protected

Magazine of National Parks Association of Queensland

Cyclone Debbie's impact on parks

PLUS

The ecological effects of high-energy storms

ALSO FEATURED

Wooroonooran National Park

Misty Mountains Wilderness Trails

Littoral rainforests

National Parks Association of Queensland Inc.

connect and protect

Issue 15

June - July 2017

Notice of AGM

National Parks Association of Queensland Inc will hold its annual general meeting on Wednesday, September 20, 2017.

Venue and starting time will be confirmed closer to the date.

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Are you interested in driving the strategic direction of NPAQ on behalf of its membership and contributing to good governance?

Nominations to be an NPAQ councillor are now open.

Please contact The Secretary for a councillor nomination form. Email secretary@npaq.org.au or call (07) 3367 0878.

Contents

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Fred McKie (editor/designer), Laura Hahn and Jeannie Rice.

Contributor guidelines

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Contributors, please include contact details and brief personal summary. Articles can be submitted via email or hard copy. Digital photos should be minimum 300dpi.

Cover image

Whitehaven Beach in Whitsunday Islands National Park, which was hit hard by Cyclone Debbie, during the clean-up effort. **Photo:** Queensland Government.

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FROM THE PRESIDENT

Michelle Prior
President, National Parks Association of Queensland (NPAQ)

Change. Throughout human history, there has always been change, sometimes fast and sometimes slow.

Life is about cycles. However, while a single human life is of limited duration, many things created by humans last for generations. This is because people, in their turn, contribute what is needed at each evolutionary step – through which comes times of transition, experiences of learning and ability to build resilience for the future.

Throughout natural history, there has also always been change, sometimes caused by nature and sometimes caused by humans.

Often change brings about renewal – the forest fire that causes seeds to sprout, the flood that clears a stagnant pool. Other events change the face of the earth, destroying all in its path.

However, what at first may appear total decimation from a natural event, such as a cyclone, can in fact be a process of renewal.

Research has discovered that severe cyclones are important in maintaining species diversity in tropical rainforests. Severely disturbed areas later have higher levels of diversity and variation.

Nature has the amazing ability to deal with significant change.

> "Severe cyclones are important in maintaining species diversity in tropical rainforests ... nature has the amazing ability to deal with significant change.

Sadly though, the human species tends to dramatically alter nature and the natural evolutionary processes – effectively laying waste to the earth.

What once was a forest is now concrete. What once was a deep gully lined with trees is now a dam. What once was pristine beach is now littered with plastic debris.

Rangers faced a massive task to reopen walking tracks after Cyclone Debbie, such as the Pine Grove Circuit at Eungella National Park (above), and (top) work to restore sand to Whitehaven Beach after it was eroded.

PHOTOS: QUEENSLAND GOVERNMENT

Species are lost and, as time passes, some no one even remembers existing.

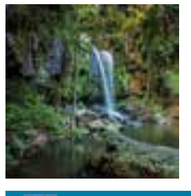
Such is the human tendency for destruction of nature, that 44 years ago, in 1973, one day of the calendar year (June 5) was set aside to raise global awareness and action for protecting the natural environment – World Environment Day.

This year's theme is 'Connecting People to Nature'.

Here at NPAQ we believe that people know that they are connected to nature – that no amount of concrete, steel and air conditioning can cause complete and utter severance of the interconnectedness of the human and natural worlds. It's just that sometimes people need to be reminded.

Connecting with nature

Below are some Queensland national parks images recently shared with NPAQ on Instagram ... tag your posts **#connectandprotect** or **#nationalparksqld** for a chance to be featured



Curtis Falls in the Joalah section of Tamborine National Park in the Gold Coast Hinterland.
— @kenwarephotos

Balancing Rock on top of The Pyramid in Girraween National Park on the Granite Belt.
— @tnttravels

Hikers atop Mt Ngungun in Glass House Mountains National Park on the Sunshine Coast.
— @dronestlkr

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SWIFT ACTION HELPS TO MITIGATE WIDESPREAD IMPACT ON PARKS

Collaboration features strongly in cyclone clean-up effort

Laura Hahn
Conservation Officer, National Parks Association of Queensland (NPAQ)

Be safe! Check parks alerts before heading to a national park: www.npsr.qld.gov.au/park-alerts

Queenslanders are a resilient bunch, tested by drought, flood, bushfires, severe storms and tropical cyclones. But is our environment resilient?

Many Queensland national parks were heavily impacted in late March and early April as Cyclone Debbie cut a path of destruction centred on the Whitsunday and Mackay regions, before tracking south and creating widespread flooding.

The extent of the disaster has led to a mammoth clean-up involving Queensland Parks and Wildlife Service (QPWS) rangers in collaboration with others.

Protected areas hit hard

While cyclones are a natural part of Queensland's tropical coastal environment, they not only wreak havoc for humans but have the power to transform landscapes and change the structure of ecosystems.

A total of 223 parks and forests across Queensland were affected by Cyclone Debbie.

Destructive winds and very heavy rain battered numerous parks off Queensland's central coast – including Whitsunday Islands, Lindeman Islands and Repulse Islands – as well as Conway and Eungella on the mainland, causing defoliation, erosion and flooding. Tracks and roads blocked by fallen trees and land slips forced closures en masse.

