the ground for frogs and lizards, even entering the water to capture tadpoles and fish. This species can also prey on small cane toads.



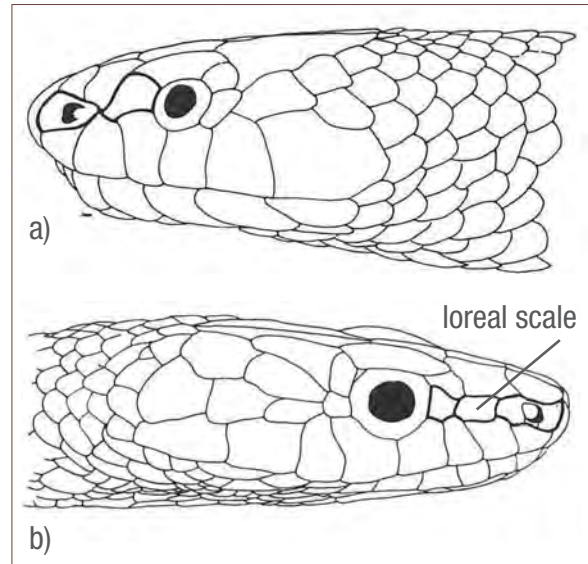
4. VENOMOUS SNAKES

Elapid (front-fanged) snakes are the most diverse group of snakes, with 40+ species being found in south-western Queensland. All are venomous but not all are dangerous to humans. Fatalities from snake bite are very rare in Australia; however the chance of being bitten by a venomous snake increases when people are attempting to kill them. In fact most bites occur when people attempt to kill them. The best thing to do if you encounter a snake is to retreat slowly and avoid making rapid movements. Generally, most snakes will retreat or give a warning that they feel threatened. This typically involves flattening of the neck and/or raising the head off the ground and hissing.



Warnings like the one shown by this mulga snake are common – venom is precious so they really don’t want to waste it on us!

Elapid snakes show amazing variation in appearance, size and lifestyle with even patterning varying greatly within single species (eg eastern brown snake). They all have a pair of short, fixed fangs at the front of their mouth (not a particularly useful visual character!) large symmetrically arranged head shields (scales) and no loreal scales (a scale on the side of the head) and never any heat pits. Unfortunately this can make them difficult for inexperienced people to distinguish from the other harmless species. The best thing to do is to give all snakes their space and if bitten and you are unsure, to treat it as a venomous snake and seek medical advice. There are now tests to determine what type of snake did bite you.



An elapid snake (a) with no loreal scale between the nostril and the scale in contact with the eye (called the pre-ocular) This can be clearly seen in the eastern small-eyed snake to the left. (b) Non-venomous snake with 1 loreal scale (they can have two or more) – not something easy to see, so best left to the experts!

Diagrams adapted from Reptiles & Amphibians of Australia, Sixth Edition, Harold Cogger

**“...if bitten and you are unsure...
treat it as a venomous snake and
seek medical advice.”**

SNAKES CONT.



These are some of the venomous snakes to give a wide berth. The 'brown snakes' (*Pseudonaja*) are all highly venomous and includes the eastern brown snake (*P. textilis*) in its variable colour forms (left and below top left); the ringed brown snake (*P. modesta*, below top right) and the western brown snake (*P. aspidorhyncha*, middle left). There are also others, middle right, eastern small-eyed snake (*Cryptophis nigrescens*); the death adder (*Acanthophis antarcticus*, bottom left), the camouflaged sit and wait predator; and, the pale-headed snake (*Hoplocephalus bitorquatus*, bottom right) that is a skilful climber.



FIRST AID TREATMENT OF A SNAKE BITE – PRESSURE IMMOBILISATION

Use this procedure for any snake bite in Australia – applied correctly it may be left on for several hours.

- As soon as possible apply a broad pressure bandage from below the bite site, upward on the affected limb. Starting from the fingers or toes and bandage as far up the limb as possible. Leave the fingers or toes unbandaged to allow the victim's circulation to be checked.
- If no bandage is available use strips of clothing.
- Bandage over the top of clothing.
- Bandage as firmly as for a sprained ankle, but not so tightly that circulation is prevented.
- Mark the bite site on the bandage. This will aid in testing to identify the venom.
- After bandaging, apply a splint to keep the limb still. This will help restrict venom movement by preventing muscle and joint movement.
- Reassure the victim, keep them calm and still.
- Seek urgent medical assistance now that first aid has been applied.

Useful tips:

- Carry at least one compression bandage with you whenever you venture into snake prone areas.
- Do NOT attempt to catch or kill the snake – this increases the chances of another bite (to the victim or another person). The venom can be identified in the hospital.
- NEVER use a tourniquet, cut, suck or wash the bite site.
- Bandages should not be removed – the doctor will decide when to remove them.
- Bites to the trunk require firm pressure over the area, without restricting chest movement.
- Bites to the head and neck require urgent medical attention.

SNAKES CONT.

There are also mildly venomous species like the yellow-faced whip snake (*Demansia psammophis*, right); the curl snake (*Suta suta*, below right); and Dwyer's snake (*Parasuta dwyeri*, below left) in south-west Queensland. If you get bitten by one of these you should still apply first aid and seek medical attention as different people will react differently to the venom, much like with bee or wasp stings.



There are a number of elapids considered harmless to humans. These are but three of them, the distinctive bandy-bandy (*Vermicella annulata*, below left) that uses its stripes and the strange behaviour of lifting sections of its body off the ground to confuse predators; the coral snake (*Brachyuropsis australis*, left) and its shovel-nosed relatives that use their shovel shaped noses to push through the soil in search of small reptile eggs; and the red-naped snake (*Furina diadema*, below right) with its distinctive black head and red blotch.



FAUNA SPECIES PROFILES

CHAIN-BACKED TREE DTELLA

Gehyra catenata



DESCRIPTION

Growing to approximately 11cm long, the chain-backed tree dtella gecko is a smallish grey gecko with distinctive markings on its back. Along the backbone to the tip of its tapered tail is a ladder or chain-like series of light-coloured blotches, outlined by darker grey. There are claws on all but the inside toe of each foot, and the lamellae (the sticky part) of the toe-pads are grooved but not divided.

OCCURRENCE

Patchy occurrence in the Brigalow Belt bioregion.

WIDER DISTRIBUTION

Restricted to Qld in the Brigalow Belt (north and south).

HABITAT REQUIREMENTS

Dry woodlands and shrublands. This gecko prefers to live in trees, but also uses fallen logs, rocky outcrops and even shrubs.

NOTES

Decreases with a decline in ground cover and live trees. This common gecko has an interesting social structure with around three individuals maintaining group territories of two or more trees, depending on food availability. Geckos straying into another territory will be chased or even bitten by the resident geckos. They forage for a wide variety of arthropods in tree canopies, branches and trunks and on the ground at the base of trees and shrubs. They are relatively long



lived (up to nine years) and start reproducing at around two years, laying only one egg at a time several times each year. Compared to the velvet geckos, the tree dtellas are better able to use disturbed habitats due to their broader selection of shelter sites and more flexible life history strategies (eg longer breeding season, earlier maturation, etc).

SIMILAR SPECIES

Dtella geckos (*Gehyra*) can all have highly variable patterning, making them difficult to distinguish from each other without the need for a magnifying lens to examine characters such as nasal scales and the under surface of the toe-pads. The chain-backed tree dtella (*G.catenata*) is probably the easiest of the group to identify from patterning with, as the name suggests, a ladder or chain-like pattern down the middle of the back from the neck to the tail.

The introduced Asian house gecko (*Hemidactylus frenatus*) may also be confused with the dtella group of geckos. They are also grey with irregular dark stripes and blotches (they can also go very pale and patternless), however if you look closely, they have small spines scattered along their bodies; rings of spines around their original tail; and a claw on their inside toe. Just don't confuse the Asian house gecko with the native spiny-tailed geckos as these guys also have spines down their tails (check out the spiny-tailed gecko profile).

FAUNA SPECIES PROFILES

TREE DTELLA

Gehyra variegata

DESCRIPTION

The tree dtella gecko is a smallish gecko to 10cm long, including the tail. It has a variable but generally grey appearance; with a network of dark streaks and fine pale dots. Against pale surfaces like walls in houses, the skin can be a semi-transparent pinky-beige. There are claws on all but the inside toe of each foot, and the lamellae (the sticky part) of the toe-pads are divided. The tail is long and tapered.



OCCURRENCE

Abundant in dry wooded areas throughout the region but tends to be replaced in the eastern Brigalow Belt and in moister environments by the common dtella (*G. dubia*).

WIDER DISTRIBUTION

Widely distributed across much of the arid or semi-arid parts of inland Australia.

HABITAT REQUIREMENTS

Dry woodlands and shrublands. This gecko prefers to live in trees, but also uses fallen logs, rocky outcrops and even shrubs.



NOTES

This common gecko, like the chain-backed tree dtella (*G. catenata*), has an interesting social structure and life history so if you'd like to know more check out the notes section of the chain-backed tree dtella as both these species are amazingly similar.

SIMILAR SPECIES

Tree dtellas can be quite difficult to distinguish from the slightly larger common dtellas (*G. dubia*); it requires checking the under-surface of the toe-pads with a magnifying lens to check if they are divided down the middle (as in the tree dtella) or just deeply grooved. The chain-backed tree dtella (*G. catenata*) is slightly easier to distinguish from the tree dtella as it has a much more defined back pattern (see the chain-backed tree dtella profile for more information).

Spiny-tailed geckos (*Strophurus* spp.) have a more slender appearance and 'skinny legs', and the velvet geckos (*Oedura* spp.) are larger and more robust with bolder markings and lack claws on the toes.

FAUNA SPECIES PROFILES

GOLDEN-TAILED GECKO *Strophurus taenicauda*

DESCRIPTION

The golden-tailed gecko is a slender gecko with a maximum body length of 12cm, including a relatively long tail. This gecko is strikingly patterned with an intricate network of grey or pale blue over a blackish background. There is a prominent, irregular orange to orange-brown stripe along the upper surface of the tail, extending onto the hind part of the body. Occasionally, there are also similar blazes along the sides of the tail. The underside is greyish white, inter-dispersed with darker scales. The eye, as in related species, comprises of a bright orange iris with a vertical pupil edged by white.



OCCURRENCE

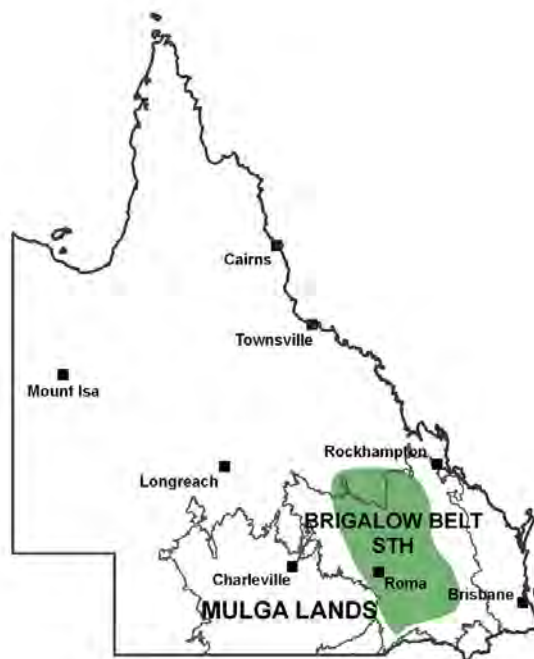
The golden-tailed gecko is locally common within areas of its restricted range within the southern Brigalow Belt bioregion.

WIDER DISTRIBUTION

The golden-tailed gecko is restricted (endemic) to the Brigalow Belt bioregion and as yet has not been found outside of this region. May occur in northern NSW but this has not yet been confirmed.

HABITAT REQUIREMENTS

The golden-tailed gecko shelters under loose bark (standing and fallen timber), in hollows or sometimes on narrow branches where they elongate their bodies to camouflage themselves.



At night, when they are active, they can be found on outer branches and leaves of trees and shrubs. Golden-tailed geckos inhabit dry sclerophyll forest, eucalypt and cypress woodlands, and also some acacia scrubs.

NOTES

The golden-tailed gecko is a nocturnal tree dwelling gecko. They are probably opportunistic predators of arthropods including insects, and can be found active at quite cool temperatures (a few degrees which is unusual for a gecko). A defensive feature of this gecko, particularly when cold and inactive, is to exude a sticky viscous liquid from pores on its tail, that probably tastes bad and deters predators. They typically produce two eggs per clutch probably laying their eggs in damp positions (eg soil under logs, under bark or in hollows).

SIMILAR SPECIES

The golden-tailed gecko, with its golden-blaze along the tail is highly distinctive and is unlikely to be confused with any other species. Within the range of the golden-tailed gecko is a close relative, the eastern spiny-tailed gecko. They have similar slender bodies and behave in a similar fashion, however they are very different looking with the eastern spiny-tailed gecko, as its name suggests, having small spines along its tail.

FAUNA SPECIES PROFILES

EASTERN SPINY-TAILED GECKO *Strophurus williamsi*



DESCRIPTION

The eastern spiny-tailed gecko is a slender gecko (12cm long) with prominent small 'prickles', or spines, arranged in four nearly parallel rows along the of the body to the tip of the tail. The tail will

always have four rows of spines but sometimes they are smaller and in fewer rows on the back. The colour can be different shades of grey (depending on the tree or foliage it has been resting on) with a fine network of dark spots. The eye is intricately patterned; grey with fine dark lines and an orange rim. The lining of the mouth is bright bluish-purple.

