

Cairns Regional Council State of the Environment Report 2009/10



Cairns Regional
COUNCIL

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Table of Contents

Introduction.....	1
Environmental Performance Snapshot.....	2
Biodiversity Snapshot.....	4
Environmental Performance Data.....	6
Summary	9
Good news stories.....	11

Idiospermum australiense



Barringtonia calyptata

This is Cairns Regional Council's second State of the Environment Report (SOE). In Queensland there is no legislative requirement for Councils to produce a SOE, however Council believes it is important to communicate its environmental performance to the community on an annual basis.

The SOE reports on Council's environmental performance measured by a series of indicators. The indicators are related to the objectives for Goal 1 and 4 in Council's Corporate Plan; Caring for the Environment and Delivering Services and Infrastructure.

In addition, the SOE interprets the data collected for each indicator and provides summaries under the following headings: land management; energy; water and waste. The SOE also reports on some good news stories and provides an opportunity for the community to read about inspiring projects and activities.

2010 is the United Nations International Year of Biodiversity, and as such an additional Biodiversity Snapshot is included, although this data is not collected by Council.

Council is committed to a vision of sustainability for the region which is demonstrated by continuously improving its environmental performance and working towards sustainability.



Queensland Kauri Pine (*Agathis robusta*)

Environmental Performance Snapshot

Land management

- 44,243 trees planted, 10% less than the previous year.
- 13,687 trees donated to the community, 51% less than the previous year.
- 78,246 seedlings potted, 26% less than the previous year.
- 674 declared feral animals destroyed, 5% less than the previous year.
- 12,250 Eastern Rainbow Fish were released for mosquito control.
- 227 Mosquito complaints received and 20 Midge complaints received.



Energy

- Council used 38,614,446 kilowatt hours of electricity, 20% more than the previous year.
- Electricity use for buildings and streetlights remained relatively unchanged while water and sewage electricity consumption increased by 44%.
- Council's electricity use emitted a total of 35,310 tonnes of carbon dioxide equivalent, 5% more than the previous year.
- Council vehicles used 22% less unleaded fuel and 7% less diesel fuel than the previous year.
- Council's vehicles emitted a total of 4,070 tonnes of carbon dioxide equivalent, 16% less than the previous year.





Water

- Per capita daily water consumption (residential, industrial, commercial and agricultural) 461 litres per day, 3% more than previous year.
- Per capita daily water consumption (residential only) 217 litres per day, 2% more than previous year.
- 1042 Mega litres of recycled water used, a 60% increase from previous year.
- 98% compliance with EPA Sewerage Licensing requirements, 1% higher than previous year.



Waste

- 49,412 tonnes of domestic kerbside waste collected, 1% more than previous year.
- 11,075 tonnes of domestic kerbside recycling collected, 2% more than previous year.
- 16,024 tonnes of compost exported from Bedminster, 33% less than previous year.
- 28,098 tonnes of Green Waste processed, 10% more than previous year.
- 2,882 tonnes of metal recycled, 1% less than previous year.
- 86 tonnes of batteries sent for recycling, 8% more than previous year.



Biodiversity Snapshot

2010 - International Year of Biodiversity

This year, 2010, is the United Nations International Year of Biodiversity, providing a timely opportunity to include a biodiversity snapshot in this year's State of the Environment Report.

Changes in biodiversity in the region are difficult to measure on an annual basis, and Council does not collect comprehensive data on habitat loss, vegetation clearing or species decline. Although we cannot currently offer an accurate account of Council's performance in terms of biodiversity conservation, biodiversity is a key element of environmental health and is therefore included in this report.

One of the Key Projects of the Caring for the Environment section of the Corporate Plan for 2009-2014 is to develop and implement a biodiversity conservation strategy.



Whyanbeelia terrae-reginae

Biodiversity in our region

The Cairns Regional Council area covers over 4000 square kilometres of land that is internationally recognised for its scenic beauty and high biodiversity. The region contains two World Heritage listed areas: the rainforests of the Wet Tropics, and the reefs and waters of the Great Barrier Reef.

The various ecosystems, communities and habitats of this region support organisms that range in size from single-celled organisms to the giant *Stockwellia* trees of the East Mulgrave River valley. Numerous migratory species protected by international agreements also frequent this region. These migratory species depend on the wetlands, waterways, coastal waters and terrestrial habitats - from mangrove edges to mountain tops - for food and shelter during their stop-over in the region.

