

# WILDLIFE DIARY

## July 2009



### Great Finds

### Did You Know?

**Glossy Black-Cockatoos**, *Calyptorhynchus lathami*, seen feeding in a Casuarina tree in Thornlands.

**Echidna**, *Tachyglossus aculeatus*, seen at Lota.

**Albino Grey Mangrove**, *Avicennia marina*, propagules found at Cleveland. See:

[http://www.marine.uq.edu.au/marbot/publications/pdf/duke\\_watk2002.pdf](http://www.marine.uq.edu.au/marbot/publications/pdf/duke_watk2002.pdf)

and <http://www.marine.uq.edu.au/marbot/publications/pdf/Lloyd.pdf>

## POPULATION MATTERS

Whatever your cause, it's a lost cause unless we control population.

**11th of July was World Population Day**

### Umbrella and Keystone species

An **umbrella species** (or population) is one whose conservation confers protection to a large number of naturally co-occurring species. A **keystone species** is a species that has effects on its community or ecosystem that are both large and large relative to its abundance. They tend to perform roles not performed by other species or processes. For example, the removal of a keystone species would see another species become abundant at the expense of many others.

### Climate Change update

Worldwide temperature rises have caused the tropics to expand, pushing at least 300km south in the past 30 years, a report has found.

The changes have caused more floods, storms and monsoonal conditions for southeast Queensland.

Researchers said that by mid-century, Brisbane would have weather patterns more associated with tropical climates, including drier winters and more severe floods.

Source: Dr Joanne Isaac, Post-Doctoral Fellow, Centre for Tropical Biodiversity and Climate Change, School of Marine and Tropical Biology, James Cook University

### Whales on the move

Whales are moving north and good sightings have been made at North Stradbroke Island. If you missed them September is the peak month for the southward migration of humpback whales. Whales are now important for tourism; however, whaling was one of Australia's oldest industries. Until 1833 whale products were the nation's largest export. At one stage there were 20 whaling stations in WA alone. Tangalooma in Moreton Bay was once a whaling station.

Did you know the sudden and drastic loss of koalas in the Koala Coast is NOT due to Climate Change but due to the loss of koala habitat?

Did you know ecosystem resilience is the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state that is controlled by a different set of processes. A resilient ecosystem can withstand shocks and rebuild itself when necessary. Resilience in social systems has the added capacity of humans to anticipate and plan for the future. Humans are part of the natural world. We depend on ecological systems for our survival and we continuously impact the ecosystems in which we live from the local to global scale. Resilience is a property of these linked social-ecological systems (SES). "Resilience" as applied to ecosystems, or to integrated systems of people and the natural environment, has three defining characteristics:

- The amount of change the system can undergo and still retain the same controls on function and structure.
- The degree to which the system is capable of self-organization.
- The ability to build and increase the capacity for learning and adaptation.

Source: <http://www.resalliance.org/576.php>

### Great Walks



Want to walk along a white sandy beach, see relic coral reefs built when sea levels were 2 – 3 metres higher than today? Take a walk from Empire Point, Ormiston, walking on the

Northern side of the artificial wader roost site at low tide and head north. Be careful, don't go alone, slip slop slap and carry a mobile phone and ensure you don't walk on the old coral or disturb the migratory wader birds.

# WWW

**Population matters**

[www.population.org.au](http://www.population.org.au)

**Glossy Black Conservancy Home**

<http://www.glossyblack.org.au/index.html>

**Captive Golden-tipped Bat eating various spiders**

<http://www.youtube.com/watch?v=dedbLiPbOOE>

**The latest koala research**

<http://www.epa.qld.gov.au/publications?id=2966>

**Resilience rules**

<http://www.abc.net.au/rn/bigideas/stories/2009/2449142.htm>

# the Value of Trees

## Trees have many values, here are just a few.

Higher temperatures are recorded in city centres than in natural surroundings. This urban effect on the superficial thermal field in the city is called a "heat island." It was found that the transpiration of a mature tree corresponds to a refrigerator with a capacity of more than 150,000 thermal units/BTUs per day. A large mature tree is able to transpire 450 litres of water per day. This enables it to consume 1000 MJ of caloric energy in order to carry out the transpiration process, thus lowering urban temperatures. Studies have demonstrated that significant differences exist between the patterns studied in buildings surrounded by green zones, than those without them. In some cases, temperatures can be as much as 4 °C hotter and there can be as much as an 11% difference in humidity in areas without green zones.

