Soul of the desert

A new book, *Soul of the Desert*, by acclaimed Western Australian illustrator and long-time *LANDSCOPE* contributor Philippa Nikulinsky, with text and captions by biologist Steve Hopper, was 20 years in the making.

Illustrations by **Philippa Nikulinsky**
Text by **Steve Hopper**

Australia's deserts differ from those anywhere else in several respects related to the geological and evolutionary history of the continent. The most obvious manifestation of Australia's 'desert soul' is its plant life, Charles Darwin's 'chief embellishment', or, as William Dampier observed in 1688, the dry places producing 'diverse sorts of Trees; but the Woods are not thick, nor the Trees very big'.

Woody plant life must have water, and that, indeed, is a second aspect of the soul—vegetation is far more extensive and better developed than precipitation levels would suggest is possible. Water, mainly underground, is there for the finding in Australia's deserts. These are not the waterless wastes of European explorers' imaginings or more recent mass-media depictions. A Sahara this is not. As the explorers very quickly realised, Aboriginal people have sophisticated cultural maps of water sources and their daily life, celebrated through song, dance and caring for country. There is 40,000 years of collective wisdom about this country's water sources.

The low relief of the continent facilitates cross-continental movement of monsoonal rain-bearing depressions from the north. Subsurface water retention is facilitated by underlying geology across vast areas, especially the Great Artesian Basin of the east. But precipitation is highly variable. Sometimes the summer monsoon will only touch the northern desert fringe. Prolonged drought prevails in the interior. Most life retreats to permanent refuges. Only perennial plants and hardy animals are evident, parched.

Occasionally, rain will sweep down from the north-west to the Nullarbor and on east to the Central Ranges and Lake Eyre Basin. Or a south-westerly front will sweep up from the Southern Ocean in winter and bring rain as far north as the southern Pilbara, dousing all of southern Australia from west to east. Underground water is recharged as watercourses flood. Salt lakes, rock pools and claypans fill, and invertebrate and fish populations explode into life. Waterbirds arrive for the abundant feast. The desert greens and blooms, with annuals in displays as vast and as stunning as seen anywhere on Earth. Small mammals go through boom and bust cycles. The sky is darkened by flocks of budgerigars, and finches come to feed on abundant seed and drink their fill from myriad temporary pools. Reptiles of a diversity unseen elsewhere grow fat and numerous. Frogs that had lain cocooned away emerge to mate in pools and claypans. Following good rain, the abundance of Australian desert life is a sight to behold.

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Main Large-fruited mallee (*Eucalyptus youngiana*). Blossoms attain five to eight centimetres in diameter, and the handsome ribbed fruits are a similar size. Stamens may be red, pink or yellow.

Left and above Fruits of the blue-flowered bush tomato or ngaru (*Solanum chippendalei*), produced in abundance after fire, are very important to Aboriginal people. The fruits can be eaten raw or kept dried on skewers and transported. Some similar species are toxic, however. Wild capers has fruit with bitter seed and edible yellow pulp. The caper white caterpillars will often consume entire leaves.

A third aspect of the soul arises from the arid zone's bi-directional winds, from the monsoonal north and cold south-west. These form longitudinal sand dunes almost to the exclusion of other dune types. Australian deserts are home to vast areas of well-vegetated longitudinal dune systems in the Great Sandy, Little Sandy, Great Victoria, Tanami, Simpson, Tirari and Strzelecki deserts.

Biologically, the soul of the desert is embedded first in the old, weathered, quiescent landscape of this island continent, where millions of years of rainfall have stripped the soil of nutrients and transported them to scattered pockets of fertile deposition. These fertile refuges in a matrix of infertility are essential habitats for many organisms when times are tough, especially when they coincide with permanent surface water.