OCCURRENCE

Found throughout the Brigalow Belt and the Mulga Lands, it can be locally common. It is never found in exactly the same location as the closely related golden-tailed gecko or other spiny-tailed geckos.

WIDER DISTRIBUTION

Semi-arid regions from Townsville south through western NSW and just creeping into Vic and south-east SA.

HABITAT REQUIREMENTS

This gecko lives in trees and shrubs, although it can occasionally be found feeding or travelling along the ground. During the day it shelters under loose bark, in hollows and crevices and will even cling to exposed slender branches, pressed tightly to the surface. They are found in a variety of dry sclerophyll forests and woodlands, including brigalow, mulga and cypress.



NOTES

This gecko is nocturnally active and eats a range of arthropods. It may also lick sap from trees to supplement its diet. Like the golden-tailed gecko this species can also exude, or even squirt, a foul-tasting fluid from glands in the back and tail to deter predators. They typically lay two eggs in hollows or even in disused burrows of other lizards. They also have an interesting seasonal variation in habits, spending warmer months in trees and wintering closer to the ground, often at the base of large dead trees or stumps. These winter sites can also be used by the same individual year after year.

SIMILAR SPECIES

Within the region, spiny-tailed (*S. krisalys*) and golden-tailed geckos (*S. taenicauda*) are the only other tree-dwelling geckos with a slender appearance – particularly the long 'skinny' legs – and beautifully patterned eyes. This species can be distinguished from the golden-tailed gecko by the spines on the back and tail and no orange blaze on the tail and from the spiny-tailed gecko by the lack of 'eyelashes' and four rows of spines on the tail instead of two.

FAUNA SPECIES PROFILES

BYNOE'S GECKO

Heteronotia binoei

DESCRIPTION

This small (to 7cm), ground-dwelling gecko has a very variable appearance, with a brown to red-brown background colour and irregular dark and pale bands or small spots. Original tails are often more distinctly marked than the body. There is usually a dark streak from in front of the eye to behind the ear, with whitish lips below. The toes have claws and lack toe pads.



OCCURRENCE

Widespread and can be locally abundant, especially where there is plentiful fallen woody material or rock cover.

WIDER DISTRIBUTION

Found throughout most parts of Australia except for the cooler, wetter areas of the south-west and south-east and the more humid areas of south-east.



HABITAT

REQUIREMENTS

Almost all semi-arid and arid areas are suitable for Bynoe's geckos. They use a wide variety of shelter sites: beneath logs, woody debris and leaf litter, under bark low down on trees (<80cm

from the ground); under rocks, in termite mounds and



even underground in soil cracks, fissures at the base of bushes and disused burrows.

NOTES

Bynoe's geckos will share shelter sites, particularly with juveniles or sub-adults. They use their daytime shelters to help them warm up in the early morning, hiding beneath material warmed by the sun. As the day warms up they will retreat deeper to cooler shelters. At night it actively forages on the ground, starting at dusk and becoming most active 2–3 hours after sunset. It eats a range of arthropods such as beetles, bugs, spiders, moths and winged-ants. Bynoe's geckos are almost certainly made up of a complex of species, which probably explains a lot about their variability across the country.

SIMILAR SPECIES

This is the only small, ground-dwelling gecko in the region with a long tapered tail and slightly prickly skin. Other ground geckos in the area either have smooth skin, such as the box-patterned gecko (*Lucasium steindachneri*), tessellated gecko (*Diplodactylus tessellatus*) and beaked gecko (*Rhynchoedura ormsbyi*); or odd-shaped tails like the thick-tailed gecko (*Underwoodisaurus milledgei*).

FAUNA SPECIES PROFILES

BOX-PATTERNED GECKO *Lucasium steindachneri*



DESCRIPTION

The box-patterned gecko is a small (8cm), nocturnal, ground dwelling gecko. Varying shades of brown to reddish brown with a broad pale zone along the back broken into squarish blotches (hence box-pattern) or partly broken to enclose up to four dark patches or islands along the midline. Sides are scattered with pale flecks, spots or bars. The tail has a series of irregular pale blotches along the top, except for regrown tails which are often patternless.

OCCURRENCE

The box-patterned gecko is common throughout both the Brigalow Belt and Mulga Lands bioregions.

WIDER DISTRIBUTION

Widespread in eastern Australia from southern Cape York through to central Qld and western NSW into far south-east SA.

HABITAT REQUIREMENTS

The box-patterned gecko can be found across a variety of vegetation and soil types in the Brigalow Belt and in the Mulga Lands. During the day this species shelters in soil crevices, burrows (eg spider burrows) and sometimes in litter and fallen timber. This means soil condition is very important for the burrowing species as well as the retention of fallen timber and leaf litter as refuges while they forage at night.



NOTES

The box-patterned gecko typically lays two eggs (sometimes one, very occasionally three) in a damp spot in leaf litter, under logs or in soil cracks. Females are typically gravid (carrying eggs) during spring and they can easily be seen through the opaque belly of the gravid female, as two massive bulges!

SIMILAR SPECIES

The box-patterned gecko is distinctive and within the Brigalow Belt and Mulga Lands there are no other species of gecko with the same patterning. In far western Qld there is the sand plain gecko (*L. stenodactylum*) which can look similar to the box-patterned gecko. The sand plain gecko has an unbroken, single pale stripe down the midline of its back.



FAUNA SPECIES PROFILES

MARbled VELVET GECKO *Oedura marmorata*



DESCRIPTION

Marbled velvet geckos are very large (up to 16cm long), arboreal geckos. Pattern wise, these geckos are highly variable but adults generally have five or six pale bands on a dark purplish-brown background. The pale bands are usually narrower than the darker interspaces. Their body including their sides is often mottled with yellow and or white spots (usually individual scales). In some older animals the pale banding fades and is almost lost. Juveniles of the marbled velvet gecko are very different from the adults with a striking pattern of solid yellow to creamy-white bands on a dark purplish-brown, almost black background (bottom right).

OCCURRENCE

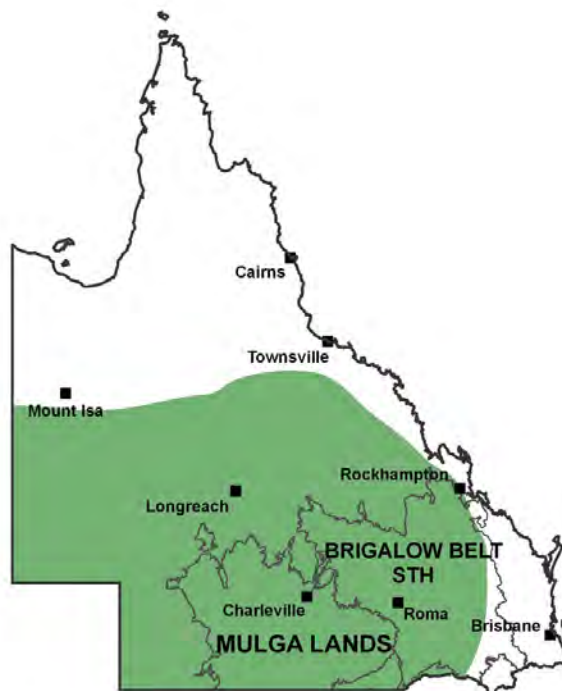
A relatively common species in remnant vegetation throughout the Brigalow Belt, Mulga Lands and into parts of the Channel Country.

WIDER DISTRIBUTION

The marbled velvet gecko is widespread, occurring in western Qld, western NSW, most of the NT and an apparently isolated population in western WA. It also appears to have small isolated populations in south-east SA.

HABITAT REQUIREMENTS

The marbled velvet gecko is nocturnally active and can be found climbing on tree trunks and logs. By day it shelters in tree hollows, crevices and under the peeling bark of standing or fallen trees.

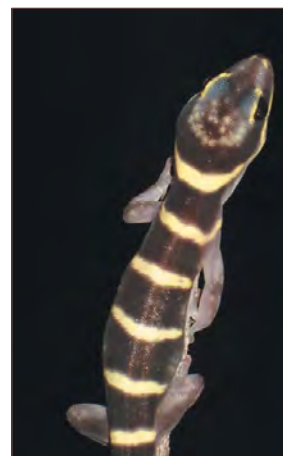


NOTES

Marbled velvet geckos are often aggressive when handled and will often bite and 'death roll'. Like all geckos, marbled velvet geckos have no eyelids, so regularly lick their eyes to keep them clean.

SIMILAR SPECIES

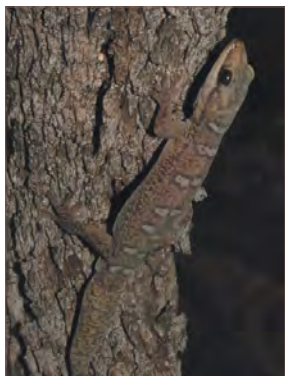
There are no other species that resemble the marbled velvet gecko in the Brigalow Belt south or the Mulga Lands. To the north, on Cape York, there is the northern velvet gecko which looks similar. Other velvet geckos that occur in the southern Brigalow Belt and the Mulga Lands include the ocellated velvet gecko, zigzag velvet gecko, robust velvet gecko and the southern spotted velvet gecko. As some of their names suggest, the zigzag velvet gecko has a zigzag pattern down the middle of its back; the southern spotted velvet gecko has numerous pale spots all over; the robust velvet gecko has large pale squarish blotches; and the ocellated velvet gecko has figures of '8' down its back (or paired ocelli).



FAUNA SPECIES PROFILES

OCELLATED VELVET GECKO

Oedura monilis



DESCRIPTION

The ocellated velvet gecko is a robust gecko to 14cm long, including the tail. It has a broad, flattened tail and fine scales all over the body, giving it a 'velvety' feel. It has a yellowish-brown colour with darker

flecks and about six pairs of cream-to-grey blotches down the back and tail. There is a u-shaped mark on the back of the neck.

OCCURRENCE

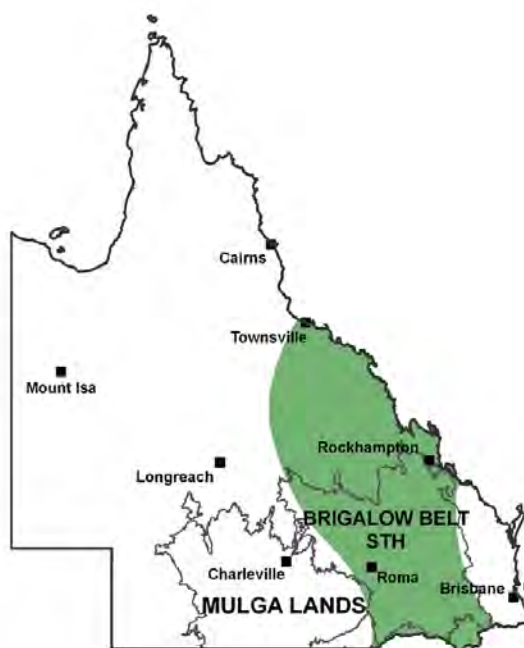
The core range of this species is the Brigalow Belt, extending into NSW. It also occurs on the central Qld coast and in the northern part of the south-east Qld bioregion. It has a widespread but patchy occurrence in the region, tending to be replaced in suitable habitat in the Mulga Lands by the marbled velvet gecko and to the east by the southern spotted velvet gecko (*O. tryoni*). It tends to become rarer in long-fragmented habitats.

WIDER DISTRIBUTION

Semi-arid areas south from Townsville into northern NSW.

HABITAT REQUIREMENTS

This gecko lives in trees, particularly large trees and old, dead trees with exfoliating bark or deep crevices. Rocky outcrops can also be used, particularly where there is exfoliating rock. The shelter sites are extremely important to this gecko; they become very attached to the sites and can use the same site for many years. It lives in a variety of dry forest and woodland types, including cypress, brigalow, poplar box, and iron bark.



NOTES

This is a long-lived gecko which can live more than 10 years and doesn't begin reproducing until its third year. It has specialised habitat requirements, preferring shelter sites in large old trees. Pairs often share the same shelter sites.

SIMILAR SPECIES

Other velvet geckos in the region include the marbled velvet gecko (*O. marmorata*) which has light coloured bands instead of spots; the robust velvet gecko (*O. robusta*) which has pale squarish blotches against a darker grey background. The dtellas (*Gehyra dubia*, *G. variegata* and *G. catenata*) are similar-looking geckos that also tend to be in trees or under bark, but these are mottled grey, have thinner tails and have claws on all but the innermost toes (the velvet geckos lack claws on their toes).



FAUNA SPECIES PROFILES

EASTERN HOODED SCALY-FOOT *Pygopus schraderi*

DESCRIPTION

The eastern hooded scaly-foot is a nocturnal lizard (up to 40cm long) that resembles a snake – so don't let them trick you, this is a completely harmless animal. Body colour ranges from pale grey to rich reddish-brown (as pictured). The scales of the body may be dark edged, forming a reticulated pattern, or individually dark and light forming bands or patterns along the length of the body. They have dark markings around the head and face, with a dark band on the back of the head forming a hood or collar and a dark mark under the eye. **Hind-limb flaps** are obvious about half to two-thirds of the way down the body (they have long tails, that when broken often regenerate without any patterning). They also have **visible ear-openings** and a thick fleshy tongue.