Threats to biodiversity

The major threats to biodiversity in the Wet Tropics region are:

- Habitat loss and fragmentation - primarily as a result of development
- Predation by domestic cats and dogs
- Weeds
- Pest animals - feral pigs, cane toads
- Climate Change - particularly threatening for high altitude species
- Diseases
- Fire regimes
- Water management



Information from www.wettropics.gov.au

Plants and animals of the Cairns region

The Cairns Region contains 139 different regional ecosystems that fall within 261 vegetation types. The area can be generally divided into three distinct bioregions: Cape York Peninsula; Einasleigh Uplands and the Wet Tropics. The vast majority of the Cairns Regional Council area is within the Wet Tropics bioregion. Under the *Vegetation Management Act*, 15 of the 139 regional ecosystems of the Cairns Region have an Endangered status; 87 have an Of Concern status and 37 have an Of Least Concern status.

All native plants and animals are protected under the *Nature Conservation Act 1992*. Some 263 plant species native to the Cairns Region are regarded as rare and threatened and 14 plant species regarded as extinct in the wild. It is possible that populations of some of these extinct plants still exist as no adequate survey work has been undertaken in many areas of suitable habitat.



Idiospermum australiense

Note: This data has been compiled using the Department of Environment and Resource Management GIS Map Info and Exponare database Version 6.

Conservation Status of Plants in the Cairns Regional Council Local Government Area (under the Nature Conservation Act 1992)

Class	Native species	Extinct	Endangered	Vulnerable	Near Threatened	Introduced species
Mosses	139	0	0	0	0	0
Ferns & Allies	249	7	7	14	16	8
Gymnosperms	13	0	0	0	1	1
Dicotyledons	1675	5	16	46	96	298
Monocotyledons	600	2	9	10	34	102
Total	2676	14	32	70	147	409



Conservation Status of Animals in the Cairns Regional Council Local Government Area (under the Nature Conservation Act 1992)

Class	Native species	Endangered, Vulnerable & Near Threatened	Introduced species	Total
Amphibians	45	9	1	46
Birds	393	13	9	402
Bony Fish	38	0	5	43
Butterflies	49	1	0	49
Mammals	83	12	4	87
Reptiles	116	8	1	117
Fungi	251	0	0	251
Protists	228	0	0	228
Total	1,203	43	20	1,223



Environmental Performance Data

Indicator	2008/09	2009/10	Trend	Ü Positive Û Negative - Neutral^
LAND MANAGEMENT				
Number of trees planted by Council	49,166	44,243	10%-	Û
Number of trees donated to the community	27,689	13,687	51%-	Û
Days spent on watering/maintenance	221	264	20%+	✓
Days spent on site preparation	21	46	119%+	✓
Number of seedlings potted	105,675	78,246	26%-	Û
Number of hours spent on seed collection	248	225	10%-	Û
PEST MANAGEMENT				
Number of days of pest mapping and survey	25	23	8%-	Û
Number of Pest Treatments	325	386	19%+	✓
Number of declared feral animals destroyed	709	674	5%-	-
Number feral pigs destroyed	706	671	5%-	-
Number feral pigs destroyed (Daintree)	602	589	2%-	-
Number feral dogs destroyed	3	3	No change	-
Weeds of National significance (assisted days)	99	86	13%-	Û
Class 1 Weeds – Assist State Government (days)	42	46	9%+	✓
High Priority Weeds (days)	138	164	19%+	✓
MOSQUITO CONTROL				
Number of Eastern Rainbow Fish Released	0	12,250	~	✓
Number of Mosquito Complaints Received	Not collected	227	~	-
Number of Midge Complaints Received	Not collected	20	~	-
Amount of pesticide sprayed for mosquito control (litres)	Not collected	324 L Reslin, 106 L Pyrethrin	~	-