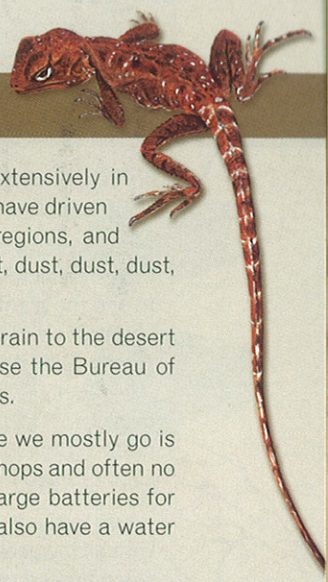
Since inching away from Antarctica 40 million years ago, Australia has required increasingly sophisticated evolutionary adjustment of its inhabitants as the continent drifted north and arid conditions developed. Nutrient deficiency spawned tough, fibrous, perennial plants, low in forage value, favouring an extraordinary abundance of termites as major herbivores, and the co-evolution of remarkable partnerships between plant-eater and gut microorganisms to break down the rough forage. Termites and macropods each enjoy such symbiotic help.

The perennial plants in turn provide a structural habitat for diverse groups of animals, including the greatest variety of desert reptiles and marsupials on Earth. Nectar is relatively inexpensive to produce compared with animal-dispersed fruit, so many desert plants attract nectarivorous honeyeaters to spread their pollen, and produce copious seed eaten by ants, birds and mammals alike. And fire continues to play out its dramas, causing setbacks for fire-sensitive plants and animals and opportunities for plants like spinifex to occupy new ground.

So there it is, soul bared, relatively young, diverse, an ever-changing agglomeration of deserts on the planet's oldest and driest mid-latitude continent. Australians are enriched by the presence of their deserts. Although few live within arid terrain, all are touched by it at some time. Many of us would recall those vivid television pictures of the giant wall of desert dust encroaching over Melbourne some years ago.

The soul is there in the dust, the red rocks and blue sky, the wind and rain, in the dunes and salt lakes, in the people, and in the plant and animal life, waiting to be experienced, revealed, revered, by those who would look. Hopefully, recent events have not dimmed 40,000 years of human wisdom accumulated through desert life, and the future holds some promise for these quintessentially Australian landscapes.

HEAT AND DUST



For the past 30 years, my husband Alex and I have travelled extensively in remote areas of Western Australia. In the past 10 years alone, we have driven around 70,000 kilometres, exploring and painting in the desert regions, and often working in very difficult conditions: wind, flies, midges, heat, dust, dust, dust, mud and rain.

All summer I watch for cyclones and tropical lows that will bring rain to the desert and result in abundant growth and flowering. I also regularly use the Bureau of Meteorology's website and follow the cyclone paths and plot maps.

A field trip takes at least a month of preparation. Because where we mostly go is very remote, we have to be totally self-sufficient, as there are no shops and often no water. We carry solar panels for power to run two fridges, to charge batteries for GPS, radio satellite phone and even my electric toothbrush. We also have a water filter so if we come to a waterhole we can filter the water.

I make the menu, shop and pack up all the food, with fruit wrapped separately in kitchen paper to prevent bruising and sweating. I have meat vacuum packed and buy long lasting vegetables (cabbages, carrots, pumpkin, kumera, onions and potatoes). Where possible, we cook with campfire and camp oven but, for many places like national parks or when weather conditions are bad, we have a gas stove.

I organise the art materials and living arrangements—bedding, food, paper, camera gear, film, microscope and reference books. Alex does all the car stuff and organising all the electronics and camping equipment—chairs, tables, solar panels, water, fuel, wind shelters and all the many things needed for a comfortable working camp. We drive a car each and pull a trailer with one of the cars—a travelling circus really!

Alex has set up one car as a workspace with table and lights so that I can work in all weather conditions. The other car has been modified with a big bed in the back with big pullout drawers underneath.

I was a passenger on two trips to the Little Sandy Desert organised by Stephen van Leeuwen from CALM's Pilbara regional office—exploring and collecting where there were no tracks. On one of these trips we had 77 flat tyres and drinking water only (no washing).

We are fortunate in being able to stay for extended periods in places that many people just pass through, and hope that we can continue to do so for many years to come. Sitting at the end of a working holiday watching a glorious sunset and sipping on a wine, Alex made the memorable comment: "We are in the front stalls of the universe".

