Just warming up

A scientist’s ground-breaking climate change research

Being dropped off by helicopter on top of Thornton Peak, or sliding through mud, covered in leeches in the middle of the night, is all in a day’s work for Professor Steve Williams. It’s not a career for the faint-hearted but for Steve it’s all a part of the adventure. His love of being outdoors and exploring wilderness areas is what led him to become one of the world’s leading climate change scientists. Over the past 15 years he has undertaken internationally acclaimed and ground-breaking research on the biodiversity of the Wet Tropics fauna and its susceptibility to climate change.

Steve was initially driven by a desire to understand patterns of biodiversity and why some species are so rare, especially species endemic to the Wet Tropics with small distributions. In 2003 he used his field data to build species distribution models for all Wet Tropics vertebrates. This enabled Steve and his team to predict the impacts of increased temperatures. “The results were shocking, the thought that these species could go extinct in this century spurred on my research and led to the development of the centre,” said Steve.

Steve’s work shows that wildlife in the Wet Tropics is highly vulnerable to climate change and an increase in temperature of 3.5°C could result in the loss of up to 46% of the unique rainforest fauna. This is significant as the climate change models suggest an increase in temperature between 1.1°C and 4.8°C by the year 2070. Climate change is now considered the most significant threat to global biodiversity and human well-being.

Disappearing possums

Lemuroid ringtail possums are a high altitude species found in the rainforest mountains of the Wet Tropics World Heritage Area. This species has already been identified as particularly sensitive to rising temperatures and faces extinction if we cannot reverse these trends. The lemuroid ringtail possum is found in two distinct populations, the southern in the Atherton Tableland and the northern in the Carbine Tableland. In 2008 scientists confirmed that there had been no records of the northern population since late 2005. Some individuals in this population have an unusual white colour morph and although not albino, they are still the same species. Steve and his team immediately undertook intensive searches for the northern population of lemuroid ringtail possums. Initial surveys reported no sightings. However, a refuge area was discovered in 2009 with at least a few individuals. Their dramatic decline in range is possibly due to climate change and they are now extremely vulnerable. Steve will continue his research and intensively monitor the area for possums.

Wet Tropics montane rainforest is one of the most threatened ecosystems in the world and the disappearance of lemuroid ringtail possums now supplies evidence of the threat from climate change. William Laurance at the Smithsonian Tropical Research Institute in Panama suggested in his article, Move over Polar Bear, that “perhaps we should also adopt the white lemuroid possum as an icon for the victims of global warming”.

Move over Polar Bear: www.newscientist.com
A dedicated team

Getting up at the crack of dawn is normal for this team – stuffing a GPS, camera, and plastic bags into rucksacks as they set off walking along muddy tracks deep in tropical rainforest for hours, immersed in the magical dawn chorus, trying not to be distracted by the odd leech crawling up their legs. They are searching the forest for an elusive creature or, more specifically, its droppings! This may sound like odd behaviour but a team of volunteers is helping scientists at CSIRO to collect cassowary scats. Every scat found is documented with details of its exact location, a GPS reading and even a photo. The scat is then scooped into a plastic bag, labelled and taken back for analysis.

Chasing birds for a living

Dr David Westcott is principal research scientist at CSIRO Sustainable Ecosystems and is leading the collaborative DNA study on the endangered southern cassowary. This involves the extraction of DNA from fresh cassowary scats to identify individuals. The research will provide a reliable method for monitoring population trends, creating a model of how cassowaries use habitat and how their populations are structured.

David grew up in Canberra. For as long as he can remember he has been fascinated by animals and their behaviour. He spent much of his time exploring the country around Canberra and observing the local wildlife for hours on end. He even remembers the first time he saw a cassowary: He was visiting a friend, Margaret Thorsborne, an environmental activist and artist. “A cassowary casually wandered through her garden, as they did quite regularly. It was the first of many encounters”, said David.

Inspired by Margaret’s passion for conservation, David was drawn to cassowaries because of their interesting social system. He quickly realised that their behaviour made it very difficult to collect data. Trying to discover more about them socially led him to his current research project.

“For as long as I can remember I have been fascinated by animals and their behaviour”

Rainforest gardeners

Next time you’re in the rainforest stop and take a close look at a cassowary scat which is quite distinctive with huge seeds in a pile and sometimes entire fruits. Cassowaries are large flightless birds nearly two metres in height. They are considered a keystone species because they are vital for the rainforest’s survival. Cassowaries are known to disperse the seeds of at least 150 rainforest plants. The cassowary plum, a large blue fruit, is so big that only a cassowary is large enough to swallow it whole. Once swallowed, the seed passes through unharmed and is ready to germinate. Seeds are often collected from scats for revegetation projects as they are more likely to germinate.

Looking for something different to do on your weekend?

A ‘Cassowary Dung Census’ is being conducted around Mission Beach, south of Cairns, with help from the Queensland Parks and Wildlife Service, Community for Coastal and Cassowary Conservation (C4), Birds Australia and the Mission Beach Community Alliance. C4 is a voluntary organisation which runs a visitor centre and undertakes extensive tree planting projects to improve and restore vital habitat for cassowaries and other wildlife.