Whitsunday Island's renowned Whitehaven Beach, more exposed than nearby Hamilton Island which recorded wind gusts of 263km/h, was unrecognisable after facing the full force of the Category 4 tropical cyclone and suffering its worst erosion since Cyclone Ada (1970).

DEBBIE BY NUMBERS

73 landslides on Lamington National Park Road

190 Queensland parks and forests totally reopen by Easter (out of 223 affected)

263 wind speed (km/h) recorded in the Whitsundays region

700 cubic metres of mulch created from uprooted vegetation on Whitsunday Island (approximate)

1000 millimetres of rainfall in some areas – more than half the annual average

10k cubic metres of sand shifted back onto a 350m section of Whitehaven Beach

Clockwise from top: *Whitsunday Island National Park after Cyclone Debbie; mulching of fallen vegetation on Whitehaven Beach; debris post-flooding at Purling Brook Falls in Springbrook National Park.* PHOTOS: QUEENSLAND GOVERNMENT

The marine environment also suffered severe damage with Airlie Beach-based ranger Kay Kunze observing "football fields and football fields" of coral totally devastated.

Meanwhile, in the Mackay region, the Bureau of Meteorology reported that some areas had more than 1m of rain within a two-day period – more than half the average annual rainfall.

As recovery efforts in the Whitsunday and Mackay regions began, the now ex-tropical cyclone continued to track down the coastline, affecting many more parks.

Torrential rains and strong winds caused flooding, land slips and considerable fallen vegetation in the Springbrook and Lamington parks within the Gold Coast Hinterland. It took two days to open an emergency access lane on Lamington National Park Road after the storm caused 73 land slips, one of which was completely impassable.

'Safety first' approach

QPWS's priority was "safety first", followed by the reopening of park areas that attract the most visitors.

As rains ceased and flood waters receded, rangers faced a massive task in addressing land slips and clearing fallen trees. The cyclone had hit only two weeks before the Easter long weekend, one of the most popular times for national park visitation in Queensland.

Yet by Easter, 190 parks and forests had reopened, with 20 partly opened and only 13 closed.

The assistance of rangers from unaffected parts of the state and collaboration with other agencies, including the Great Barrier Reef Marine Park Authority which brought in two crewed vessels to assist with recovery efforts around the island parks, was supported by volunteers from groups such as Bushwalking Queensland and Federation of Mountain Rescue undertaking GPS mapping of fallen vegetation.

In Lamington National Park, where two rangers were trapped at the park for two days and the mountain road was closed to the public for a month while an estimated total of 10,000 cubic metres of soil was cleared, ranger Wil Buch even commandeered a council backhoe and staff! In the Binna Burra section, the loss of a spectacular stand of 500-year-old tallowwood trees and the collapse of about 100m of cliff onto the Caves Circuit forced the popular track to close for the foreseeable future.

On Whitsunday Island, amid a successful scramble to restore tour boat access to Whitehaven Beach and clear the track to Hill Inlet before Easter, uprooted vegetation removed from the foreshore created about 700 cubic metres of mulch.

In Eungella National Park, rangers worked tirelessly to open the Pine Grove Circuit by Easter. Most day use areas and tracks were reopened subsequently, with only the Crediton Creek trail expected to remain closed for some time.

Although closed at Easter, Conway National Park opened soon after; half of its tracks are now accessible.

How have our wildlife fared?

Debbie's impact on wildlife has been highlighted by a viral video of a bedraggled cockatoo. However, unlike cyclones Yasi (2011) and Larry (2006), when the loss of canopy caused a food shortage for the endangered southern cassowary population, no concerns over any specific species have been noted by rangers or conservation groups.

Is full recovery possible?

Although about 95 per cent of Queensland's parks and forests had reopened by the time of publication, full recovery remains a long way off.

Yet many Queensland parks affected by cyclones in recent years – Girramay, Undara Volcanic and Bowling Green Bay (Yasi, 2011) and parks in the Scenic Rim (Oswald, 2013) – have largely recovered.

As fragmented forest systems are less resilient to cyclones given their higher ratio of edge to area and forests stripped of vegetation are susceptible to weed infestation[1], expansion of the protected area estate can only increase resilience. With the intensity of cyclones, floods and drought expected to increase due to climate change[2/3], it is essential.

References

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ECOLOGICAL EFFECTS OF HIGH-ENERGY STORMS ON WET TROPICS RAINFORESTS

How tropical cyclones serve as shaping agents

Dr Steve Turton
Adjunct Professor, Central Queensland University, Cairns

Tropical cyclones are the most significant high-energy storm events affecting lowland and upland rainforests in Queensland's internationally-recognised Wet Tropics World Heritage Area[1] – and they help to shape the ecosystem.

The role of cyclones in the ecosystem dynamics of rainforests in the bioregion has been recognised since the pioneering work of the late Dr Len Webb, who undertook detailed surveys of the coastal rainforests between Cairns and Ingham after Cyclone Agnes in 1956[2].