Philippa Nikulinsky

Above Dragon lizard (*Ctenophorus* sp.) and bull ants (*Myrmecia* sp.).

Above left Spiny-cheeked honeyeater (*Acanthagenys rufogularis*) on the flowers of the honeysuckle grevillea or ultukunpa (*Grevillea juncifolia*). The flowers are rich in nectar, favourites for honeyeaters and desert people alike.

Development of a painting

From the initial idea to the finished work, each painting is the result of many stages of preparation.

I much prefer to paint and draw specimens that I have collected. This is not always possible. I like to see the plant growing in context, with its many variations and idiosyncrasies, to study what other plants, birds and animals live in, on or near it, and any other visually interesting associations. This allows me to bring the painting to life. I spend much time travelling many thousands of kilometres to find and see my subjects in situ.

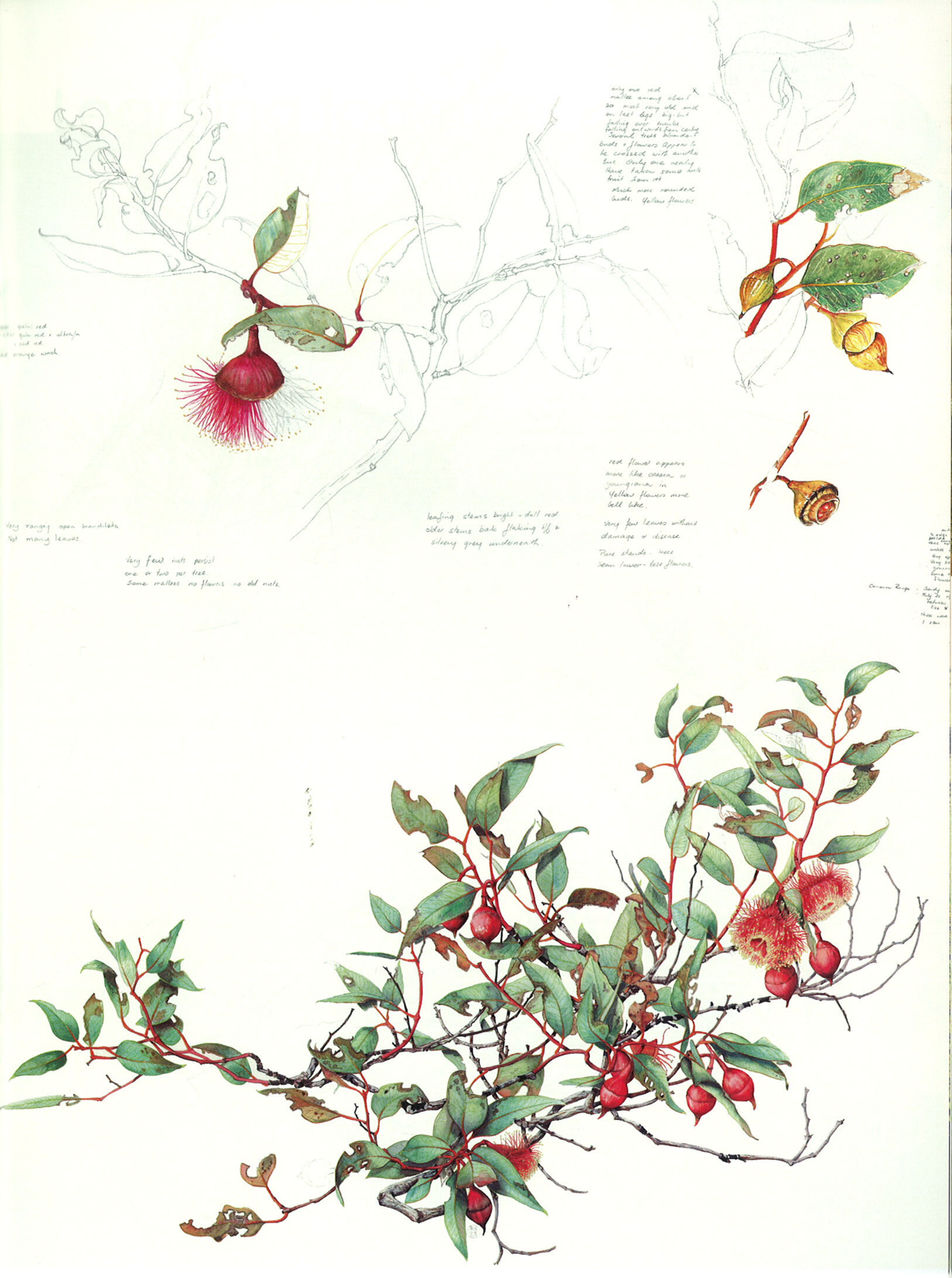
When in the field, I set off in the early morning with all my gear in a backpack and my binoculars slung around my neck. My backpack has a GPS, a collecting notebook and tags, a walkie-talkie to keep in touch with Alex back at camp, camera, film, water bottle, snacks, secateurs, folding saw and magnifying glass. The specimens are sealed in plastic bags to preserve them for the trip back to camp. For small delicate pieces I carry flat plastic-lidded boxes. I photograph the growing plant as well as the surrounding vegetation. I also take many close-up shots of different sections (leaves, stamens, stem junctions, bark patterns and so on). I walk, looking and collecting, for many hours.

