IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 08 November 2014

Please note: this is an archived Conservation Outlook Assessment for Wet Tropics of Queensland. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Wet Tropics of Queensland

SITE INFORMATION

Country:
Australia
Inscribed in: 1988
Criteria:
(vii) (viii) (ix) (x)

Site description:
This area, which stretches along the north-east coast of Australia for some 450 km, is made up largely of tropical rainforests. This biotope offers a particularly extensive and varied array of plants, as well as marsupials and singing birds, along with other rare and endangered animals and plant species. © UNESCO

SUMMARY

2014 Conservation Outlook

Significant concern

The Wet Tropics of Queensland World Heritage site is protected by a strong and updated legislative framework, a dedicated independent Management Authority which enjoys broad community support, and a comprehensive suite of management strategies. However, the insidious and damaging threat posed by invasive plants, animals and diseases, exacerbated by predicted impacts of climate change present a real danger to the continuing integrity of the site’s biodiversity and associated endemic species. Whilst significant efforts have been taken to address these threats on the ground, the level of investment does not appear to be commensurate with the urgency for significant preventative and remedial action, and likely consequences of an ineffective response.

Current state and trend of VALUES

High Concern
Trend: Deteriorating

Invasive plant and animal pest species along with a number of pathogens are impacting on World Heritage values. The trends for some threatened species seem to be deteriorating, despite recovery and action plans. The greatest concern is for the amphibian species within the property, although declines in range extent and population sizes of a number of high altitude bird and mammal species have also been reported. Despite significant management responsiveness, given the sheer number and diversity of newly emerging threats, in particular biosecurity, as well as the postulated effects of climate change per se as well as the interactions of climate change with other threatening processes; it is reasonable to assess the trend as declining.

Overall THREATS

High Threat

There are a number of current and potential threats to the World Heritage values of the Wet Tropics. Some of these can be mitigated with effective planning and good management, such as the pressures associated with development and increased permanent population and visitor numbers. However, other threats to the biodiversity and integrity of the rainforest, particularly the spread of invasive weeds, pest animals such as invasive ant species and plant diseases such as Myrtle Rust are much more difficult and costly to manage and more research and funding is required to better understand how to effectively mitigate these threats. The Wet Tropics of Queensland World Heritage Area is particularly vulnerable to the impacts of climate change. Climate change threatens to disrupt the finely balanced ecological and climatic conditions that support the distinctive assemblage of plants and animals that exist in the Area and may result in rapid and catastrophic changes. Climate change is emerging as a major threat to biodiversity values and can exacerbate impacts of other threatening processes such as fragmentation, pests/weeds and changed water and fire regimes. It is anticipated there will be changes in the abundance and distribution of flora and fauna. Interactions between organisms, such as predator-prey relationships and insect pollination, are likely to be disrupted, creating consequent changes in ecosystem composition, structure and function.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The WT Management Plan is effective in controlling activities within the WHA that may have a detrimental impact on WH values. The Wet Tropics Management Authority has a range of strategies in place that provide a sound management framework for managing tourism, walking, and conservation activities. A recently updated research strategy outlines current information needs and research priorities. WTMA has developed a comprehensive range of partnerships in the region to assist with implementing these strategies, and has constructive relationships with the nine local governments and major utility service providers operating in the region. Codes of practice guide maintenance works in and around the area to minimize adverse impacts. The threat posed by invasive weeds, pests and pathogens, exacerbated by predicted climate change is beyond

the control of WTMA. Whilst a comprehensive range of plans are in place, the resources available to allow effective implementation are unclear, particularly with regard to managing invasive pests, weeds and pathogens. This is the main area of concern.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► Superlative natural beauty
Criterion:(vii)

The Wet Tropics exhibit exceptional natural beauty, with superlative scenic features highlighted by extensive sweeping forest vistas, wild rivers, waterfalls, rugged gorges and coastal scenery. This is particularly apparent between the Daintree River and Cedar Bay, where exceptional coastal scenery combines tropical rainforest and white sandy beaches with fringing offshore coral reefs. (SoOUV, 2012)

► Living examples of ancient and primitive rainforest species
Criterion:(viii)

The Wet Tropics contains one of the most complete and diverse living records of the major stages in the evolution of land plants, from the very first pteridophytes more than 200 million years ago to the evolution of seed-producing plants including the cone-bearing cycads and southern conifers (gymnosperms), followed by the flowering plants (angiosperms). As the Wet Tropics is the largest part of the entire Australasian region where rainforests have persisted continuously since Gondwanan times, its living flora, with the highest concentration of primitive, archaic and relict taxa known, is the closest modern-day counterpart for Gondwanan forests. In addition, all of Australia’s unique marsupials and most of its other animals originated in rainforest ecosystems, and the Wet Tropics still contains many of their

closest surviving members. (SoOUV, 2012)

► Unique rainforest ecosystems

Criterion:(ix)

As a centre of endemism for the region the Wet Tropics provides fundamental insights into evolutionary patterns both in isolation from and in interaction with other rainforests. Its tall, open forests on the drier western margins of the rainforest are also significant as part of an evolutionary continuum of rainforest and sclerophyll forests. Eucalypts, that now dominate the Australian landscape, are considered to have evolved from such rainforest stock and radiated into drier environments from the margins of closed forests (SoOUV, 2012).