Dr Webb noted that local topographic effects – as well as the frequency and intensity of cyclones – were important determinants of wind damage at different scales. Areas frequently affected, which suffered canopy lowering and species compositional changes, tended to be dominated by vine towers and weed invasion. Understorey fuel load also increased, however the fire risk in severely damaged patches of forest depended on subsequent rainfall.

Finally, Dr Webb concluded that the catastrophic effect of cyclones on rainforests in the region overrode usual ecological factors. In impacted areas – even without human interference – a stable forest was not attained. Thirty years later, similar observations were described after a ground-based survey examining the immediate effects of Cyclone Winifred on the rainforests in the same region of the Wet Tropics[3].

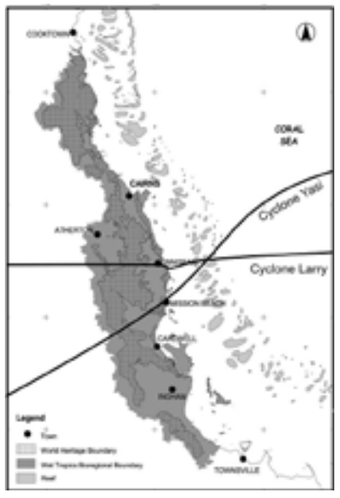
Rainforests growing along the eastern flanks of mountains in the Wet Tropics have been described as "hyper-disturbed" ecosystems with patches of damaged forest constantly recovering from earlier extreme-wind events[4]. On an evolutionary timescale, cyclones are very much a part of the ecosystem dynamics of these ancient forested landscapes; while canopy recovery is often remarkably rapid, however, forest structure and composition may take many decades to recover following severe storms.

How common are severe cyclones in the Wet Tropics?

If we are to gain a better understanding of the role of tropical cyclones in Queensland's Wet Tropics rainforests, we need baseline data on their intensity and frequency characteristics.

A recent study[5] examined westward-moving severe cyclones (category 3 or greater[6]) that crossed the coast between Cooktown and Ingham from 1858 to 2011.

It found that category 3 cyclones had a return interval of about 1 in 20 years and category 4 cyclones about 1 in 70 years, whereas category 5



Clockwise from left: Damage caused by Cyclone Yasi in Djiru National Park; a map showing the tracks of cyclones Larry and Yasi; Wooroonooran National Park after being hit by Cyclone Larry, as viewed from the air.

PHOTOS: WET TROPICS IMAGES & DR STEVE TURTON

cyclones could be expected to affect the region every 200 years or so.

On a global scale, the Wet Tropics are deemed to have a "medium" frequency[7] of severe tropical cyclones compared with other tropical ocean basins around the world, such as the northwest Pacific.

Cyclones Larry and Yasi: two intense, but contrasting storms

Cyclone Larry, with maximum wind gusts near 240km/h, was a compact but intense category 4 system (about 300km across) when it crossed the coast near Innisfail on March 20, 2006, causing extensive damage to rainforest ecosystems across a relatively narrow 100km strip of coastal lowlands and adjacent uplands[8]. Its centre was moving at about 25km/h when it crossed the coast and tracked west over the Atherton Tablelands.

By comparison, with maximum wind gusts near 285km/h, Cyclone Yasi was a very large and very intense borderline category 4/5 system (about 700km across) when it crossed the coast near Mission Beach on February 3, 2011, causing widespread and locally severe damage to rainforests and melaleuca forests from Cairns to Ingham[9]. It was moving at 25-30km/h when it made landfall and tracked southwest over the inland of northeast Queensland.

Many rainforest ecosystems badly affected by Larry five years earlier – such as around Mission Beach – were still far from recovered when Yasi hit.

Both cyclones had return intervals of about 1 in 70 years, so the fact they occurred within five years of each other was unusual, but not statistically impossible. What made them even more interesting was not their core wind speeds, which were similar, but the large difference in the sizes of the two systems – as determined by the outer perimeter of strong gales.

At the time of landfall, Larry's area of damaging to very destructive winds covered only 950sq km compared with Yasi's impressive 2200sq km.

Landscape changes caused by Larry and Yasi

Topography plays a significant role in accounting for forest impact patterns and recovery processes after cyclones, at the landscape-scale (greater than 10km), where winds undergo complex interactions with steep terrain[10]. Depending on the location of the cyclone centre and its path of movement, rainforests in mountainous areas may experience severe windward exposure to winds and topographic shading due to leeward protection from strong winds.

In the southern hemisphere, the strongest winds and heaviest rains are on the southern side of the cyclone's path of movement. Tornadoes occasionally form in the eye wall and outer rain bands of cyclones, leading to localised extreme forest damage. Under certain conditions, severe leeward turbulence – associated with gravity waves propagating off the Atherton Tablelands towards the coast – can severely damage large areas of rainforest at the base of the escarpment. All of these factors came into play for both Larry and Yasi.

The only difference between the two was the spatial extent of damage.

One study noted that Larry affected about 30 per cent of the Wet Tropics World Heritage Area[5], with forest damage ranging from severe to minor.

Another study[11] estimated that Yasi affected about 60 per cent of the World Heritage Area, including areas previously damaged by Larry. It also demonstrated that the damaging effects of Yasi were large enough to offset Australia's forest carbon sink in the previous year, 2010.

