

THE KIMBERLEY: AUSTRALIA'S LAST GREAT WILDERNESS

On 3 November 2010, Victoria Laurie, a Perth-based journalist and writer, with a strong personal interest in natural history, presented an illustrated talk about her book, The Kimberley: Australia's Last Great Wilderness. The book, which the Chief Scientist of Western Australia, Professor Lyn Beazley, had launched at the WA Museum a fortnight earlier, is also the subject of a [book note](#) on this website. The notes that follow comprise Victoria's précis of her talk.

Addressing a roomful of Kimberley experts and frequent visitors to the region is a daunting prospect, but I can only describe to you the aspects about the Kimberley that struck me as worth telling the rest of Australia about in my book.

My first stirring of interest came when, in the early 1980s, I was sent by Radio Australia to northern Australia to record a radio series on mining provinces. I travelled to Koolan Island and glimpsed a jewel-like scattering of offshore islands, the wide grey-green lace pattern of Derby's mangrove and mud shores and Broome's pindan and wattle landscape.

In years that followed, I made periodic trips north as a journalist – among them, trips to the Oscar Ranges outside Fitzroy Crossing for a Kimberley Land Council cultural camp, to write about traditional law; to Mornington Station to explore its eco-tourism and fire management regimes; to Broome to chase Snub-fin Dolphins with WWF ecologists; to Kununurra to talk education and irrigation and bush rodeos with locals.

When I was asked to write a book about the Kimberley by UWA Publishing, I asked that we focus on the natural assets of the region, and what we know about them. I divided up the Kimberley into roughly eight or nine regions, and set out to describe to a general reader what lives in the landscape, the fauna and flora, topography and interesting natural features. I sought out every person with a body of knowledge, from ecologists to amateur botanists to traditional owners with a close affinity with the bush. My words are matched by wonderful images, all the work of others.

I wanted to transmit the thrill of discovery that permeates this part of Australia. It is easily demonstrated in the work of Matt and Russell Barrett, botanist brothers who have endured storms, soaring heat and drenching humidity in the Wet season in their air-borne quest for new species of plants.

The pair can find themselves strapped into a helicopter as it hovers over the lip of a steep sandstone cliff, poised mid-air between a rust-orange rock shelf and a dappled green valley hundreds of metres below. Their pilot is aiming to land them on a remote rocky plateau, so they can scout the area for new plants. But while the helicopter is still a few metres off the ground, one of the brothers spots something new, a shrubby acacia he knows from experience is not a familiar one. Before they've even landed, the Barrett brothers have made a new discovery!

By the time the helicopter revs up and drops back over the ledge like an agile dragonfly, the botanists have pressed hundreds of plant specimens between newspaper and board. They've stacked them so high that the piles reach up to the helicopter cabin roof; the brothers can barely see out.

In the following weeks, back in Perth's Biodiversity Research Centre at Kings Park, they add to the body of known northern Australian plants – on one trip, they discover ten new plants in six days – among them new Acacia, Hibbertia, Eucalyptus, Melaleuca, Boronia, Triodia (or Spinifex), and Solanum (or bush tomato).

The Barretts are in their mid-thirties, a little older than Charles Darwin was when he began to shape his ideas about evolution on a visit to the Galapagos Islands, still largely unknown in the mid-19th century. At the dawn of the 21st century, two Australian brothers are making discoveries in a place every bit as remote and scientifically unexplored.

Remoteness is a hallmark of most Kimberley country – whether you are visiting Twin Falls on the King George River, or the towering, tumbled rock of the Mitchell Plateau. In such

places, there are no paved roads, few tracks, no towns and only a few outposts in an area covering thousands of kilometres.

Some Australians will have been to more accessible parts – they may have driven along the famous Gibb River Road from Derby to Wyndham. They may have gone exploring in Tunnel Creek and Windjana Gorge, encountering the arc of ancient Devonian reef that has deposited fossils of early fish and aquatic life in its rocky ramparts. At Gogo Station, they may have picked up a perfect fish fossil encased in limestone nodules.

Many people may be unaware that Australian researchers have made remarkable contributions to early fish fossil research, thanks to those little Kimberley fish that were captured and preserved – internal organs, muscles and all – in the silt 380 million years ago.

In my own journey of discovery about the Kimberley region, I've come up against persistent themes that have set me thinking. The first is that this part of Australia has a remarkable combination of fauna and flora in a relatively unsullied landscape.

