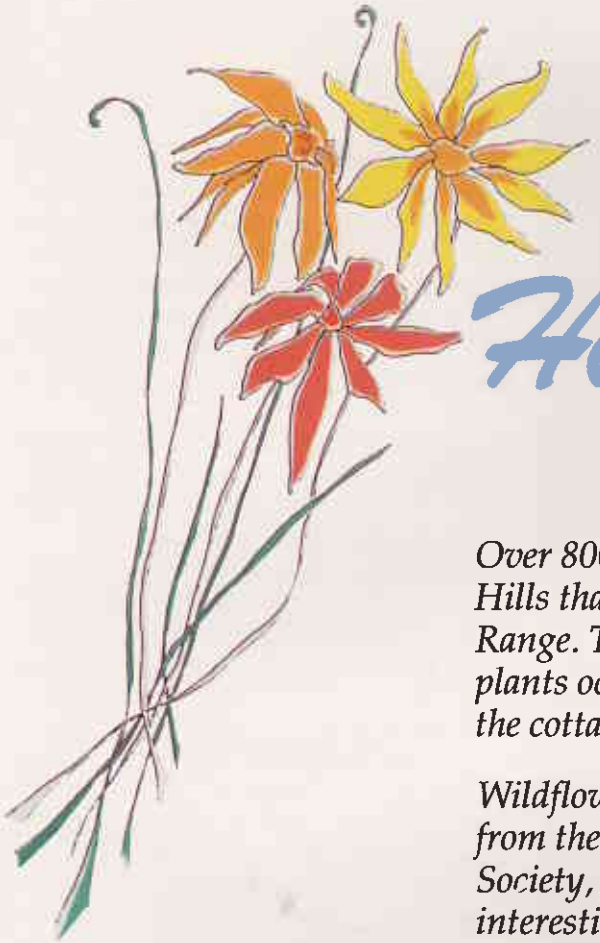


Hills' Belles

Over 800 species of flowering plants can be found in the Hills that are the backdrop to Perth - the Darling Scarp and Range. That is more than half the total number of flowering plants occurring in the entire United Kingdom. So much for the cottage garden!

Wildflower afficionados, John Marshall and Brian Tullis, from the Darling Range Branch of the W.A. Wildflower Society, give you a guided tour of some of the more interesting and beautiful Hills' Belles.

W.A.'s natural garden, the native bush, is unparalleled in spring. The growth and flowering, which begins with the coming of the rains in April, offers many a delight and surprise for the winter bushwalker. Water from the winter rains, and the increasing warmth, turn the quietly attractive bush garden of July into a mass of colour, a vernal spectacular. Over 250 species flower in September and October.

The show persists into November and December, but as surely as the soils dry out ahead of the summer heat, the garden becomes subdued, and finally, by March, desperate for moisture. By then, five to six months can have passed without significant rains. Yet, for the keen-eyed, flowering gems are to be found through to the end of the cycle.

Ptilotus manglesii

The great richness of plants in this region is due to the great variety of plant habitats on the Scarp. Slopes, gentle and steep, face west, south, north and east. The weathered soils of the Range have been pared down by erosion. They range from 50 m deep to exposed rock outcrops. This variation in soil depth is a vital determinant of the different plant habitats. Broadly, there are four such habitats: the forested parts of the Range and uplands on the deepest soils; the sparsely-treed slopes on shallower soils; the very shallow soils around rock outcrops; and the seepage areas and streamsides, dependent on water draining into them from upslope.

A visit to the Hills early in the year, before the breaking rains, reveals one of its great spectacles: the flowering of the marri (*Eucalyptus calophylla*). Marri flowers from February to April, giving life-sustaining nectar for birds and wildlife at a time of year when pickings are sparse. The trees often appear snow-capped, contrasting strangely with the summer heat (see *Landscope*, Winter 1988).

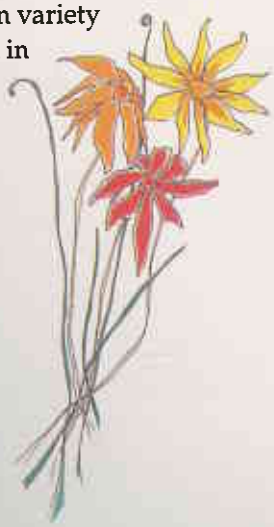
Within six days of a summer shower, there's another surprise. Masses of pink matted triggerplant, *Stylidium repens*, appear; one of the very few triggerplants to flower outside springtime.