If you would like to volunteer contact:
- C4 – Email c4@cassowaryconservation.asn.au
  www.cassowaryconservation.asn.au
Walking on air

The air is still. The shrill call of a scrubfowl echoes through the forest while the slightest glint of light is just beginning to creep over the horizon. In the distance silhouettes of flying foxes glide silently over the canopy returning to their camp before dawn, landing with a crash in the treetops and excitedly chattering to each other.

As the sun begins to rise, the shadows of huge trees cast a pattern of variegated green over the canopy and the rainforest springs to life. The sun’s rays creep across the treetops bringing warmth to everything they touch, waking the cold sleepy pythons that slowly slither up towards the canopy to find a sunny spot. They curl up and, well camouflaged, sunbathe.

The tropical rainforest mountains are shrouded in a veil of clouds, the mountain ranges plummeting down dramatically to the coastline, where two stunning World Heritage Areas lie side by side. These cloud forests receive up to ten metres of rain annually. An additional 40% of water is harvested by cloud stripping, where the moisture condenses onto the foliage. It flows into the rainforest creeks, through the mangroves and out past white sandy beaches to the Great Barrier Reef.

The scent of nectar drifts with the breeze, encouraging the swarms of birds, butterflies and native bees all busy foraging for flowers in the canopy. The heat of the day has arrived. While the canopy is humming, this tranquil setting belies the jungle warfare that is raging beneath in the shadows.

In tropical rainforest it is ‘grow or be smothered’ as plants struggle for sunlight. Some plants cheat to get ahead in the competition, like a strangler fig seed dropped onto the branch of a huge tree. Instead of growing up to the sunlight it starts life at the top of the canopy and, wrapping its roots around the tree trunk as it grows, the host tree eventually dies.

If you would like to experience life amongst the canopy, catch a glimpse over the treetops at one of the Wet Tropics scenic lookouts or immerse yourself in the attractions below.

### Mamu Rainforest Canopy Walkway

The Mamu Walkway, at the edge of Wooroonooran National Park, is named for the Mamu people, the Traditional Owners of the area. An elevated walkway leads to a 37 metre high observation tower looming above the tallest trees. Views from the top encompass the North Johnstone River gorge and a sweeping expanse of the Wet Tropics World Heritage Area. Mamu is located 30km northwest of Innisfail on the Palmerston Highway.


Phone: (07) 4064 5294

Admission charge, allow 1-2 hours.

### Barron Gorge National Park

The Barron Falls (Din Din) Lookout walk begins with an elevated boardwalk traversing the rainforest just below the canopy. Informative displays describing the area’s Aboriginal and European cultural heritage are located at the beginning and end of this 600 metre walk. This is one of the most visited sites in the World Heritage Area. The 30 minute walk begins five kilometres outside Kuranda. Follow the road signs to Barron Falls.


Admission free.

### Daintree Discovery Centre

The Discovery Centre is located in the Daintree rainforest. You can experience the canopy tower which climbs over 23 metres from the aerial walkway. Located 10km north of the Daintree River near Cow Bay.


Phone: (07) 4098 9171

Admission charge, allow 1-2 hours.
Caring for his country

Jimmy Richards

Acting Ranger in Charge – Cairns, Goldsbrough to the south, Speewah to the west and Black Mountain road to the north.

Ranger Indigenous Liaison – Wet Tropics Region, Department of Environment and Resource Management

Jimmy Richards has worked for the Department of Environment and Resource Management for seven years and is passionate about his job. His work takes him all over north Queensland, from Goldsbrough Valley to Undara, the Atherton Tableland and Laura. Jimmy knows this area intimately as his childhood was spent exploring the country between these idyllic places. He grew up in Kuranda but spent much of his time at Undara with his father’s family from the Ewamian clan. He often visited Laura in Cape York too as his mother is from the Western Yalanji.

As a child Jimmy fondly remembers climbing down the rocks to the bottom of Barron Falls with his friends to go fishing. Today you can still see the swimming hole near the weir at the top of the falls where he used to jump off the rocks. “During the wet season, flooding would cause barrels of fuel and pumpkins to float downriver. As children we collected the pumpkins and used ropes to tie the barrels to trees, waiting until the water went down before retrieving them,” said Jimmy.

Long before there were boardwalks and interpretive signs in the tunnels at Undara, Jimmy remembers playing in the area and exploring the underground lava tubes which you can still visit today.

After leaving school Jimmy worked with the railways, maintaining the tracks, and then as a rodeo rider. His passion for an outdoor life and his knowledge of the country led him to work as a tour guide at Undara and as a tour leader taking groups to Cape York Peninsula for many years.

Jimmy loves working outside and enjoys the variety of tasks involved in his job. After Cyclone Larry he walked up Bartle Frere, helping to clear the walking tracks. He knows Barron Gorge intimately and considers himself lucky to work in such a beautiful part of the country. “I still enjoy watching the buff-breasted paradise kingfishers return each wet season to breed and catching glimpses of the secretive cassowary foraging,” said Jimmy.

World Heritage Area plinths

Four commemorative plinths have been erected by the Australian Government and Queensland Department of Environment and Resource Management. These plinths contain information about the amazing biodiversity of the Wet Tropics and explain the significance of World Heritage and National Heritage listing. If you’d like to learn more, why not visit the plinths at Mamu Rainforest Canopy Walkway, Barron Falls, Wallaman Falls or Mossman Gorge.