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PARK IN FOCUS

Wooroonooran National Park

Dr Miriam Goosem
Adjunct Principal Research Fellow, James Cook University, Cairns

Wooroonooran National Park accounts for almost one-tenth of the 8940sq km Wet Tropics World Heritage Area in far north Queensland.

South of Cairns and east of Innisfail, the park is mainly covered in tropical rainforest – much of which is classified as the most structurally complex rainforest in Australia.

It also encompasses the tallest mountains in Queensland, Mt Bartle Frere and Mt Bellenden Ker, whose rainforest-clothed peaks form a highly scenic backdrop to the extremely biodiverse lowland rainforest below.

Four river systems arise in the national park – the Mulgrave, Russell, North Johnstone and South Johnstone – and there are numerous associated waterfalls, deeply incised valleys and scenic gorges.

Fauna and flora

The mountains provide a high-elevation refuge for many plant and animal species. In fact two species of skink (including the Bartle Frere barsided skink) and one frog species (the Bellenden Ker nursery frog) are found nowhere else in the world than above 1000m elevation on these peaks.

However, this is only a small part of the diversity of species that have found this area an evolutionary and ecological refuge and are endemic to the area.

These comprise many primitive (basal) flowering plant species and monotypic genera (plant genus with only one extant species). All seven local tree ferns occur, including three found nowhere else.

Of the 60 different regional ecosystems occurring in Wooroonooran National Park, 47 are considered to be either "endangered" or "of concern".

The vegetation varies from tall tropical lowland rainforest to low warm temperate montane vine-fern thickets and includes patches of drier eucalypt-dominated areas on shallow soils or in the rain shadow of the mountain peaks. This diversity of vegetation occurs due to the large gradient in elevation (ranging from 20m to 1622m at the summit of Bartle Frere), together with a range of soil types from granite boulders and shallow sandy soils to fertile basalt clays and the extremely high rainfall received across much of the park.

The many endemic animals that Wooroonooran National Park protects includes two reptiles, seven birds and five mammals, whose core habitat occurs in rainforest above 600m.

There are 26 faunal species of conservation significance, including nine endangered, five vulnerable and 12 near threatened.

Notable fauna includes the endangered southern cassowary, Lumholtz's tree-kangaroo, endemic rainforest ringtail possums – the lemuroid, Herbert River and green ringtails – and a group of five endangered stream-dwelling frogs.

Rainforest birds, frogs, reptiles and mammals are highly diverse. Invertebrates are found in even greater diversity.

Author's experience

My first personal encounter with Wooroonooran National Park was in 1991, when I commenced research on the impacts of a powerline clearing on small rainforest mammals.

I worked in the tall rainforest that occurs along the basalt flows from the Atherton Tableland volcanos down the valleys towards Innisfail. I found that the natural corridors formed by rainforest regrowth across the wide cleared swathes of the powerline clearing allowed movements by small rainforest mammals that were otherwise prevented by the tall grass.

Populations of mammals were divided when only grass grew in the clearing. Later, revegetation plots across the clearing enabled movements of small mammals, possums, skinks and frogs.

We also found that the presence of the powerline clearing and, similarly, a wide highway, had an effect on the microclimate of the forest. In particular, it resulted in increased light and ambient temperature levels, and decreased humidity, near the forest edge. However, the distance these effects penetrated the forest was relatively short – 50m at the most.

These changes in microclimate were reflected in alterations in both flora and fauna near the forest edge.

How the microclimate is impacted by cyclones

The rainforests of far north Queensland are also periodically disturbed by natural events – cyclones that can be severe – and Wooroonooran National Park is no exception. In the past 11 years, the Palmerston section of the park has been damaged by two severe cyclones – Cyclone Larry (category 4) in 2006 and Cyclone Yasi (category 5) in 2011.

The areas where I did my research

Clockwise from top: Wooroonooran is home to Queensland's highest mountain, Mount Bartle Frere; the Bartle Frere barsided skink is found nowhere else in the world; the giant fern *Angiopteris evecta* is among 190-plus different fern species in the park.

PHOTOS: ALAN CARMICHAEL, ANDERS ZIMNY & JO WRIGHT

were badly damaged by these cyclones. Six months after Cyclone Larry, I joined my colleagues Catherine Pohlman and Steve Turton in investigating the impacts on the forest microclimate in the sites previously studied for edge effects.

The patterns of vegetation damage were spatially patchy with this damage influencing the understorey microclimate, which became brighter, warmer, windier and drier in severely damaged areas.

The previous microclimate edge effects associated with the human-created clearings became less important due to the scattered patches of severe damage where all trees had either fallen or had their trunks snapped.

The severe tropical cyclone also greatly modified ringtail possum habitat by destroying the forest canopy, reducing structural complexity of the forest and defoliating remaining trees. My colleague Robyn Wilson and I found that although these endemic species had to increase the area of habitat that they roamed in search of their leafy food, they did not lose body condition and also continued to breed, showing that they may be resilient and adapted to such occasional natural catastrophes.

Similarly, although these periodic natural catastrophes cause severe vegetation damage, a closed canopy rainforest returns, although many trees may not be as tall and vines may be more common.

