





Reptiles

IN THE GARDEN

by David Pearson
and Jim Rolfe

The Perth region has one of the richest reptile faunas of any city in the world. About 70 species, including skinks, geckoes, snakes, goannas, and even two tortoises, have been recorded within its boundaries. Not all will occur in any one place, but here is a selection of some you are likely to encounter in the garden.

Have you ever sat on your back door step contemplating the worries of the world, only to be distracted by little grey lizards chasing each other up and down your fence? Those little grey lizards are commonly known as fence skinks (*Cryptoblepharus plagiocephalus*), and are perhaps the most successful of all reptiles in adapting to living in suburban Perth. Many other species have disappeared from suburbia as their habitats have been changed with the clearing of natural bushland for housing and other developments.

REPTILE HABITATS

To understand why reptile species occur where they do, we need firstly to consider the major geological substrates and soil types that occur around Perth, because these are important in determining reptile distribution. Some species prefer sandy coastal soils, while others like waterlogged soils, and still others live only on rock outcrops.

The narrow coastal plain is dominated by three systems of dunes, the Quindalup, Bassendean and Spearwood Dunes, which partly overlie limestone of the Tamala Formation (see map). This limestone outcrops in numerous places, most noticeably along the coastline as headlands and islands, but occasionally further inland as small hills. Soil types on the dune systems are typically grey and yellow sands, which are ideal for reptiles that burrow or 'swim' through the upper layers of the soil to catch their

prey. Wetlands are scattered among these dune systems and are home for tortoises and other reptiles that live near water or the thick vegetation that usually surrounds it.

To the east of the coastal plain, the Darling Scarp rises up. Deep valleys have been carved through the granite rock, providing a diversity of reptile habitats. The top of the range consists of a lateritic plateau with deeply weathered soils and areas of outcropping rock.

The effect of this range of geology, soil and drainage is reflected in the distribution of both different vegetation types and reptiles, and explains some of the phenomenal diversity of the region. But most people in Perth would rarely see more than five or so common species in their gardens, and probably even fewer in long-settled suburbs or those remote from areas of bushland. Nonetheless, these common species have some remarkable life histories. Surprisingly, we know little about them, despite their presence so close to our back doors.

THE FENCE SKINK

The familiar fence skink is very widespread. It is found from south of Perth, right up to the northern Kimberley, across the deserts and down the Queensland coast. The ability to live in many different habitats certainly appears to have been useful in adapting to life in the suburbs. Fence skinks shelter in cracks in walls or fences (their flattened bodies being useful for this habit) and

prey on flies and other insects encountered in their seemingly constant daily activity.

An interesting feature of this skink is the lack of a movable eyelid. This is found in several groups of reptiles, including geckoes and snakes. Next time you see a fence skink, have a close look. You will notice that it never blinks! The eye is covered by a large transparent disc, basically a modified scale, which is shed complete with its skin at each moult.

OTHER SKINKS

Australia has an incredible array of skinks in the genus *Ctenotus*. Their Latin name literally means 'comb-ear' and refers to an arrangement of tiny scales just inside the ear opening. These skinks usually have long legs and strongly patterned bodies, with either stripes or lines of spots. They are most numerous in desert regions, where many species may co-exist. Fewer species occur around Perth though, and they have not adapted as well to living with humans as the fence skink. People who have large native gardens, or live near bushland areas, may be lucky to have a resident *Ctenotus* or two.

On the coastal sands, two of the most common species are the limestone skink (*Ctenotus fallens*) and Le Sueur's skink (*C. lesueurii*), named after French naturalist Charles Le Sueur. Both have bold stripes along their backs and tails. The limestone skink also has prominent white stripes on the sides of the body,



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The western spiny-tailed gecko is an agile climbing gecko that prefers to hunt for insects among native shrubs. Photo - Jiri Lochman

Left: Fences, brick walls and tree trunks are the favoured living areas for the dynamic fence skink in metropolitan Perth.

