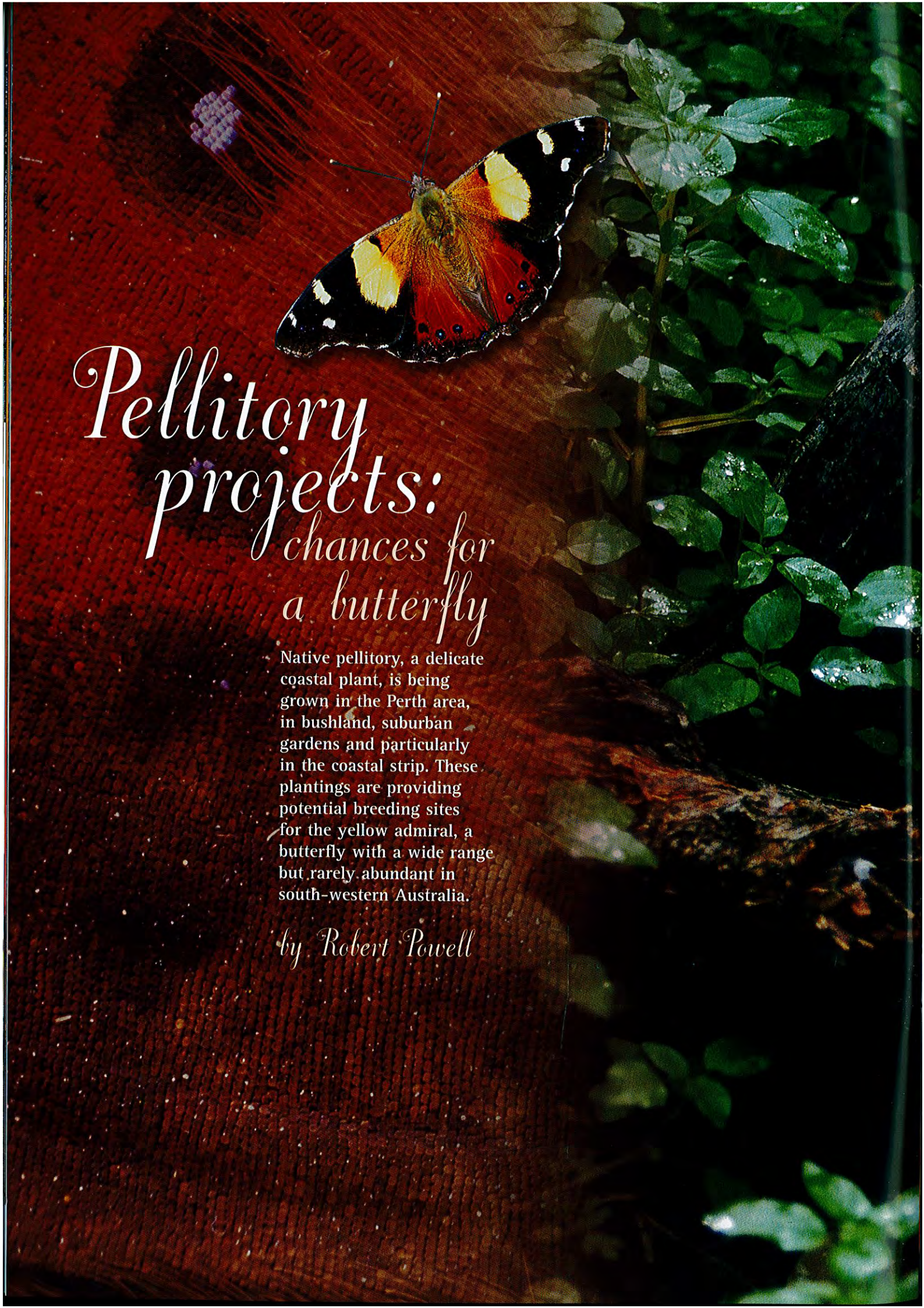
