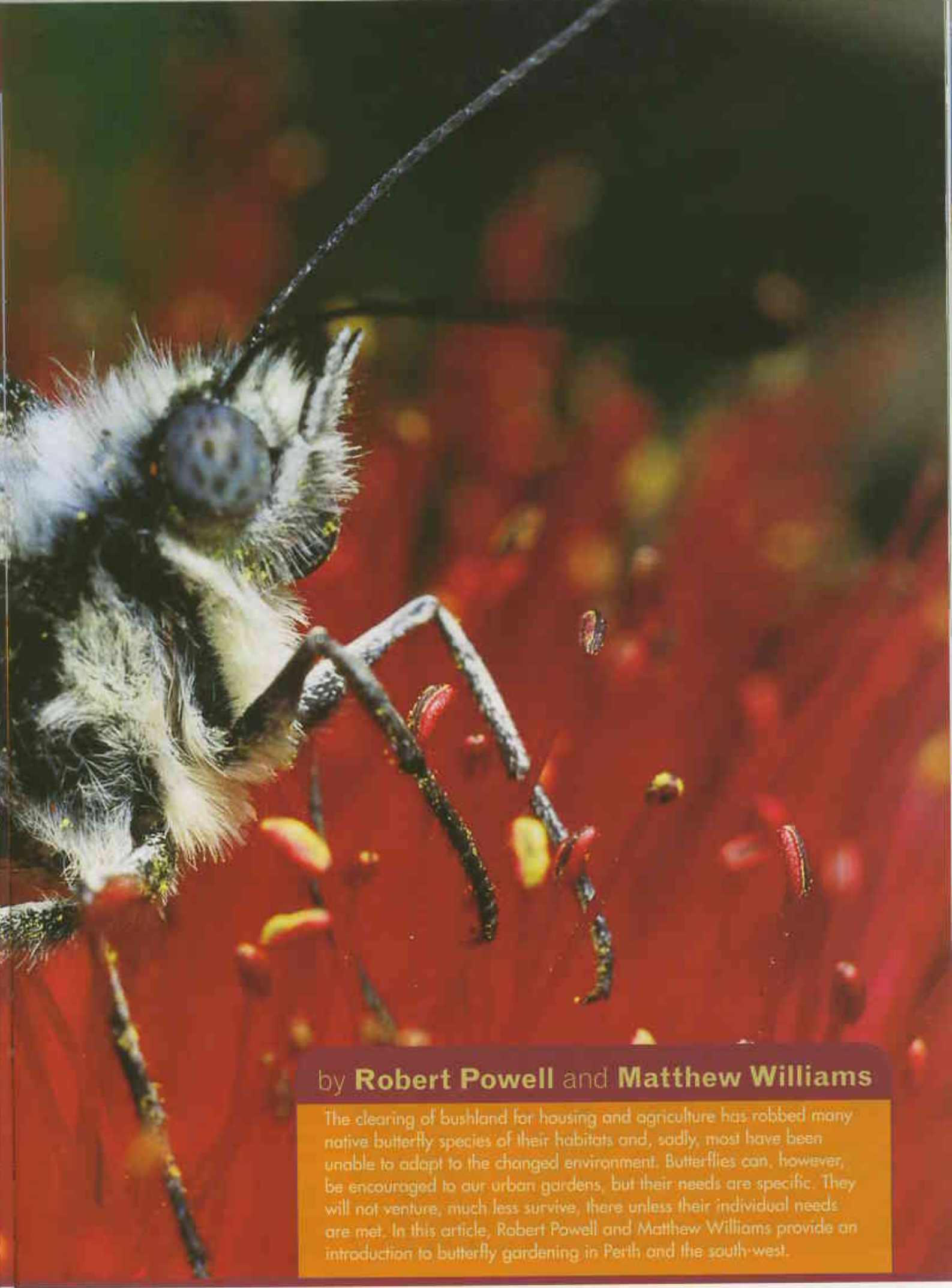
Butterfly**gardening**



by **Robert Powell** and **Matthew Williams**

The clearing of bushland for housing and agriculture has robbed many native butterfly species of their habitats and, sadly, most have been unable to adapt to the changed environment. Butterflies can, however, be encouraged to our urban gardens, but their needs are specific. They will not venture, much less survive, there unless their individual needs are met. In this article, Robert Powell and Matthew Williams provide an introduction to butterfly gardening in Perth and the south-west.