Drosera stolonifera

Even before the rains in April-May, parrot bush (*Dryandra sessilis*), with its prickly, blue-green leaves and pale yellow flowers, may be spotted beginning its long flowering season. And as the rains come, those several species which have waited in readiness to flower suddenly bloom. Two are from the daisy family, the Asteraceae: *Olearia paucidentata* and *Pithocarpa corymbulosa*. But the early starters really belong to the Southern Hemisphere heaths - the Epacridaceae. Astrolomas, Andersonias, Styphelia, Leucopogons range from cushion plants with small, pointed leaves, to medium, upright shrubs over a metre in height. They surprise with the variety of colours of their tubular flowers: red and black; blue and pink; cream; and white.

At Easter the slender grass trees, *Kingia australis*, are in flower. Closely related, but without blackened trunks, are the mat rushes, Lomandras, which are especially well represented in the Hills. These small tussocks of tough, grasslike leaves at ground-level bear curious and varied flowers.

On recently-burnt slopes, more obvious than ever amidst the blackened stems, the white flowers of ground-hugging rosettes of sundews (*Drosera* spp.) appear. These insectivorous plants trap insects with their sticky, glandular hairs. Droseras abound in variety and form in the Hills.



Styphelia tenuiflora (above).
Astroloma foliosum (below).

Hovea pungens (above).
Kingia australis (left)
Hibbertia amplexicaulis (bottom left).

By June, the most commonly represented family of all, the peas (Papilionaceae or Fabaceae) begin to make a contribution. There are over 80 species in this family, including Hovea, Oxylobium and Daviesia. By this time, too, the closely-related wattles (Mimosacae) have made an appearance. The rich yellow flowers belong to *Acacia teretifolia*, the pale flowers to *A. obovata*, while in the forest, *A. urophylla* bears almost white flowers. Later, the slope species will be followed by the lemon-yellow pom-poms of *A. nervosa*. The stream banks turn yellow with the ribbon wattle, *A. alata*, with its curious 'leafy' winged stems. Unlike the tree-forming wattles to be found in suburban gardens, introduced from Eastern Australia, these native species are medium to small shrubs.

Prominent among the yellow-flowered shrubs are the Hibbertias, or guinea flowers. Particularly widespread is the buttercup bush, *Hibbertia amplexicaulis*, although over a dozen species in all are to be found in the Hills.

By mid-winter, more orchids have appeared; the greenhoods (*Pterostylis* spp.), with their several representatives - the dwarf and banded greenhoods; and the bird and jug orchids. Donkey orchids (*Diuris longifolia*) come out in July and continue, almost overlapping with the bee orchid (*D. laxiflora*) in late spring.

Up till now, the flowers in the bush have been for the searcher, the learner and the curious. From August onwards the numbers become overwhelming, making learning daunting, but invoking sheer wonder.

The woody shrubs, mainly in the banksia and eucalypt families (Proteaceae and Myrtaceae) are beginning to make their presence felt. Colours span a wide range. The yellow of *Lambertia multiflora*, the pinks of *Isopogon formosus*, *Hypocalymma robustum* and *Melaleuca scabra*, and the creamy whites of Hakeas and Grevilleas add to the reds of the hairy jugflower, *Adenanthos barbigerus*, which has been in flower for most of the year, *Grevillea bipinnatifida*, one of the first to flower after fire, *G. wilsonii*, a speciality of the Range, and *Calothamnus* spp., the one-sided bottlebrushes.

Featherflowers are perhaps the most exquisite contribution of the eucalypt family with *Verticordia acerosa* (yellow) and *V. huegelii* (creamy-white then pink) the most commonly encountered of the six Hills' species.

Other less well-known families are also represented, including the blue-white flowers of the woody violet, *Hybanthus floribundus*; the pink, drooping, open bells of *Tetratheca hirsuta*; and the greeny-yellow flowers of false boronia, *Phyllanthus calycinus*. Boronias, with their four-petalled flowers in pinks and blues, contrast with closely related pepper-and-salt, *Eriostemon spicatus*, with its erect spikes of five-petalled, lilac flowers.