OCCURRENCE

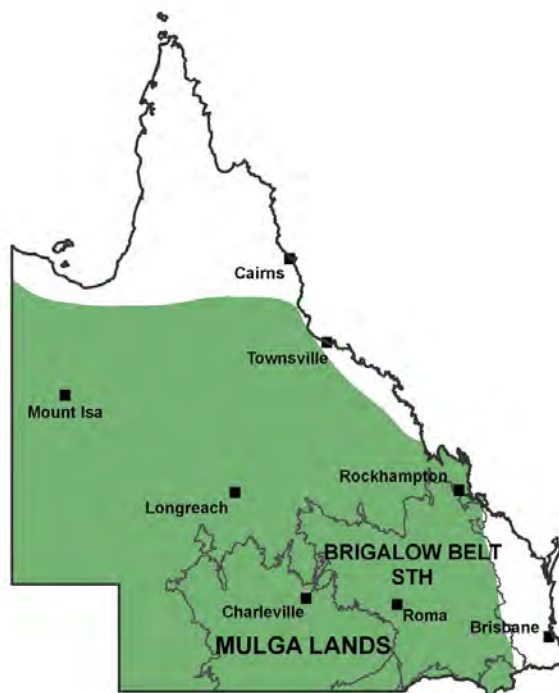
Eastern hooded scaly-foots are widespread, but relatively uncommon, occurring throughout all the Brigalow Belt, Mulga Lands and Channel Country.

WIDER DISTRIBUTION

The eastern hooded scaly-foot occurs throughout the drier parts of the eastern half of Australia.

HABITAT REQUIREMENTS

Widespread in dry woodlands and other open habitats, where it seems to be more common on stony and heavy soils.



Shelters under fallen timber, leaf litter, in burrows (eg spiders) and in soil cracks. Therefore soil structure and retention of fallen timber is important.

NOTES

When threatened, the eastern hooded scaly-foot will mimic the defensive posture of a venomous snake (eg eastern brown) by lifting its head and forebody off the ground, flicking its tongue and, at times, pretending to strike. This impressive display is designed to frighten off predators by making them think they are dangerous.



SIMILAR SPECIES

The eastern hooded scaly-foot is most often confused for a venomous snake, often paying a high price (its life) for resembling them. The difference between most leg-less lizards and snakes

is the remnants of hind-limbs (flaps and stubs of legs), an external ear opening and a fleshy tongue. Snakes never have these features.

FAUNA SPECIES PROFILES

OPEN-LITTER RAINBOW SKINK *Carlia pectoralis*

DESCRIPTION

The open-litter rainbow skink is as its name suggests, a litter dwelling skink. They are a relatively small skink reaching about 11cm in total length, with four fingers and five toes. The body colour is grey to brown, often with black-brown and white flecks along the back. Breeding males are flushed with red-orange on their flanks, chest and forelimbs. Breeding males also have a bluish flush on their throats with each scale being black edged. Females, juveniles and non-breeding males are not as colourful having only a prominent white stripe along the flank.



OCCURRENCE

The open-litter rainbow skink occurs throughout much of the Brigalow Belt, but drops out in the drier western parts. It seems to prefer areas with larger patches of remnant vegetation, with good litter cover, some fallen woody material and a reasonable cover of native perennial grass.

WIDER DISTRIBUTION

Eastern Qld, excluding Cape York Peninsula, just poking into northern NSW.

HABITAT REQUIREMENTS

Open-litter skinks are somewhat fussy when it comes to habitat. They prefer larger patches of remnant forest and woodland with good litter cover and fallen woody material in which to forage and shelter.

NOTES

When caught away from shelter rainbow skinks have an interesting behaviour of sitting motionless,



holding their tails off the ground and madly wiggling them, presumably to distract predators away from their vulnerable head and body. Like with most skinks, rainbows skinks will readily drop their tails, as they are easily regrown.

SIMILAR SPECIES

Many of the rainbow skinks look similar and there are a couple that also occur where the open-litter rainbow skink occurs. The lively rainbow skink (*C. viva*) looks almost identical but is more slightly built and if you look closely has two ridges on each of the scales on its back; the open-litter rainbow skink has three ridges. Schmeltz's skink (*C. schmeltzii*) is also similar but is a much larger, more robust skink with plain grey flanks or in breeding males a red-orange flush on the flanks. Breeding male Schmeltz's skinks also have greyish-white scales, edged by black on the neck and sides of the head; open-litter rainbow skinks are bluish.



FAUNA SPECIES PROFILES

SNAKE-EYED SKINKS *Cryptoblepharus* spp.



DESCRIPTION

Two species, the elegant snake-eyed skink (*C. pulcher*) and the ragged snake-eyed skink (*C. pannosus*, pictured left) have been grouped, as they look and behave so similarly.

All snake-eyed skinks

or fence skinks, as they are sometimes known, have flattened bodies and long limbs with five fingers and toes. Both species are brown, grey or blackish in colour with the elegant snake-eyed skink usually having two fairly prominent pale stripes down either side of its back (dorsolateral stripes); while in the ragged snake-eyed skink these stripes tend to be more ragged with an irregular edge. Patterning in these skinks is a guide only and to truly identify individual species of snake-eyed skink you need to examine the tiny scales above the eye along with scalation under the feet, not something that is done easily!

OCCURRENCE

The elegant snake-eyed skink occurs along the Qld coast pushing into the eastern parts of the Brigalow Belt and along the sandstone belt into the Carnarvons. The ragged snake-eyed skink is found west of the Great Dividing Range in the Brigalow Belt, Mulga Lands and Channel Country. Both species are common throughout their ranges but do decline in areas where large trees and fallen logs are removed.

WIDER DISTRIBUTION

The elegant snake-eyed skink occurs along most of the east coast of Qld and NSW, with a second sub-species occurring along the south coast of SA and into WA.



HABITAT REQUIREMENTS

Both these snake-eyed skinks are exceptional climbers spending most of their time scurrying around in the day on tree trunks and fallen logs, rarely venturing to the ground to move between these structures. Their flattened bodies allow them to shelter under pieces of peeling bark and in cracks in timber.

NOTES

These skinks are one of the few truly arboreal (spend most of their time climbing), small skinks in Australia. They are very speedy little characters and can sometimes be very difficult to see as they have a tendency to 'hide' on the opposite side of the trunk to where you are!

SIMILAR SPECIES

As a group in south-west Qld, snake-eyed skinks are unique by being small, dark, arboreal skinks. Nothing else is really like them, making the group readily recognisable. The problems with identification are within this species group, with patterning being very similar across several species. The only way to confirm identification to species is by looking at scales, which is somewhat tricky.

FAUNA SPECIES PROFILES

ROBUST STRIPED SKINK

Ctenotus robustus

DESCRIPTION

Robust striped skinks are large (total length up to 30cm), with elongated bodies, long slender tails and well developed legs. Body colour is brown to olive-brown with three black stripes on the back; the central stripe (vertebral) typically being pale edged. The flanks have a series of pale spots on dark brown to olive-brown with a prominent pale stripe mid-body (midlateral), extending onto the tail and reaching forward to at least the ear; present on the upper lip as a pale line under the eye. They can often be seen rapidly scampering for the cover of logs or rocks.



OCCURRENCE

Widespread and common in much of the Brigalow Belt and Mulga Lands. These skinks are fairly tolerant of disturbance so do well in both remnant and non-remnant areas.

WIDER DISTRIBUTION

Throughout most of eastern mainland Australia and the Northern Territory and Kimberley region.

HABITAT REQUIREMENTS

The robust striped skink occupies a variety of vegetation types from dry open forests and woodlands to coastal dunes, heaths and rocky outcrops. They will often have shallow burrows dug under fallen timber and loose rocks, which they use



as refuges to escape predators and to overwinter. Given these general requirements the robust striped skink seems to be able to survive in paddocks where some structures, such as fallen timber remains.

NOTES

The robust striped skink is active during the day, regularly basking in patches of sun to maintain high body temperatures. When they are warm these lizards are extremely fast, often only seen as a blur as they vanish down one, of presumably many burrows they have under logs, rocks and grass clumps. They feed on a wide variety of insects that they find by moving through leaf litter and open areas in search of any unsuspecting insect.

SIMILAR SPECIES

There are a large number of striped skinks living in south-west Qld where the robust striped skink occurs. By carefully examining patterning you can usually distinguish most of the striped skink species. Probably the most likely to be confused with the robust striped skink are Ingram's skink (*C. ingrami*) and the copper-tailed skink (*C. taeniolatus*). However both these species have black flanks without pale spots.

FAUNA SPECIES PROFILES

YAKKA SKINK *Egernia rugosa*

DESCRIPTION

The yakka skink is a very large, robust, short-limbed skink which grows to a length of 42cm. The body is reddish brown and a broad darker brown to black stripe runs down its back from the base of the head (nape) to the base of the tail. The belly surface is yellowish-orange and the throat is creamy-yellow with darker flecks. The tail is thick and relatively short. They also have penetrating red eyes, but a very friendly disposition when captured. The yakka skink is a burrowing species that lives in small colonies of probably related individuals and they seem to rarely venture far from the safety of their burrow system.



OCCURRENCE

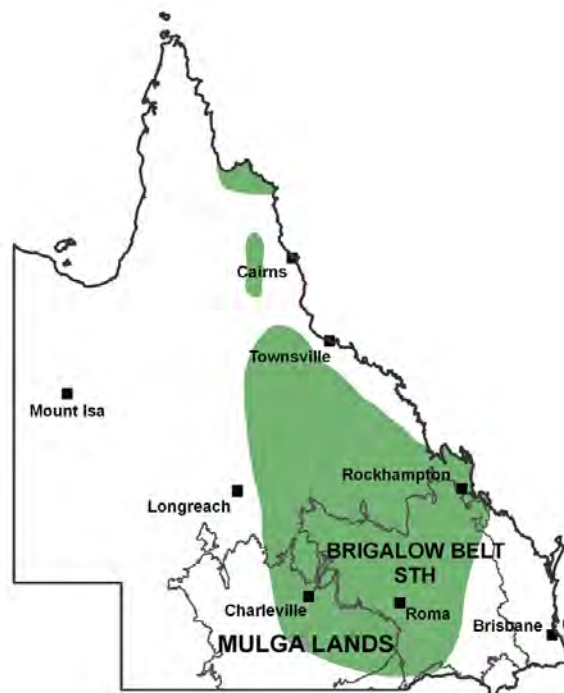
Locally common in places, but generally rare throughout the Brigalow Belt and the eastern edge of the Mulga Lands.

WIDER DISTRIBUTION

Scattered populations from southern Cape York, west into the eastern edge of the Mulga Lands and south to the Qld/NSW border. Unconfirmed records from northern NSW near the Qld border.

HABITAT REQUIREMENTS

The yakka skink appears to occur in dry open woodlands and open forests throughout their range. They have a preference for constructing their



burrows under large fallen logs or piles of timber but will also utilise another animal's burrows, areas of tunnel erosion and rabbit warrens. Retaining large logs within paddocks seems to be beneficial for yakka skinks.

NOTES

Very few reptile species are communal, so the yakka skink is somewhat unique in its behaviour. Very little is known about the communities these lizards form but they do utilise a communal defecation site away from their burrow entrances. This latrine site is used by all the animals in the colony and can often give away the presence of nearby, concealed burrows. The yakka skink creates burrow networks allowing increased water infiltration into the surrounding soil. The burrows also provide refuges for other animals. Yakka skinks have a broad diet, eating everything from beetles and other insects to plant material and fruits, likely helping with seed dispersal and insect control.

SIMILAR SPECIES

Being so large and robust the yakka skink is really quite distinct and is unlikely to be confused with any other lizards.

FAUNA SPECIES PROFILES

TREE SKINK

Egernia striolata

DESCRIPTION

Tree skinks are moderately large and robust skinks to 20cm long. They have a broad flattened head and body and very broad scales on the tail. The scales each have 2–5 blunt bumps or ‘keels’. The background colour is dark olive to grey-brown, with darker zones along the backbone and on the flanks, from the nose to the hips. The upper lip is pale and the belly is a yellowy-orange colour. Dark streaks are on the underside of the throat.



OCCURRENCE

Widespread in forests and woodlands throughout the region.

WIDER DISTRIBUTION

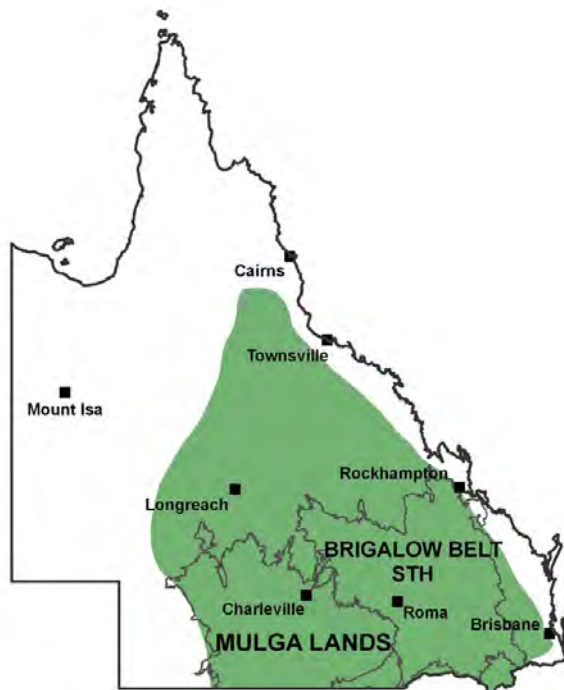
A broad band through eastern Qld, most of NSW, Northern Vic and to the northern Eyre Peninsula.