Back at camp, the pieces for drawing are put in a shady place, either in the fridge, or in a jar of water covered with a plastic bag to shield the plant from the drying wind. I carefully study and draw many detailed section drawings. I analyse colour and make detailed colour notes while everything is fresh. These are recorded in a colour diary. At this time, insects, galls or any other interesting features which relate to this specimen are also drawn and photographed, and notes are made.

I find the act of drawing is discovery. By carefully looking and drawing, I try to understand everything about my subject. I press a piece as a voucher specimen between sheets of newspaper into a plant press. I also dissect a flower or a seed pod, which I place under clear tape in my field diary. If it is a woody plant, I keep a piece whole, with fruit, nuts or seeds. I can do only several field drawings a day and often under very difficult conditions—wind, dust, flies, heat, rain or mud. It is difficult to keep paper clean in the field, so most of my work is finished in my studio at home. Many paintings take weeks, even months, to finish.

For example, for a large specimen like Ramel's mallee (*Eucalyptus rameliana*), first I made a large rough drawing of the whole specimen as shown. I then broke it up into suitable sections and drew each piece separately, numbering each drawing and locating it correctly. Back in my studio, I used these drawings to reconstruct the whole branch, using the colour notes and diary, until I gradually completed the painting. I needed the second desert trip to get fresh leaves and flowers in order to complete the work, which will have been on the drawing board for two years.