► Exceptional biodiversity

Criterion:(x)

The Wet Tropics holds a largely intact flora and fauna with hundreds of endemic species restricted to the property, of which many are classified as threatened. The majority of plant species have restricted distributions, and many monotypic plant genera and several species of marsupials, frogs and reptiles have very restricted distributions either as isolated or disjunct populations, reflecting the refugial nature of the rainforests found in several locations. The diversity of the plant communities and animal habitats of the Wet Tropics is recognised as being the most floristically and structurally diverse in Australia and is also outstanding on a global scale. Among many emblematic species occurring in the property is the flightless Australian cassowary, one of the largest birds in the world. (SoOUV, 2012) The Wet Tropics area supports an exceptionally high level of diversity of flora, with over 3,000 vascular plant species in 224 families, of which 576 species and 44 genera are endemic, including two endemic plant families (SoOUV, 2012). In an Australian context, the Wet Tropics covers less than 0.2% of Australia, but contains 30% of the marsupial species, 60% of bat species, 25% of rodent species, 40% of bird species, 30% of frog species, 20% of reptile species, 60% of butterfly species, 65% of fern species, 21% of cycad species, 37% of conifer species, 30% of orchid species and 18% of Australia’s vascular plant species. It is therefore of great scientific interest and of fundamental importance to conservation. (SoOUV, 2012)

Although the Wet Tropics is predominantly wet tropical rainforest, it is fringed and in a few places dissected by sclerophyll forests, woodlands, swamps and mangrove forests, adding to its diversity. (SoOUV, 2012) There are 113 species of reptiles in the Wet Tropics area which 24 species are endemic, including three monotypic endemic genera (SoOUV, 2012). The diversity of amphibians in the Wet Tropics includes 51 species of which 22 are endemic. (SoOUV, 2012) There are 107 mammal species in the Wet Tropics Area including 11 endemic species and two monotypic endemic genera (SoOUV, 2012). There are 368 bird species, of which 11 species are endemic.(SoOUV 2012)

Other important biodiversity values

► Irreplaceability

In 2013, the Wet Tropics of Queensland World Heritage Area was assessed as the second most irreplaceable natural World Heritage site currently included on the World Heritage List. The irreplaceability rank indicates the relative importance of a site among 173,461 protected areas for all the species analyzed
http://www.iucn.org/about/work/programmes/wcpa_worldheritage/resources/publicatio

Assessment information

Threats

Current Threats

Very High Threat

The on-going and increasing impact of invasive animal and plant species and diseases, such as Myrtle Rust, together with the predicted impacts of climate change pose a real and significant threat to the World Heritage values of the Wet Tropics over the longer term. These threats are the target of mitigation efforts by the managing authorities and community groups, which have had

some limited success but which will require extra effort and funding over the long term to be effective. The Wet Tropics of Queensland World Heritage Area is particularly vulnerable to the impacts of climate change. Climate change (temperature increases between 1.4ºC by 2030 and 4.2ºC by 2070 predicted under high emission scenarios) will likely have severe and interacting effects on the values of the Area, particularly on animals with low temperature range tolerances. It is anticipated there will be changes in the abundance and distribution of flora and fauna. Interactions between organisms, such as predator-prey relationships and insect pollination, are likely to be disrupted, creating consequent changes in ecosystem composition, structure and function.

► Housing/ Urban Areas

Low Threat
Outside site

It is predicted that some 264,000 people will live within the Wet Tropics region by 2016 (WT Periodic Report 2002 p31). In the broader region, the estimated resident population is forecast to exceed 700,000 by 2031. Increased tourist numbers are also expected from the estimated level of 5.7 million visits in 2010 (SoWT Report, 2012 p76). This will lead to greater demand for water for domestic, agriculture and industrial uses, and for improved infrastructure that could lead to greater fragmentation of the rainforest. If development is managed in a sustainable way, it should not significantly impact the values of the Area.

► Tourism/ visitors/ recreation

Very Low Threat
Inside site
Outside site

Estimated 5.7 million visitors to region in 2010 with estimated 18 million visitor nights spend in Cairns-Townsville region. (SoWT Report 2011/12 p76). Wet Tropics Nature Based Tourism Strategy provides for focused access to designated visitor sites, managing visitor pressure. Tourism industry recognized as a key regional partner and engaged through the Tourism Industry liaison Group. A high proportion of operators are certified through Ecotourism Australia. (SoWT Report 2011/12 p77)

► Mining/ Quarrying

Very Low Threat
Inside site
Outside site

43 quarries at time of listing (WT Periodic Report 2003 p10). Allowed under Management Plan except in National Parks. Three mining leases and three mining claims were due to expire 2011. Various undertakings by government and industry groups make mining very unlikely. Two small quarries allowed to continue for road maintenance. (Conservation Strategy 2004 p51)

► Renewable Energy

Very Low Threat
Inside site
Outside site

Two hydro electricity stations exist at Koombooloomba dam on Tully river and Barron Falls Hydro. No future proposals identified. Any future proposal would be subject to a permit under the Wet Tropics Management Plan and would undergo rigorous assessment regarding impact on WH values.