Environmental Performance Data

Indicator	2008/09	2009/10	Trend	ü Positive û Negative - Neutral^
ENERGY & EMISSIONS				
Fuel use by Council vehicles – Diesel (litres)	1,311,024	1,216,921	7%-	✓
Fuel use by Council vehicles – Unleaded (litres)	422,609	331,065	22%-	✓
Greenhouse gas emissions from fuel use (tonnes CO ² e)*	4,854	4070	16%-	✓
Total electricity use by Council (kWh)	32,094,847	38,614,446	20%+	û
Electricity use by Street Lighting (kWh)	7,119,125	7,323,386	3%+	û
Electricity use by Buildings (kWh)	10,334,749	10,205,113	1%-	ü
Electricity use by Water and Sewage (kWh)	14,640,973	21,085,947	44%+	û
Greenhouse gas emissions from electricity use (tonnes CO ² e)*	33,761	35,310	5%+	û
WATER				
Recycled Water Used (litres)	650ML	1042ML	60%+	✓
Per capita daily water consumption (residential, industrial, commercial and agricultural) (litres)**	447 L/day	461 L/day	3%+	û
Per capita daily water consumption (residential only) (litres)**	212 L/day	217 L/day	2%+	û
WASTE WATER				
Compliance with EPA Sewerage Licensing requirements (%)	97%	98%	1%+	ü
WASTE				
Domestic Kerbside Waste collection (tonnes)	48,913	49,412	1%+	û
General domestic waste dropped at Transfer Stations (tonnes)	9,556	9,350	2%-	✓
Construction waste to Transfer Stations (tonnes)	2,318	677	71%-	-
Construction waste to landfill (tonnes)	2,318	677	71%-	-

Environmental Performance Data

Indicator	2008/09	2009/10	Trend	U Positive U Negative - Neutral [^]
Commercial waste to Transfer Stations (tonnes)	5,222	3,847	26%-	✓
Commercial waste to landfill (tonnes)	3,084	2,363	23%-	✓
Total waste to Bedminster (tonnes)	78,504	46,550	41%-	U
Total waste directly to landfill (tonnes)	0	22,777***	~	U
Compost Exported from Bedminster (tonnes)	23,797	16,024***	33%-	U
Waste exported from Bedminster to landfill (tonnes)	44,033	28,836	36%-	-
RECYCLING				
Total recyclables collected (tonnes)	11,028	11,306	3%+	-
Total recyclables sent for recycling (tonnes)	5,031	6,008	19%+	-
Proportion of recyclables sent for recycling	46%	53%	7%+	✓
Domestic kerbside recycling collected (tonnes)	10,877	11,075	2%+	✓
Commercial waste recycled (tonnes)	21	34	62%+	✓
Green waste processed (tonnes)	25,550	28,098	10%+	✓
Metal recycled (tonnes)	2,903	2,882	1%-	U
Tyres recycled (tonnes)	15,494	11,861	23%-	U
Oil sent for recycling (litres)	51,760	78,885	52%+	✓
Batteries sent for recycling (tonnes)	80	86	8%+	✓

[^] Elements for which the trend has neither positive or negative environmental impacts, or for which impacts are unclear.

* Using NGER methodology for GHG emissions calculations (*National Greenhouse and Energy Reporting (NGER) Act 2007*).

** Data for 2009 calendar year rather than 2009/10 financial year .

*** Due to Bedminster system being out of operation, see page 10.

Summary

Land Management

The number of trees planted by Council, the number of seedlings potted and the number of hours spent on seed collection all decreased. This is because the number of trees planted during 2008/09 was high due to the Cattana wetlands project, which has now been completed.

The number of trees donated to the community decreased, as most community groups were in the second year of funded projects and were focusing on site maintenance activities. Where possible, Council follows a system repair approach: treating weeds then reinstating natives plants. Days spent on watering and maintenance have increased as a result of a very dry 'dry season' in 2009. Days spent on site preparation have increased as there are a number of projects are in the initial stages of development.

The Daintree Community Pig Trapping Program was re-tendered and a new 2 year contract awarded. The area of operations was extended to include the area north of Cape Tribulation to Bloomfield.

Weeds of National significance (assisted days) have decreased as the Blueprint for the Bush funding for Pond Apple removal has ended. Class 1 Weeds – Assist State Government (days) have increased as the State Government program "Four Tropical Weeds Eradication Program" has been enhanced. High Priority Weeds (days) have increased, with work on removing Hiptage; continuing Brillantasia control at Whyanbeel Creek and Thunbergia control works at Freshwater Creek.