Butterflies are the best known of the world's largest group of animals, the insects. There are about 130 butterfly species native to Western Australia, of which 60 occur in the south-west of Western Australia. Very few, however, venture into gardens, and only a handful are able to complete their life cycle there. In many urban areas, few butterflies, except introduced species such as the cabbage white (*Pieris rapae*) and the yellow and orange palm-darts (*Cephrenes augiades* and *C. trichopepla*), are able to thrive.

The life cycle of a butterfly is a complex yet remarkable transformation. The larvae (caterpillars) are often most readily seen at night, with a good torch. It is then that many species feed, hiding during the day to avoid predators, such as birds and wasps, or to escape the desiccating summer heat. Because the larva's skin is not sufficiently flexible to accommodate its growth, it moults, usually five times, as it grows. The final moult produces not a larger caterpillar but a pupa, or chrysalis. This is sometimes called a resting phase, but the pupa only appears to be resting: within its skin, it is reorganising itself as a butterfly. For most butterfly species in the south-west, there is only one generation a year, and the adult butterfly appears in spring or early summer. Some, however, such as the wedge grass-skipper (*Anisynta sphenoscma*), appear in the autumn. A number of species have several generations a year, and the butterflies can appear at any season.

The benefits of butterfly gardening

Simply to have butterflies visit your garden is an uplifting experience. More rewarding still is to have the butterflies actually breed in your garden. There is then the added interest of seeing the butterflies lay their eggs, of finding eggs, larvae and pupae, and of learning about the butterfly's life cycle. A particular joy is seeing newly emerged butterflies appear—bright, fresh, perfect specimens, born and bred in the garden. And of course, on a broader scale, we have the satisfaction of knowing that we are doing something of benefit to conservation.

By having butterflies breeding in the garden, we benefit other animals too. The eggs, larvae and pupae of

Previous page
A spotted jezebel (*Delias aganippe*) on flowers of bottlebrush (*Callistemon* sp.).
Photo – Tom Chvojka

Above Caper white laying eggs.
Photo – Jiri Lochman

Left The western xenica (*Geitoneura minyas*) is common in bushlands and parklands around Perth, and sometimes visits nearby gardens.
Photo – Sallyanne Cousans

Above Introduced monarch butterflies (*Danaus plexippus*), also called wanderers, on their food-plant, the noxious weed milkweed or swan plant (*Asclepias fruticosa*).
Photo – Dennis Sarson/Lochman Transparencies

butterflies are food for birds, lizards, wasps and spiders, making them an important part of the food chain. And many of the plant species grown for butterflies to breed on are also useful as food or shelter for other animals.

Build a butterfly garden

The most important principle of butterfly gardening is to keep it simple. Start by encouraging those species that already visit your garden regularly, or that occur naturally nearby. Learn about the species by visiting the Department of Conservation and Land Management's (CALM's) NatureBase website (www.naturebase.net) or reading the popular Bush Book *Bugs in the backyard*.

Whereas adult butterflies feed on various liquid foods, particularly nectar from flowers, the larvae of most species feed on the foliage of plants. They are very particular in their choice of food sources, and most will feed on only a few closely related plants (their food-plants). The larvae of different butterfly species feed on quite different plants, in different plant families. The female butterflies lay their eggs on (or close to) the food-plants, which they locate by a sense of smell, detecting chemicals in the air that the plants emit. Therefore, to encourage a particular butterfly species to breed in your garden, you will need to grow one or more of its particular food-plants.

In addition to the food-plants, eaten by the larvae, many adult butterflies are fond of visiting nectar plants, including many daisies, such as Western Australian waitzias (*Waitzia* spp.). Other WA plants that butterflies often visit include *Grevillea crithmifolia*, coastal banjine (*Pimelea ferruginea*), grasstrees (*Xanthorrhoea* spp.) and plants in the genera *Baeckea, Leptospermum, Melaleuca* and *Thryptomene*. Geraldton wax (*Chamelaucium uncinatum*) is very attractive to butterflies, but should not be grown if you live near a bush reserve, since it readily invades bushlands.