HABITAT REQUIREMENTS

Dry sclerophyll forests and woodlands which provide places where they can shelter, especially in hollows, deep cracks or under exfoliating bark of standing trees or fallen logs. Crevices in rock piles are also used.

NOTES

Like the yakka skink (*E. rugosa*), the tree skink can live in small and stable social groups of closely related individuals. They have a regular



defecation, or latrine site, and can identify particular individuals from the chemical scent (pheromones) in the scats. They don't begin breeding until 2–3 years old and live for about 10 years. Tree skinks are excellent climbers, often seen basking on logs and trunks, but will quickly retreat into their shelter sites if they feel threatened. They forage around the base of trees and on trunks and crevices and particularly around big piles of fallen timber, mostly around dusk and early evening, but can be active throughout the day. Their diet consists of arthropods such as beetles, grasshoppers, ants, spiders and moths, along with plant material including fruits, seeds and soft leaves. Females give birth to 2–6 live young in late summer.

SIMILAR SPECIES



The closely-related yakka skink (*E. rugosa*) is similar to the tree skink, but is larger at around twice the size, is not as flattened and tends to be browner in colour. Yakka skinks also are much more terrestrial than the aptly-named tree skink.

FAUNA SPECIES PROFILES

WOMA PYTHON

Aspidites ramsayi

DESCRIPTION

The woma python is a relatively large non-venomous snake, attaining a length of about 2.5m. Pale brown or grey to olive or rich reddish brown with numerous darker cross-bands. These bands may almost disappear in older animals. The head and neck colour may be different from the body, ranging from brown to yellow. Belly, including under throat ranges from cream to yellow.



OCCURRENCE

The woma python is relatively rare throughout its range in south-western Qld. It occurs in both the Brigalow Belt (west of about Miles) and Mulga Lands.

WIDER DISTRIBUTION

The woma python has a fairly extensive distribution throughout the deserts and adjacent semi-arid areas of the central parts of Australia.

HABITAT REQUIREMENTS

Very little is known about the woma python in Qld. It is known to shelter in hollow logs, animal burrows (once known as the 'bilby snake' as it used to be commonly found in bilby burrows) or thick vegetation. Found in a range of dry open habitats from sand-dune country to brigalow and mulga communities.



NOTES

The woma python is non-venomous, so constricts its prey or sometimes in burrows crushes its prey against the wall of the burrow. An interesting technique that seems to result in lots of scratches and bites from its prey (rabbits and hares), meaning many older woma pythons are heavily scared. Unlike most other pythons the woma has no heat sensory pits along the lower jaw. The very closely related black-headed python is the only other species of python not to have the heat sensory pits. The lack of heat pits is probably due to the main part of their diet being reptiles, including venomous snakes!



SIMILAR SPECIES

The woma python is a very distinct snake that is unlikely to be confused with any other species. The black-headed python, a close relative, looks similar but has a shiny jet black head and neck.

FAUNA SPECIES PROFILES

DE VIS' BANDED SNAKE

Denisonia devisi



DESCRIPTION

De Vis' banded snake, or mud adder, is a stout, medium-sized snake reaching a maximum length of about 60cm. This snake has a base colour of olive-brown or tan which is heavily

and blotchily banded with dark brown. The head is dark brown and the lips are barred dark brown and cream. The belly scales are white or cream and the eyes are an intense brassy colour.

OCCURRENCE

Moderately common on alluvial flats and cracking clay soils across the Brigalow Belt, Mulga Lands and Mitchell Grass Downs.

WIDER DISTRIBUTION

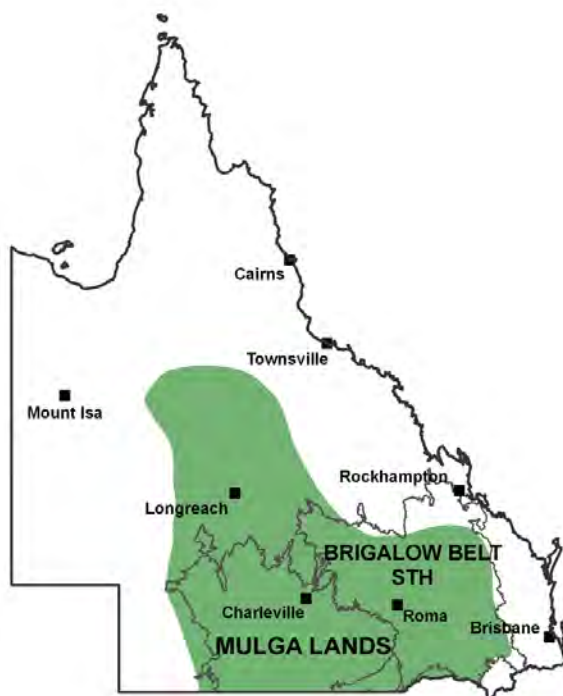
This species is also found in cracking clay soils of adjacent areas in northern NSW.

HABITAT REQUIREMENTS

De Vis' banded snake is an animal strongly linked with shrublands and woodlands on heavy, cracking clay soils of alluvial flats, drainage lines and other habitats that are seasonally flooded. These may include river red gum, lignum and brigalow country. They are frequently seen around farm dams. It uses the soil cracks and hollow logs as shelter.

NOTES

When it rains, the clay soils turn to thick, deep mud and the cracks close up, forcing this species, amongst others, to the surface. As a result, they are commonly seen after rain, leading to the alternative name, mud adder.



This snake feeds largely on frogs but lizards have occasionally been recorded in their diet. They do not lay eggs, instead, giving birth to live young.

When threatened, this snake flattens its body and coils around, often hiding its head underneath the body coils. If provoked or physically disturbed, they can thrash wildly and strike readily. It is venomous and thus is potentially dangerous. The effects of the venom has been reported to be locally severe but not life-threatening. As with any snake it should be treated with caution and medical attention and advice should be sought immediately after any bite.

SIMILAR SPECIES

This species is quite distinctive. Brown tree snakes can be similarly patterned but are long and slender as opposed to stout, and have very large eyes and a skinny neck, making the head quite distinct from the rest of the body. A cousin of the De Vis' banded snake, the ornamental snake, occupies similar habitat and can look similar although it always lacks the banding across the top of the body. Death adders have a similar short, robust appearance but are much fatter with a well defined head.

FAUNA SPECIES PROFILES

YELLOW-NAPED SNAKE *Furina barnardi* (near threatened)

DESCRIPTION

A small, nocturnal snake reaching 50cm in length. Dark glossy brown to black, with pale-edged scales along body; head typically darker, sometimes with a broad pale yellow to light brown band across the base of its head and nape (fades and can be absent on older individuals). Belly is cream to white. Scales smooth, 15 mid-body and an undivided nasal scale.



OCCURRENCE

Currently only a single specimen from north-west of Charleville. A very secretive species likely to be more widespread in the area given the habitat it was recorded in.

WIDER DISTRIBUTION

Poorly known, scattered records across much of northern Qld, north of about Charleville.

HABITAT REQUIREMENTS

Shelters under fallen timber, other litter and in soil crevices. Known to occur in the soft mulga land type. Outside the Mulga Lands they occur in dry woodlands and rocky outcrops.

NOTES

Known to feed on reptiles such as the Egernia like skinks. Lays eggs. A mildly venomous species that is potentially dangerous to humans. As with any snake it should be treated with caution and medical



attention and advice should be sought immediately after any bite. Any future records of this animal are very important and will add significantly to our knowledge of the species.



SIMILAR SPECIES

Many small snakes can look alike when viewed from a distance by an inexperienced observer. Scale counts can be very important for identification but should only be done by experienced handlers.

Some colour forms of the eastern brown snake, especially smaller individuals may look similar. Brown snakes heads are less rounded (more coffin shaped), and their eye has a coloured iris visible surrounding the pupil while the yellow-naped snake's eye is all brown to black. Young mulga snakes also superficially resemble this species, especially if the nape has faded in the yellow-naped snake but the mulga snake has more mid-body scales (17) and a coloured iris.

BIRDS (Aves)

Birds are probably the most recognisable group of animals in the world and are usually the most conspicuous in any landscape. In south-west Queensland they are the most diverse vertebrate group with over 450 species calling the many different habitats home. As a group, birds are relatively easy to study as they are readily detected in a habitat either by their unique calls or visually as they are flushed from hiding places. This makes them an ideal group to study or monitor how management influences their populations and many studies have done just that.

This toolkit has looked at how bird species are influenced by management, with reference to passerine and non-passerine birds. Here we will briefly look at birds which are passerines and those which are not. There are also some individual species profiles that follow, providing more detailed information on some of the species that are increasers or decreasers.

PASSERINE BIRDS



Apostle birds

A passerine bird is a member of a world-wide group or order of birds called *Passeriformes*. Basically, they are a group of higher songbirds or 'perching birds', defined by the complexity of muscles of the syrinx (voice producing organ) and by the arrangement of the toes. Passerine birds always have three toes forward and one toe back when perching. Passerine birds also have their leg and feet ligaments arranged so that the foot locks onto the branch when the bird perches and sleeps. Many of the passerine birds also skilfully construct woven nests. The chicks of all passerine birds hatch blind, featherless and helpless requiring large amounts of parental care.

SOME OF THE PASSERINE BIRD GROUPS INCLUDE:

- Treecreepers
- Wrens
- Pardalotes
- Scrubwrens
- Gerygones
- Thornbills
- Honeyeaters
- Robins
- Babblers
- Wedgebills and quail-thrushes
- Sittellas
- Shrike-tits, crested bellbird, whistlers and shrike-thrushes
- Flycatchers, magpie-larks and fantails
- Cuckoo-shrikes and trillers
- Orioles and figbirds
- Butcherbirds, magpies and currawongs
- Ravens and crows
- Apostle birds and choughs
- Bowerbirds
- Pipits and wagtails
- Finches
- Swallows and martins
- Weebills

NON-PASSERINE BIRDS



some of the parasitic species that match the host birds egg colour, like cuckoos. Some of the large well known birds fall into the non-passerines.

These ones are easy, they are basically all the birds that aren't passerines ('perching birds')! They generally don't have a complex song although they are all capable of calling. Toe arrangement in non-passerine birds is highly variable from the talons of raptors to the webbed feet of ducks. They generally lay white eggs, except in some ground nesting groups, such as nightjars, where camouflage is necessary and

SOME OF THE NON-PASSERINE BIRD GROUPS INCLUDE:

- Emus
- Scrub-turkeys
- Quails
- Swans, geese and ducks
- Grebes
- Cormorants, daters and pelicans
- Herons, egrets, night-herons and bitterns
- Ibis and spoonbills
- Raptors such as hawks, eagles and falcons
- Cranes
- Bustards
- Button-quails
- Curlews
- Plovers, dotterels and lapwings
- Pigeons and doves
- Cockatoos, lorikeets, parrots and rosellas
- Cuckoos
- Owls, frogmouths and nightjars
- Swifts, kingfishers, bee-eaters and dollarbirds



Spotted nightjar

If you are interested in birds there are many good Australian field guides available that will help you identify all the species on your property. There are also many websites that provide information on birds – a quick search reveals many sites packed full of useful information! Check out the 'useful fauna field guides' section at the end of this toolkit.

“ ...there are many good Australian field guides available that will help you identify all the species...”

FAUNA SPECIES PROFILES

MAJOR MITCHELL COCKATOO

Non-passerine

DESCRIPTION

An unmistakable, predominantly white cockatoo flushed pale pink around the face, neck, breast and belly. The prominent white crest is boldly marked orange and red. Males have brown eyes while those of the females are red. The most common call is a stuttering wail or cry but harsh screeches are uttered when alarmed.



OCCURRENCE

Patchily distributed in the region but can be locally common depending on available food and nesting sites.

WIDER DISTRIBUTION

Occurs across much of arid Australia, mainly but not exclusively south of the Tropic of Capricorn, in dry woodlands and forests including stands of acacia



(including mulga), larger mallees and cypress pines where suitable nest hollows and access to water can be found.

HABITAT REQUIREMENTS

In Queensland's Mulga Lands, this bird favours mulga-eucalypt and cypress-eucalypt woodlands and grasslands adjacent to well-timbered drainage lines. This species requires large hollows in which to nest.

NOTES

This species feed on a variety of seeds including wattles, native cypress and saltbush. Often it can be found on the ground devouring seeds of paddy melons. As a seed-eater, the Major Mitchell cockatoo plays a role in seed dispersal (excretion of undigested seeds) and limiting thickening of acacia and cypress patches (consumption of seeds).

SIMILAR SPECIES

The sulphur-crested cockatoo is similar in size but is all white with a yellow crest and black-grey beak. It is also much more raucous. The galah is a much brighter pink cockatoo with darker grey back and has a white crest.