The second is that, everywhere you turn, too little is known about its ecology. The third is more of a question – at a time of controversial change in the Kimberley, how much do we need to know about the natural environment before we can make informed decisions about human activities that will affect it?

To take the first and second points, Kingsley Dixon is the director of science at Perth's botanical gardens at Kings Park and he mentored the Barretts. Kingsley says the Kimberley is "the last great botanical frontier in Australia." When Kings Park scientists started exploring the area in the 1980s, 1500 plant types were known; it's now 3000, or double. Literally hundreds more plant species are yet to be discovered, maybe the same amount again as all known plant species in the United Kingdom.

It was only in 1965 was it realised that rainforest grows in the Kimberley. Only in the late 1980s did an expeditionary team map a wide, patchy network of 1500 rainforest thickets scattered across 170,000 square kilometres. It's now known that a quarter of all Kimberley flora is found in those vine-covered thickets. That may surprise people who think of the Kimberley as one vast grassland savannah grazed by cattle barons.

Those same people may be surprised to hear that there are ephemeral wetlands and marshes across parts of the north Kimberley, damp grassy meadows dotted with flowering herbs—royal blue, deep purple, sunny yellow. One of the people I met and interviewed for this book was Allen Lowrie, a self-taught botanist who was drawn to carnivorous plants that can trap insects.

Some are small and beautiful, others are showy, like a giant Sundew at Moonlight Stockyard on Carson River Station, which has flowers the size of a 50-cent coin on a lime-green stalk a metre tall. Others are incredible survivors, like a small Sundew whose insect-trapping leaves dry off in the Dry season, leaving only a bulb-like leaf base encased in soil that soon dries as hard as concrete.

"If you hit the dry ground with a rock hammer, sparks would fly off it," Allen told me. "Yet when the rains come, the same soil becomes so soft that a car could drive on it and sink up to the door handles." With rain, the plant's soil straightjacket melts; it shoots leaves and floats them on the water to catch insects. Allen says: "These plants can survive in sun-heated water so hot you could easily make a cup of tea out of it."

The story of native animal life in the Kimberley is a mixed one – people who have travelled the region know that uncontrolled fire and roaming cattle have caused enormous damage over the decades. Yet there is an interesting and hopeful story that I first heard a few years back, when Dr. Andrew Burbidge gave a lecture about the need for caution in development along the Kimberley coast.

We've heard much about the disappearing native mammals of northern Australia, but Andrew will tell you that one part, the northwest corner that the Barretts love so much, is a

rare exception. “It’s one of only two places in Australia where there have been no mammal extinctions,” he tells me. “Sadly, it’s a rare exception on a hostile continent.”

He says this unique region appears to have hung onto its entire suite of pre-European mammal fauna, including endangered mammals like the Scaly-tailed Possum and the rare Golden Bandicoot, the Golden-backed Tree Rat and spotted northern Quolls.

Andrew has a personal stake in preserving the Kimberley’s mammals—in 1972 he identified the smallest of Australia’s kangaroos, the Monjon, which lives only in tumbled piles of sandstone on the Mitchell Plateau and on a couple of Kimberley islands. This rock wallaby is a pretty creature with a delicate snout and it weighs no more than the kilo bag of sugar in your shopping. But the Monjon is so shy and elusive that, for seven years after its discovery, nobody had captured a single image of it in the wild.

Photographer Jiri Lochman spent three exhausting weeks hiking alone on foot to find it. One night, tucked in his sleeping bag, he looked up to see a miniature wallaby dancing on a rock. “Fully absorbed in its performance,” wrote Lochman later, “the wallaby stamped its feet vigorously, while repeatedly turning on the rock in either direction.” Jiri set up a camera hidden behind a low forking tree the next night, where under an almost full moon, he captured the Monjon’s image for posterity and science.

How come the northwest Kimberley has managed to hang onto its mammals? Probably its extreme remoteness, says Andrew. It helps that predating foxes can’t live so far north, and feral cats have a tough time hunting in the broken-up terrain of Kimberley stone country. Maybe healthy populations of Dingos keep cats in check. Or maybe the north-west’s stony ramparts offer shelter to animals when flames tear through the landscape. Why don’t we have a more exact picture of what’s going on? Same answer – extreme remoteness, but also the cost of conducting scientific work in the north.