► Logging/ Wood Harvesting

Low Threat
Inside site
Outside site

Prior to WH listing in 1988 the rainforests were subject to extensive timber harvesting. 6,500 km logging roads closed since listing (WT Periodic Report 2003 p10). Rehabilitation of disused roads is identified as a priority. (Cons strategy 2004 p 52)

► Fishing / Harvesting Aquatic Resources

Data Deficient
Inside site
Outside site

Translocation of large predatory native fish such as barramundi and sooty grunter outside their natural range for recreational fishing is an emerging management concern (WT Periodic report 2003 p50). Fish stocking in National Parks is prohibited. There is a need to research impacts of fish

stocking (and consequent fishing) on rare and endangered aquatic species and how to mitigate them (Cons Strategy 2005 p23)

► Hyper-Abundant Species

High Threat
Inside site
Outside site

Estimated 27,000 pigs in the region, despite ongoing pig trapping program (SoWT Report 2010/11 p62). 6,500 pigs trapped between 1994-1999 (WT Periodic Report 2003 p41).15,000 pigs caught through the Community based feral pig trapping program (Cons strategy 2005 p70). Besides direct damage to ecosystems through foraging and wallowing, they are a major vector of weeds, pathogens and parasites (Cons strategy 2005 p70). Additional Management resources needed to reduce threat.

► Roads/ Railroads

Low Threat
Inside site
Outside site

Maintenance works require a permit and are required to accord with Wet Tropics Road Maintenance Code of Practice 1998. (WT Periodic report 2003 p34) There are presently 1,217 kilometres of maintained vehicle roads and tracks in the WTWHA which are classified and managed consistent with the statutory Wet Tropics Management Plan (SoWT Report 2008-09).

► Utility / Service Lines

Very Low Threat
Inside site
Outside site

Electricity infrastructure within the Wet Tropics WHA includes 159.4km of power transmission lines, 103km of power distribution lines and one electricity substation (Chalumbin) (http://www.wettropics.gov.au/world-heritage-area-facts-and-figures.html)
The length of maintained powerline corridors within the property has been reduced due to the removal of major sections of powerline infrastructure from within the property and its construction along new alignments outside the property. Programs of habitat restoration are being undertaken along the

defunct alignments within the property.

▶ Fire/ Fire Suppression

Very Low Threat
Inside site
Outside site

QPWS responsible for fire management over vast majority of property. Fire management Plans address protection of ecological systems (WT Periodic Report 2003 p42). An annual partnership agreement with QPWS to prioritise and co-ordinate management activities, but not known if this addresses fire breaks maintenance. Co-operative arrangements between WTMA and QPWS suggest that minimal impacts likely.

▶ Dams/ Water Management or Use

Low Threat
Inside site
Outside site

Two water supply dams within WHA at Copperlode Falls and Paluma dam. Eight Local Authorities have 22 intakes with associated infrastructure. Focus for additional water supplies now outside the WHA (WT Periodic Report 2003 p38) Maintenance works require a permit and need to conform with Water Infrastructure Code of Practice 2000.

▶ Invasive Non-Native/ Alien Species

Very High Threat
Inside site
Outside site

Invasive species and climate change may result in rapid and catastrophic changes that increasingly threaten the regions flora and fauna and ecological systems. (SoWT Report 2010/11 p54) Invasive species such as pigs, tramp ants and weeds (now over 500 species) as well as plant diseases such as Myrtle Rust pose a threat to biosecurity and to the values of the Wet Tropics Area. A small number of newly emerging weed species such as Miconia, Mikania and Limnocharis are of extreme management concern. Phytophthora cinnamomi threatens hundreds of endemic species. (SoWT Report, 2010/11 p54). Tilapia rapidly invading rivers and water bodies (SoWT Report 2010/11). The full impact of many of these invasive species are yet to be

seen. These diseases and pests are difficult to manage and pose a very significant threat to the biodiversity and ecological integrity of the Wet Tropics if not contained. New invaders are continually arriving and taking hold (SoWT Report 2010/11 p55). Management capacity and level of resources are insufficient to meet these threats. Priority needs to be given to prevention as management of incursions too costly. It is important that all levels of government invest substantial funding to Wet Tropics biosecurity (SoWT Report 2010/11 p55).

► Marine/ Freshwater Aquaculture

Low Threat
Inside site
Outside site

There is significant agriculture surrounding the Wet Tropics Area, (2500 individual blocks) and grazing is permitted within parts of the Area (SoWT Report, 2012, p. 58). Neighbours and landholders are special stakeholders in the management of the Area and have cooperated with the Authority and other organisations such as Terrain NRM to develop toolkits for best practice on private properties. Reducing run-off of silt and nutrients are the focus of the Great Barrier Reef Water Quality Protection Plan and the Wet Tropics NRM plan. (Cons Strategy 2005 p38)

► Household Sewage/ Urban Waste Water

Very Low Threat
Inside site
Outside site

Local Government waste facilities are outside WHA. No issues identified in documents.

