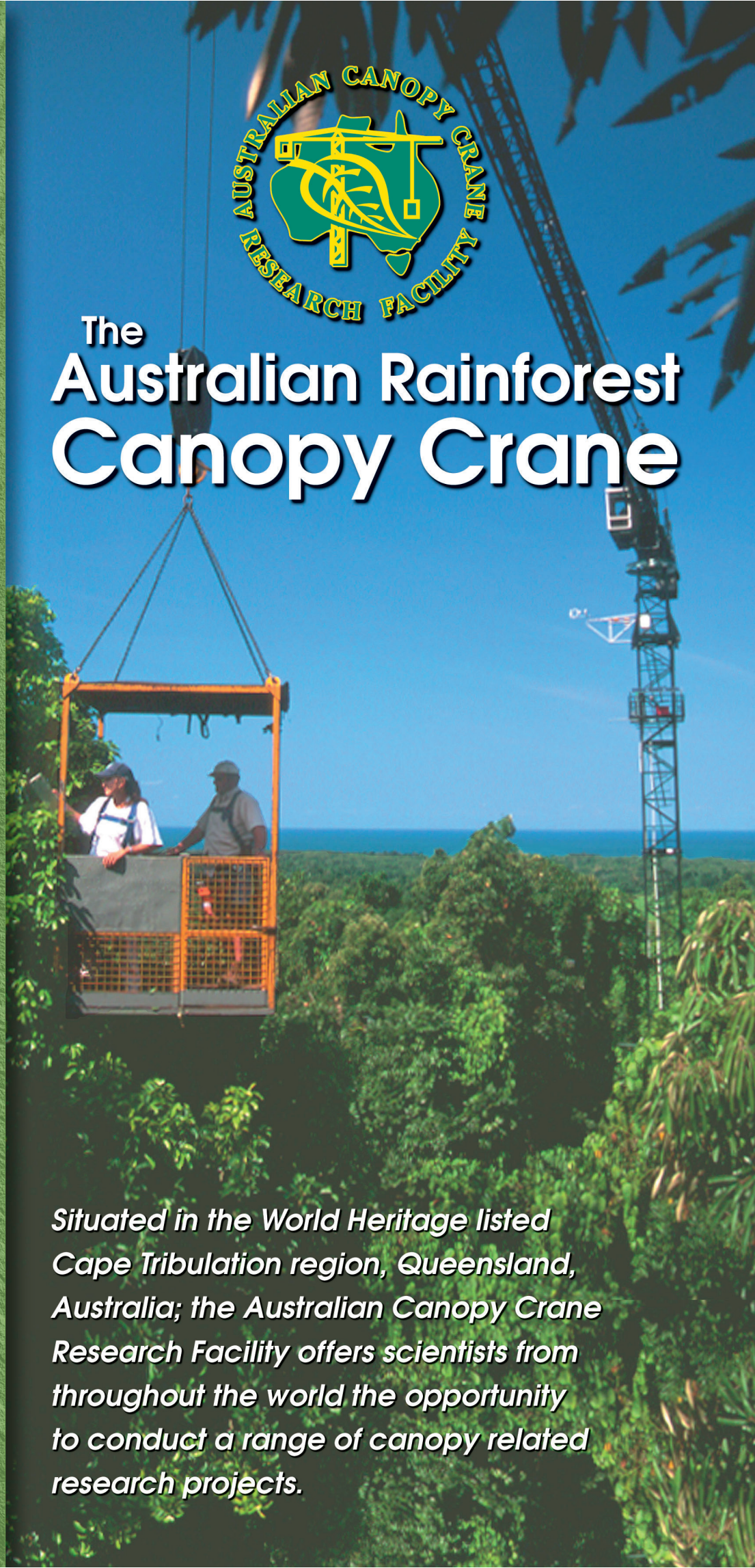




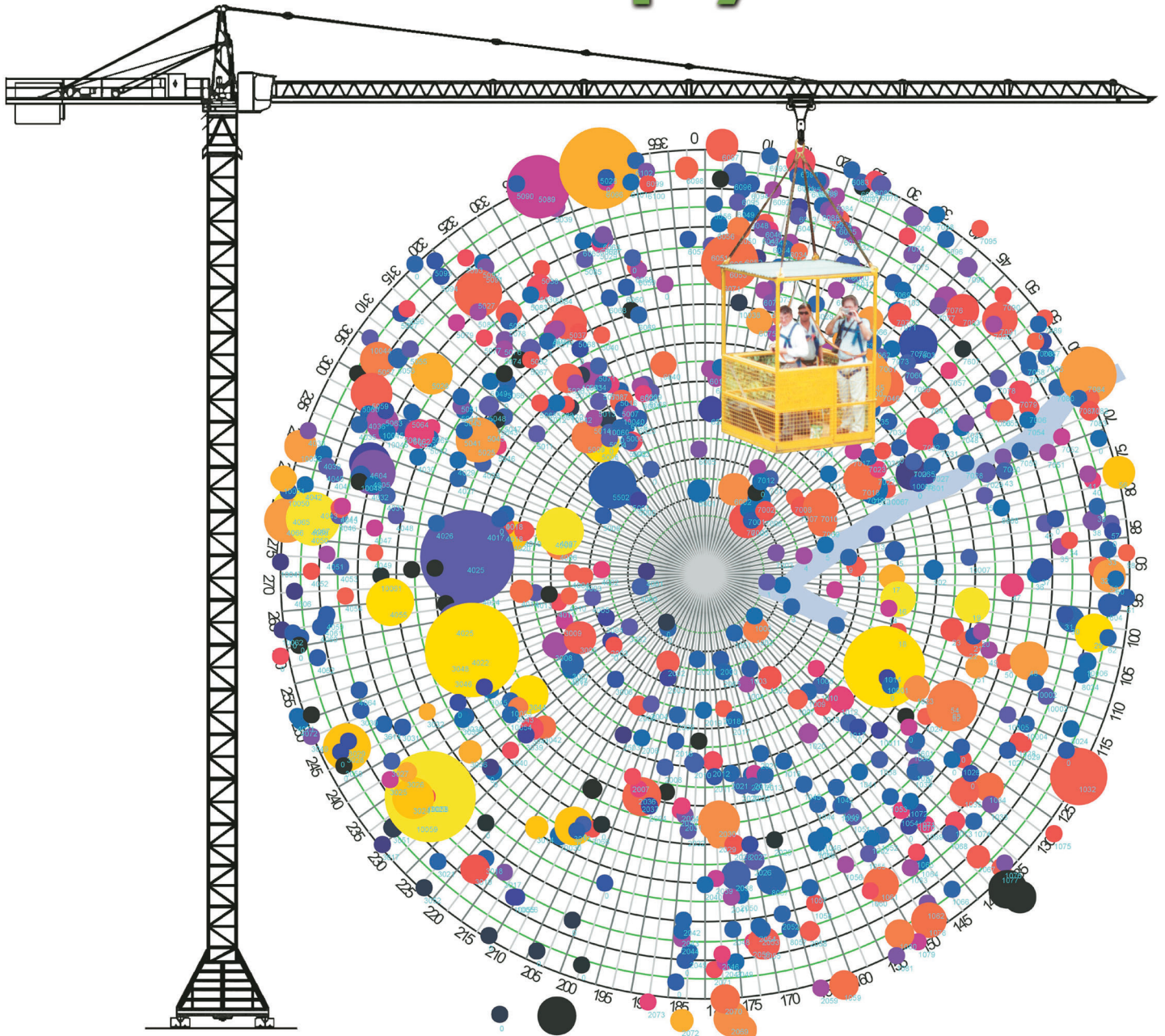
The Australian Rainforest Canopy Crane



Situated in the World Heritage listed Cape Tribulation region, Queensland, Australia; the Australian Canopy Crane Research Facility offers scientists from throughout the world the opportunity to conduct a range of canopy related research projects.