FAUNA SPECIES PROFILES

WHITE-BROWED TREECREEPER *Passerine*

DESCRIPTION

A dark brown to black-brown bird about 15cm in length with highly distinct white eyebrow and strong black and white streaking on the belly, under tail feathers and ear coverts (feathers that cover the ears). The male and females differ most noticeably with the male having some black streaks on the breast, whereas the female has rusty coloured streaks and a thin rufous line above the white eyebrow. It is largely quiet but the main song consists of a loud series of high pitched notes. It can generally be found clinging to tree trunks and branches foraging but can also spend a good deal of foraging time on the ground or on logs.



OCCURRENCE

Widespread in the region. This species seems to favour mulga in Qld, largely shunning other woodland and forest types in which it occurs elsewhere.

WIDER DISTRIBUTION

Occurs across much of arid Australia south of the Tropic of Capricorn in dry woodlands and forests including stands of acacia (including mulga), she-oaks, desert oaks and cypress pines.



HABITAT REQUIREMENTS

In Queensland's Mulga Lands, this bird strongly favours substantial stands of mature mulga. They appear to rarely leave such patches and may need wide corridors through which to disperse.

NOTES

Feeding largely on insects, treecreepers may help keep the numbers of insect infestations, harmful to tree health, in check. This bird utilises hollows, broken tree branches and trunks, stumps and logs for nesting sites.

SIMILAR SPECIES

Brown treecreeper – generally a paler brown bird with less distinct streaking on the belly and ear coverts (feathers that cover the ears) and less prominent eyebrow. This species favours more open country with poplar box. It can be found with the white-browed treecreeper where their respective favoured habitats merge. The brown treecreeper has a distinctive metallic 'chip' call, uttering it almost incessantly while feeding.

FAUNA SPECIES PROFILES

WEEBILL *Passerine*

DESCRIPTION

Measuring in at around 8cm, the weebill is Australia's smallest bird. It is mostly olive-brown with a buffy-yellow underside, has a stubby bill, whitish eyebrow and a pale eye. Despite its small size and subdued colouration, this little bird has a big voice and has been described as a vigorous "wee-willy-weet weet" or "weebit, weebee!".



OCCURRENCE

Common and widespread throughout the region in forest and woodland habitats.

WIDER DISTRIBUTION

Common across mainland Australia in drier woodlands and forests.

HABITAT REQUIREMENTS

Weebills occupy a variety of drier forests and woodlands including brigalow, mulga, mallee, and a range of eucalypt forests and woodlands. They avoid rainforest and wetter forest types, bare grassy plains and dunes. The species can be common in many inland towns, parks and gardens.



NOTES

Weebills are insectivores and forage amongst foliage selecting succulent yet small morsels, particularly favouring psyllids, a leaf-sucking insect, and their sugary cover (called a lerp). Most small insects, however, will do. They build a dome-shaped nest in clumps of leaves, generally high in trees. The nest is made from an assortment of vegetative material.

SIMILAR SPECIES

Weebills can be confused with some of the thornbill species, particularly the yellow thornbill. Yellow thornbills can be distinguished from weebills by their sharp, pointy bill which is longer than that of a weebill, streaky feathering covering the ear holes and their dark eyes. The songs of the two species are quite distinct from each other.

FAUNA SPECIES PROFILES

YELLOW THORNBILL *Passerine*

DESCRIPTION

The yellow thornbill is a tiny bird of about 10cm in length making it one of the country's smallest birds. It is yellowish-olive (below) with an ochre-coloured throat, chest and belly and a distinctive patch of pale-streaked feathers over its ears. It has a pointed bill primed for winking insects from their hiding places. The species can be quite noisy, particularly when travelling around in packs, making a sharp chipping or chiding sound.



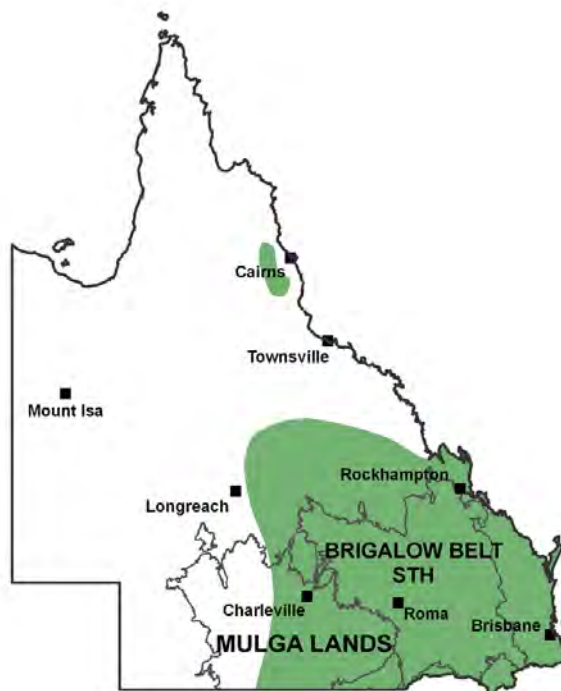
Photo: G. Chapman

OCCURRENCE

Common and widespread throughout the Brigalow Belt and Mulga Lands.

WIDER DISTRIBUTION

Common throughout eastern Australia from south-east SA, through Vic northwards through much of NSW and the eastern half of Qld north to about Mackay. There is an isolated highland population on the Atherton Tablelands.



HABITAT REQUIREMENTS

Yellow thornbills inhabit a wide variety of scrublands, drier forests and woodlands including brigalow, mulga, mallee, and eucalypt forests and open woodlands. These little birds can be common in many inland towns, parks and gardens.

NOTES

Yellow thornbills move about in small parties, often accompanying other species in mixed flocks. They are largely insectivores and forage amongst foliage, along branches and trunks and also on the ground. They build an untidy dome-shaped nest made from vegetative material and spider webs.

SIMILAR SPECIES

This species is most often confused with the weebill. Weebills are, however, smaller and a little dumper in appearance, have a stubby bill and no streaking around the ear holes. Weebills also have pale eyes as opposed to the dark brown eyes of the yellow thornbill.

FAUNA SPECIES PROFILES

INLAND THORNBILL *Passerine*

DESCRIPTION

Inland thornbills reach about 11cm in length. They have a pale grey upper surface and a pale off-white to white chest and belly. The rump is deep chestnut brown and the tail is grey with a broad blackish band towards, but not at, the tip. The species has a red-brown eye, a grey and white scale-like pattern to the feathers on the forehead and a series of grey streaks running from the throat to the middle of the breast. The bill is short, black and sharply pointed.



OCCURRENCE

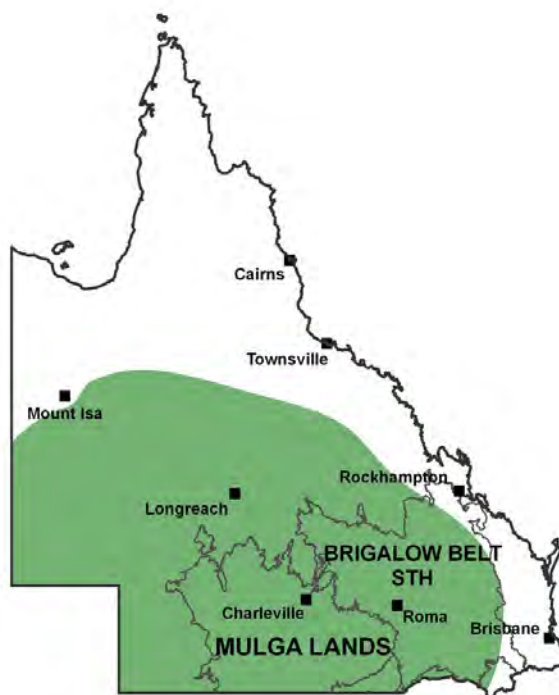
Common and widespread throughout the Brigalow Belt and Mulga Lands.

WIDER DISTRIBUTION

Common throughout inland mainland Australia, mainly west of the Great Dividing Range and across to the arid coast of Western Australia.

HABITAT REQUIREMENTS

Inland thornbills inhabit a wide variety of scrublands, drier forests and woodlands including brigalow, mulga and other acacia shrublands, mallee, and eucalypt forests and open woodlands with suitably shrubby understorey.



NOTES

Like many of the thornbills, inland thornbills move about in pairs or small parties, frequently joining groups of other small species. They feed on insects and forage amongst leaves and branches, only rarely venturing to the ground. They build a neat domed nest in shrubs or grass clumps. It is generally made from vegetative material.

SIMILAR SPECIES

This species is quite similar to the brown thornbill, which differs in having a brown forehead, a more olive-brown back and more buff-coloured underside. Brown thornbills are typically found to the east of the inland thornbills' range, but the two can overlap, particularly around the Great Dividing Range. The songs and calls of these two species are quite similar and can be difficult to tell apart. The chesnut-rumped thornbill is also quite similar but is distinguished by its pale eyes and unstreaked breast. Its song and call are quite distinct from those of the inland thornbill.

FAUNA SPECIES PROFILES

YELLOW-THROATED MINER

Passerine

DESCRIPTION

The yellow-throated miner is a medium-sized grey honeyeater about 26cm long, with a black mask in front of the eyes to the ears. The bill, the legs and patches of bare skin behind the eye and at the sides of the chin are coloured yellow. Its wings are darker grey, with olive green edge and the tail is also a darker grey with whitish tips. The rump is a whitish colour.



OCCURRENCE

Found throughout the Mulga Lands and Brigalow Belt, it tends to be replaced by the noisy miner in the eastern Brigalow Belt.

WIDER DISTRIBUTION

Common although patchily distributed throughout inland mainland Australia, except for much of coastal eastern Australia and the driest deserts.

HABITAT REQUIREMENTS

A wide variety of dry woodlands and scrublands and grasslands with flowering shrubs.

NOTES

The yellow-throated miner, like the noisy miner, lives in colonies and has breeding birds assisted by 'helpers', providing extra food for the chicks. Groups tend to be smaller than those of the noisy miners, typically about a dozen birds, but these may



join up with other groups to form large flocks of 50 or more on occasion. They forage at all levels within the canopy and on the ground, feeding on insects, nectar, berries and fruit. Yellow-throated miners can be locally nomadic, particularly in drier habitats and after breeding.

SIMILAR SPECIES

The noisy miner, looks very similar and replaces the yellow-throated miner in the better-watered forests to the east. The difference is that the yellow-throated miner has a grey (instead of black) crown, white rump, and a line of bare yellow skin on the sides of the throat. The introduced common myna has similar facial markings, but it is mostly dark brown.



FAUNA SPECIES PROFILES

NOISY MINER *Passerine*

DESCRIPTION

The noisy miner is a medium-sized, mostly grey honeyeater about 26cm long, with a black crown extending down over the face. The bill, the legs and a patch of bare skin behind the eye are coloured yellow. Its wings are darker grey, with olive green edge and the tail is also a darker grey with whitish tips. The rump is a grey colour.



OCCURRENCE

Found throughout the Brigalow Belt and the Mulga Lands, it is one of the most common and noticeable species, particularly in the eastern Brigalow Belt.

WIDER DISTRIBUTION

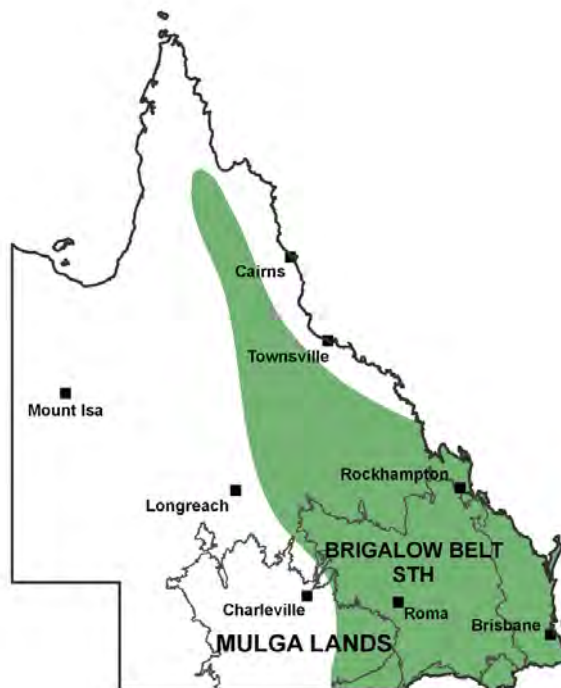
Widespread across eastern Australia, from the Atherton Tablelands in the north and sweeping south-west to the Mt Lofty Ranges in SA. Also occurs in all but the west coast of Tasmania.

HABITAT REQUIREMENTS

A wide variety of open forests and woodlands, particularly those with a grassy ground layer and no shrub layer. The species has benefited from increasing fragmentation in the region.

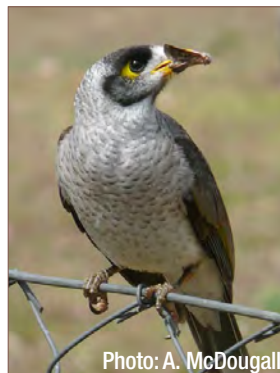
NOTES

The noisy miner, like the yellow-throated miner, lives in groups and is a communal breeder; which means that other birds will help the parents feed the chicks.



Each group strongly defends a communal territory, aggressively excluding most small birds from their territories, creating areas with a low diversity of small birds. They can even defend their territories against quite large birds, such as hawks or kookaburras, noisily mobbing the intruders. Noisy miners do not migrate, so each group must find insects and nectar within their territories all year round. This means that environments that have year-round sources of nectar, such as watercourses and gardens, are especially good for noisy miners.