► Agricultural/ Forestry Effluents

Low Threat
Inside site
Outside site

Much land surrounding the WH boundaries is used for farming such as sugar cane, bananas, fruit trees and grazing. Some aerial spraying occurs, but no data found on issues of spray drift. Reducing run-off of silt and nutrients are the focus of the Great Barrier Reef Water Quality Protection Plan and the Wet

Tropics NRM plan. (Cons Strategy 2005 p38)

▶ Habitat Shifting/ Alteration

Very High Threat
Inside site
Outside site

Climate change threatens to disrupt the finely balanced ecological and climatic conditions that support the distinctive assemblage of plants and animals that exist in the Area and may result in rapid and catastrophic changes (SoWT Report 2010/11 p54). Climate change is emerging as a major threat to biodiversity values and can exacerbate impacts of other threatening processes such as fragmentation, pests/weeds and changed water and fire regimes. Species living at high altitudes with limited thermal tolerances, such as the Green Ringtailed possum, will be particularly susceptible. (Cons Strategy 2005 p55/56). The biodiversity of the Wet Tropics is threatened due to predicted changed weather patterns which could seriously affect plant and animal species vulnerable to a warmer and more variable climate, and changes in cloud levels and associated water cycles. Climate change also poses the risk of more frequent and intense cyclones and flooding, with associated disruption to ecosystems. (SoWT Report, 200/11; Krockenberger, Kitching, and Turton, S. M., 2003)

▶ Droughts

High Threat
Inside site
Outside site

The El Nino phenomenon is predicted to occur more frequently, causing more frequent droughts and increasing risk of bushfire, with consequent damage to rainforests (SoWT Report 2007/08 p10). Predicted effects of climate change will increase frequency of droughts and associated hot fires allowing weeds such as guinea grass and molasses grass to establish, changing the seasonality and intensity of ground fires when they dominate ground cover (Cons strategy 2005 p75).

▶ Temperature changes

Very High Threat

Inside site
Outside site

Temperatures may increase by 1.4C by 2030 and 4.2C by 2070 under high emission scenarios (SoWT Report 2007/08 p10). Species intolerant of high temperatures, such as the Green Ringtailed possum, could be subject to mass mortality over large areas of their range. (Cons strategy 2005 p56)

► Storms/Flooding

High Threat
Inside site
Outside site

Cyclone intensity predicted to be greater, creating risks of more frequent major ecosystem disruption (SoWT Report 2007/08 p10).
Severe tropical cyclone Yasi caused extensive damage in February 2011.

► Livestock Farming / Grazing

Low Threat
Inside site
Outside site

In 2003, there were 30 grazing properties that made up approximately 8% of the Wet Tropics World Heritage Area. Grazing generally considered as detrimental to WH values. Policy is to phase out grazing as leases expire (Cons strategy 2004 p67). There are currently 18 grazing properties wholly or partly within the WTWHA. The grazing properties make up 5.76% of the Wet Tropics World Heritage Area (down from 30 properties and 8% in 2003). The longest running lease will expire in 2051. However, not all these grazing leases are used to run cattle. The list includes a large special lease for grazing south of Paluma used by the Commonwealth of Australia for Defence purposes, two properties run by the Australian Wildlife Conservancy and Bush Heritage for conservation purposes, and one bought and operated by the Queensland Government. There are also three larger special leases in the area covered the Eastern Kuku Yalanji Indigenous Land Use Agreement which have expired (they make up 15,046ha or 1.68% of the property). New leases may be issued over a reduced area when an application is made by the traditional owners, however, any grazing will be subject to approval by the Authority under a Cooperative Management Agreement. The majority of leasehold cattle properties in use have minimal land within the WTWHA,

being large properties adjoining the WTWHA with a small section within the WTWHA. Often the sections within the WTWHA are unsuited to grazing and little used (IUCN Consultation, 2014).

Potential Threats

Low Threat

A growing urban population in the Wet Tropics region and continuing high levels of tourism will put extra pressure on water and land resources, potentially affecting the biodiversity and beauty of the Area with possible increased fragmentation of the rainforest, particularly in coastal areas. With appropriate planning and management these impacts should be minimized. The continuing popularity of the WHA as a major tourism destination may see increasing pressure for visitor infrastructure in and around the WHA.

► Tourism/ visitors/ recreation

Low Threat
Inside site

A growing urban population in the Wet Tropics region and continuing high levels of tourism will put extra pressure on water and land resources, potentially affecting the biodiversity and beauty of the Area with possible increased fragmentation of the rainforest, particularly in coastal areas. With appropriate planning and management these impacts should be minimized.

Protection and management

Assessing Protection and Management

► Staff training and development

Highly Effective

WTMA has a small staff focused on policy, planning, community engagement and regulation. Land management activities are undertaken primarily by QPWS and other landholders within the Area. WTMA hosted an intensive training program for staff from WH sites in the Solomon islands, PNG, Vanuatu and Kiribati (WT Annual report 2011/12 p41). WTMA allocates

approximately 2% of salaries component each year to staff training and development. Training needs are identified according to capacity-building needs identified in the 5-year strategic plan.