***Phyllanthus calycinus* (above left).**
***Eriostomon spicatus* (above).**
***Lambertia multiflora* (below).**

Verticordia huegelii (top left).
Diuris laxiflora (above left).
Tetratheca hirsuta (top right).
Isopogon formosus (below).
Greenhood orchid (full page).

Leschenaultia biloba (above).
Gompholobium polymorphum (below).
Scaevola striata (inset).

Among the smaller shrubs, from July onwards the characteristic sky-blue of *Leschenaultia biloba*, the emblem of the Hills suburb of Kalamunda, takes pride of place. Others include the deep blues of *Dampiera linearis*, *D. alata*, and, in October, *Goodenia caerulea*, and the purples and whites of the Scaevolas (four species). The closely-related Lobelia family is represented by several species, and most reliably seen as the dainty *Lobelia alata* which flowers year-round on the stream banks.

The pea family includes the scrambling Kennedias, of which the coral pea, *Kennedia coccinea*, with its improbable combination of cerise and orange, is the most celebrated. The flame orange of the flame pea, *Chorizema dicksonii*; the bronze-orange of more Daviesias; the large, yellow or orange, granny bonnets of *Gompholobium polymorphum* add to the colour-patchwork of the slope shrublands.

Colour and shape now blaze from every direction with many of the most exquisite coming from lilies and orchids. The pale, sky-blue of the morning iris, *Orthrosanthus laxus*, to be found in the forest and woodlands near the Scarp edge, gives way, later in the season, to the dark, royal blue of false blind grass, *Agrostocrinum scabrum*. Topping slender stalks alongside the morning iris are the white flower heads of milkmaids *Burchardia multiflora*, with its more robust relative to be found on slope seepages. Blues among the orchids range from the shortly-stalked, single-flowered blue china orchid (*Caladenia gemmata*) on the inhospitable ironstone gravels and exposed slopes through the progressively taller blue-beard and silky blue orchids (also Caladenias) to the majestic queen and scented sun orchids (*Thelymitra crinita* and *T. nuda*) with several large flowers clustered along stalks to half a

Stylidium amoenum (above). Bickley Valley (below).

metre tall. Also on tall stalks, over a metre tall and especially prominent after recent fire, are clustered the hundreds of flowers of leek orchids, Prasophyllums. Observed closely, these are all found to be majestic white spider orchids, *Caladenia longicauda*, well remembered of the bush of yesteryear, with their pointed upper, and trailing lower flower parts extending some 8 cm.

October is the peak month for flowers in the Hills, and adding greatly to the number are the triggerplants (*Stylidium*). Though many are small, they are conspicuous *en masse* when in flower. Their identification is certain: two pairs of colourful petals spread from the flower centre. These may spread upwards and downwards, as in the large, pink flowers of the Queen triggerplant (*Stylidium affine*) with its grasslike leaves in tussocks, and flowers 2 cm across. Or they may spread to the sides of the flower centre as in the flowers borne in crowded spikes of the pink fountain, lovely and butterfly triggerplants (*S.brunonianun*, *S.amoenum* and *S.hispidum*). Whatever the display of petals, it is the bringing together of male and female parts of the flower onto the single, touch-sensitive column that associates triggerplants as a group. When 'untriggered', or set, the column is bent back, largely out of sight, behind the petal pairs. But the lightest touch on a warm day at the centre of the flower - by insect or small twig - brings the column swiftly over. The purpose is to ensure pollination, the transfer of pollen from one flower to the stigma of another. This is achieved by the pollen at the end of the column being dabbed, at the end of trigger-action, on part of the insect responsible. Self-pollination is frequently avoided because the pollen and stigma of the one column are not ready at the same time. And so, as the insect visits another flower, this time with the stigma receptive, cross-pollination is achieved by the trigger-action resulting in pollen being picked up by the stigma. Two final aspects of triggerplants: Western Australia is by far the richest place in the world for these plants which belong to the largely Southern Hemisphere family, the Stylidiaceae. And, when studied, the combination of size of flower (and hence, size of insect it will support) and length of column is such that the pollen of each of over 100 species is practically assured of a unique spot on its carrier. This fact alone is almost as remarkable as the richness of the wildflowers of the Hills itself!

A book on identification of the Wildflowers of the Hills is in preparation by the authors of this article and enquiries are welcome to the Darling Range Branch of the Wildflower Society of Western Australia, P.O. Box 64, Nedlands, W.A. 6009.

