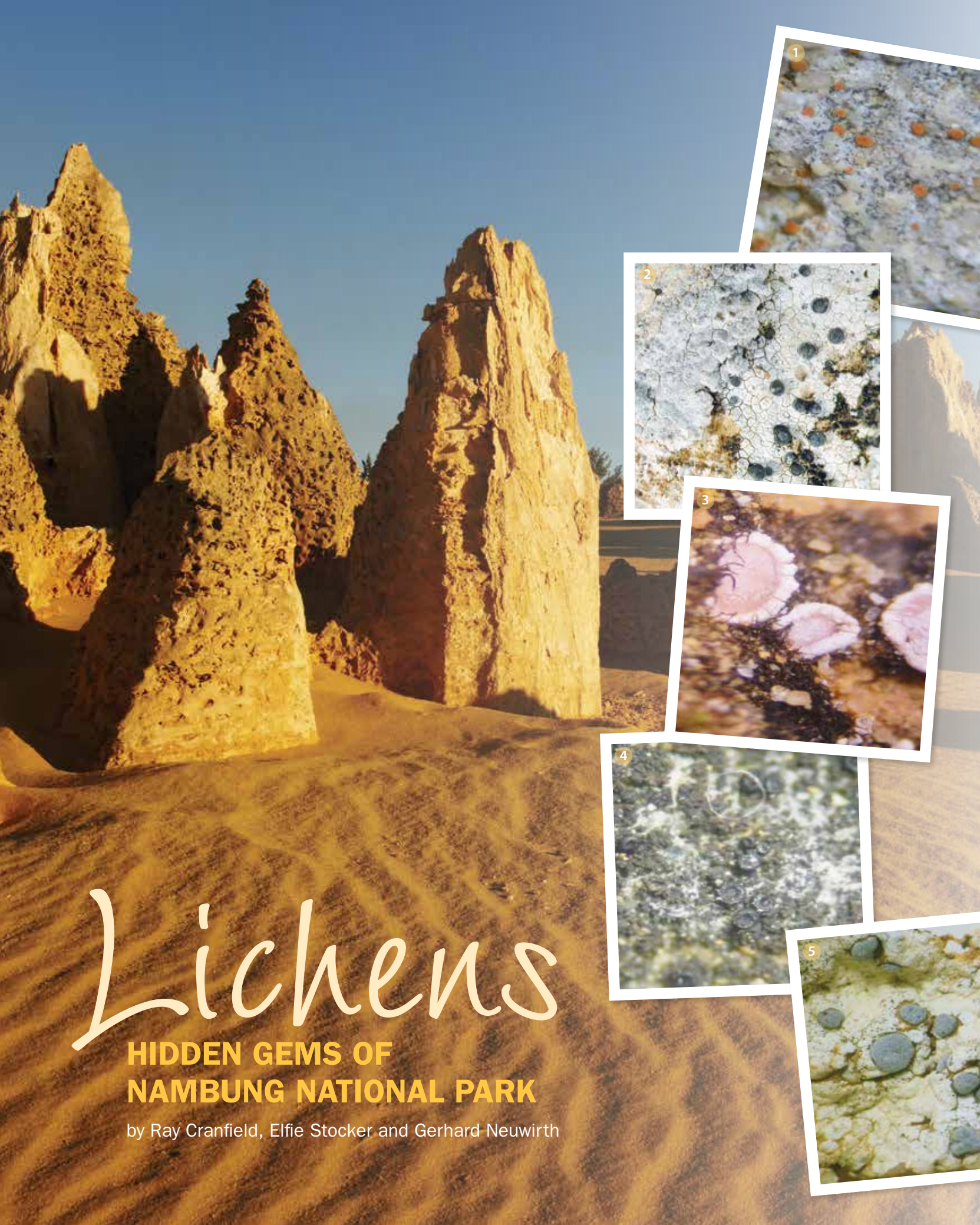

Lichens

HIDDEN GEMS OF NAMBUNG NATIONAL PARK

by Ray Cranfield, Elfie Stocker and Gerhard Neuwirth

At first glance, the mysterious Pinnacles Desert in Nambung National Park is as sparse as it is vast – with tall limestone pillars jutting dramatically from the yellow sand and little obvious vegetation occurring throughout. But look a little closer and you may discover a whole microcosm of fascinating structures and forms that are often overlooked.