► Integration into regional and national planning systems

Some Concern

The Far North Queensland Regional Plan 2009–2031, prepared under Queensland's Sustainable Planning Act 2009, has included broad scale mapping of biodiversity, strategic rehabilitation areas and corridors. However, these areas need to be mapped at a finer scale when included in mapping local government planning schemes to represent effective "constraints" to development. Planning codes are also required to regulate development and land use (Maclean, A. (2012) Submission to Department of Sustainability, Environment, Water, Population and Communities on the Draft National Wildlife Corridors Plan)

On 8 October 2012 the Queensland government released the draft Coastal Protection State Planning Regulatory Provision (the SPRP) that sets out requirements for coastal protection in Queensland.

This SPRP suspends the operation of State Planning Policy 3/11: Coastal Protection (the legislative 'teeth' of the Queensland Coastal Plan) as well as part 1.2 Coastal Management of the Far North Queensland Regional Plan 2031.

Bohnet I. and Pert P. (2010) create a prospective land use change analysis for Cairns and show that if the proposed urban footprint for 2031 is implemented; the loss of important habitats including areas of high ecological significance within the urban footprint is highly likely. (Landscape and Urban Planning 97, 4, 30 September 2010)

► Legal framework and enforcement

Highly Effective

The Wet Tropics World Heritage Protection and Management Act 1993 (Current version 2012) provides a comprehensive legal framework and outlines the management responsibilities of the various state authorities. The Act also establishes WTMA to ensure that Australia's obligation under the World Heritage Convention is met in relation to the WTWHA. The Act sets down the functions of WTMA and provides the head of power for making

statutory management plans for regulation of activities that may impact on the integrity of the WTWHA.
The Wet Tropics World Heritage Area Management Scheme1990 is an intergovernmental agreement between the Commonwealth and Queensland governments and provides the basis for both tiers of government working together. It was amended and adopted in 2011.

► Relationships with local people

Highly Effective

The WTMA has partnerships with a range of government, scientific, tourism, Aboriginal and non-government organisations (SoWT Report 2012, p. 5).
It has established a comprehensive system of advisory committees representing major stakeholder interests, specifically tourism sector, conservation sector and landholders and neighbours. The Cassowary Awards recognize individuals and groups that make a special contribution to looking after the WHA. (SoWT Report 2011/12 p59)

► Management system

Mostly Effective

The 1998 has recently been updated and awaits formal approval by the Ministerial Council. The Wet Tropics Management Plan (1998) effectively controls activities within the Area that might impact on WH values. The Wet Tropics Management Authority management system framework is established under the Act. The Act establishes the Wet Tropics Ministerial Council, a board of directors, a community consultative committee and a scientific advisory committee. A 5-year strategic plan also provides direction and priorities for management. WTMA provides an annual assessment on the State of the Wet Tropics with its annual report.
The Wet Tropics Management Authority has worked closely with state government agencies (particularly the Queensland Parks and Wildlife Service), Terrain Natural Resource Management, the Far North Queensland Regional Organisation of Councils (FNQROC), community conservation groups, private landholders and Traditional Owners to promote ecological connectivity across the broader landscape. Relationships appear to be positive and well established. (SoWT report 2011/12 p56-59)
The Wet Tropics Conservation Strategy (WTMA 2004) lists a broad range of

corridor priorities across the bioregion and emphasises the many different benefits of each corridor, including ecological connectivity, climate change adaptation, and wildlife movement for threatened species such the cassowary and mahogany glider. The Wet Tropics Conservation Strategy also addresses biosecurity issues that threaten the integrity of the WTWHA such as yellow crazy ant and myrtle rust. The Nature based Tourism strategy 2000 provides a strong framework for managing tourism. The Walking Strategy establishes an extensive network of walking opportunities across the Area. An updated Research strategy 2010 identifies information needs and establishes research priorities.

Conservation and land management priorities are largely reflected in the Terrain NRM Regional Plan.
Capacity for implementation of these various strategies is not clear and is heavily dependent on government funding.

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► Management effectiveness

Mostly Effective

The legislative framework provides an effective framework for control of development that may impact on WH values. Annual reports of WTMA and Terrain NRM (2012) indicate that progress is being made in implementing various strategic plans, but that progress is constrained by limited resources. The financial and personnel commitments deployed for environmental pests, weeds and diseases and the level of urgency in responding does not match the effectiveness in responding to threats to human health and agricultural biosecurity risks. (SoWT Report 2010/11 p77) The capacity to effectively address invasive pests and weeds, alongside pathogens such as Myrtle Rust, is thus limited. The projected impacts of climate change are a serious concern. The conservation strategy lists high priorities, and recognizes that new avenues of funding are needed to support implementation of the

strategy. WT Cons strategy 2005 pvii)

▶ Implementation of Committee decisions and recommendations

Highly Effective

At 12 COM.XIXA.1988 the WH Committee decided to inscribe the Wet Tropics on the World Heritage List and recommended an appropriate management regime be established. Decision 16COM.WIII 1992 noted with satisfaction that much progress had been made. In 1998 the WH Bureau at its 22nd session learnt that action had been taken regarding vegetation clearance within the WHA, and were later advised that the statutory Management Plan, which provides WTMA with the full suite of powers to act in the interests of WH values was effective from 1 Sept 1998.

▶ Boundaries

Mostly Effective

Boundaries are secure. While there is no buffer zone, the Commonwealth's Environment Protection and Biodiversity Conservation Act 2000 comes into play were a development proposal may have a significant impact on a World Heritage property. However, amendments to the Sustainable Planning Regulation 2009 in 2013 mean local governments are no longer required to consult with WTMA regarding development applications within 100m of the boundary involving a reconfiguration of a lot or a substantive change of use (IUCN Consultation, 2014).