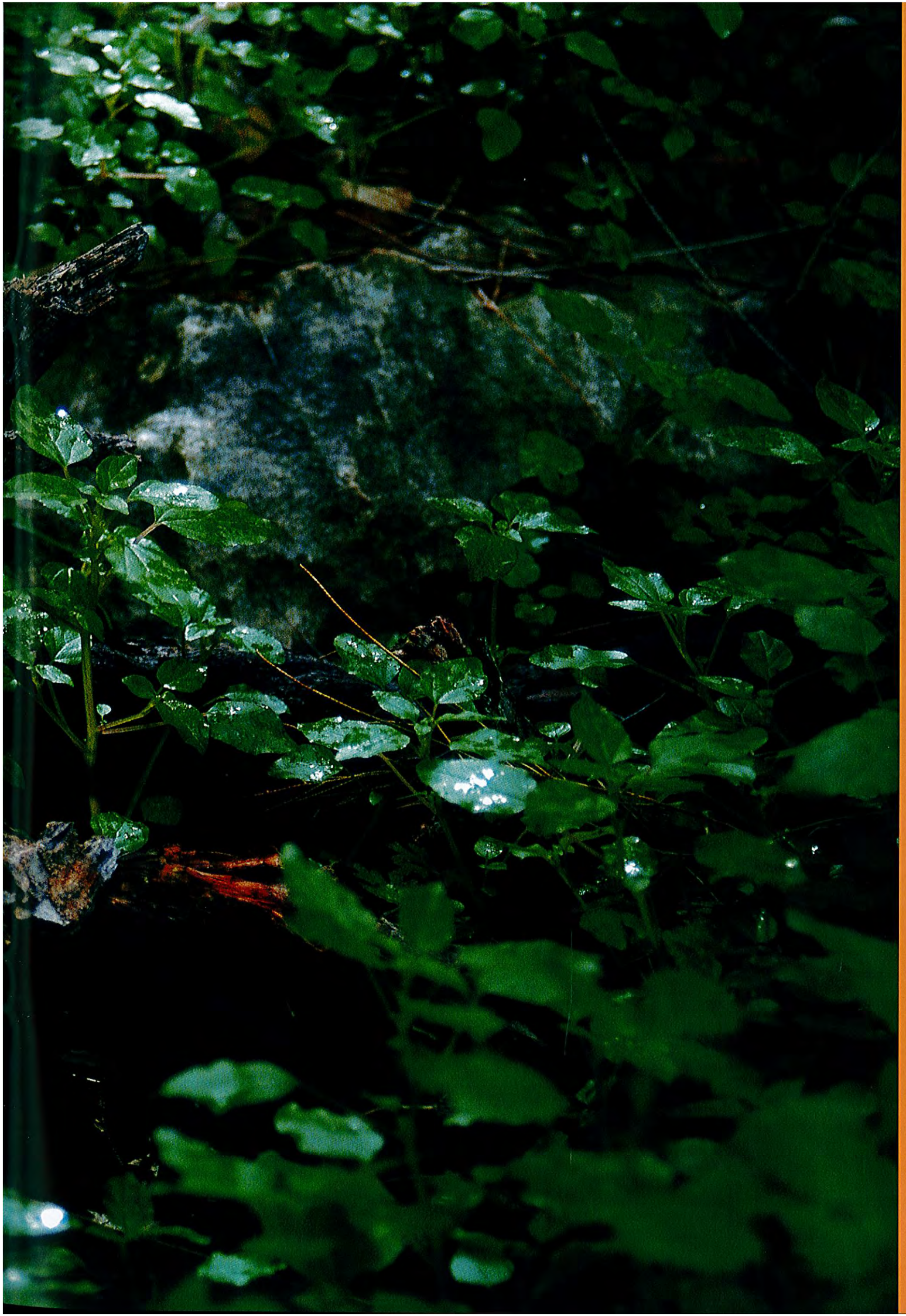