SIMILAR SPECIES



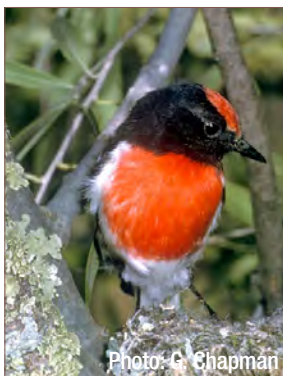
The yellow-throated miner, looks very similar and replaces the noisy miner as you move further west. The difference is that the yellow-throated miner has a grey (instead of black) crown, white rump, and a

line of bare yellow skin on the sides of the throat. The introduced common myna has similar facial markings, but it is mostly dark brown.

FAUNA SPECIES PROFILES

RED-CAPPED ROBIN

Passerine



DESCRIPTION

The males of this species are dazzling. Not only do they have a bright red cap, as the name suggests, but they also have a blazing red breast. The rest of the bird is decked out in dapper black and

white with a black back, black and white wings and tail and a white belly. Females and youngsters are generally brown and buff showing a buff wing bar. Adult females have a dark dusky orange cap. The males give a distinctive, rhythmic up-and-down buzzing song – a common sound of the outback. When alarmed or threatened, both sexes often utter a sharp 'tik' or 'tut' sound. Under these circumstances, or when excitedly displaying to females, the male can raise the feathers of his red cap slightly into a feeble crest.

OCCURRENCE

Moderately common and widespread in a variety of timbered and scrubby habitats throughout the region.

WIDER DISTRIBUTION

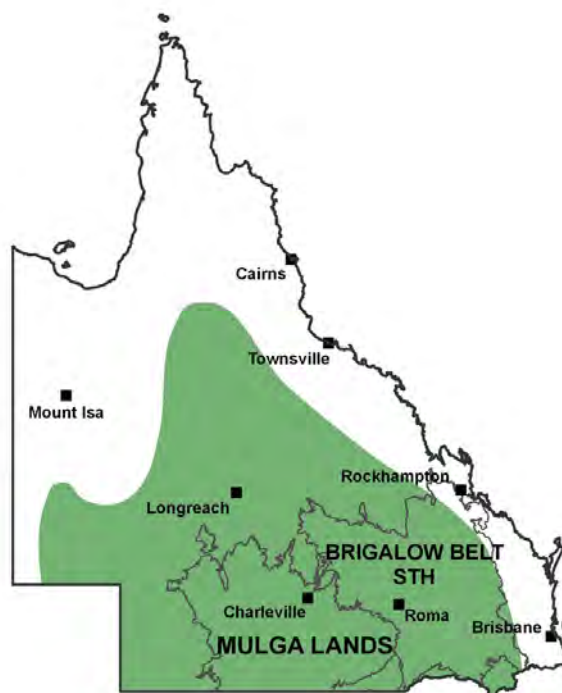
Semi-arid and arid areas of all Australian states except Tasmania, generally, but not always, south of the tropics.

HABITAT REQUIREMENTS

Red-capped robins occur in a variety of woodlands and scrubs including brigalow and mulga. Red-capped robins often utilise areas where thicker woodlands become more open (edges), having on hand both the more open areas in which to feed easily and the relative safety of the thickets when danger threatens.

NOTES

Red-capped robins feed by sitting at a relatively low



height in a shrub or tree, looking for food. Once prey is spotted, they pounce on it from their sentinel, often flogging it on the ground or a branch before consuming it. This species, like a couple of other Australian robins (eg rose and scarlet robins), has a peculiar, somewhat strange habitual wing movement. Very often, especially but not exclusively during feeding, they will move their wings out and forward in a deliberate jerky fashion. This may be employed to flush insects or signal to other birds.

SIMILAR SPECIES

You might think that the male, with his bright red cap, is unmistakable. Crimson chats, however, have a very similar colour scheme. The chats' habits are a bit different, being found in small to large flocks, make a high pitched squeaking sound and are most frequently found strutting along the ground in search of food. Female and juvenile red-capped robins can resemble other small brown birds but can be told by their pale wing bars and in adult females, a dusky orange cap. In addition, none of the other small brown birds in the region show the compulsive jerky wing 'flick' behaviour discussed above. The other Australian robin generally occurring in similar habitats is the hooded robin which is noticeably larger than the red-capped robin. The male hooded robin is black and white with a bold black hood and the female is similar but brownish-grey and white.

FAUNA SPECIES PROFILES

JACKY WINTER *Passerine*

DESCRIPTION

The jacky winter is a small grey-brown bird with a dusty-white breast and belly and a pale eyebrow. Its tail is black with a white stripe running down the outer edge on each side. It is about the size of a sparrow. Although subtly coloured, it is hardly inconspicuous, constantly zipping through the air catching insects on the wing or on the ground, flashing its black and white tail in the process. It often gives extra tail flashes after alighting on its perch. The song of the jacky winter is loud, strong and often long, belting out a sustained “peeter, peeter, peeter, peeter”, often with some not-so-subtle changes in pitch for consecutive phrases. It is often a feature of the inland dawn chorus.



OCCURRENCE

Widespread throughout the region, however populations are declining due to habitat modification.

WIDER DISTRIBUTION

Generally common across the northern half of mainland Australia and in south-west WA but declining from its known range throughout SA, Vic and southern NSW.

HABITAT REQUIREMENTS

Jacky winters occupy most open woodlands and tall shrublands and even open paddocks as long as there are live or dead trees standing.



NOTES

Jacky winters are frequently observed on dead trees, logs and fence posts, standing sentinel over the landscape, waiting for tasty morsels to reveal themselves before pouncing or catching them mid-air with some fancy aerobatics and great skill. Because of their penchant for utilising such viewpoints, they are sometimes called stump-birds. They build a small cup-shaped nest, mostly of grasses, bark and spider webs.



SIMILAR SPECIES

The jacky winter is somewhat similar in appearance to female and juvenile hooded robins. The robin differs in being stockier, having a large and obvious white stripe along the wing and a distinct hooded appearance. Their calls are dissimilar.

FAUNA SPECIES PROFILES

HALL'S BABBLER

Passerine

DESCRIPTION

A sooty brown bird about 25cm long with a curved beak, a prominent white eyebrow, white tips to the tail and a white bib that ends distinctly at the lower breast. Males and females are similar in appearance. This is a social species, occurring in small groups that rarely separate far during the days' activities. These birds chatter quietly and almost incessantly while foraging. Often they increase calling frequency and intensity to a mad-capped chorus involving all birds in the group.



OCCURRENCE

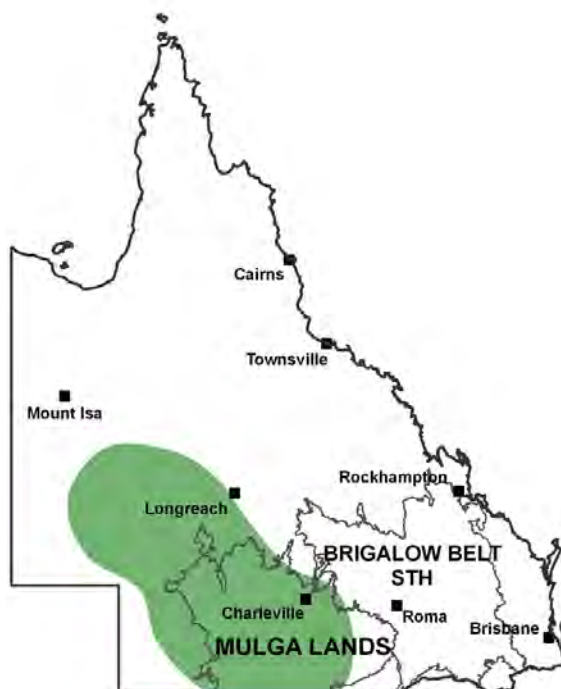
Generally uncommon and patchily distributed in the Mulga Lands bioregion but can be locally common depending on available resources and habitat suitability.

WIDER DISTRIBUTION

The species is limited largely to the Mulga Lands and southern Channel Country in Qld and a small area of adjacent north-western NSW.

HABITAT REQUIREMENTS

This bird favours acacia scrubs, including tall mulga, and cypress-eucalypt woodlands throughout its range. Hall's babblers are voracious insectivores, combing the ground, leaf litter, logs, tree trunks, branches and foliage for food. Few locations are safe from their investigations.



NOTES

This species was first discovered during the Hall Expedition in 1963 on "Tyrone", a property to the north-west of Charleville in the Langlo River drainage. They still occur there today in patches of thick mulga.

SIMILAR SPECIES

All four of the Australian babblers occur in the Mulga Lands and all four are superficially similar in both appearance and general behaviour. Chestnut-crowned babblers have a unique rusty-brown cap and white wing bars. Grey-crowned babblers are significantly larger, have a pale grey crown stripe and pale eyes and white-browed babblers are noticeably slighter and duller in colour. None of the other three babblers have the distinct white to sooty brown cut-off on the lower breast.

FAUNA SPECIES PROFILES

CRESTED BELLBIRD

Passerine

DESCRIPTION

The male crested bellbird is generally grey-brown with a white belly, face and throat. It has a distinctive black breast band that sweeps upwards through the yellow eyes onto the head. The crown feathers are also black and can be erected into a crest. Females are similar although duller. They lack the black markings with the exception of a thin line of black feathers on the crown, have a gray face and a dark brown eye.



Photo: G. Chapman

OCCURRENCE

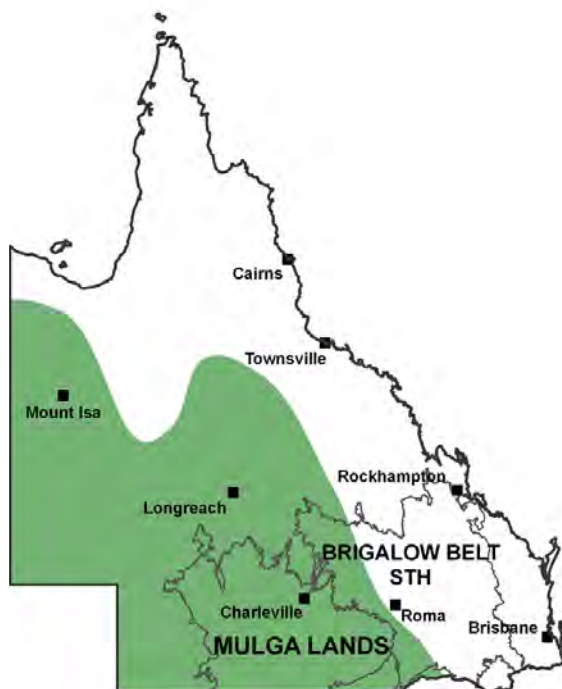
Moderately common in the drier parts, occupying woodlands and shrublands including mulga.

WIDER DISTRIBUTION

The species is found across semi-arid and arid areas of all Australian states except Tasmania.

HABITAT REQUIREMENTS

Crested bellbirds occur in a variety of woodlands and scrubs including mulga. They are secretive and like plenty of cover at ground level, generally in the form of low shrubs and logs.



NOTES

This species spends a large proportion of its time on the ground foraging for a variety of invertebrates, such as insects and spiders, amongst shrubs, logs and debris. The males song, a distinctive outback sound, is a pleasant series of four to six piping notes, rhythmically uttered but not notably melodic. The song can carry a long way and may appear ventriloquial – a bird may seem distant but often can be found close at hand.

SIMILAR SPECIES

The rufous whistler may be confused with the crested bellbird. The males of both these species have a white throat, grey back and a black breast band that extend up the sides of the face and through the eyes. The rufous whistler, however, has an orange-brown belly and no crest. Its voice is a strong, rich highly melodic whistle which in no way resembles the song of the crested bellbird. The grey shrike-thrush may resemble the female crested bellbird but is generally larger, lacks the black line of feather on the crown and has a longer bill.

FAUNA SPECIES PROFILES

RUFOUS WHISTLER

Passerine

DESCRIPTION

The rufous whistler is a songbird about 17cm long. The male has a grey head and back and white throat surrounded by a black band on the chest and face. The bird's name comes from the rufous-brown belly and underparts. The female also has a whitish throat, but it lacks the black border and has brownish streaks extending down the buff-coloured chest and underparts. Her back and flanks are brownish-grey and olive.



OCCURRENCE

Found throughout the Brigalow Belt and the Mulga Lands, it can be locally common and is resident throughout the year, with some seasonal migrants from southern Australia over-wintering in the region.

WIDER DISTRIBUTION

Widespread across mainland Australia in timbered country, but is declining in areas that have been extensively cleared many (>50) years ago.

HABITAT REQUIREMENTS

A wide variety of forests and woodlands including acacia scrubs such as mulga and brigalow, as long as there is a mixture of understorey and canopy trees to forage in. Rufous whistlers feed on a variety of insects and their larvae.



NOTES

Typically seen singly or in pairs, the rufous whistler can also be seen in mixed flocks with other small insectivores like thornbills, robins, weebills and gerygones. They are particularly noticeable in spring and summer with especially the males calling. Their loud melodious song often also has some easily recognisable elements such as the whipcrack-like 'ee-chong' and the often-repeated 'joey-joey-joey'. Sometimes a loud shout or even a sneeze can prompt the rufous whistler to call.