A few exotic species are good nectar plants. These include butterfly bushes (*Buddleia* spp.), but care should be taken not to let them spread into bushlands. Lantanas (*Lantana* spp.) are another good example, but common lantana (*Lantana camara*) should not be grown, since it, too, can become a bushland weed.

Nectar plants will suit butterflies best if they are grown in sunny but sheltered spots. While exotic flowers such as *Buddleia* and *Lantana* will yield results, butterflies usually prefer the flowers of plants native to the area.

Since nectar supplies are fairly plentiful in suburban gardens, growing nectar plants, by themselves, is of little real benefit to butterflies—but it does allow you to see those butterflies that call by to visit them. However, growing nectar plants in addition to food-plants may be useful to those butterflies that visit to lay eggs, by giving them somewhere to refuel nearby.

A good butterfly garden should also be designed to help some of the larvae and pupae survive. Although the larvae are able to hide from predators by camouflaging themselves on the food-plant, or building shelters out of its leaves, many still get eaten. Having the food-plants scattered over the garden,

rather than all together in one patch, can help ensure that more larvae survive. When the larvae pupate, they often seek hiding-places among the foliage of low shrubs. So by making sure there are masses of dense low shrubs in the garden, or other nooks and crannies where the pupae can hide, more can survive and emerge as butterflies.

A word of warning: do not order seeds advertised on the Internet in pages about butterflies. The plants concerned are usually unsuitable for our native butterflies to breed on—moreover, some have the potential to become serious weeds.

Butterfly larvae are also very sensitive to insecticides and herbicides. Avoiding their use will not only benefit butterflies, but insects in general, as well as other animals such as lizards and birds. Garden weeds can usually be controlled by hand, particularly if you have a good leaf-litter and lots of shrubs to compete with the weeds.

. . . but will they come?

Of the 60 butterfly species of south-western Australia, only about 17 have the potential to breed in your garden, if you grow the right plants for them. They fall into three categories, 'common garden species', 'highly mobile species' and 'species that wander short distances'.

Common garden species breed on one or more common garden plants, or garden weeds. They all happen to be quite tiny butterflies—the largest, the long-tailed pea-blue (*Lampides boeticus*) and the wedge grass-skipper, have a wingspan of only about two-and-a-half

Top left Native plants growing on a suburban roadside verge in Perth.
Photo – Sallyanne Cousans

Centre left Western brown butterflies are common on the Darling Scarp, but usually scarce on the coastal plain.
Photo – Robert Powell

Left Native everlastings, such as this orange immortelle (*Waitzia acuminata*), are the food-plants of the Australian painted lady.
Photo – Marie Lochman

Above Australian painted ladies feeding on flowers of the grasstree *Xanthorrhoea preissii*.
Photo – Sallyanne Cousans

Below right A yellow admiral feeding at flowers of Geraldton wax (*Chamelaucium uncinatum*).
Photo – Eva Boogaard/Lochman Transparencies

centimetres—but are, nonetheless, delightful to have in the garden. Since some are also quite mobile, the distinction between this category and the next is rather blurred.

Highly mobile species leave their 'birth-places', where they emerged as adult butterflies, and travel freely through the countryside. They may be found in all sorts of places, often many kilometres away from any breeding sites, and sometimes well out to sea. Some travel very long distances indeed. The Australian painted lady (*Vanessa kershawi*) is famous in eastern Australia for its southerly springtime migrations—beginning in New South Wales and southern Queensland and often ending in Tasmania—involving immense numbers of individuals.

Perhaps an even more mobile species is the yellow admiral, previously known as the Australian admiral (*Vanessa itea*), some individuals of which have been recorded in northern Australia and Papua New Guinea, far to the north of

Butterflies: facts and figures

Number of species

There are about 17,000 species of butterfly in the world, with most of the species-rich areas being the tropics. South America, with its large area of tropical rainforest, has 8,000 species.

In contrast, Australia has only 400 species. Western Australia has about 130 species, with 60 of those occurring in the south-west.

Sizes

The largest butterflies are the dozen or so species of birdwing, most of which occur in New Guinea. Females of the world's largest butterfly, Queen Alexandria's birdwing (*Ornithoptera alexandrae*), may have a wingspan of 28 centimetres. There are vastly more small species, and many of the small tropical species are yet to be described and classified. The smallest butterfly has a wingspan of only six millimetres.