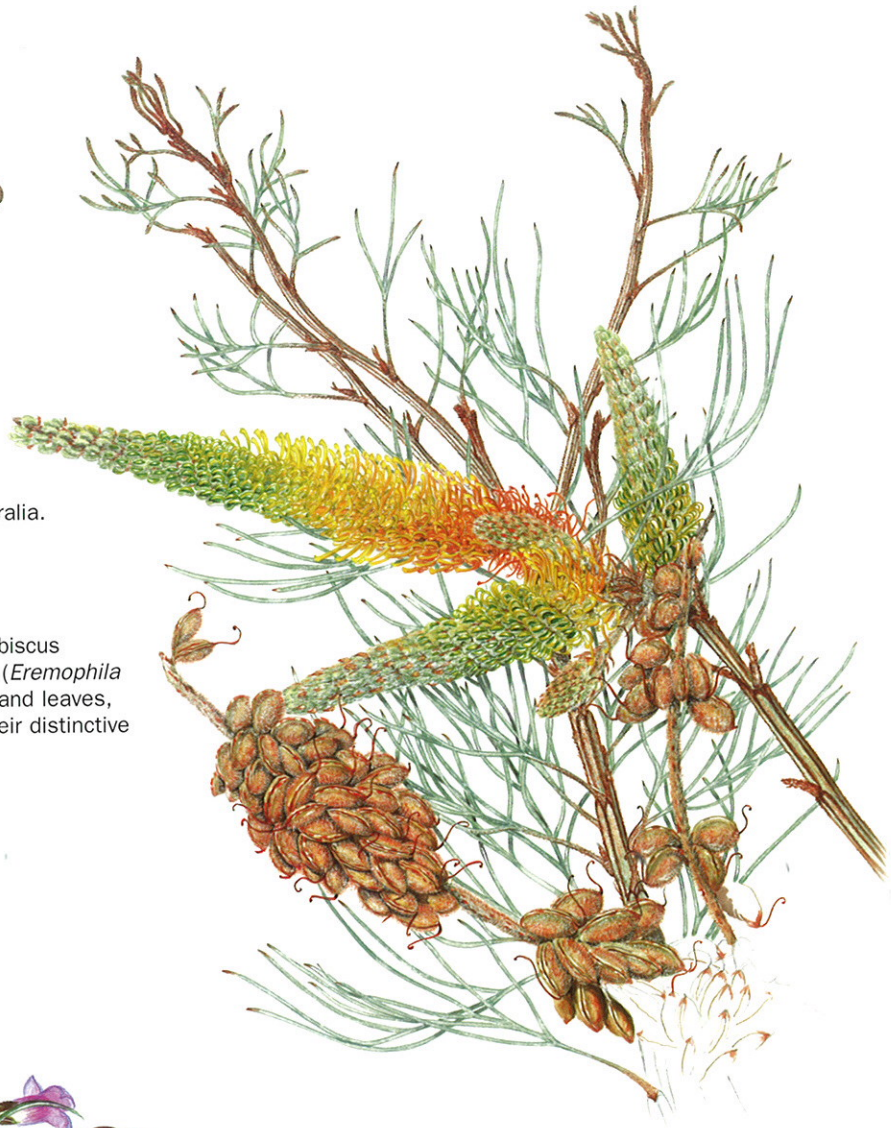
Philippa Nikulinsky


only one red mallee among about 20 most very old and on last legs big-but falling over trunks falling outwards from centre Several trees abundant buds + flowers Appear to be crossed with another Euc Only one nearby
Much more rounded buds. Yellow flowers
red flower appears more like youngiana in Yellow flowers more bell like.
Very few leaves without damage or disease
Pure stands. trees seem lower - less flowers.
leafing stems bright - dull red older stems bark flaking off + silvery grey underneath
Very rangey open
Not many leaves.
Very few nuts persist one or two per tree.
Some mallees no flowers no old nuts.

Right Yellow flame grevillea or kaliny-kalinpa (*Grevillea eriostachya*) at Coolbro Creek, in the Great Sandy Desert. This fire-tolerant shrub has large inflorescences often dripping nectar. Desert people seek the sweet elixir, sucking it directly or steeping inflorescences in water to make an enticing drink. Honeyeaters, too, relish the nectar. The species ranges widely in Western Australia, extending into the Northern Territory and north-west South Australia.

Above Inland desert mouse (*Pseudomys hermannsburgenis*).

Below *Hibiscus* species, such as Coates's hibiscus (*Hibiscus coatesii*) and Wills's desert fuchsia (*Eremophila willsii* subsp. *willsii*) with the smaller flowers and leaves, enliven desert hills and watercourses with their distinctive flowers, especially after fire.



Philippa Nikulinsky is a freelance natural history artist. She has illustrated most front covers of *LANDSCOPE* since 1990. Her particular interest is plants and animals existing in harsh and arid environments. *Soul of the Desert*, coauthored with Steve Hopper, is her latest book. Philippa can be contacted on (08) 9386 6375 or (08) 9389 9125 or by email (Philippa Nikulinsky@ Nikulinsky.net).

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Soul of the Desert is published by Fremantle Arts Press and is available for $59.95 from most good bookshops.