My book touches on another hopeful aspect of conservation in the Kimberley. We know that Gouldian finches and Purple-crowned Fairy Wrens are among species that have been hit hard by human-related changes to the landscape. I made several visits to the Australian Wildlife Conservancy, a private organisation that runs a superb research station at Mornington, a 100 kilometre-drive off the Gibb River Road into the central Kimberley. By controlling fire and cattle grazing, AWC is bringing these beautiful birds back into the landscape.

I also describe a publicly-funded science endeavour by the Department of Environment and Conservation, which has conducted a remarkable survey of 22 Kimberley islands over the last three years. They’re writing up the papers now. A team of DEC scientists, WA Museum staff and Aboriginal rangers studied the islands in both Wet and Dry seasons and found a great array of creatures. Could the islands become refuges for species like Quolls, which are being wiped out by Cane Toads in some parts of Northern Australia? Or are Quolls found on the islands different from their mainland cousins? Research by geneticist Linc Schmidt and zoologist Ric How suggests a slight but tantalising difference in their DNA.

What happens if some of these regions are opened up, and human populations move in to exploit them? The Mitchell Plateau has huge deposits of mineable bauxite sitting atop it, and from its pebbly scree grow Livistonia palms in magnificent fronded forests, unique to the region. If it’s mined, the elegant Livistonia are likely to disappear.

Ironically, some of the earliest, significant science work on the Mitchell Plateau was done thanks to the mining company that found the bauxite, allowing conservation scientists use their camp in the early 1970s and begin mapping the incredible mammal and plant life.

A similar thing is happening now along the Kimberley coast, where a flurry of scientific surveys, reports, fly-in fly-out ecologists and public consultations have been triggered by industry plans to develop a huge reservoir of oil and gas off the Kimberley coast, in the Browse Basin.

In my book, I describe how the Kimberley coast and its reefs and oceans are among the least studied parts of its ecology. But now the WA Museum has embarked on the first in-depth work on its reefs – you can follow the on-line research teams if you go to the museum website. The work is being paid for by Woodside, the oil and gas multinational that hopes to build the first – but probably not only – liquefied natural gas plant on the Kimberley coast.

There is an urgent need for closer study of the Kimberley coast. Environmental clearances for the gas plant are still some way off, but so is a good understanding of Kimberley marine life. Two years ago, the West Australian Marine Science Institution produced a 60-page report called 'A Turning of the Tide: Science for decisions in the Kimberley-Browse marine region'. Its bottom line message was that marine science research in the Kimberley was an urgent priority, in light of pressing interest from industry.

Ask any marine biologist – or any boat skipper – and they'll show you maps of the Kimberley coast warning of 'insufficiently surveyed' or 'uncharted' waters. Reefs, sponges and sea creatures that live along this tide-ripped coast have barely begun to be studied. Scientists suspect that coral life off the Kimberley coast may one day rival the famous Red Sea reefs in its extent, but we don't yet know. Such lack of basic understanding of Kimberley sea currents, sea depth and organisms makes events like the recent Montara oil spill particularly alarming.

It brings us to the third theme that kept nagging me as I talked to people about the Kimberley: 'How much knowledge is enough?' Well, even the WA Chamber of Minerals and Energy admits not enough is known right now. In a policy paper on Kimberley resource development, released last June, the Chamber notes that "the nature and functioning of ecosystems and biodiversity in the Kimberley are inadequately described and understood."

It records how the Kimberley is a National Biodiversity Hotspot, one of only 15 listed in Australia. Not mentioned is that, to date, there has been no systematic inventory of its ecology, and in many areas not even proper plant or animal surveys.

In a way, the driving force behind my book is to add to those voices who believe in the inherent value of natural wilderness, especially in a world that is losing so much, so fast. Gouldian Finches are a warning species in the grassy savannah; if they are suffering then so is the entire ecosystem. But the AWC has proved that knowledge can lead to strategies that save species and conserve ecosystems.

There is value in knowledge for its own sake, so that we can more deeply appreciate the complexity and mysteries of nature. Ten years ago, the Barrett brothers came across a Kimberley grevillea that has its closest relative in south-eastern Australia, on the other side of the continent. Matt says: "As far as we can tell, it's a species left over after plants went extinct over the rest of Australia, and its hanging on now in the Kimberley. To me, that's all fascinating." And I agree with him.