LANDSCOPE

Volume 4, No.1
Spring Edition/September 1988

EDITORIAL

In W.A. the concept of marine conservation reserves was firmly established in 1984 when the CALM Act was passed, with provision for Marine Parks and Marine Nature Reserves, vested in the National Parks and Nature Conservation Authority.

Since 1984 two major Marine Parks have been declared in W.A: Marmion and Ningaloo.

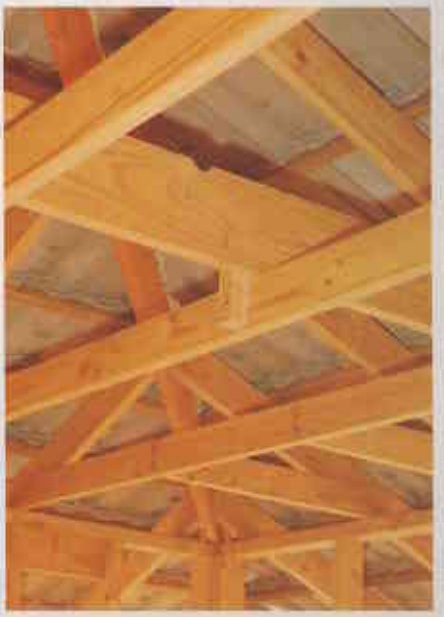
This is a new field in W.A., and there are no local precedents to guide us in resolving the many management issues which have emerged.

A first consideration has been that fishing is already controlled under the Fisheries Act. It would be foolish for CALM to attempt to establish itself as a fisheries management agency. A policy decision has been made that any fisheries in Marine Parks will be regulated under the Fisheries Act.

A more philosophical problem has been that many citizens, although generally sympathetic to the conservation cause, are unaccustomed to the idea of having parks and reserves in the sea. The idea that the sea is a public common where anything and everything goes is still well entrenched in public attitudes. Yet there are many terrible examples around the world where coastal environments and their resources have been devastated by excessive and improper use. In W.A. we have not reached that point.

W.A. can be proud of its fisheries management record, based on the principle of sustainable use for posterity. Development of a marine parks and reserves system along our coast is another essential part of the overall objective. It is to be hoped, then, that our first initiatives in this direction will receive public support.

PINES



How can less than four per cent of the State's area supply us with all our timber needs, and save the hardwood forests at the same time? *Details on* ***page 28.***

BORERS

Now you ***can*** *be sure there are no borers in the door. Well, if they are there, at least you'll know what to call them after reading the article on* ***page 42.***

TROUBLED WATERS

Does the very word pollution make you feel powerless? Discover what you can do to help the wildlife victims on ***page 20.***

WALL OF MOUTHS

It's a fish-eat-coral world, but what do the coral eat? Find out on ***page 32.***

FOREST RENEWAL

What is the connection between the poets' of the First World War and W.A's forests? Find out on ***page 56.***

Jewel Of The Kimberley

What do you mean frog? In my home I am a prince. After all, Prince Regent is the only mainland reserve where all of the original animal species remain. Meet the rest of them on ***page 47.***

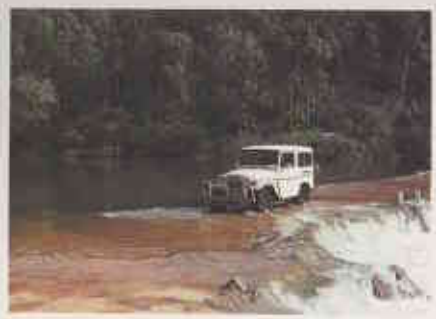
Hills' Belles

When Perth looks out its backdoor in spring the Hills are ablaze with colour. Your field guide to some of our glorious wildflowers starts on ***page 4.***

Gather No Moss

The trouble with lichen is that up until recently it wasn't protected flora. Now lichen and their relatives - mosses, liverworts and algae - have joined the rest of the State's flora. See ***page 54.***

Right On Track



Is a high-tech wilderness trek a contradiction in terms? Find out how 4WDs and conservation can co-exist peacefully on ***page 12.***

ATTENTION ADULTS!

Sick of taking the anklebiters to the same old national parks and camping spots? Put them to work for you. If they enter the kids' competition on ***page 63*** they could win two beautiful books on all the best picnic and camping spots between Perth and Eucla.

Cover Photo

Magpie Geese take off from the Ord River.

Photo: Richard Woldendorp.

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