The spectacular Pinnacles Desert was first recorded in the 17th century by Dutch sailors as they passed along the WA coast. Today, Nambung National Park is one of the State's most visited national parks attracting more than 300,000 visits every year. It is probably safe to say that most people come to admire the expansive and intriguing scenery of the impressive limestone structures that rise from the sand. And it's probably even safer to speculate that few people pay attention to what is occurring at a microscopic level. But, if you take the time to have a closer look, you may spot dull-coloured patches that occur on the pillars that provide an insight into another feature of this rare landscape.

UNDER THE RADAR

These inconspicuous patches are actually a collection of unique organisms that, while often drab in appearance and void of showy flowers, contain interesting structures and forms. A search of the Pinnacles will reveal that they are not necessarily present on all pillars, but those that are may be different species and encompass many genera. This flora is made up of algae, moss, liverwort, fungi and lichens, and can be found naturally on several substrates.

Survival is no mean feat. This environment is hostile to many of these life forms and only a select few can thrive in this extreme coastal setting. Although tough, lichens (which are a symbiosis between a fungus and an alga or cyanobacterium) do not appreciate the sand blasting they receive from the prevailing winds, which are common in this exposed area. So you'll most often find them in sheltered crevices or edges where the wind movement is reduced. Some species 'tough it out' and can be seen on upper surfaces of larger pillars. Most of these lichens have grey or white-coloured crust-thallus (or 'twigs') with disc or dome-shaped fruiting bodies. Some species have evolved a step further and have immersed their thallus into the stone surface with only their coloured fruiting bodies seen. Several lichens and one moss species have been identified on the bark or wood of mature shrubs and one moss species on the soil in the fringing vegetation areas around the Pinnacles Desert.

SEARCHING FOR RECORDS

An examination of WA Herbarium records in 2013 came up empty-handed with no recording of lichens or terrestrial algae in the Pinnacles Desert. As a result, a one-day excursion was carried out in 2014 when 52 samples were collected from the pillars and surrounding vegetation with an occasional sample collected from the soil.

Initial identification of the sampled material revealed that there were possibly several free-living algae that may be involved in symbiotic partnerships with fungi. These samples were sent to the University of Graz in Austria for identification of lichens and alga species. Tentative identification recognised 15 lichen, four alga and one moss species. Expert examination of the lichen samples in Saltzburg has shown there to be at least 16 species at the Pinnacles, of which two are yet to be identified due to the immature development stage of these samples. The free-living algae and cyanobacteria specimens have been placed in cultures at the University of Graz for future identification.

Of the 16 lichens identified, two were only recognised in 2014 and are new to Western Australian lichenology. *Sarcogyne meridionalis* and *Placynthium australiense* both occur on stone substrates. The common showy taxa appears to be *Buellia albula* usually found on limestone. Other limestone species recorded are *Circinaria calcarea*, *Rinodina bischoffii*, *Lecania sylvestris* and *Caloplaca holocarpa*, *C. lactea* and *C. lithophila*. *Toninia* appears to be representated by two species – *T. australis* and *T. sedifolia* – but further study of this genus is required in Australia to reveal more answers. In the meantime, visitors to this fascinating park should be encouraged to refocus their gaze so they may see the area's interesting life at the macroscopic as well as landscape levels.

Opposite page
Main The Pinnacles at Nambung National Park. *Photo – Tourism WA*
Insets 1 *Caloplaca lactea*. **2** *Buellia albula*. **3** *Psora decipiens*. **4** *Placynthium australiense*. **5** *Circinaria calcarea*.

Above *Rinodina bischoffii*. *Photos – Ray Cranfield*

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