Energy

There was a 20% increase in total electricity use across Council. This was primarily driven by a 44% increase in electricity use by water and sewerage facilities, which include waste water treatment plants and potable water treatment and pumping facilities. This sharp rise in electricity use is due to the upgrading of four major wastewater treatment plants as part of the Cleaner Seas Project., resulting in an 80% improvement of effluent quality leaving our waste water treatment plants. Despite increased emissions from electricity use, the upgrade has resulted in an overall reduction in greenhouse gas emissions due to decreased methane emissions from wastewater treatment plants.

While Council's electricity use increased by 20%, greenhouse gas emissions from electricity increased by only 5%. This is due to a change to the coefficient used in the NGERs methodology for greenhouse gas conversion. This coefficient changed from 0.91 tonnes of carbon dioxide equivalent per Megawatt of electricity consumed in 2008/09, to 0.89 tonnes in 2009/10. This was altered to reflect an increase in the proportion of renewable electricity generation in Queensland.

Total greenhouse gas emissions from all of Council's operations was not included in this report as there is currently no measure of emissions from landfill, which accounts for at least 50% of Council emissions. Until landfill emissions are accurately estimated it is not possible to provide a total emissions figure for Council operations.

It is encouraging to see that while total electricity use has increased, electricity use in Council buildings has decreased by 1%. This may be due to improved energy efficiency in new and existing Council buildings. Street lighting electricity consumption has risen by around 3%. Despite this, a local street lighting trial is currently underway to test energy efficiency technologies in a tropical climate.

Council vehicles used less fuel and emitted a total of 4,070 tonnes of carbon dioxide equivalent, which is 16% less than 2008/09 fleet emissions. This is a significant reduction and reflects the fact that Council has been replacing fleet vehicles with more fuel efficient models.

Water

Per capita residential daily water consumption increased marginally to 217 litres per day. The increase is likely to be a result of the region experiencing the driest dry season on record. There was a 3% increase in total per capita water use (including industrial, commercial and agricultural use) to 461 litres per day.

The amount of recycled water used increased by 60%. This is also likely to be result of the dry conditions experienced in 2009 with increased irrigation of golf courses receiving recycled water. The amount of recycled water used will continue to increase as recycled water schemes planned for the Marlin Coast Waste Water Treatment Plant and the Northern Waste Water Treatment Plant become operational in late 2011.

The Marlin Coast Recycled Water Scheme will take "A" class recycled water from the upgraded Marlin Coast Wastewater Treatment Plant and deliver a portion of it to nearby golf courses, schools and other sites. The remaining "A" class quality recycled water will be further treated to an "A+" class standard to be used for toilet flushing and outdoor water use, through dual reticulation networks to new residential developments. This dual reticulation recycled water network will be the first recycled water scheme in Queensland outside the South-East Queensland area.

"A" class recycled water from the upgraded Northern Wastewater Treatment Plant will be delivered to the Cairns Botanic Gardens for irrigation purposes. Construction of the infrastructure for these projects is due to commence in the 2010/2011 financial year.

Waste

Total domestic kerbside waste collected from Cairns residents increased by only 1% to 49,412 tonnes. The population of Cairns increases on average by approximately 3% each year, which means that this 1% increase in total domestic kerbside waste actually equates to a decrease in the amount of waste per capita collected at the kerbside.

Around 300 kilograms of domestic kerbside waste was collected per capita in 2009/10. In addition to this, 9,350 tonnes of domestic general waste was delivered to waste transfer stations.

677 tonnes of construction waste was delivered to transfer stations, none of which was diverted from landfill. 61% of the 3,847 tonnes of commercial waste arriving at transfer stations went to landfill.

A total of 46,550 tonnes of waste went into the Bedminster system (Council's waste processing system). 34% of this waste was exported from the Bedminster as compost and 62% was exported to landfill. The Bedminster system produced 16,024 tonnes of compost, 33% less than during the previous year. The Bedminster system was out of operation from February 2010 and is due to recommence operations in November 2010. This is a major factor in the decrease in compost produced and increase in waste taken directly to landfill.

Total domestic kerbside recycling collected from Cairns residents increased by 2%. 11,306 tonnes of recyclable materials were collected in total, and 53% of these materials, or 6,008 tonnes, were sent to Brisbane for recycling. Of the remaining material, 1,520 tonnes of waste (13%) was sent to Bedminster and the organic fraction composted with the non-organic fraction sent to landfill (approx 10%) and 3,600 tonnes of glass fines (34%) are currently stored and waiting for a reuse market to be identified.