Photo - Brad Maryan



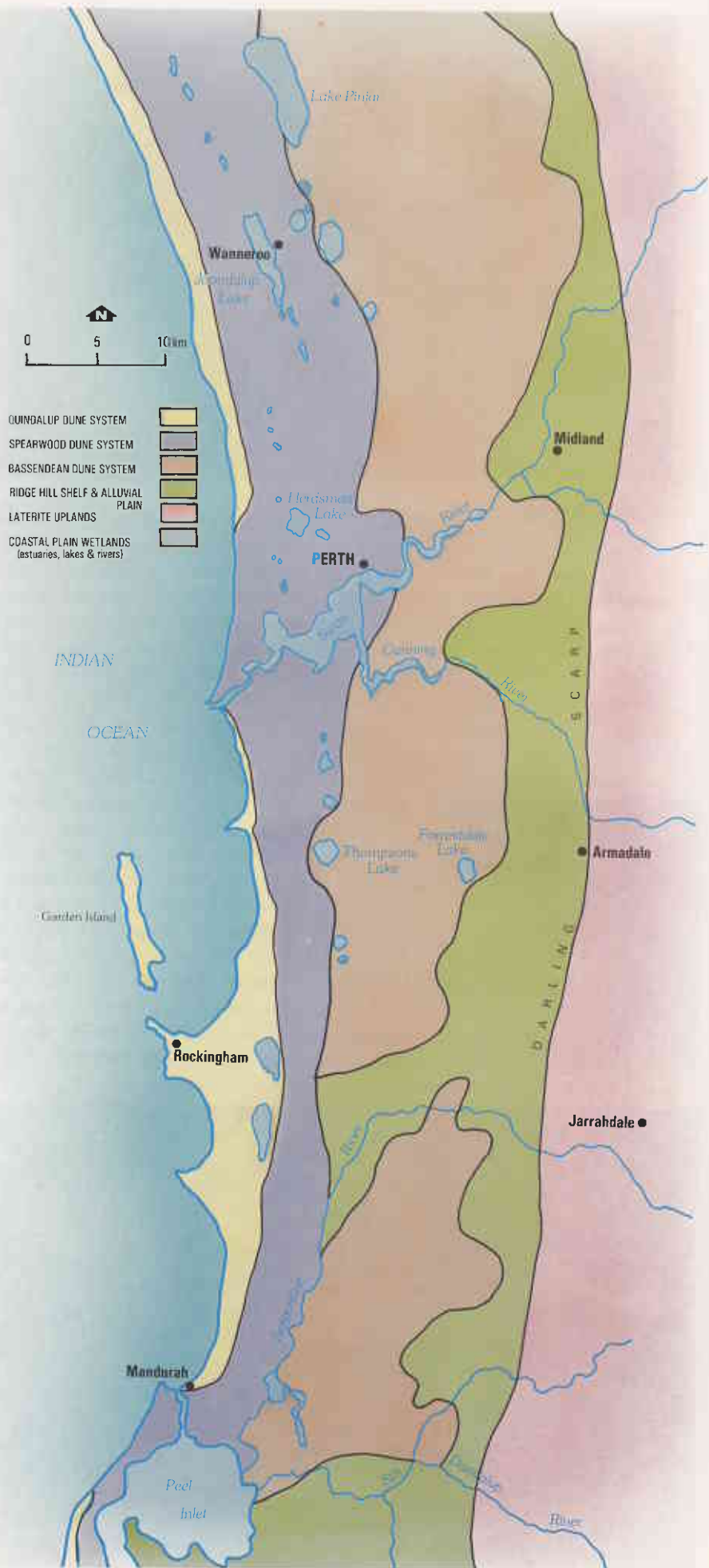
Above: The red-legged skink's common name is aptly derived from the striking colouration of its legs.
Photo - Brad Maryan

Right: Map of the Perth region showing the major geomorphic zones.

while the flank pattern on Le Sueur's skink consists of pale spots aligned in vertical rows. In the Darling Range, the red-legged skink (*C. labillardieri*) is common in gardens. This species has reddish legs with darker markings and an olive green to dark brown back without stripes, although the flanks have several distinct white stripes. Several other species of *Ctenotus* occur around Perth, so to be sure of your identifications, refer to any of several field guides on reptiles.