Visiting the park

Wooroonooran National Park provides many access points for the visiting public. These include (from north to south): Walsh's Pyramid trail to the peak; Goldsborough Valley camping area, bora ground and walking trails; The Boulders area and Goldfield Track; and, further south, Josephine Falls picnic area.

A major access point occurs along the Palmerston Highway, which traverses the park between Innisfail and the Atherton Tablelands.

Two camping grounds are found at Henrietta Creek and away from the highway at the South Johnstone River. Several walking tracks reach waterfalls and lookouts over the North Johnstone gorge. The Mamu Tropical Skywalk also overlooks the gorge from its elevated walkway and observation tower, while providing insight into plants used by the traditional owners.

Two long-distance walking tracks have been constructed in different areas of the national park. In the north, the steep trail from Josephine Falls climbs up Mt Bartle Frere and continues on to the Atherton Tablelands. Further south, the Misty Mountains Wilderness Trail climbs more gradually from the lowlands to the southern Atherton Tablelands.

Across the park, areas with easy access are available as well as more challenging trails to explore.

Wooroonooran's conservation values have been recognised with World Heritage status and it provides a quieter alternative to the busy tourist areas of Daintree National Park.

FEATURED WALK

Misty Mountains Wilderness Trails

Matt Marsh and Liliana Williamson
Tableland Adventure Guides, Atherton

For a tropical rainforest area like the Misty Mountains in Wooroonooran National Park (about an hour drive south of Cairns), cyclones are just a part of life and it's surprising how fast they begin to recover after one has swept through.

Fallen trees open the canopy, starting a race to be the first to the light among the next generation of trees in the understorey.

Meanwhile, as the fallen trees decompose, with fungi going to work as forest recyclers to slowly melt them into the rainforest floor and thereby enriching the soil with nutrients, they offer new deadwood as habitat.

If you live outside the tropics, you'd be forgiven for thinking the recovery efforts after cyclones would be a long and slow process in this part of the world. In fact, it is astounding that even in far-flung wilderness areas how quickly the trees that are down across roads are cleared, infrastructure is reopened to the public and things return to normal.

As an example, only a year and a half after Cyclone Yasi (category 5) swept through Wooroonooran National Park in 2011, the Cairns and Far North Environment Centre (CAFNEC) had no problems running its 2012 Far North Queensland Wilderness Bike Ride fundraiser involving 65 riders cycling right through the heart of the park on the first two days of the event.

Having experienced a whirlwind bike romance on that particular eight-day ride, we now find ourselves back in North Queensland exploring some of the region's lesser known trails in our roles with Tableland Adventure Guides (TAG). TAG has been on the adventure scene since 2007, and offers half-day, full-day and multi-day guided hikes, biking and kayak experiences on the Atherton Tablelands and Cassowary Coast.

The prevalence of high-energy storms in the region poses the question: Is an adventure holiday in an area affected by a tropical cyclone attractive or are there lingering perceptions that such areas are damaged and not worthy of visiting?

Recently returning to explore Wooroonooran National Park after five years, we have been scouting for off-the-beaten-track gems to inspire would-be visitors. Along the way, we have discovered that cyclone damage is a distant memory in the landscape and the wide-ranging network of Misty Mountains Wilderness Trails have even more to offer the adventurous spirit than anticipated.

Travelling through this Wet Tropics World Heritage Area on foot and on mountain bike, three full days along the trails provides only a small taste of what is on offer.

The area is incredibly beautiful and biologically diverse and the slower you go, the more you see, smell and hear – rainforest birds calling, reptiles sunning themselves, mammals going about their business, fungi and leaf litter, insects, fish in the crystal clear creeks and views.

The Mamu Tropical Skywalk, borne out of Cyclone Larry (2006) which created natural clearings that paved the way for the route of the walkway, is a really unique starting point to gain an understanding of the lush rainforest of Wooroonooran National Park, as well as its cultural history, both indigenous and pioneer. Located in the Palmerston section of the park, about 30 minutes west of Innisfail on the Palmerston Highway, it also offers a comfortable nature-based experience for all.

Far more challenging, yet highly rewarding, is climbing Queensland's highest mountain, Mt Bartle Frere, which is also in Wooroonooran.

We recommend the three-day traverse from east to west, but it is definitely not for the very unfit or inexperienced bushwalkers.

With a network of short and long tracks extending more than 130km from the coastal plain to the tablelands – including the Koolmoon Creek, Cannabullen Creek, Cardwell Range and Gorrell tracks – the Misty Mountains trails offer plenty of alternative options. Many are far less demanding than summitting Bartle Frere, but equally satisfying.

As the tracks are fairly remote and can be indistinct in places, they're not ideal for less experienced bushwalkers on their own. Carrying maps and navigation equipment, or travelling with a guide, is wise.

It's worth keeping in mind that while some tracks are suitable only for hiking, others are shared tracks with mountain biking permitted.

On the last day of our reconnaissance journey, we traversed the Gorrell Track by mountain bike. Best to be tackled in groups, this remote 25km track can be ridden in either direction and is definitely a fun option for enthusiastic and fairly skilled mountain bikers, with its technical creek crossings, challenging yet satisfying climbs and gnarly, electrifying descents.