▶ Sustainable finance

Some Concern

Funding to WTMA is provided through an agreement of the Queensland and Australian governments (Wet Tropics World Heritage Protection and Management Act 1993). This enables core functions to be undertaken. Separate funding is provided to Queensland National Parks for management of national parks within the WHA. Base funding from the Commonwealth and Queensland governments appears to be stable (WT Annual report p43). This is supplemented by access to a range of government grants, usually in partnership with community organisations. Whilst funding appears adequate to maintain basic management functions, additional funding is required for an effective response to the threats posed by invasive weeds, pests and

diseases, all of which are likely to be exacerbated by predicted climate change. Ideally, such funding should be on-going rather than being subject to regular funding bids.

▶ Sustainable use

Highly Effective

The Wet Tropics Management Plan controls activities that may impact on World Heritage values within the WH area. The Nature-base Tourism Strategy 2000 and Walking Track strategy provide a framework for sustainable recreational use of the WHA. The annual gross economic value of tourism directly generated by the WHA is estimated at $426 million. (Economic Values of Tourism in WTWHA Prideaux and Falco-Mammone 2007 p ix). Other than exercise of Native Title rights, exploitive use of natural resources requires assessment and a permit by WTMA under the Management Plan. Two water supply dams exist within WHA at Copperlode Falls and Paluma dam. Eight Local Authorities have 22 intakes with associated infrastructure. Focus for additional water supplies now outside the WHA (WT Periodic Report 2003 p38). Any new water supply within the WHA would require assessment and a permit under the Management Plan. The issue of sustainable use could be addressed more clearly in the Management Plan.

▶ Education and interpretation programs

Highly Effective

WTMA has been engaged in a number of education activities ranging from hosting training programs from other WH sites to providing stories, feature articles and activities for school students across the region. SoWT Report 2011/12 P 75). One of the Strategic activities being undertaken by the WTMA is to produce a suite of communication products and services that educate the public, and enable understanding and appreciation as well as access and enjoyment of the World Heritage Area (Wet Tropics Strategic Plan, 2012).

▶ Tourism and interpretation

Highly Effective

The Wet Tropics WHA is a premium tourism destination. There were an estimated 5.7 million visitors during the year ending 2010. (SoWT report 2011/12 p76). The Nature-based tourism strategy 2000 provides the

framework for managing tourism, and the tourism industry is recognized as a key partner in assisting in the interpretation and presentation of the WHA. A specific Wet Tropics tour guide training program has been developed in partnership with the Queensland Tourism Industry Council. A high proportion of tourism operators have secured accreditation through Ecotourism Australia. Accreditation may become compulsory for commercial operators accessing the WH Area. (SoWT Report 2011/12 p76/77)

► Monitoring

Highly Effective

Under the Wet Tropics World Heritage Protection and Management Act, WTMA must produce a report on the State of the Area each year. The Research Strategy 2010 outlines baseline information against which to measure environmental changes, trends and impacts. (WTMA Annual Report 2010/11 p31).The research strategy also identifies priorities for Understanding the Condition and Trends of the Natural and Cultural Environment, recognizing the need to improve understanding of the condition, trend and interdependencies of the natural and cultural environments including methods to support ongoing regular assessment and reporting. (Research Strategy 2010 p23). A Periodic Report was completed for the World Heritage Committee in 2011. A community survey in 2004 found that 92% of respondents support the general level of protection afforded by WH listing (SoWT Report 2011/12 p53) The Planning and Conservation program continued to support the Authority’s Scientific Advisory Committee which provides advice to WTMA on research and monitoring. Level of investment in monitoring is unclear.

► Research

Mostly Effective

A new Research strategy was completed in 2010. This identifies key research needs and builds a foundation for establishing the WHA as an internationally-recognised learning landscape (WTMA Annual Report 2010/11 p8). The region has rapidly developed its research capacity in rainforest ecology and management through Australian Government investment and WTMA has been an active collaborating research-user partner, currently through the National Environmental Research Program. The Research strategy clearly

communicates information to research institutions on information needs and priorities for research. The capacity of research institutions to respond to this research agenda is unknown and should be clarified.

Overall assessment of protection and management

Mostly Effective

The WT Management Plan is effective in controlling activities within the WHA that may have a detrimental impact on WH values. The Wet Tropics Management Authority has a range of strategies in place that provide a sound management framework for managing tourism, walking, and conservation activities. A recently updated research strategy outlines current information needs and research priorities. WTMA has developed a comprehensive range of partnerships in the region to assist with implementing these strategies, and has constructive relationships with the nine local governments and major utility service providers operating in the region. Codes of practice guide maintenance works in and around the area to minimize adverse impacts. The threat posed by invasive weeds, pests and pathogens, exacerbated by predicted climate change is beyond the control of WTMA. Whilst a comprehensive range of plans are in place, the resources available to allow effective implementation are unclear, particularly with regard to managing invasive pests, weeds and pathogens. This is the main area of concern.