Trees reduce the gaseous agents that pollute the atmosphere by attracting them through the stomas of the leaves. Once within the leaves, they react with the internal structures. Vegetation plays a key role in reducing small particles that are suspended in the atmosphere. Some particles can be absorbed by the trees, although most of the particles that are intercepted are retained on the surface of the plant. These particles located on the surface will return to the system when the leaves fall off or when they are washed off by the action of rain. In this way, trees constitute an effective way of temporarily retaining many atmospheric particles. In 1994, the trees in New York City eliminated approximately 1,821 metric tonnes of atmospheric polluting agents, saving the city some \$9.5 million. The improvement in the air quality of New York due to the removal of pollution by trees during the daytime during the in leaf season averaged 0.47% for particulate matter, 0.45% for ozone, 0.43% for sulphur dioxide, 0.30% for nitrogen dioxide and 0.002 for carbon monoxide. Interesting to note, healthy trees that are larger than 77 cm in diameter eliminate approximately 70 times more annual atmospheric pollution (1.4 Kg/yr) than trees that are smaller than 8 cm in diameter (0.02 Kg/yr).

It is estimated that the urban trees in Syracuse store some 163,500 tons of carbon and have an annual carbon uptake of 3,870 tons/yr. As CO<sub>2</sub> is an important greenhouse gas that contributes to global warming, the value of the effect of urban forests on carbon is estimated at \$3 million for storage and \$71,500/yr for uptake. In Austin, Texas, trees cover around 30% of the city, removing 5,196.3 tonnes per year (MacDonald, 1996).

Water has always played a key role in human settlements. Streams, rivers and lakes provide food, defence and primarily drinking water to the population. With the growth of cities, catchment basins have undergone great transformations such as the canalisation of rivers, the drying up of humid areas and the overuse of cement and asphalt, thus creating an impermeable crust for the action of the water in cities and therefore affecting the natural hydrology of these areas. Water filtration rates into aquifers depend on the way land is used. In forest lands, 40-50% of the water is filtrated, while runoff accounts for 10-20%. In urban residential lands, 35% of the water is filtrated, while 30% is runoff. In urban lands, filtration rates drop to 15% with 55% runoff; water which subsequently slips through paved areas, drains and channels until reaching rivers. In Toronto, runoff from city waters transports pesticides, fats, heavy metals and rubbish and is the principal cause of water contamination in local rivers. Urban trees in conjunction with naturalised areas function as absorbent water sponges, thus contributing to the absorption of nutrients and acting as a water supply source for aquifers. These spaces lessen runoff, diminishing the costs of their treatment. In Milwaukee, where urban trees cover 16% of the city, stormwater flow was reduced by 22%, leading to a savings of \$15.4 million dollars, thus making it unnecessary to build additional systems to retain the water and mitigate this problem. In Austin, Texas, urban trees cover 30% of the city's surface area, thereby reducing rainwater flow by 28% and saving \$122 million.

It has been shown that vegetation reduces sound by dissipating it, whereas the ground absorbs it. Wide and dense vegetation belts up to 30m can reduce noise by about 50%. When the vegetation is dense and is put in front of a row of shrubs, noise is reduced by 3 to 5 decibels for walls with widths of 3m or less. The human perception of sounds is another important factor to take into consideration. By blocking the visual origin of the sound, vegetation reduces the perception that individuals have of the amount of noise they can actually hear.

Trees also provide shelter for urban wildlife. Many types of insects feed on trees and in turn provide food for other insects and birds. Trees help improve biodiversity and deliver many free eco system services.

The presence of vegetation in public spaces could form a barrier, thus providing visitors with a sense of security. The results of studies confirmed that when vegetation is introduced in spaces that were previously devoid of vegetation, people changed their attitudes and feelings. This fact demonstrates that vegetation can create common bonds between the inhabitants of a district. Another study demonstrated that the dwelling time in a park or public space depends on the presence, location and number of trees. In this way, trees and plants play an important role in attracting people from a district to its public spaces by embracing common interests and creating social bonds between residents.

*Never doubt that a small, group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.* Margaret Mead.