Pellitory projects: chances for a butterfly

Native pellitory, a delicate coastal plant, is being grown in the Perth area, in bushland, suburban gardens and particularly in the coastal strip. These plantings are providing potential breeding sites for the yellow admiral, a butterfly with a wide range but rarely abundant in south-western Australia.

by Robert Powell



Native pellitory is the name given to two soft annual plants, *Parietaria cardiostegia* and *P. debilis*. They belong to the nettle family (Urticaceae), but do not sting. They should not be confused with the more robust perennial pellitory (*P. judaica*), a weed from the Mediterranean. This weed, also called pellitory-of-the-wall, has become established in parts of Perth, such as Fremantle, where it grows at the base of old walls, or in cracks within them.

Both species of native pellitory occur widely in southern Australia, in scattered spots where conditions are favourable. Unlike most native plants, native pellitory does best in fertile soils, and thrives on many offshore islands where the soil is enriched by droppings round seabird colonies.

In Perth, native pellitory grows chiefly on coastal dunes and limestone, and also among granite rocks in the Darling Range. Both species occur, but *P. debilis* is more common. The occurrence of both species has been greatly reduced, not only by clearing but also by competition from weeds. In many bushlands, aggressive introduced grasses have displaced native pellitory and other native annuals. Pellitory has done better where introduced grasses are grazed by kangaroos or wallabies.

Growing native pellitory gives the satisfaction of re-establishing typical coastal annuals that have largely disappeared. It is wonderful to see these delicate plants thrive. Moreover, the native pellitories are among the few plants on which feed the larvae of a migratory butterfly, the yellow admiral (*Vanessa itea*). It is a thrill to see this butterfly arrive to lay its eggs, watch its larvae develop, find its pupae, or see the bright, freshly emerged butterflies.

Aware of its significance, many people who grow native pellitory come to love it. To them it becomes adorable!

A bold butterfly

The yellow admiral is boldly marked, in contrasting colours of pale yellow, rich reddish-brown, black and white. The pale yellow patches on its forewings are what distinguish this species, and from which the 'yellow' in the butterfly's name is derived. The admiral is of medium size, slightly larger than a cabbage white (*Pieris rapae*). It breeds only on plants in the nettle family, which it can detect from far away by their scent.