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site

Mostly Effective

WTMA has built constructive relationships with the nine Local Governments which include parts of the WHA, and works in partnership with the regional community to build a sense of ownership and sharing the benefits and burdens of sound management (WT Annual Report 2011/12 p13). WTMA provides advice on development proposals outside the Area that may affect WH values, and has provided input to Local Government Planning schemes. WTMA also works closely with landholders, local governments and other service providers to manage infrastructure and improve weed and feral animal control (WT Annual Report 2011/12 p21). There is a close collaboration with Terrain, the regional NRM body that promotes and funds good land management practices in the region, often on land close to the

WHA. A broad range of habitat corridor priorities identified in the WT Conservation strategy are incorporated in the Terrain Regional NRM Plan. (SoWT Report 2011/12 p67) The Authority is engaged with a number of local conservation and NRM groups in improving connectivity in the Southern Atherton Tablelands to help build resilience to climate change (WT Annual report 2011/12 p23).

► Best practice examples

Maclean, A. (2013) Wet Tropics of Queensland. Sharing best practices. In: World Heritage and Best Practices. World Heritage 67: 24-30

State and trend of values

Assessing the current state and trend of values

World Heritage values

► Superlative natural beauty

Good
Trend:Stable

Despite the threats to biodiversity and the fragmented nature of the Wet Tropics, it is still an area of outstanding natural beauty (SoWT Report, 2012). Codes of practice apply to Local Government and utility agencies that seek to minimize impacts from maintenance of community infrastructure. Whilst extreme weather events such as cyclone Yasi in 2011 have dramatic visual impacts through extensive damage to vegetation, these effects are part of the natural cycle and are comparatively short-lived. There is no evidence that scenic beauty is being affected at this stage.

► Living examples of ancient and primitive rainforest species

High Concern
Trend:Data Deficient

An assessment of the current state is that there has been some loss or alteration of the elements necessary to maintain the site’s values over the 25 years since the property was listed, in particular with respect to frogs, and in

particular with respect to Taudactylus acutirostris. The genus Taudactylus is one of the most primitive groups of frogs in Australia. The trend over the last five years is still considered to be deteriorating in the case of endemic rainforest stream-dwelling frogs. There are strong indications that cool adapted upland possum species are being adversely impacted by small changes in climatic conditions. However, much more data needs to be collected over a longer period of time to detect trends in most of the elements relating to this value (i.e. living examples of ancient and primitive rainforest species). For the majority of examples of this element, especially plants which contribute significantly to this element, the assessment rating would be ‘data deficient’ – there is no evidence, nor data, which indicates that their condition or conservation status has changed since inscription (IUCN Consultation, 2014).

► Unique rainforest ecosystems

High Concern
Trend:Deteriorating

The region is very susceptible to invasion by a broad range of invasive species. The highly restricted nature of many endemic species renders them particularly vulnerable to the threat posed by invasive species. This threat is exacerbated by the predicted impacts of climate change as well as on-going fragmentation of the Area and consequent loss of habitat connectivity (SoWT Report, 2012). However, even though there are over 500 invasive species recorded as being naturalized for the bioregion, most of these are ruderal in nature and only invade cleared or highly disturbed areas such as road verges and agricultural lands. There are a small number of invasive species that are capable of invading intact rainforests. There has been a disturbing newly emerging trend of species with the potential to invade and transform intact ecosystems becoming introduced to the bioregion. Some of these newly emerging threats include plant species such as Miconia, fish species such as tilapia, and tramp ant species such as the yellow crazy ant. The trends for some threatened species seem to be deteriorating, despite recovery and action plans. The greatest concern is for the amphibian species within the property, although declines in range extent and population sizes of a number of high altitude bird and mammal species have also been reported. However more monitoring data is needed to confirm this. In addition, if the number and distribution of invasive species including pathogens continue to increase,

natural ongoing evolutionary processes are likely to be compromised. Although many biodiversity values are being well conserved in the site, the growing trend of increasing prevalence of global threats is of concern (IUCN Consultation, 2014).

► Exceptional biodiversity

High Concern
Trend:Deteriorating

There are significant threats to the biodiversity of the Wet Tropics posed by invasive species and diseases, exacerbated by predicted climate change. Some of these are hard to manage and there is evidence that the number of weed species is expanding (SoWT Report, 2012). The loss of habitat such as the littoral rainforest and impact on dependent species such as the Cassowary and Mahogany glider would reduce conservation values of the Wet Tropics. The need for action is reflected in the recent $825,000 grant obtained to save mahogany gliders, cassowaries and littoral rainforest. (Terrain Annual Report 2011/12). Several endemic stream-dwelling frog species have disappeared from the higher altitude parts of the Wet Tropics due to infection with chytrid fungus resulting in chytridiomycosis. First discovered in dead and dying frogs in Queensland in 1993, chytridiomycosis is a highly infectious disease of amphibians, caused by the amphibian chytrid fungus Batrachochytrium dendrobatidis. Research since then has shown that the fungus is widespread across Australia and has been present in the country since the 1970s (IUCN Consultation, 2014).