Staying overnight at the South Johnstone River campground and having a refreshing swim in the crystal-clear creek is a fantastic way to complete the ride.

The authors have endeavoured to ensure that the information presented here is as accurate as possible. However, they or NPAQ do not accept responsibility for any loss, injury or inconvenience sustained by any person guided by this article.

Keep an eye out for a new adventure offering in Wooroonooran National Park at www.tablelandadventureguides.com.au

Location

Traversing Wooroonooran, Tully Falls and Tully Gorge national parks in an area bounded by Tully, Innisfail, Mena Creek, Millaa Millaa and Ravenshoe.

Access

With four separate long-distance tracks (Koolmoon Creek, Cannabullen Creek, Cardwell Range and Gorrell) there are various access points. Four-wheel drives are recommended for many access roads and all are unsuitable for caravans, motor homes or buses.

Grade

Most tracks are intermediate to difficult. Generally not recommended for young children, the elderly or inexperienced bushwalkers – especially alone.

Clockwise from top: *A rainforest creek in Wooroonooran National Park; ferns; a rest stop on the Gorrell Track; the North Johnston River two years after Cyclone Larry; the Mamu Tropical Skywalk.* PHOTOS: SHIRLEY CASPER, MATT MARSH, LILIANA WILLIAMSON, QUEENSLAND GOVERNMENT

ECOSYSTEM SPOTLIGHT

Littoral rainforests and coastal vine thickets

Dr Helen Murphy
Commonwealth Scientific and Industrial Research Organisation (CSIRO), Atherton

Littoral rainforests and coastal vine thickets of eastern Australia (hereafter littoral forests) are a critically-endangered ecological community listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Coastal processes such as salt spray, tidal inundation and storm tides, salt-laden on-shore winds and unstable and dynamic substrates derive this distinct ecological community.

Already highly fragmented and subject to many landward pressures such as coastal development, weeds and feral animals, littoral forest in the tropics and subtropics of eastern Queensland is also very susceptible to severe storms and cyclones.

Cyclones can bring storm surges in the form of both higher-than-usual high tides and destructive wave action, which causes beach erosion but also deposits vast volumes of beach sands in other places.

Cyclone Yasi crossed Cardwell as a category 5 cyclone in 2011 and was considered to have created between a one-in-1000-years and a one-in-3000-years storm surge event.

The impact on littoral forest in this area was visually dramatic. However, by bearing the brunt of the storm, the coastal vegetation served a vital purpose in protecting other habitat.

Littoral vegetation helps moderate the effects of waves, wind and inundation associated with cyclones, protecting other vegetation, infrastructure and human communities from the most severe effects.

In the Wet Tropics bioregion, where the Commonwealth Scientific and Industrial Research Organisation (CSIRO) has done extensive surveys, the majority of littoral forest occurs in land classed as conservation area and natural environments (more than 90 per cent), with a considerable amount within the national park estate (more than 40 per cent).

Access tracks through littoral rainforest (above) and (below) severe impacts to littoral rainforest caused by Cyclone Yasi at Tully Heads in 2011. PHOTOS: ANDREW FORD & DAN METCALFE

This is likely true for much of the Queensland east coast, as littoral forest has been largely removed or become heavily fragmented in developed areas.

Littoral forest in national parks are generally subject to fewer human-induced threats and these threats are often managed.

In the Wet Tropics, it is common for national park campground areas to be established in littoral forest because shady beachfront locations with relatively open understorey and sand underfoot make for attractive and comfortable camping.

A critical first step in managing littoral forest is understanding exactly where it is. In the Wet Tropics bioregion this is not as straightforward as it might seem, as although the EPBC listing advice describes the broad characteristics of the community, there is considerable variation in floristic composition and structure. A reliance on regional ecosystem mapping alone can lead to some littoral forests not being recognised, particularly on islands.

Following cyclones, most of the damage to littoral forest is in the form of uprooted and severely damaged trees, as well as sand deposition or erosion. Occasionally littoral forest appears completely destroyed, however in many affected areas post-Yasi and also after Cyclone Larry (2006) we have seen significant recruitment and regrowth.

Littoral forests are naturally highly dynamic and generally resilient to extreme events; of course, managing existing pressures that undermine the natural capacity of the vegetation to recover – such as weeds, feral animals and uncontrolled access – is critical for enhancing their resilience.

In some cases, restoration actions may be necessary to speed recovery and restore diversity where the natural capacity to recover is slow.

The full report 'Mapping to Underpin Management of Tropical Littoral Rainforest' is online:
http://bit.ly/tropical-littoral-rainforest

Spatial layers produced by the project are available at the CSIRO Data Portal (search for Littoral rainforest):
https://data.csiro.au

THE NATIONAL PARK EXPERIENCE

Personal reflection on why our parks must be valued

Denis McMullen
Councillor, National Parks Association of Queensland (NPAQ)

Binna Burra has been a favourite place for my wife and I. We have great memories of bushwalking in Lamington National Park, including the through walk from the Binna Burra section to O'Reilly's.