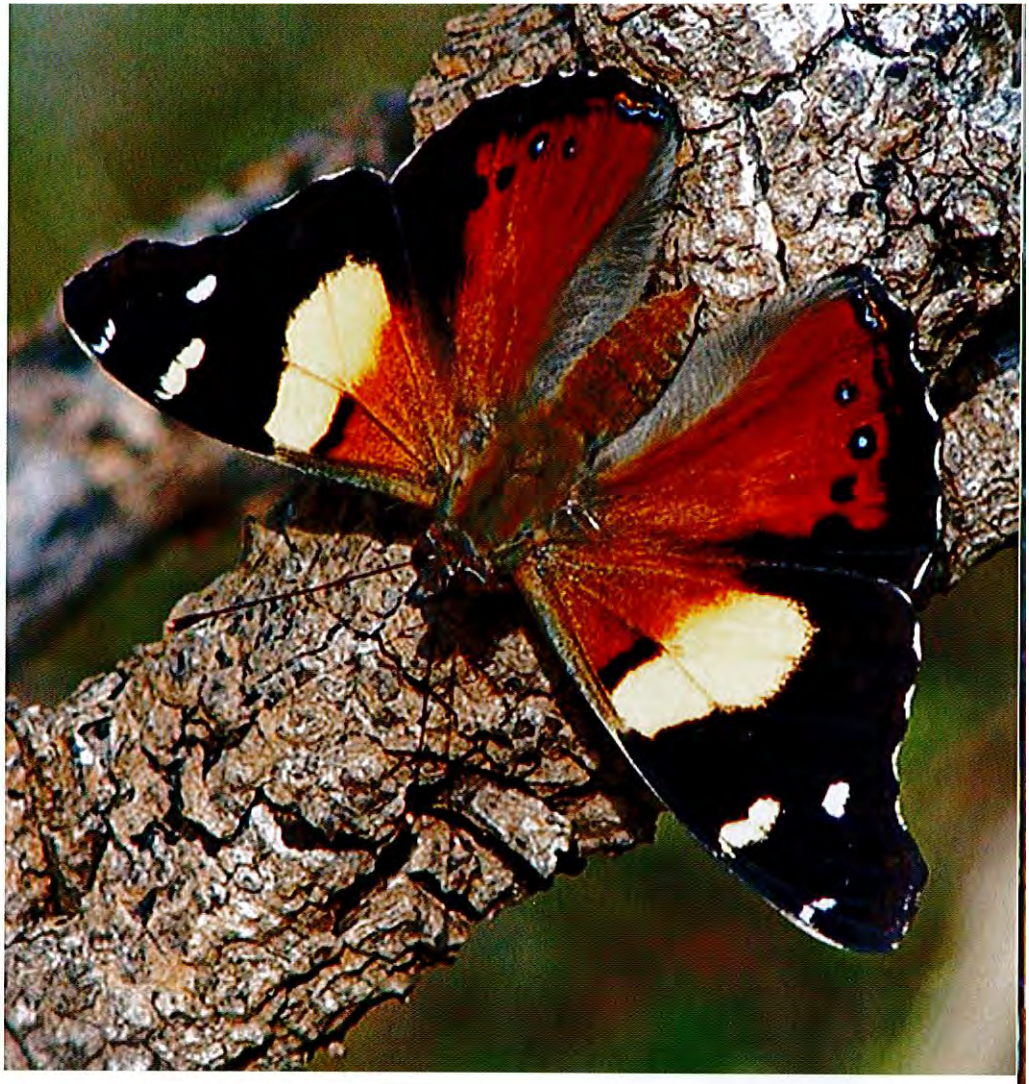
The admiral is not usually abundant in south-western Australia, and in most years is seen only occasionally. It is a powerful insect that often flies very fast, and may flash past without being noticed or recognised.

It has a very wide range, occurring not only in Australia (where it used to be called the Australian admiral) but

Previous page
Main Native pellitory growing in the author's garden.
Photo – Robert Powell
Inset Yellow admiral.
Inset background Detail of a yellow admiral's wings.
Photos – Jiri Lochman

Above Newly germinated pellitory seedlings.
Photo – Robert Powell

Left Native pellitory re-established in Cottesloe.
Photo – Robyn Benken



Above Native pellitory with shelters (leaves bent into little 'bags') made by admiral larvae.

Right Newly emerged yellow admiral in the author's garden.
Photos – Robert Powell

also in New Zealand and on other islands in the south Pacific. Throughout this range, the markings of this butterfly are remarkably constant, implying that there are no isolated populations. In other words, the admiral is highly mobile, travelling large distances, even between the Pacific islands. There is evidence that it frequently or regularly migrates. It breeds throughout the year, in several generations.

It is one of only a few mobile butterfly species in south-western Australia. Most species in this region are quite sedentary, with populations in different places often forming distinct geographic races. These sedentary species typically have just one generation a year, or in some cases two.

Within Australia, the admiral's stronghold is in the east, where it can breed all year round on the native scrub nettle (*Urtica incisa*). Formerly it would have bred in south-western Australia only in winter and spring, before probably migrating east to breed in eastern Australia in the summer. Nowadays it can, at least theoretically, breed here in summer, in places where perennial pellitory has become established, or where another member of the nettle family, the ground cover babies' tears (*Solierolia solierolii*), is grown in gardens.

From year to year, the number of yellow admirals appearing in Perth varies greatly. It can be roughly measured by observing how many appear on the butterfly's favoured hilltops. On sunny days, in the mid afternoon (in winter) or late afternoon (in late spring), males establish territories on the tops of the highest hills in the region, where females will go to find a mate. Examples in coastal Perth are Reabold Hill, Buckland Hill, the hill in Trigg Point Park, and the highest hills west of Manning Lake. If half a dozen or more admirals appear on a favoured hilltop, there is probably a moderate number of admirals present in the region. If only one or two, then the number in the region is probably quite low.