Ctenotus skinks are typically very active foragers and are often heard before they are seen, rustling through leaf litter in their search for insect food. They tend to move in short bursts, constantly surveying their surrounds and ever watchful of predators such as hawks and butcher-birds. Most shelter in burrows excavated under logs, or in the case of red-legged skinks, beneath slabs of rock. For long periods of winter they remain inactive, reducing their metabolic rate to conserve body resources and to wait for more favourable weather.

Several other species of skink occur in gardens around Perth, but are less conspicuous because of their small size, drab colours or burrowing habits. Two such species are the common dwarf skink (*Menetia greyii*) and the shrubland skink (*Morethia obscura*). The former was actually named after the explorer Sir George Grey, but is coincidentally grey-brown, with short dashes of darker brown on the back and a dark and a light stripe along the flank. Like the fence skink, the common dwarf skink has an immovable eyelid, but has only four toes on each front foot, in contrast to the five of the fence skink.





THE BOBTAIL

The bobtail (*Tiliqua rugosa*) has a wide variety of common names - bobby, shingleback, stumpytail, sleepy lizard and so on - and has even been incorrectly called the 'bobtail goanna', but it is actually a very large skink. The most obvious difference from the goannas is its large fleshy blue tongue, a contrast to the forked tongue of goannas. Bobtails are frequent residents of gardens, even in areas where there is little surviving vegetation. Part of their success appears to lie in their generalised diet. They eat insects, flowers, other plant material, introduced snails and even dog and cat food. This adaptability has meant they have been able to persist where large reptilian predators have declined. Research in South Australia has found that bobtails rarely move more than 100 metres from the centre of their home range in a year. They are most active in spring, and are often killed crossing roads in their quest for food and mates.

The bobtail is well known for its bluff defence strategy - it turns to face you when approached and flattens its body, opens its mouth widely to display the blue tongue, and hisses. While it looks fearsome in this pose, it is quite harmless, except that it will give you a strong bite if your fingers or toes are placed too close to its mouth!

SWIMMING LIZARDS

Skink lizards of the genus *Lerista* are commonly known as sliders or swimming lizards because of the way in which many of them travel. They wriggle, often quite rapidly, through leaf-litter or soft soil, in a snake-like fashion. The genus has a

remarkable range of species, with greatly differing body morphology (shape) to enable them to exploit many microhabitats. The most obvious variations in some of these species are the development of protruding snouts, the absence of limbs, or the reduced number of toes on each foot. For instance, the elegant slider (*Lerista elegans*) has well-developed limbs with four toes on each foot and tends to forage in the upper layers of leaf litter. In contrast, the west coast slider (*L. praepedita*), a burrowing species, has lost its front forelimbs, while the rear limbs are reduced to stumps. Between these extremes are various combinations in the number of legs and toes that suit different species to particular microhabitats. In general, those with well-developed limbs tend to forage on or in leaf-litter, while those with reduced limbs forage in the soil.

Another genus of skinks with fewer toes and a sand-swimming motion is *Hemiergis*. In sandy limestone soils the two-toed earless skink (*Hemiergis quadrilineata*) is abundant and is often seen when holes are dug in the garden or leaves raked up. It is often killed or injured by lawn-mowers. The upper body is grey-brown to red-brown, with narrow dark stripes running along most of the body and the top of the tail. The undersurfaces are a brilliant yellow.

The south-western earless skink (*H. initialis*) prefers dry forests on lateritic soils in the Darling Range. It has five toes, and while the upper surface is grey, sometimes with minor patterning, the undersurface is a spectacular bright reddish-orange. Unlike most skinks, both

of these *Hemiergis* species bear their young live. When inactive, they shelter in leaf litter or underneath logs.

LIZARDS BY NIGHT

Nightfall sees geckoes become active in the garden. The most common species in Perth is the marbled gecko (*Phyllodactylus marmoratus*). This species hides during the day among dense vegetation and under bark, but also seeks refuge in woodpiles or even rolled-up awnings. At night it often scampers up walls, particularly near lights, to catch moths, midges and other insects. The marbled gecko lays its eggs under bark or leaf litter in spring. The eggs hatch in early summer and the young may be seen around exterior lights attempting to catch insects, although they may be frequently chased away by larger adult geckoes.