The amount of Green Waste processed increased by 10%, tyres recycled decreased by 23% and oil sent for recycling increased by 52%.

Good news stories

Council launches Marine Plant Management Strategy

Cairns Regional Council's Marine Plant Management Strategy was officially launched on 22 June 2010. The Strategy was developed in-house by staff from Technical Support Services, and training was delivered to all operational staff in the use of the Strategy. The Strategy covers 14 catchments and provides site-specific operational plans detailing how marine plants will be managed in each of the catchment areas. The Strategy has been a significant step forward for Council and Fisheries Queensland in recognising the environmental, cultural, social and economical value of marine plant habitats and Council's requirements to provide flood mitigation to the community.



Water quality monitoring

Council staff have commenced a monitoring program to assess the water quality of the Cattana Wetlands. The program began in May 2010 to capture post wet season water quality information. Water samples were collected from each of the four lakes and drainage lines that flow into the wetlands. Measurements included turbidity, pH, Dissolved Oxygen, nutrient levels and the presence of pesticides, herbicides and insecticides. It is intended that water quality monitoring will be conducted on a monthly basis with more detailed sampling being conducted pre- and post-wet season events.

Carbon Conscious Staff Tree Planting

Technical Support Services, a branch within Cairns Regional Council planted 880 trees at Cattana Wetlands in April 2010 to offset part of its annual carbon emissions. It was a huge success with 37 branch staff turning out to get their hands dirty and do their bit for the environment. Staff raffled prizes donated by local businesses and all money raised was donated to Rainforest Rescue, a not-for-profit organisation who have put the donation towards regeneration work in the Daintree area.



Cleaner Seas

Council celebrated the completion of the Cleaner Seas Project in April 2010. The Cleaner Seas Project aimed to make significant improvements in local water quality and reduce the nutrient load released to the Great Barrier Reef. The Project has resulted in an 80% improvement in the quality of effluent discharged to the receiving waters of the Great Barrier Reef.

The \$188 million project involved upgrades of four major wastewater treatment plants in Cairns between July and October 2009. The plants upgraded were the Northern, Southern, Marlin Coast and Edmonton plants. As well as to improve the quality of effluent being discharged into the sea, the upgrades aim to increase the capacity of the plants. The Northern plant has the largest submerged membrane filter in Australia and the largest holding tank that contains the equivalent of four Olympic swimming pools.

The total estimated reduction in nutrients discharged to the water that surrounds the Great Barrier Reef is approximately 160 tonnes per year.

Council is also developing a recycled water scheme for the Botanic Gardens and has installed delivery pipes throughout the Smithfield Village estate at Trinity Park for outdoor use and toilet flushing.



Cairns YEA!

Cairns YEA! (Youth Engagement & Action) members have been appointed by the Cairns Regional Council to provide representation directly to Council on youth related issues and agendas in the Cairns region. The team is made up of a broad range of experiences, cultural identities, ages and values that provide a youthful reflection of our wonderful community.

Cairns YEA! is specifically focused on advocating for '*Greater Youth input into Environmental Issues, Climate Change, Hill Slope Development, Conservation and Litter*'. The group is committed to advocating and influencing conversations and decisions by creating voice for youth through Cairns YEA's relationship to Council and the Councillors. By participating and creating youth engagement strategies aimed at addressing these environmental issues and creating awareness, the group is focused on creating policy change and improving the practices of community members within our region.

Recently, Cairns YEA entered a Recycling Advertisement into the regional Film Festival competition to raise community awareness to the importance of recycling and specifically 'what to recycle'.

Good news stories

Carnival On Collins

2009 was the 20th anniversary of Carnival On Collins with record numbers of attendees coming out to enjoy this free family event. In 2009, event organisers set a target of making this a carbon neutral event by 2010. Simple initiatives included the correct use of bins to reduce landfill, reduction in the hire of generators and consideration of energy consumption. The event actively campaigned to encourage the public to leave their cars behind, ride their bike or catch the courtesy bus. The results were encouraging indicating that the 2010 target will be met.



Reef Guardian Council

Cairns Regional Council became a Reef Guardian Council in 2009. The Reef Guardian Council program is designed to recognise and promote the important role of local government in protecting the Great Barrier Reef.