From virtually zero in summer, the number of admirals in Perth tends to increase a little in the autumn, probably as a result of migration from eastern Australia. In good years (such as 2011) the number increases again in July or August. If good rains occur in autumn and winter over a wide area of southern WA, pellitory will be able to grow in many places, allowing the autumn admirals to lay abundant eggs in May or June, resulting in a more plentiful new generation two calendar months later, in July or August.

The two calendar months comprise 10 to 14 days for the eggs to hatch, about five weeks for the larvae to develop, and 10 to 18 days for the pupae to change into butterflies. In warmer weather the times are shorter. The larvae can easily be detected on pellitory plants by finding the shelters they make. By producing silk they fold down the edges of leaves or parts of leaves into little bag-shaped shelters, in which they hide from predators.

Projects in Perth

Projects to establish native pellitory began in Perth in the 1990s, and have typically involved community groups formed to restore coastal strips or bushlands. Others have been undertaken by schools or local governments Also some individual gardeners have grown native pellitory in their home gardens. On coastal sites, establishing native

Left Yellow admiral eggs on pellitory leaves.
Photo – Robert Powell

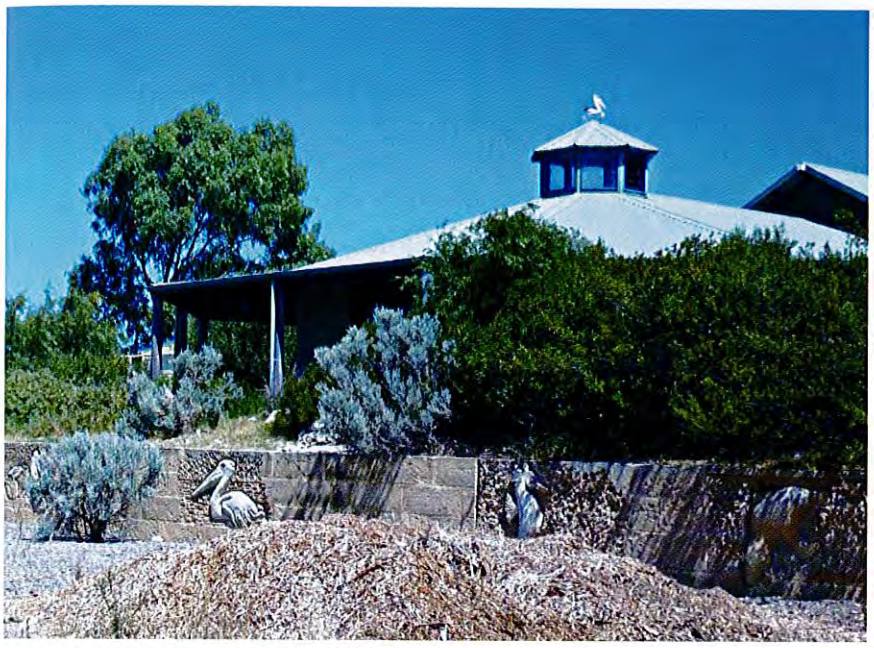
Centre left Native pellitory with large admiral larvae.
Photo – Robyn Benken

Below left The larvae of a few moths feed on native pellitory, including the silver-seven moth (family Noctuidae).
Photo – Robert Powell

pellitory becomes re-establishing it: putting it back where it used to occur.