There are also some less positive memories resulting out of me ignoring track signs and finding myself committed to extending a hike by an extra 10km!

My sons and daughters – and their families – live in inner Melbourne, very much part of its latte-sipping culture. So when I invited my 17-year-old grandson, Lachie, to Brisbane with an offer of a three-day walking holiday in Lamington, I knew this would definitely be a new experience, and a new challenge, for this urban dweller. The offer included a base at Binna Burra and to mitigate the cultural shock, I included a reference to their website so he could see what he was in for!

When Lachie flew in, he had downloaded the bushwalking and hiking information from the Binna Burra site. He had also brought appropriate walking clothes and was eager to get going.

The drive to the Lamington Plateau and the long, winding road up the mountain gave us an opportunity to talk about where Lachie, who had just completed Year 12 exams, saw himself going post-school. Once we arrived at the top of the mountain and pulled into Binna Burra, though, we were immediately caught up in the entrancing forest environment.

We had an introductory stroll around and spent some time steeping ourselves in the views from the high ground across the gorge to the mountains beyond. Lunch at a table overlooking the superb valley was a striking introduction to the grandeur of the national park.

An example of the incredible vistas to be enjoyed at Binna Burra (top) and (left) eucalyptus forest with grassy understorey. PHOTOS: JEANNIE RICE & NPAQ ARCHIVES

Lachie produced his list of walks and when we set off, he held the map and was keen to lead the way. I was happy to encourage him to set the pace, which, considering our age differences, could be seen as unwise. This leader function gave him a positive feeling of ownership and engagement in the activity, however, which seems to have been a significant element in the success of our time on the mountain.

Lachie threw himself into the walks, stretching out along the paths. He was fascinated by much of what he saw of the rainforest and picked up quickly on its characteristics; very happy to stop and look at trees, particularly the grotesque "sculptures" created by the strangler figs.

He learned about vines and lianas, and changes from rainforest to dry eucalyptus forest as we moved lower down from the crests into valleys. His enthusiasm increased as we went along and I was able to chat with him about changes in the structure of the forest and vegetation.

The Daves Creek Circuit, a 13km return, was not on my list but Lachie was keen to go there as a result of his reading from the internet. So, off we went at a good pace. He was fascinated by the Antarctic beeches and their place in the forest, which introduced the concept of Gondwana and tectonic plate movement. So we spent a lot of time walking and talking about the values of the forest.

We arrived back near Binna Burra and Lachie produced his list of walks before announcing that we still had time to do another walk as the Rainforest Track was only 30 minutes!

Our next two days took us through a variety of walks, slowly extending our range. Lachie became more involved as time went on and enjoyed the longer walks amid towering trees. The nights were very cold but this could not deter his enthusiasm.

The effect of this three days remains with us as a sense of closeness every time we talk on the phone and the distance from Brisbane to Melbourne seems to have diminished. Now, all I have to worry about are the rest of the grandchildren looking plaintive and each wanting to know when it will be their turn!

RANGER OF THE MONTH

Insights into the diverse backgrounds and day-to-day activities of Queensland's park rangers

Leo Gabey
Queensland Parks & Wildlife Service (QPWS)

Leo Gabey is a park ranger based at Airlie Beach. His patch includes the tourism mecca of the Whitsundays and Whitehaven Beach, famous for its white silica sands but impacted by Cyclone Debbie.

How long have you worked in national parks?

I started with QPWS back in 2012 as part of a program employing Indigenous rangers to work on our country. The Whitsundays is my mother's country, Ngaro country.

I jumped at this job as it gave me the chance to get more involved with my culture, to get out on the ocean, to visit sacred sites and keep an eye out for tourism impacts on our country. Before becoming a ranger, I was a boilermaker in the Proserpine Sugar Mill for about 16 years.

Which parks have you worked in?

I've worked on many of the Whitsunday and Lindeman islands, as well as the Brampton, Cumberland, Smith and Newry island groups off Mackay. The Whitsundays alone includes 74 islands so we have our hands full in this region!

What has been your most memorable moment?

We had just completed some safety drills on our vessel *Tamoya* when we saw a visitor being swept away from her boat by the strong current. I deployed our tender.

She was fighting against the current and was pretty distressed by the time we rescued her. It was lucky we were there and had just practised the same thing in our safety drill!

QPWS ranger Leo Gabey at Tongue Point on Whitsunday Island during the ongoing clean-up that followed Cyclone Debbie and (top) Whitehaven Beach before it was hit by the tropical storm.

PHOTOS: QUEENSLAND GOVERNMENT & MUZ WILLSON

Can you describe your favourite national parks experience?

I love walking Whitsunday Peak on Whitsunday Island. You walk through different kinds of vegetation on the way to the top. It's the highest point in the Whitsundays and you have 360-degree views over all the islands – beautiful scenery that you can't see from a boat at sea level!

What is the best part about working in a national park?

Working as part of a team is the best part of the job for me. We all pitch in to help each other; we're a well-tuned team. We work in a lovely place and every day is different – weeds, track maintenance, camp site maintenance and chatting to tourists. As a ranger you're in the limelight, you've got to be ready with a friendly smile to answer questions and give advice. I actually look forward to Mondays … we go to Whitehaven Beach every Monday morning!