The objective is to raise awareness and encourage best environmental practice in local government activities, while recognising that the effective protection and management of the Great Barrier Reef, requires partnerships at all levels of government, industry and the community.



Sustainable Living Expo

The Sustainable Living Expo is an annual showcase of sustainable living information, services, products and innovative ideas in the Cairns region.

Jointly organised by Cairns Regional Council and Tropical North Queensland TAFE, the Expo is a village of exhibitor stalls, workshops, displays, technology demonstrations and new innovations.

The annual Expo provides a fun, educational and inspirational day for the whole family, featuring a children's activities, face painting, street performance, information and workshops.

sustainable living expo



Sustainability Scorecard

Council has developed and introduced a new Sustainability Scorecard for assessing and measuring the sustainability of projects, decisions, policies and operations. The Sustainability Assessment Tool will encourage Council staff to consider all aspects of sustainability including resource efficiency, biodiversity, community health and wellbeing and governance and economic management. It aims to improve Council's overall performance in the area of sustainability.

This is a unique program that establishes Council as a leader in the field of sustainability.



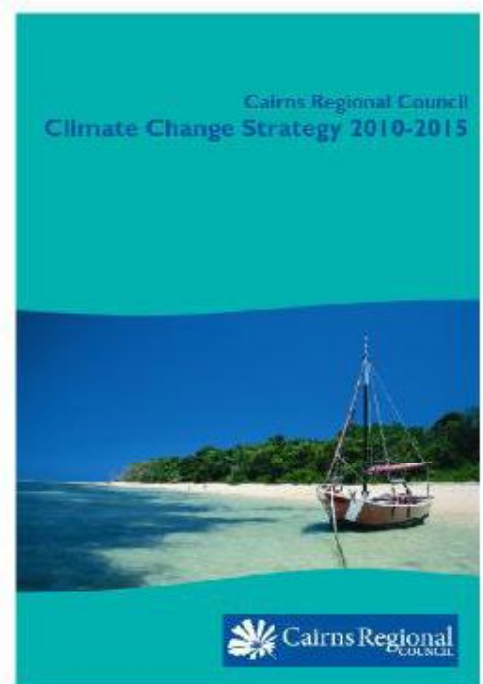
Home Energy Toolkits

Every library in the region now has an updated 'Home Energy Toolkit' which is available for residents to borrow for free. This kit assists in identifying ways to reduce energy consumption in the home and save money. This educational kit contains a Powermate electricity metre, a compass, thermometer and a manual containing activities and useful information on sustainable building design, climate change, government programs and rebates and minimising wastage of electricity.

Climate Change Strategy 2010-2015

On 25 August 2010, Council adopted a Climate Change Strategy. This five year strategy provides clear direction for addressing climate change and peak oil vulnerability in the Cairns region, and establishes a roadmap that will lead to a low carbon, low oil, secure and vibrant future.

The Strategy draws together and builds on current Council projects, policies and plans that relate to climate change and sustainability to create a unified strategy for responding to these issues and capitalising on related opportunities.



Council's Species Management Programs to protect local animals

During 2009/10 Council initiated two 'Species Management Programs' for three local animal species: the Rufous Owl, Spectacled Flying Fox and Little Red Flying Fox. These Species Management Programs were developed to avoid or minimise impacts of Council operations on these species. The Species Management Programs have been approved by the Department of Environment and Resource Management, making Cairns Regional Council the first Council in Australia to have approved Species Management Programs in place.

Rufous Owls (*Ninox rufa queenslandica*) are large Tropical Owls that live in rainforest, monsoon forest, vine scrub and gallery forest. They are classified as Vulnerable under the *Queensland Nature Conservation Act (Wildlife) Regulations* (2006).

In October-November 2009 a pair of Rufous Owls nested in a deep tree hollow in a large Melaleuca tree adjacent to Saltwater Creek within Centenary Lakes. The **Rufous Owl Management Program** was created to assess whether removal of mangroves adjacent to Saltwater Creek would affect these owls.