For larger projects on public lands, generally five or six sites of about a square metre are selected, in dappled shade, where native pellitory grows best. In autumn the weeds are removed from the sites and about 1,000 pellitory seeds are scattered. In winter and spring the sites are carefully hand-weeded at regular intervals, to reduce competition from weeds and thus help the pellitory plants grow well. They can also be helped by being watered occasionally with a fine spray if there are long dry spells during winter. At the end of the season it can be seen which of the sites have done best, and the best two or three—or more if several sites do well—are selected for maintaining in future years; the rest are abandoned. The pellitory plants will seed in late spring and summer, from which a new pellitory crop will appear the next year, spread over a wider area. From then on weeds are controlled near where pellitory plants appear, to a sufficient degree to enable the pellitory to prosper. The pellitory will then continue to spread to new spots.

Native pellitory is very susceptible to herbicides, including the fine particles that drift in the wind. Nonetheless, it is possible to combine the establishment of pellitory with a chemical control of weeds. In one of the most successful pellitory projects, in Allen Park, Swanbourne, it was discovered that chemical spraying, if done early enough, can actually benefit pellitory. If the ground is sprayed soon after the weeds germinate or resprout, the weeds are killed at a stage when very little of the pellitory will have germinated.



Left Naragebup (Rockingham Regional Environment Centre), where native pellitory has been grown for several years in its 'bushtucker garden'.
Photo – Diana Hitchin

Below left Class at City Beach Primary School releasing a yellow admiral reared in the classroom.
Photo – City Beach Primary School

Below Swanbourne Primary School students in Allen Park, learning about pellitory and the yellow admiral.
Photo – Swanbourne Primary School

The pellitory that germinates later can then get off to a good start, with little competition. In 1999, this project, carried out by the Friends of Allen Park, established two small pellitory sites in the park's 'Boobook' sector, between Jameson and Sayer streets. The pellitory has gradually spread, and is now in scattered spots over about half a hectare, growing quite thickly in places.

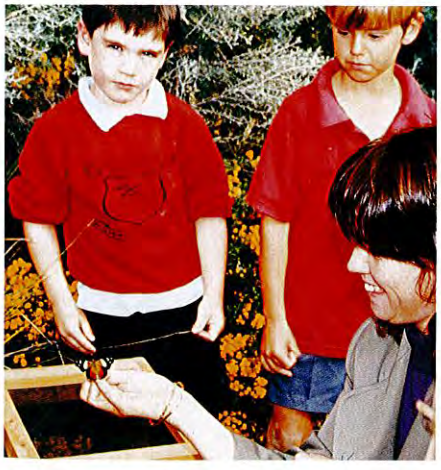
Another group, Cottesloe Coastcare, has established native pellitory in places in the Cottesloe coastal strip and in the Town of Cottesloe's Grant Marine Park. A further project, in Cottesloe Native Garden, on Broome Street south of Jarrad Street, was begun in 2009, producing a very healthy crop in 2011.