People with gardens containing native plants may also encounter the western spiny-tailed gecko (*Diplodactylus spinigerus*). It has two parallel rows of black spines along the back and tail, increasing in size towards the tip of the tail. The large yellow eye is patterned with striking geometric shapes. It shelters in a variety of situations, where it is protected from predators and the extremes of daily temperatures. This is one of the geckoes that is able to squirt out a very sticky fluid from its tail, which is probably very useful in deterring predators.

LIZARDS WITHOUT LEGS

Since the evolutionary loss of limbs appears to favour a burrowing habit, you might expect all legless lizards to spend



Far left: The two-toed earless skink moves through garden leaf litter and grass in a sinuous snake-like fashion. Photo - Brad Maryan

Left: The threat display of the bobtail may look fearsome, but they are useful allies in gardens. Their omnivorous diet includes snails and some weed species such as dandelions. Photo - Brad Maryan

Below: The marbled gecko is the most common gecko in suburban situations in Perth. It is often attracted to lights, where it can ambush insects, particularly moths. Photo - Jiri Lochman

Far below: A lack of eyelids means that geckoes, and many lizards, use their fleshy tongues to keep the 'spectacles' of their eyes clean. Here, a western spiny-tailed gecko pauses to clarify its view of the world. Photo - Jiri Lochman

most of their active time below the leaf litter or soil surface. However, a slender legless body is also an advantage if you want to move through thick vegetation quietly. Some legless lizards forage through bushes, moving in a snake-like fashion that permits rapid ascent through interlocking branches.

Other legless lizards do live a burrowing lifestyle, particularly the 'worm lizards' of the genus *Aprasia*. Two occur in the Perth region. The sandy soils of the dune systems are favoured habitats for the sedgelands worm-lizard (*Aprasia repens*). They eat a variety of invertebrates, mainly ants and their eggs, and all lay two eggs. Unfortunately, these harmless lizards are often mistakenly identified as snakes, and killed. Legless lizards are usually found in larger gardens with natural vegetation or close to bushland.

GOANNAS

It is hard to imagine a suburban situation being suitable for goannas, but they may persist in areas where some bushland has been retained, often highly modified from its natural state. They may occasionally wander into gardens in their search for mates or food.

The most common species in the Perth metropolitan region is Gould's sand goanna (*Varanus gouldii*), a richly yellow and black patterned animal with a long forked tongue. It may forage widely for mice and other lizards, insects and carrion, covering several kilometres in a day's journey. Goannas use their flickering forked tongue to 'taste the air' (by collecting scent particles) and thereby detect food sources.

SNAKES

The sandy soils of Perth and the abundance of burrowing skinks have also provided suitable conditions for the burrowing snakes. They are not often seen in gardens, perhaps overlooked because of their small size and cryptic habits.

Most burrowing snakes are brightly coloured. The black-striped snake (*Vermicella calonotus*) is a brilliant orange-red with a bluish-black stripe along the back. Each scale on its back is tipped with a cream spot, resulting in a remarkable pattern. It preys largely on west coast sliders. The black-striped snake has a restricted distribution, occurring along the coastal plain from Mandurah to Lancelin, and increasing urbanisation is not favouring the species. It has also been reported occasionally on the Darling Scarp.



Several blind snakes occur in the Perth area and are usually seen on warm humid nights, when they may come to the surface. These species spend most of their life tunnelling under soil in search of ant and termite nests, which they raid for eggs, larvae and pupae. Their activities under the soil surface have made eyes rather superfluous.

The snakes that gain most notoriety for fronting up in the garden are, of course, the large snakes. The chance of this happening in most suburbs is low. However, it is much more likely if you live close to large areas of natural bushland. All large snakes should be left well alone! The subject of dangerous snakes is too large to deal with here, but readers are referred to several interesting books on the subject, available from local libraries. A group of dedicated volunteers known as the 'snake-busters' provide an important service by removing venomous snakes from houses. They can be contacted via your nearest CALM office.