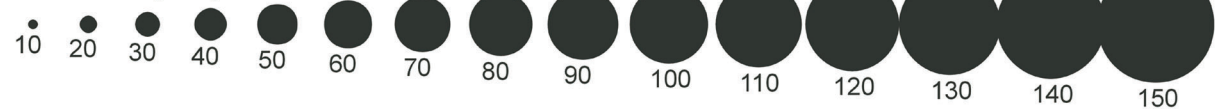
The Australian Rainforest Canopy Crane



maximum tree height [m]



tree dbh [cm]



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Positioning System

Coordinates are obtained from a GIS database containing the relevant degree and distance.

These are then used to navigate the gondola to any specific location.



Research underway at the Canopy Crane Research Facility

Capabilities of the crane

- A Liebherr 91EC freestanding construction tower crane, 47 metres high, with a radius 55 metres.
- Gives researchers access through the strata and above the canopy of around one hectare of rainforest.
- Operated by qualified staff.
- The gondola can carry two people plus the driver.
- The crane has positioning systems developed to allow researchers to accurately and quickly find research sites within the canopy.

Flora and Fauna

- Vegetation is complex mesophyll vine forest with irregular canopy varying from 25 to 33 metres in height.
- Dominant trees belong to Proteaceae, Meliaceae, Sapindaceae, Apocynaceae, Lauraceae and Myrtaceae families.
- All 80 tree species greater than 10cm dbh have been identified, labelled and mapped on a GIS database.
- Fauna observed at site include species of rodents, marsupials and antechinus, a wide range of birds, terrestrial and arboreal frogs, and an impressive range of reptiles including Boyd's forest dragons, and carpet and amethystine pythons.

Research proposals are critically reviewed to ensure no adverse environmental effects from research impact upon the site. An outstanding variety of research is being undertaken at the Canopy Crane by researchers from Australia and overseas.

Canopy Dynamics

Cyclone Rona hit the site two months after installation, providing an unprecedented opportunity to track changes in the microclimate and photosynthetic productivity of the rainforest canopy during the recovery period. These studies complement other research being undertaken on the crane which looks at the temporal and spatial variations in canopy energetics and canopy plant photosynthesis and water use.

Insects and Animals

Entomologists are using the crane to study ant ecology, the systematics of Australian wasps, host specificity of beetles, the diversity and composition of beetle communities, the reproductive biology of endemic *Drosophila* and to determine the relative roles of different insect groups in pollination of rainforest plants. The crane has also facilitated the study of arboreal and scansorial mammals by allowing large scale trapping in all vertical levels of the forest.

Plants and their Processes

Botanists abound at the site, engaging in studies into the fruiting phenology and pollination ecology of Black palms (*Normanbya normanbyi*), and into the interrelationship between epiphytes, humus accumulation and microclimate. Other botanical research looks at floral biology and pollination landscapes, at the effects of forest structure and canopy closure on tree and sapling growth and at the stratification of fungi living on the surfaces of leaves.

Breaking New Ground

New methods and technologies are also being trialed at the crane site. A test method for determining levels of herbivory in forest at the stand scale is being developed, and the crane was used to obtain spectral signatures and heights of different species - data which will enable such properties in the field to be estimated from airborne and satellite images.



Location and Climate

- Situated in lowland rainforest at Cape Tribulation, 140 km north of Cairns in Queensland, Australia.
- Tropical climate with 3500 mm rainfall, primarily between December and April.
- Daily temperatures between 20 and 37°C.



Field Research Station Facilities

- Air-conditioned laboratory equipped with basic provisions.
- Researcher accommodation including air-conditioned sole occupancy units with amenities shared between two rooms.
- Fully equipped self-catering kitchen and laundry.
- Undercover meeting area.
- On-site telephone, e-mail, fax and internet.



For more information

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