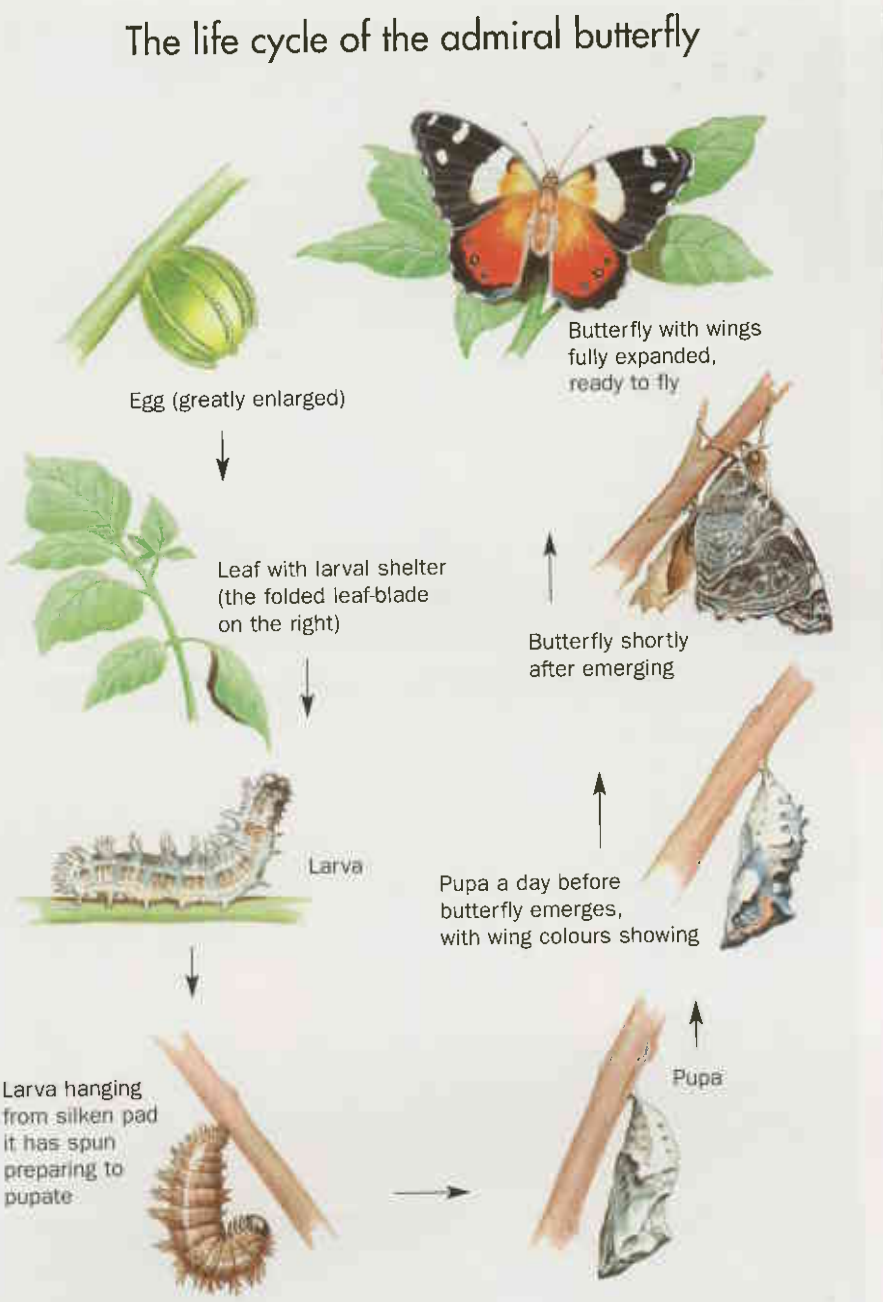
Most species in our south-west are small, with a wingspan of less than four centimetres. The largest are the chequered swallowtail, the spotted jezebel (*Delias aganippe*), the lesser wanderer (*Danaus chrysippus*) and the introduced monarch (*Danaus plexippus*), which have wingspans of 60–100 millimetres.