SIMILAR SPECIES

Males may be confused with the crested bellbirds, but can be distinguished by their rufous belly and lack of a crest. In the eastern part of the region, females are similar to the female golden

whistler, which lacks the rufous whistler's streaking on the chest. Females and young males also resemble the grey shrike-thrush, which is a larger bird with a longer beak.

FAUNA SPECIES PROFILES

WILLIE WAGTAIL *Passerine*

DESCRIPTION

The willy wagtail must be one of this country's most widely recognised birds. It is a smallish (~20cm) black bird with a white belly, eyebrow and narrow whisker line. As their name suggests, they compulsively and almost continuously wag their relatively long tails from side to side, fanning it out occasionally. Willy wagtails chatter frequently and have a pleasant, musical song.



Photo: G. Chapman

OCCURRENCE

Common and widespread throughout the region.

WIDER DISTRIBUTION

Common across mainland Australia in almost all habitats.

HABITAT REQUIREMENTS

Willy wagtails occupy most native habitats except heavily forested areas such as rainforests, the barest of grassy plains and the most arid gibber plains and dunes. The species is also common in towns, parks and gardens.

NOTES

Willy wagtails are voracious consumers of insects, catching them on the wing or on the ground with spectacular skill. When excited, annoyed or threatened, the erectile feathers of the eyebrow can



Photo: G. Chapman

flare upwards, making the white stripe very prominent indeed. Its relatively small size belies its confidence and feistiness as it will readily pester and chase much larger birds when threatened or annoyed.

The willy wagtail is not often found high in the tree canopy, preferring to live out life in low trees, shrubs and on the ground. These little birds make a neat cup-shaped nest, generally in a horizontal fork of a tree or shrub.

SIMILAR SPECIES

The willy wagtail is a distinctive bird and unlikely to be confused with any other with perhaps the exception of its smaller cousin, the grey fantail. Grey fantails are generally grey, with a grey breast band, a buff-coloured chest and belly and a couple of white wing bars.

FAUNA SPECIES PROFILES

BLACK-FACED CUCKOO-SHRIKE *Passerine*

DESCRIPTION

Black-faced cuckoo-shrikes are common and an easily identifiable species. These handsome birds have a black face and throat, a blue-grey to pale grey back and tail and are grey and white underneath. Males and females look alike. Young birds are basically grey with a white belly, scalloped grey of the breast and have a black Zorro-style mask from the base of the beak extending behind the eye. This bird makes a pleasant, rolling, softly pitched trilling sound.



OCCURRENCE

Common and widespread in a variety of timbered habitats throughout the region.

WIDER DISTRIBUTION

Common Australia-wide in most timbered habitats, even gardens and parks.

HABITAT REQUIREMENTS

Black-faced cuckoo-shrikes inhabit a wide array of habitats across the country however, as a pounce-feeder and hawkler, they do require timber on which to perch and look for prey before pouncing on it or, more likely, catch an insect or pluck fruit from a tree whilst on the wing. They readily tolerate sparsely through to heavily timbered lands. The species is common in towns, parks and gardens as well as native habitats.



NOTES

The black-faced cuckoo-shrike is sometimes known as the shufflewing. After alighting on a branch, these birds compulsively shuffle their wings, settling down the feathers. They are skilled flyers and frequently catch prey on the wing or deftly remove fruit from the parent plant. They are also capable of hovering for brief periods. In some areas they can be seen following machinery, catching insects as they are flushed from the grasses.

SIMILAR SPECIES

Immature black-faced cuckoo-shrikes can look similar to the white-bellied cuckoo-shrike. This is a smaller species, however and has a very different call – it sounds like a squeaky toy. Ground cuckoo-shrikes can also look similar but are even more boldly patterned with grey head, back and breast, black wings, tail and mask, white belly with fine, black scalloping and a startling yellow eye. This aptly named cousin of the black-faced cuckoo-shrike spends most of its time wandering along the ground foraging for food. It makes an even higher pitched squeak than the white-bellied cuckoo-shrike.

MAMMALS (Mammalia)

When we think of animals we tend to think of mammals first; they (including humans) are the furry creatures that suckle their young. Despite this, most Australian mammals are little known to us because of their often secretive and nocturnal habits. Many people would be surprised to discover that there are over 100 species of native mammals in south-western Queensland. There are, of course, some well known exceptions, like the kangaroo, the koala and the echidna, but much of our mammalian diversity comes in the form of small insectivorous bats, marsupial mice (dasyurids) or native rodents, which few people are familiar with. The following will outline the different types of mammals that exist in the region.

MONOTREMES

The platypus and the echidna are famous world-wide for being the only egg-laying mammals on the planet. South-west Queensland is home to both of Australia's monotremes.



The **platypus** can be hard to see in the wild, being most active in the very early morning or at dusk. The bow-waves of swimming water rats and turtles are sometimes mistaken for platypus, but its smooth swimming action along the surface and rolling dive – compared to the dog-paddle of the water rat – sets it apart. It is restricted to permanent creeks and rivers in the eastern part of the Brigalow Belt, with few records in western flowing rivers of the Great Dividing Range. The western extent of its range in Queensland is poorly known, so any platypus sightings in the Murray-Darling catchment would be valuable information on this enigmatic species.

The **short-beaked echidna** is widespread throughout the region. With its compact shape, covering of spines and tubular snout it is instantly recognisable and is sometimes seen ambling along looking for ant and termite nests, or slowly crossing roads. Other tell-tale signs of the echidna are shallow excavations (often with a snout-imprint in the middle) around ant or termite nests, or neat cylindrical scats filled with dirt and ant remains. The echidna is sometimes also known locally as the 'spiny anteater' or 'porcupine'.



MARSUPIALS

Marsupials are the group of mammals whose young are born in a tiny, almost embryonic state and most of the development happens in the mother's pouch rather than in the womb. This is an excellent strategy for dealing with our unpredictable climate and long droughts as the pouched young can be sacrificed if the mother's life is truly threatened by famine or predators. Prior to the arrival of the dingo and more recently by Europeans (with domestic and introduced mammals), all the 'big' Australian land mammals were marsupials. The group contains a diverse assortment of creatures from kangaroos to koalas, possums and the carnivorous marsupials like dunnarts and quolls.

1. MACROPODS (KANGAROOS, WALLABIES AND BETTONGS)

The macropods (literally 'big foot') are a familiar group to all people in regional areas, with kangaroos such as eastern greys (*Macropus giganteus*) and red kangaroos (*M. rufus*) being a very visible part of the fauna. Kangaroos can be of concern to land managers trying to control their total grazing pressure; as eastern greys especially can reach high numbers with ready access to water and where dingos and wild dogs are actively controlled. But there are, in fact, about 20 species of macropods in south-western Queensland, ranging in size from the rather

endearing 2.5kg rufous bettong (sometimes locally known as 'rat-kangaroo' right up to 55kg red kangaroos. Red-necked (*M. rufogriseus*) and whiptail (*M. parryi*) wallabies rarely occur in really large numbers. Some species such as rufous bettongs and swamp wallabies (*Wallabia bicolor*) can even have a beneficial effect on woodlands and farm productivity by spreading, and in some cases even germinating, mycorrhizal fungi, which are beneficial for plants growing in nutrient-poor areas.



RUFOUS
BETTONG



BLACK-STRIPED
WALLABY



EASTERN GREY
KANGAROOS



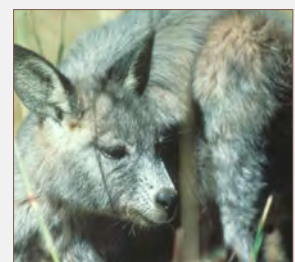
RED
KANGAROOS



RED-NECKED
WALLABY



SWAMP
WALLABY



COMMON
WALLAROO

MAMMALS CONT.

2. KOALA AND WOMBAT



Although uncommon, koalas are found through much of south-west Queensland, becoming more restricted to big red gums fringing the larger watercourses as you move further west. They only eat eucalypt leaves, and can have regional preferences in the type of gum tree they prefer. They can be difficult to see as they tend to sleep in a tree fork for most of the day. Some signs of koala include inch-long, roughly cylindrical scats which smell strongly of eucalyptus. During the spring-summer breeding season males often make a grunty-bellowing noise which can be heard from up to a kilometre away.

One of the rarest mammals in Australia, the critically endangered **northern hairy-nosed wombat** (above) is only found in one small area near Clermont in central Queensland, but once occurred in the St George area, and probably other areas in central Queensland. In 2009 a small number of individuals were translocated to a property north of St George in an attempt to establish a new colony. If your property has any large burrows (~50cm wide) in sandy country, it could be evidence that these wombats were once living there.

3. POSSUMS AND GLIDERS

There are approximately six species of possums and gliders in south-western Queensland, from the tiny, mouse-sized **feather-tailed glider** to the **common brushtail possum**, which is the size of a small cat. Most species (eg **yellow-bellied glider**, **greater glider**, **squirrel glider**) tend to be restricted to the taller and more productive

forests of the sandstone ranges and eastern Brigalow Belt. Two species, the **sugar glider** and the common brushtail possum occur in well-timbered areas throughout the region. All of the possums and gliders need to nest in old trees with hollows and are active only at night.

“ the sugar glider and the common brushtail possum occur in well-timbered areas ”

4. BANDICOOTS AND BILBIES

This group has three species in the region: the **bilby**, the **northern brown bandicoot** and the **long-nosed bandicoot**. All are roughly rabbit-sized ground-dwellers with long, pointed noses and thin tails. They eat a variety of insects, grubs, fungi, seeds and plant matter from on the ground or by digging in the soil with their powerful claws. All three species have declined due to loss of grass-tussock and shrub cover

which makes them vulnerable to foxes and cats. The bandicoots are restricted to the eastern Brigalow Belt, while the bilby has disappeared from most of the region. It is now found only in Currawinya National Park (south-west of Cunnamulla) and in the Diamantina Shire.



Long-nosed bandicoot



Bilby

5. CARNIVOROUS MARSUPIALS (DASYURIDS)

The carnivorous marsupials are a large group with approximately 20 species in south-western Queensland. Sometimes known as ‘marsupial mice’, they would probably be better known as ‘marsupial shrews’ as they are all fierce predators with pointed incisors and well-developed canine teeth. They range in size from the tiny (<10g) **narrow-nosed planigale** up to the **northern quoll** (<1kg), but all are remarkably similar in terms of body shape. This characteristic can sometimes make them difficult to tell apart, and most require close inspection (eg counting molar teeth to separate species of planigales). They live in an amazing variety of habitats, from soil cracks in cracking-clay flats (**Giles’ planigale**) to grasslands and shrublands (eg **stripe-faced dunnart**), or sand dunes and plains (**Wongai ningau**) to rocky outcrops (**northern quoll**) or better-watered areas including homestead gardens (eg **yellow-footed antechinus**). These creatures seem to follow the ‘live fast’ motto, with many species having all males die-off after the completion of the breeding season. Few females of any species live beyond three years. As marsupials, all dasyurid females have a pouch, but it is more of a modified skin-fold which is not very obvious in young females or outside the breeding season. All dasyurids have a very high metabolic rate, and consume large amounts of prey – usually insects.



NARROW-NOSED
PLANIGALE



GILES’
PLANIGALE



YELLOW-FOOTED
ANTECHINUS



STRIPED-FACED
DUNNART

PLACENTAL MAMMALS (EUTHERIANS)



Dingo

A lot of people don't realise that Australia has native mammals which are not marsupials; not only does it have many groups of Eutherians (including marine mammals like whales, dolphins, seals and dugongs) but they are responsible for much of the mammal diversity in the country. Two groups, the bats (Chiroptera) and the rodents are chiefly responsible for this, and are the only ones we describe here in detail. There are a range of Eutherian mammals which have either been deliberately or accidentally introduced to Australia by humans, starting with the dingo (*Canis lupus*) around 4000 years ago.

More recent introductions include the Canids (domestic dogs, cats and fox), the Lagomorphs (rabbit and European brown hare) the Ungulates (including camels, pigs, goats, horses, cattle and donkeys) and yet more rodents (eg black rat and house mouse). These more recent introductions are familiar to all, as domestic and production animals or as pest species.

1. BATS (CHIROPTERA)



Little red flying fox

All bats belong to the order Chiroptera which literally means 'hand wing' and are the only mammals capable of sustained flight. The wings contain all the same bones as the human arm, only with shortened upper arms and massive fingers. These bones are connected with wing membranes, creating a large surface area that sometimes also includes the tail. Within the Chiroptera most people recognise two major groups, the megabats (includes flying foxes or fruit bats) and microbats (small insectivorous bats).

The megabats are the flying foxes or fruit bats and are what people generally think of when bats are mentioned. They differ from the microbats by eating only fruit or nectar,

using vision instead of sonar (or echolocation) and having claws on both their thumbs and second fingers. There are only two species that venture into south-western Queensland – the grey-headed flying fox (*Pteropus poliocephalus*) which can only occasionally be found west of the Dividing Range and the little red flying fox (*P. scapulatus*) which can appear anywhere within the region as long as there is sufficient supply of eucalypt nectar. Little red flying foxes are much maligned for the noise, smell and damage they can do to localised vegetation in their camps (they cluster more than other flying-foxes and break branches with their combined weight). However, they are highly nomadic, following the unpredictable flowering of eucalypts, so their camps are not permanent in inland areas. They do, however, serve an important ecological role as long-distance pollinators of eucalypts, helping to spread the tree's genetic material further and more effectively than other pollinators do.

