

CYCLONE!

In March 2006 one of the most severe tropical cyclones to hit north Queensland in almost a decade crossed the coast at Innisfail. With destructive winds of up to 290kph Cyclone Larry sheared through the Wet Tropics, leaving a trail of shredded rainforest and twisted and broken trees. We spoke to some of the staff that assessed the environmental damage in Larry's aftermath.

"To put it plainly, the rainforest copped a thrashing." Those were the words used by Josh Gibson, executive director of the Wet Tropics Management Authority at the time. Josh was part of a crew that surveyed the damage the day after the cyclone hit.

"I remember sitting in the car with other staff and looking in amazement at hectares of decimated rainforest. Most of the landscape had turned from green to brown because there were no leaves left on the trees. We were shaking our heads in disbelief and looking around at where the rainforest canopy used to be. All that was left were rows of naked trees. Twisted and splintered tree limbs that once supported the canopy hung upside down in tangles of vines and branches," Josh said.

Although cyclones are common in far north Queensland, what was unusual was the intensity that Larry maintained as it crossed the coast and moved further inland. Destructive, cyclonic winds battered the small community of Millaa Millaa and upland forests on the Atherton Tableland. Historical data and monitoring from previous cyclones have shown that the larger patches of rainforest should recover over time.

"A year on and some of the forest patches are growing back. Trees that were stripped bare and looked like they had given up the fight are sprouting new leaves. Patches of green are coming through here and there. Even now, areas that were moderately affected by the cyclone look healthy and vigorous again. However, where

severe damage has occurred, it may take up to 30 to 40 years to restore the canopy because the forest will have to regrow from seedlings," she said.

"There were some heart-wrenching losses – the red cedar tree near Lake Eacham, and one of the kauri pines at the top of the Gillies Range were blown over (see right). But it's the damage to smaller, isolated forest patches and strips of trees along riverbanks in the coastal lowlands and tablelands that we're really worried about".

"Fragmented rainforest and narrow riparian strips along creeks and estuaries have generally suffered more damage. These areas have less resilience to recover. Some smaller rainforest patches at Mission Beach were still recovering from Cyclone Winifred that caused major damage almost 20 years ago," she added.

"The cyclone has exacerbated other environmental risks. Some dense, moist rainforest now has a broken or non-existent canopy – allowing more sunlight and wind to penetrate and dry out areas. These areas of rainforest usually escape fire and aren't adapted to it. We have been fortunate to have had so much rain since the cyclone to assist regrowth and lower the risk of fires".

Weed infestations are another concern. Weed outbreaks will be likely because of the extent of canopy damage. Increased sunlight reaching the forest floor means increased opportunities for weeds to take control and force native species out," Josh said.

Below: Rainforest alongside the Palmerston Highway had its canopy destroyed.



This giant kauri pine on the Gillies highway was blown over in the cyclone. Bill Carrodus from WTMA inspects the damage.

What about the animals?

We've heard stories about animals having a sixth sense when it comes to danger. But what about our Wet Tropics wildlife before a cyclone? Did changes in air pressure or temperature send signals to our rainforest animals to relocate? Surprisingly, for most species, the answer is 'no.'

"From studying wildlife that survived previous cyclones, we've found most rainforest animals tend to stay put," said Wet Tropics principal scientist, Steve Goosem. "We assume that flying animals like birds or bats find somewhere else to roost during a cyclone, but other species prefer to ride it out, probably sheltering in understorey trees or seeking some other form of shelter from the wind – depending on the animal. Basically, they have nowhere else to go. Most of the endemic animals here are rainforest specialists. The rainforest is all they know and that's where they feel the safest."

The damage to the forest was so severe in places that some wildlife would have died. Those animals that weathered the storm were then faced with another challenge to survive – the search for food. "Of course after the cyclone hit we were worried about native wildlife not having enough food because many of the rainforest trees were stripped of their leaves and fruit. There was anecdotal evidence of confused flying foxes repeatedly circling trees that were once plentiful with flowers and fruit – but our major worry was endangered cassowaries at Mission Beach and Innisfail wandering into the urban areas looking for food," Steve said.



"While the rainforest recovers, wildlife will face potential food and shelter shortages. However, cyclones are natural events and we expect that most species will be able to adapt their diet and feeding habits or move to other areas in order to survive. The dead trees left standing will provide shelter, nesting, roosting, and hunting spots for birds and other animals. The trees that fell in or near streams will become homes to fish and other aquatic organisms. The forests are full of opportunists," Steve added.

Mark Read of QPWS led the cassowary feeding taskforce. "We set up feeding stations for cassowaries in strategic locations such as Mission Beach, Innisfail and the Tablelands as soon as we could to keep them out of urban areas, minimise interactions with people and prevent road kills. The last thing we wanted was these wild and potentially dangerous animals becoming accustomed to humans and wandering into urban areas looking for handouts. A hungry cassowary can be aggressive and demanding and can inflict a nasty gash with its dagger claw. Around suburbs cassowaries are at a higher risk of being hit by a car or mauled by dogs. It's a situation we need to avoid for the safety of both people and cassowaries. So far the feeding program has been successful and 57 feeding stations were still in operation in February 2007. Once the rainforest recovers and fruit is plentiful again we will be able to phase out the feeding stations," Mark said.



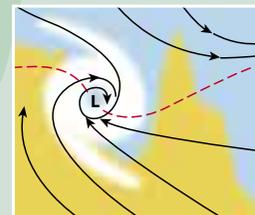
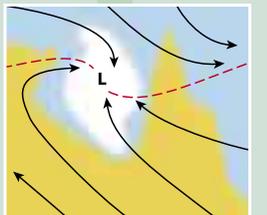
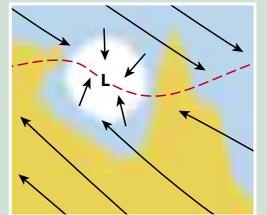
Cassowary feeding station (Photo: EPA)

CYCLONE FACTS

-  Cyclone Larry was a Category 5, the most severe category.
-  It reached maximum sustained wind speeds of between 170kph and 215kph, with gusts of up to 290kph.
-  The eye crossed the coast near Innisfail between 6.20am and 7.20am on 20 March 2006.
-  It caused widespread damage from Cairns in the north to Cardwell in the south.
-  The radius of destructive winds was 120km wide.
-  Most recent severe cyclones to hit the far north Queensland coast are:
 - Cyclone Rona, Daintree, 1999 (Category 3)
 - Cyclone Ingrid, Cooktown, March 2005 (Category 4).
-  The Australian cyclone season is from about November to April.

For a cyclone to form:

- Ocean temperature must be at least 26.5 degrees Celsius to a depth of 50m in order to supply enough evaporating moisture, the initial energy source.
- An existing low pressure area, such as a monsoon trough, must accompany the warm water.
- A monsoon trough forms between two wind systems. The northwest monsoon originates in the South China sea and flows towards northern Australia where it meets the southern hemisphere trade winds.
- Large scale cyclonic spin is generated in the trough where the winds meet (aided by the spin of the earth).
- Constant wind speed between the upper and lower atmosphere allows deep



thunderstorms to develop. The cyclonic spin causes the clouds to form in spiral bands, creating a cyclone.

Source: The Bureau of Meteorology: www.bom.gov.au

Satellite image of Cyclone Larry.



Right: The path and category of Cyclone Larry as it crossed the coast and moved inland.