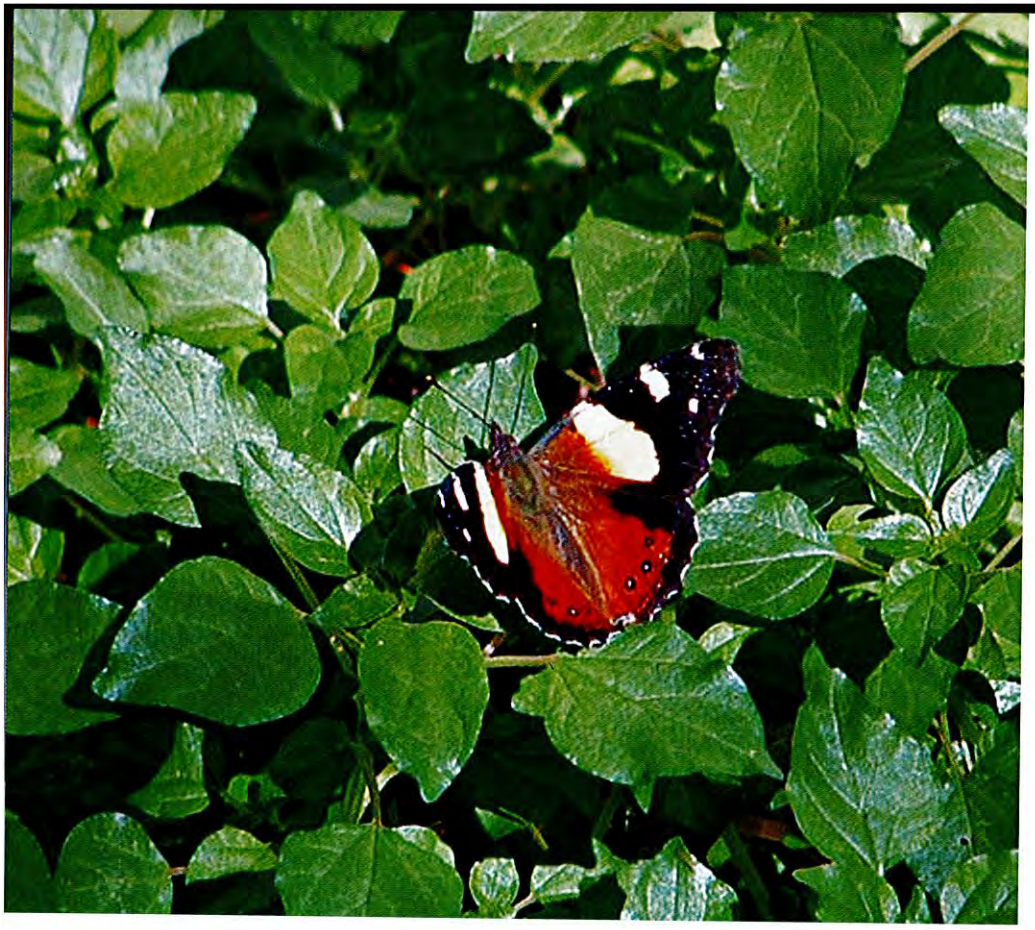
More recently still, Stirling Natural Environment Coastcare established two pellitory sites south of the Marine Research Laboratory, Watermans Bay, in 2010, abandoning other test sites where the pellitory did less well. Despite the dry winter, the germination was good and the plants grew well, helped by some periodic extra watering. In 2011 some of the plants did very well, but others were accidentally killed by herbicide spraying.

A particularly interesting project is at Perth Zoo, where native pellitory did not have to be planted: it just appeared! First seen in 2010, it had most likely come from Melaleuca Grove, Sir James Mitchell Park, a few hundred metres to the north. How did it spread so far? As people who grow native pellitory will know, its 'fruits' (or, strictly speaking, fruiting calyces) are quite sticky when green, and readily attach themselves to the clothing of anyone who brushes past or to animals. The fruits of plants in Melaleuca Grove probably spread to the zoo by sticking to the feet or plumage of birds.

Several zoo staff expressed an interest in establishing the native pellitory well enough to compete with the weeds—including native pellitory's relatives perennial pellitory and small nettle (*Urtica urens*), which like the enriched soil. A small project started in 2010 and has now expanded to include horticultural staff; it has the potential to become a great educational tool for visitors.

The Melaleuca Grove pellitory was established in 1999 by the City of South Perth, with help from a local primary school. Weeded by interested members of the public, the site was





Left Yellow admiral laying eggs on native pellitory in the author's garden.
Photo – Robert Powell

Below Nuts, or 'seeds', of native pellitory (enlarged).
Photo – Luke Sweedman/Botanic Gardens and Parks Authority

very successful for a number of years. Unfortunately weeds grow luxuriantly here too, and it has been difficult to maintain the huge effort needed to control them.

Pellitory has also been grown by a number of primary schools, where yellow admirals and their larvae provide wonderful biology lessons for students. The project is normally run by a keen member of staff or a parent of one of the children. Most last only a few years, ending when the teacher or child leaves the school—but, while they run, good projects can be very worthwhile.

Businesses can grow pellitory too, as demonstrated by the Department of Environment and Conservation. Two small gardens among the buildings at the department's Kensington site were seeded with pellitory in 1999, and each year since then have been carefully weeded by office staff. The gardening contractors know to avoid these beds when spraying herbicides to control weeds.