LIFE IN A SHELL

Two species of tortoise are found in Perth wetlands. The western swamp tortoise (*Pseudemydura umbrina*) is known only from Ellen Brook Nature Reserve near Upper Swan, so is unlikely to appear in your garden. Its biology and conservation were examined in the article 'What the Tortoise Taught Us' (*LANDSCOPE*, Winter 1991).

In contrast, the oblong tortoise (*Chelodina oblonga*) is a frequent resident of wetlands throughout the Perth metropolitan area. Female tortoises move away from the wetlands in spring and summer to find suitable sandy areas to nest. People living near wetlands may be surprised to have a tortoise drop into their garden to deposit her eggs. You need to be patient to see the young; their development is dependent on temperature and some eggs may take up to 11 months to hatch!

ENCOURAGING REPTILES

Most gardens can be made attractive to certain reptile species if, of course, the species are usually found in your area. Leaf litter, and the humus-enriched soil found underneath it, is the ideal home to many reptiles in the South West. By resisting the urge to rake up eucalypt leaves, for example, a microhabitat

suitable for many reptile species may be encouraged. Leaf-beds should be left loose to allow easy movement through it by small reptiles.

Large flat rocks and hollow or rotting logs of almost any size provide places for some reptiles to obtain food and escape from predators like birds and cats. Similarly, large-trunked trees with loose bark provide another good reptile microhabitat. But remember, you should never remove rocks from the bush; after all, they are already important habitats for the lizards living there.

The garden should not be too dark, having at least some areas of uninterrupted sunlight in which reptiles can bask. The best way to encourage local reptiles to use the garden, however, is to keep the plants and soils in your yard as close to the naturally occurring vegetation and soil types of your local area, and by doing so you would have the added benefits of very low garden maintenance costs.

THE BENEFITS

Because most reptiles feed on insects, their presence in the garden is a natural way of helping to keep down numbers of flies, midges and mosquitos. But they can also provide hours of entertainment to jaded city dwellers.

Perth is fortunate in having such a diverse range of interesting reptiles, many with remarkable but little-known life histories. Keen observers may be rewarded with a glimpse into the world

of our native reptiles and a welcome diversion from their own worldly worries. By encouraging reptiles into your garden, this excellent form of natural relaxation is as close as your back door step and is absolutely free for you to enjoy.

Below: Despite its bright colouration, the black-striped snake is cryptic and rarely seen. It is found in sandy areas along the coastal plain, a preference which it unfortunately shares with land developers.

Photo - Jiri Lochman

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The authors suggest the following further reading on reptiles:

Reptiles and Amphibians of Australia by H.A. Cogger (1992), and *Lizards of Western Australia Vols 1-3* and *Snakes of Western Australia* by Storr, Smith and Johnstone, published by the WA Museum.

The WA Society of Amateur Herpetologists will be publishing a new field guide to the frogs and reptiles of Perth in the next few months.



LANDSCOPE

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The Pinnacles, in Nambung National Park, is one of the most photographed landscapes in the world. But there is another side to Nambung. See page 41.

The hidden caves and tunnels of Cape Range National Park harbour several animals found nowhere else. Turn to page 22 to find out about these bizarre cave dwellers.



The characteristics that made WA inhospitable to the first Europeans are now helping us create new industries that can also repair the environment. See page 47.



Perth has at least 70 species of skinks, geckoes and other reptiles. Find out how to attract these fascinating creatures to your garden on page 28.



Devastation caused by the recent NSW bushfires has fuelled debate on the practice of prescribed burning. How do managers fight fire with fire? See page 35.

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COVER

The bobtail (*Tiliqua rugosa*) is sometimes incorrectly called the 'bobtail goanna' but is actually a very large skink. They are common around Perth and often seen in gardens. During hot weather they can be seen basking on footpaths, verges or roadways. See our story 'Reptiles in the Garden' on Page 30. *The illustration is by Philippa Nikulinsky.*



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