How did Cyclone Debbie affect parks in your region?

Vegetation on the main islands and coral on the surrounding reefs were hit hard. Leaves were stripped from trees and we lost a lot of sand from Whitehaven Beach, along with most of our camping area and signs. Walking tracks were covered in trees and branches. But almost immediately the birds started coming back to the islands – that's a good sign.

What was involved in the post-cyclone clean-up?

Park rangers from Cooktown to Fraser Island came to help us in the first few weeks. We quickly moved bulldozers over to Whitehaven to push the sand back to restore the beach and protect the vegetation, and we tidied up so it was open for visitors again in record time. We spent long, hard days on the chainsaws – it took one crew three weeks to clear the Whitsunday Peak track. About two months after the cyclone, most sites are open again, but we'll still be cleaning up for the next four or five months.

NPAQ thanks Leo for taking time to answer our questions and we appreciate the work all QPWS rangers undertake in protecting Queensland's national parks.

WHAT'S ON

NPAQ activities

Day walk at Mt Mee

Somerset Trail (13km) in D'Aguilar National Park, Brisbane (northern section) – Saturday, June 3, meeting 8.30am at The Gantry.

Grade: Intermediate. **Cost:** $5. **Leader:** Frank Freeman (07 3824 3954, 0427 655 514 or frank_fr@bigpond.net.au). **Directions:** From Brisbane, drive through Petrie or Samford to Dayboro. From Dayboro, head towards Mt Mee, turning left into Sellin Rd to The Gantry. **What to bring:** Morning tea and lunch, at least 2L of water, warm jacket, rain coat, torch.

About halfway through the walk, there is a lookout providing great views west to Somerset Dam and the headwaters of Lake Wivenhoe to enjoy over morning tea.

It is expected birds will be sighted although, at this time of the year, reptiles may be in hibernation. There are a couple of hills, so a moderate degree of fitness is required.

It is planned to have lunch back at The Gantry, a leftover relic of the area's timber industry. Barbecues are available for those who prefer a hot lunch. Toilets are available at The Gantry, but there is no drinking water so ensure you bring adequate supplies.

Vegetation management

Saturday, June 24, meeting at Jollys Lookout carpark in D'Aguilar National Park, Brisbane. **Grade:** Various. **Cost:** Free. **Leader:** Angus McElnea (0429 854 446 or gus_mcelnea@hotmail.com).

Get your hands dirty, spending a couple of hours assisting with lantana control and revegetation work.

Birding in Brisbane

Sunday, June 25, at Wolston Creek Bushland Reserve, Riverhills – meeting 7.30am at the end of Sumners Rd (UBD 196 M12) to arrange car shuttle to start of walk in Tomkins Rd (UBD 197 D13), which has limited parking.

Grade: Easy. **Cost:** $5. **Leader:** Geraldine Buchanan (3349 1109). **What to bring:** Binoculars, hat, sunscreen, insect repellent, water, chair, morning tea and lunch.

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FOR ACTIVITY REGISTRATIONS
www.npaq.org.au/events

The track to be followed winds along the north bank of Wolston Creek to its junction with Brisbane River. This is a well vegetated area with a variety of habitats, last visited by an NPAQ birding group in March 2015 when 42 species were sighted despite unfavourable weather conditions.

Birding extended activity

October 9-13 in Armidale, NSW.

Grade: Easy (some areas may be open bushland). **Cost:** $20. **Leader:** Ian Peacock (0416 943 280, 3359 0318 or ianpeacock@hotmail.com).

This year's Extended Bird Outing will centre on Armidale, running from October 9-13 with arrival on October 8, accommodation in a caravan park close to town and departure on October 14. Cabins, powered and unpowered caravan and tent sites are available. Early bookings are recommended due to an expected heavy tourist season.

Full-day and half-day outings will be included, with car pooling to keep costs to a minimum for all participants.

Vale

Our sincere condolences to the families and friends of National Parks Association of Queensland life member Barry Dean, who passed away on April 8.

Barry joined NPAQ in 1951. He loved Australia's national parks and the natural world in general.

NPAQ events

NPAQ annual raffle draw

Will you be the winner of the major prize in the National Park Association of Queensland's annual raffle? The draw is taking place at the Green Heart Fair, Chermside, on Sunday, June 4 – on the eve of World Environment Day.

If you are yet to buy your tickets, go online to www.npaq.org.au/annualraffle2017 or get them at the fair in 7th Brigade Park.

Prizes include a four-day exploration of the spectacular Yuraygir Coastal Walk in northern NSW (pictured), a one-night stay at Binna Burra Lodge and two nights at Allura Stradbroke Resort.

Additional prizes include a family pass to Lone Pine Koala Sanctuary including a river cruise there and back with Mirimar Cruises, two adult passes to Australia Zoo, one-year subscriptions to *Great Walks* magazine and one-year subscriptions to *Wild* magazine.

NPAQ annual general meeting

The National Park Association of Queensland will hold its AGM on Wednesday, September 20.

The venue and starting time is still to be confirmed. More information will be included in the August - September 2017 issue of *Protected* and also *Neck of the Woods*.

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