Starting your project

Readers may wish to grow pellitory, as part of a group project, or in their own gardens. Little seed is available, however, so readers should first consider whether the project is likely to succeed. Pellitory needs dappled shade, and limy coastal sands or fertile estuarine soils, with the topsoil intact. Some leaf litter is desirable too, provided it is not too thick. And there needs to be a commitment to doing some careful hand weeding at intervals throughout the winter and early spring. In gardens, pellitory is readily demolished by snails or slugs. Keeping these at bay will greatly increase the chances of success.

If you do grow pellitory, do not expect too much too soon. Even on good sites, the pellitory plants may grow poorly in the first year or two, but much better thereafter—perhaps beneficial fungi take a year or two to develop in the soil.

The larger the area of pellitory becomes, the more admirals it will tend to attract, and the greater the proportion of their larvae that is likely to survive, pupate and emerge as butterflies. A good cover of small shrubs helps too, providing places where larvae and pupae can hide.

In gardens, pellitory can grow very well in vegetable patches, where the soil is enriched. Here the introduced small nettle sometimes appears by itself. Healthy, lush plants of this nettle are excellent for the yellow admiral. However, do not be tempted to grow the introduced perennial pellitory: it is a rampant weed and also an allergen.

The future

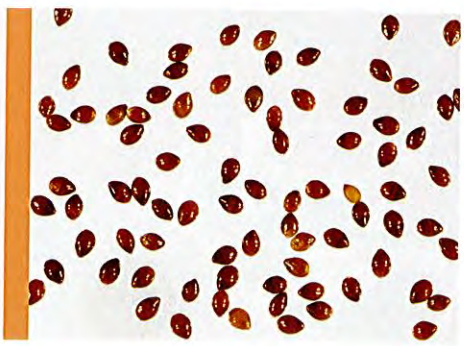
The numbers of yellow admirals appearing in south-western Australia will continue to fluctuate from year to year. Unfortunately, as the climate dries, the numbers will probably decrease.

Native pellitory may be less affected. In very dry years, such as 2010, fewer plants germinate, and those that do are of reduced size. Those seeds that do not germinate, however, will probably survive to germinate in a wetter year, as must happen in the many more arid places where pellitory occurs.

Robert Powell was probably the first person in Perth to grow native pellitory in his garden, in the early 1990s, and has done much to encourage others to grow it. Robert worked for 34 years in the Department of Environment and Conservation before retiring in 2009. He is now living in Devon, United Kingdom. He can be contacted by email (robert.powell@graduate.uwa.edu.au).

The author would like to thank Georgina Lambert and Lesley Shaw for providing information.

People seeking seed to grow native pellitory can contact Lesley by email (jandlshaw@bigpond.com). Geographe Community Landcare Nursery may also have seed.



Volume 27 Number 4 WINTER 2012

contents

Regulars

Publishing credits
Executive editor Madeleine Clews.
Editors Rhianna King, Joanna Moore.
Scientific/technical advice Lachie McCaw, Keith Morris, Kevin Thiele.
Design and production Natalie Jolakoski, Gooitzen van der Meer, Sonja Schott, Tiffany Taylor, Lynne Whittle.
Illustration Gooitzen van der Meer.
Cartography Promaco Geodraft.
Marketing Cathy Birch.
Phone (08) 9334 0296 or *fax* (08) 9334 0432.
Subscription enquiries *Phone* (08) 9219 8000.
Prepress and printing GEON, Western Australia.

Maps should be used as a guide only and not for navigational purposes.

ISSN 0815-4465

Please do not send unsolicited material, but feel free to contact the editors.

Published by the Department of Environment and Conservation, 17 Dick Perry Avenue, Kensington, Western Australia.

Visit DEC online at www.dec.wa.gov.au to search the *LANDSCOPE* catalogue.

Department of
Environment and Conservation