Butterflies and moths

Whereas most moths fly at night, some species fly during the day, and are often confused with butterflies. The main day-flying moths are the burnets and foresters (family Zygaenidae), and the sunmoths (family Castniidae). The south-west of WA is particularly rich in sunmoths, having about 20 of Australia's 45 species. Sunmoths rely on bushlands for their survival. One, the graceful sunmoth (*Synemon gratiosa*), is a listed endangered species and is known only from a few bushland remnants in Perth's northern suburbs (see 'Threatened Invertebrates', *LANDSCOPE*, Summer 2003–04).

Conservation

Efforts towards conserving butterflies have only just begun in Australia. A recent Action Plan proposed two species for listing as critically endangered, of which one occurs in WA. Many species, however, are too poorly known to have their conservation status assessed.



Above Lesser wanderer (*Danaus chrysippus*) on the heath plant *Leucopogon racemulosus*.
Photo – Sallyanne Cousans

Left The butterfly life cycle. This butterfly is a common garden visitor.
Illustration – Robert Fleming

its normal range (see 'Australian Admiral', *LANDSCOPE*, Winter 1992). Because of its great mobility and acute sense of smell for its food-plants, the admiral is one of the easier butterflies to attract to breed in the garden, despite being usually very scarce in most of south-western Australia.

Trying to attract some highly mobile species—such as the chequered swallowtail (*Papilio demoleus*), the small grass-yellow (*Eurema smilax*) and the caper white (*Belenois java*)—is less worthwhile, since they appear in Perth only occasionally.

The third category comprises species that are largely confined to bushlands, but mobile enough to wander into suburban gardens nearby, where they sometimes breed. They include the common (or western) brown (*Heteronympha merope*), saltbush blue (*Theclinesthes serpentata*), silver-spotted ochre (*Trapezites argenteoornatus*), amethyst hairstreak (*Jalmenus icilius*), varied hairstreak (*Jalmenus inous*), western bitterbush blue (*Theclinesthes hesperia*) and wattle blue (*Theclinesthes miskini*). If you see any of these species in your garden from time to time, particularly if you live near a bushland, it is worth growing their food-plants to encourage them to breed.

Of butterflies that can be attracted into the garden, it is the ones in this group that most need your help to reduce the effects from the clearing of bushland areas for urban development. The western bitter-bush blue, for example, is largely restricted to a narrow coastal strip between Fremantle and Bunbury, and is declining as land continues to be cleared for housing. Like the sedentary butterflies, mentioned below, they are also vulnerable to bushfires.

And what of the others?

Some butterfly species—such as the western jewel (*Hypochrysops halyaetus*), large bronze azure (*Ogyris idmo*) and most species of skipper—are very unlikely to breed in your garden. They need bushland habitats and are also very sedentary, barely venturing outside their breeding areas. Now that so much land has been cleared, they tend to occur in small, isolated populations in isolated bushlands. If a bushland is totally burnt, and a population of one of these butterflies destroyed, the species is likely to become locally extinct, since individuals from other populations will not fly far enough to find and

Above and right The caper white (above) and the chequered swallowtail (right) are rare in the south-west. In the northern half of WA, however, they are common garden visitors.
Photos – Jiri Lochman (above) and John Kleczkowski/Lochman Transparencies (right).

recolonise the site once the bushland recovers. The best way to help these species may be to link bushlands together by establishing corridors of vegetation that include the butterflies' food-plants.

Tell us what you see

Much is still unknown about where Perth butterflies occur and what plants they breed on. To increase present knowledge and improve the advice we can give on butterfly gardening, we seek any information you can give us on butterflies that breed in your garden. Please feel free to contact the authors. In the meantime, we hope that you have been inspired to observe these butterflies and help provide viable habitats in which they can breed.

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Additional information on the butterflies mentioned here and the specific plants you need to grow for each butterfly species can be found on CALM's NatureBase website (www.naturebase.net/plants_animals/butterflies).

There is also a printable quick-reference guide that includes colour pictures of the different species, as well as some of the plants on which they breed.

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Regulars

Erratum

The photograph in the Autumn 2004 issue of *LANDSCOPE* (mid left, page 52) is the rare *Diuris purdiei* not *Diuris corymbosa* as stated in the caption.

The photograph in the Summer 2003-04 issue of a snail on p. 56 and p. 61 was incorrectly captioned. The photo is of the introduced predatory snail *Oxychilus* sp., which is thought to be at least partly responsible for the extinction of the Pemberton and Albany snails, and is a threat to many of our native terrestrial snails.

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