Rufous Owl Photo: Jun Matsui



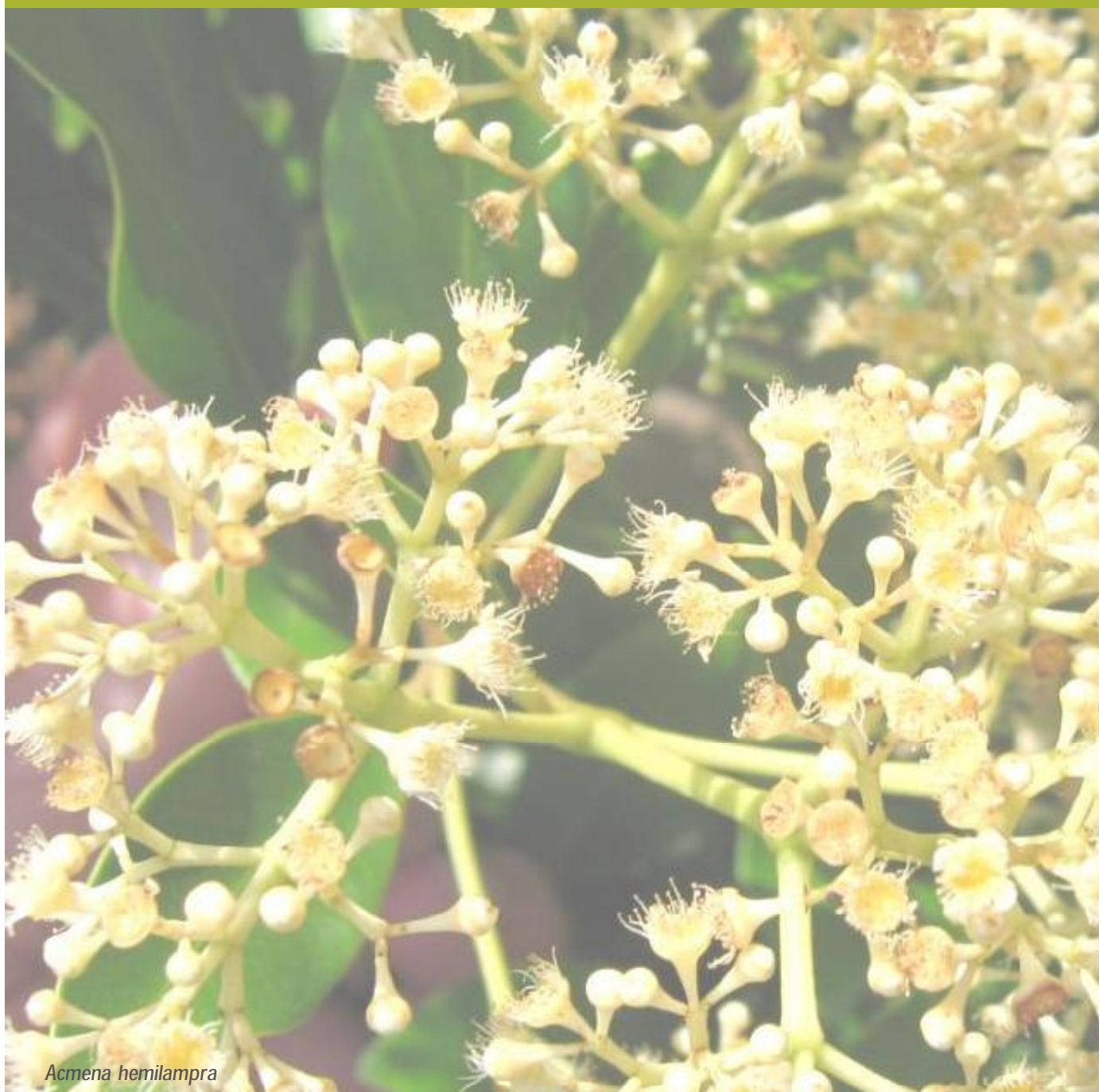
Little Red Flying Fox

Spectacled Flying Fox (*Pteropus conspicillatus*) is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Little Red Flying Fox (*Pteropus scapulatus*) is listed as Least Concern in Queensland (*Nature Conservation Act 1992*) and it is ranked as a low priority under the Department of Environment and Resource Management 'Back on Track' species prioritisation framework.

The **Spectacled Flying Fox and Little Red Flying Fox Management Program** was created to avoid or minimise the impacts of tree pruning and tree removal on these species.

Cairns Regional Council State of the Environment Report 2009/10



Acmena hemilampra