Microbats are the small insectivorous bats. Like the megabats they do have eyes, but they are small and poorly developed: instead they mostly use echolocation to bounce sound off objects for navigation and locating prey. There are six families of microbats in south-western Queensland, and approximately 40 species. However, as completely nocturnal flying creatures they are hard to watch, catch and study and consequently are still relatively poorly known. New species are still being identified, mostly through genetic techniques. Microbats can eat as much as their own body weight in insects in a night, so are significant predators of insects such as moths, mosquitoes and beetles. For example a study has shown that one species of microbat from Texas, USA (where bats are better studied), has been shown to contribute ~30% of profits to the cotton industry due to all of the pest helioth moths they consume. Microbats roost in trees, or caves (or both) and vary in the areas where they like to feed, such as within the canopy, above the canopy or in open areas. Some of the families and species of microbats encountered in south-western Queensland are:



Sheath-tail bats (Emballonuridae) get their name from a sheath of skin that the tail pokes through on the wing membrane. The **yellow-bellied sheath-tail bat** (*Saccolaimus flaviventris*), is one of the easiest bats to identify in the region, being one of the larger microbats (~20cm head to tail) and having a glossy black back and a white or yellow-coloured belly. They are found throughout the region and are one of the few microbats that have an echolocation call that humans can hear. It roosts in hollow trees, whereas the **Troughton's sheath-tail bat** (*Taphozous troughtoni*, left) roosts only in caves.



Photo: B. Thomson

Horseshoe bats (Rhinolophidae) are so-named because of the unusual shape of their nose-leaf. The eastern horseshoe bat (*Rhinolophus megaphyllus*), left, needs humid caves for their breeding or maternity roosts, so they are restricted to the sandstone belt around the Carnarvon Ranges in inland Queensland.

PLACENTAL MAMMALS CONT.



By far the largest family of microbats are the forest bats (Vespertilionidae), characterised by their tail being completely enclosed in the wing membrane. They have less-complex noses, compared to many other bats (such as the horseshoe bats) and contain many quite similar-looking bats that can be difficult to identify without expert help. Some have a lobe or wattle from the ear to the edge of the mouth eg Gould's wattled bat (*Chalinolobus gouldii*), chocolate wattled bat (*C. morio*). Two of the wattled bats also have a striking colouration of jet-black fur with white fur where the belly meets the wing membrane; the little pied bat (*C. picatus*) is found throughout the region while the large pied bat (*C. dwyeri*) seems to be genuinely rare but has a stronghold in the caves of the Taroom area. Other, more 'typical-looking' bats are various shades of brown to grey, such as the broad-nosed bats eg inland broad-nosed bat (*Scotorepens balstoni*), little broad-nosed bat (*S. greyii*) or the forest bats eg the tiny (~4g) little forest bat (*Vespadelus vulturnus*) or inland forest bat (*V. baverstocki*). Bats which need to roost in caves include the bentwing bats (*Miniopterus australis*, *M. oceanensis*), eastern cave bat (*Vespadelus troughtoni*) and Finlayson's cave bat (*V. finlaysoni*). The long-eared bats have, as the name suggests, very long ears – around 2cm long. They can roost in very small cracks of old dead trees or even fenceposts and include species such as the lesser long-eared bat (*Nyctophilus geoffroyi*), Gould's long-eared bat (*N. gouldi*) or the larger and very rare south-eastern long-eared bat (*N. corbeni*).

Clockwise from top right, little pied bat, eastern long-eared bat, the little forest bat, the little broad-nosed bat and a colony of eastern cave bats.



The **freetail bats** (Molossidae) are a family of bats with most of their tail not connected to the wing membrane. They also have broad muzzles and wrinkly lips and thick, leathery wings. The group is currently being revised so it is likely that scientific names (at least) will change in the near future. There are at least six species of freetail bats in south-western Queensland, with most being very poorly known. They are fast fliers, usually above the canopy, and are rarely caught in standard bat traps (harp traps). One species, the **white-striped freetail bat** (*Austronomus australis*), is better known as it, like the **northern freetail bat** (*Chaerophon jobensis*) and the **yellow-bellied sheathtail bat**, has a call with a low-frequency portion that humans can hear. It also has very distinctive markings with white stripes along the wing-line

against chocolate brown fur. Two other freetail bats in the area include **Beccari's freetail bat** (*Mormopterus beccarii*) and the recently described **hairy-nosed freetail bat** (*M. eleryi*). Although the hairy-nosed freetail bat is poorly known, a recent radio-tracking study showed that in maternity roosts, mothers took turns minding the baby bats while the others were out catching insects.



White-striped freetail bat



Hairy-nosed freetail bat

2. RODENTS



Delicate mouse

Rodents have been part of the Australian mammal fauna for at least four million years and are probably the most successful group of mammals on the planet. They are

characterised by their specialised teeth pattern; having a single pair of upper and lower incisors (the 'front' teeth) which grow continually and are self-sharpening. The rodents have colonised almost all habitats and continents (except Antarctica), living in grasslands, deserts, forests and even in creeks and swamps. There are approximately 20 species of rodents native to south-western Queensland. Despite the success of the group, there have been severe declines and extinctions of native rodents in the last 150

years – at least four species from the region – probably due to a combination of factors including predation by foxes and cats.

Some species of native rodent that may be encountered in south-western Queensland include the small (~10g) and aptly named **delicate mouse** (*Pseudomys delicatulus*), a species which has large population fluctuations and tends to do better after fires. The **desert mouse** (*P. desertor*) seems to need a dense groundcover of grasses or shrubs, and is, in contrast to the delicate mouse, disadvantaged by fire. The **central short-tailed mouse** (*Leggadina forresti*) is one of the easiest species to identify with a tail obviously shorter than the head-body length. It is an inhabitant of tussock grasslands and low shrublands, preferring heavier soils.

PLACENTAL MAMMALS CONT.



The sandy inland mouse (*P. hermansbergensis*) is one of the most common rodents of the arid zone; another species which undergoes ‘boom’ and ‘bust’ population fluctuations according to significant rain events. It looks a bit like the introduced house mouse (*Mus musculus*) except it has larger eyes and ears and lacks the musty ‘house mouse’ smell.

Another interesting species is the eastern pebble-mound mouse (*P. patrius*) which builds elaborate mounds of pebbles – up to a metre tall – over the top of its burrow systems. Despite its tell-tale mounds, it was thought extinct in Queensland for almost 100 years, but is now found throughout much of eastern Queensland, including in the sandstone belt. Keep an eye out for any pebble-mounds on your property – they may belong to this fascinating species.



Several hopping mice eg spinifex hopping mouse (*Notomys alexis*), fawn hopping mouse (*N. cervinus*) and the dusky hopping mouse (*N. fuscus*, a threatened species) inhabit the region, but all are now restricted to the far south-west of the state. With large eyes, long tails and an upright stance, hopping mice are endearing creatures often kept as pets in southern states.

“ Keep an eye out for any pebble-mounds on your property... ”

Moving away from mouse-sized rodents, there are a number of rat-sized native rodents in the region. These range from the fawn-footed melomys (*Melomys cervinipes*) a skilful climber with a prehensile tail which is more of a rainforest species, but is found in caves in the eastern part of the sandstone belt. The canefield rat (*Rattus sordidus*), pale field rat (*R. tunneyi*) and long-haired rat (*R. villosissimus*) are three species with non-overlapping distributions which can undergo population eruptions after big rains. They each can become agricultural pests when they are in large numbers, but survive in moist pockets (such as around drainage lines or bores) during times of drought.

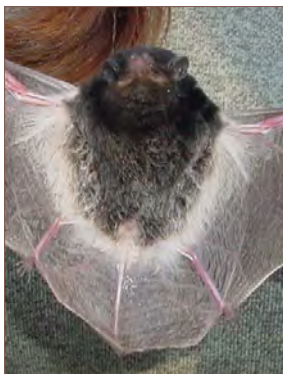


“ Native rodents...can undergo population explosions after big rains.... ”

FAUNA SPECIES PROFILES

LITTLE PIED BAT

Chalinolobus picatus (near threatened)



DESCRIPTION

A very small black-brown bat with white stripes on the underside running down the sides of the body meeting to form a v-shape near the base of the tail. These bats reach approximately 5cm in

length and weigh a maximum of only 8g. They have rounded ears and possess small wattles (small, protruding flaps of skin) on their lower lips.

OCCURRENCE

Widespread in the region, especially mulga and timbered floodplains of central western Qld.

WIDER DISTRIBUTION

Occurs across much of southern inland Qld, mostly west of the Great Dividing Range and inland NSW. The species can also be found near the Qld coast where the forest is drier and can also be found in small corners of arid SA and Vic.

HABITAT REQUIREMENTS

In Queensland's Mulga Lands, this nocturnal species is strongly associated with acacia stands (including mulga) and other timbered country. It requires hollows in which to roost during the day and in winter will spend a good deal of time in torpor (a kind of hibernation) within these roosts. They will forage in a wide variety of habitats and may commute long distances to feeding areas – round trips of up to 34km have been recorded, which is a mighty effort for a tiny animal.

Although tree hollows (including those in dead trees) are favoured roost sites, this insectivorous or microbat may also utilise houses, sheds and sometimes caves for shelter.



NOTES

Although nocturnal, they are very manoeuvrable, able to fly quickly through the landscape, even thick stands of mulga, locating obstacles and food using ultrasonic sound. These sounds used for navigation and prey detection are not audible to the human ear, being emitted at a frequency far above that of our hearing range. They can, however, make audible squeaks but these can only be heard at very close range. Little pied bats feed exclusively on insects, and may eat up to half their body weight each night.



SIMILAR SPECIES

Unless observed very closely, many of the small bat species look similar. The large-eared pied bat has the same colour pattern as the little pied bat but has much larger ears. The white-striped freetail bat

also looks similar but is much larger than the little pied bat.

FAUNA SPECIES PROFILES

NARROW-NOSE PLANIGALE

Planigale tenuirostris



DESCRIPTION

A miniscule mouse-like marsupial generally smaller than the introduced house mouse. Males average 65mm in length (excluding tail) and 6.8g in weight and are slightly larger than

females. Despite their small size, they are in the same family of mammals as the Tasmanian devil and have a pugnacious attitude to match. They are two-toned, the fur being a dull rufous-brown above and greyish underneath. They have extremely sharp, pointed teeth and a flat, triangular head.

OCCURRENCE

Uncommon yet widespread in the region, especially in localities with alluvial clay soils.

WIDER DISTRIBUTION

Semi-arid and arid areas of southern Qld, northern NSW, north-eastern SA and the south-east corner of the Northern Territory.

HABITAT REQUIREMENTS

This remarkable animal generally occurs in moderately open to broadly open country on alluvial clays that crack deeply, including Mitchell grass plains, dry lakes, gibber plains and open woodlands.

NOTES

The name planigale translates from its Latin and Greek roots to 'flat weasel' and refers to their flattened heads. Their flat heads and small body enables them to scour deep soil cracks for morsels such as cockroaches, spiders and other invertebrates. Despite being so small, their strength and skill, sharp teeth and voracious disposition



allows them to tackle prey many times their size. Although a large proportion of foraging time is spent below ground, they also come to feed on the surface, scuttling back to the safety of a crack if danger is detected. When active, they are dynamos but actually spend the vast proportion of their time, up to about 85%, resting. Being small, these animals need to beat the winter cold. They do so by building nests of dry grass and other materials deep in soil cracks and huddling in small groups. They can conserve energy by decreasing their metabolic rates by up to 50%, a state called torpor.

SIMILAR SPECIES

Giles' planigale can occur with the narrow-nosed planigale in some areas, differing slightly in size, colour and dentition (tooth count), but in general, can only reliably be told apart with proper examination. The Wongai Ningai can also co-occur and is extremely similar in size, shape and colour but differs in having a narrower hind foot and a somewhat scruffier appearance. The house mouse, being a rodent, lacks a pouch and has large incisors and does not possess the rows of needle-sharp teeth like the planigale. They can look similar but house mice are generally larger, plumper and, in life, never have the flattened triangular shaped head.

USEFUL FAUNA FIELD GUIDES

There are many useful field guides to help identify animals across south-west Queensland. Below are just some examples to get you started.

FROGS

- A field guide to Australian Frogs by Barker, J., Grigg, G and Tyler, M.
- Reptiles and Amphibians of Australia by Cogger, H.
- A guide to the frogs of the Cooper Basin (www.santos.com/library/frogs.pdf)

REPTILES

- A field guide to Reptiles of Queensland by Steve Wilson
- A complete guide to Reptiles of Australia by Steve Wilson and Gerry Swan
- Snakes of western Queensland, A field guide by Angus Emmott and Steve G Wilson
- Reptiles and Amphibians of Australia by Cogger, H.

MAMMALS

- A field guide to the Mammals of Australia by Peter Menkhorst and Frank Knight
- The Mammals of Australia, edited by Steve Van Dyck and Ronald Strahan
- Australian Bats by Sue Churchill
- Tracks, scats and other traces, A field guide to Australian Mammals by Barbara Triggs

BIRDS

- The Slater Field Guide to Australian Birds
- Michael Morcombe, Field Guide to Australian Birds
- The Graham Pizzey and Frank Knight Field Guide to the Birds of Australia.
- Field Guide to the Birds of Australia by Simpson and Day



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