Other important biodiversity values

► Irreplaceability

In 2013, the Wet Tropics of Queensland World Heritage Area was assessed as the second most irreplaceable natural World Heritage site currently included on the World Heritage List. The irreplaceability rank indicates the relative importance of a site among 173,461 protected areas for all the species analyzed
http://www.iucn.org/about/work/programmes/wcpa_worldheritage/resources/publicatio

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**

High Concern

Trend: Deteriorating

Invasive plant and animal pest species along with a number of pathogens are impacting on World Heritage values. The trends for some threatened species seem to be deteriorating, despite recovery and action plans. The greatest concern is for the amphibian species within the property, although declines in range extent and population sizes of a number of high altitude bird and mammal species have also been reported. Despite significant management responsiveness, given the sheer number and diversity of newly emerging threats, in particular biosecurity, as well as the postulated effects of climate change per se as well as the interactions of climate change with other threatening processes; it is reasonable to assess the trend as declining.

Additional information

Key conservation issues

▶ **Addressing plant diseases, particularly Myrtle Rust**

Local

The Myrtle Rust disease poses a serious threat to over 200 species of trees within the Wet Tropics and its spread could undermine the values of the Area. Greater knowledge of this disease and how to control its spread is vital and urgent.

▶ **Eradication and control of invasive weeds**

Local

Controlling the over 500 invasive plant species in the Wet Tropics Area is critical for protecting the area’s biodiversity and heritage values. Invasive weeds can spread quickly and disrupt the balance of ecosystems, having a

serious impact on sensitive species.

▶ **Pest control**

Local

Addressing the spread of tramp ants (yellow crazy ants and electric ants) as well as ongoing control of feral invasive species (pigs, cats, dogs) is a vital issue for preserving the values of the Wet Tropics, as these pests can seriously affect the ecological balance when they become widespread.

▶ **Protection of endangered species and habitats**

Local

Species including the Cassowary and Mahogany Glider as well as areas of littoral rainforest are under serious threat from the impacts of development outside the WHA. Efforts are under way from local authorities and community organisations to implement projects designed to help with their conservation, such as replanting schemes and building connectivity across the landscape. Funding from state and national governments is required to maintain and enhance this conservation effort.

▶ **Planting corridors to address fragmentation**

Local

The fragmentation of the Wet Tropics rainforest is a major issue because it affects the ability of many species to move between forest areas and can affect their long-term survival. Establishing habitat corridors between areas of rainforest is therefore very important for ensuring the maintenance of the values of the Wet Tropics. Corridors will become increasingly important as climate change is predicted to lead to hotter and drier weather in the dry season. Such corridors will allow sensitive animal species to migrate up to the cooler, higher areas of Wet Tropics, such as the Atherton Tablelands. Relief for species located at high altitudes with low tolerance to temperature variations remains a dilemma.

Benefits

Understanding Benefits

► Carbon sequestration, Water provision (importance for water quantity and quality)

The rainforest acts a significant carbon sink, helping to mitigate the effects of climate change caused by greenhouse gas emissions. It also provides soil stabilization and provides a clean water supply to the local region.

► Importance for research

The Wet Tropics is an area of high biodiversity which makes the ecosystems of this Area important for scientific research, including efforts to develop new medicines.

► Outdoor recreation and tourism

The Wet Tropics Area provides the local population with the public goods of clean air and water, giving them health and well-being benefits. The area is widely accessed for outdoor recreation, and is visited extensively by domestic and international tourists. The Wet Tropics is a large area that provides great aesthetically beautiful landscapes as well as opportunities to view wildlife and ancient plant species.

► History and tradition, Wilderness and iconic features

The Wet Tropics World Heritage Area is culturally rich, comprising the traditional lands of 18 Rainforest Aboriginal groups. The Wet Tropics Area is an area of immense cultural importance for rainforest Aboriginal people. It is listed on the National Heritage register for Cultural values. The Area also holds wilderness values that are inherently important for many people.

► Outdoor recreation and tourism

The beauty of the Wet Tropics Area brings millions of visitors to the region every year, proving the basis for a major tourism industry and a large number of jobs servicing visitors and in the management of the Area.

► Is the protected area valued for its nature conservation?

The Wet Tropics is a high value conservation area with a large number of

rare endemic species. It contains ecosystems that include ancient species that show evolutionary development and help us understand the Earth's natural processes

Summary of benefits

The Wet Tropics Area provides very substantial environmental cultural, spiritual, health and economic benefits to the local population and is of considerable significance to the wider global community in terms of wilderness values, outdoor recreation, scientific research value and the environmental services provided by the rainforest.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	WTMA, Tablelands Regional Council (TRC), Conservation Volunteers Australia (CVA), Trees for Evelyn and Atherton Tablelands (TREAT), the Tree Kangaroo and Mammal Group (TKMG), Malanda Landcare, QPWS, Griffith University and University of Queensland.		In 2010 the Authority was successful in securing $600,000 from the Australian Government's Caring for Our Country initiative for a project referred to as 'Making Connections: Building Landscape Resilience to Climate Change in the Wet Tropics Landscape'. Scientific modelling has shown that improving connectivity in the cool, high areas of the Southern Atherton Tablelands could help build the resilience of the region to climate change and provide a refuge for the unique plants and animals of the Wet Tropics that are sensitive to rising temperatures. With the assistance of the QPWSin facilitating relationships with landholders and contractors, nearly 19,000 trees of over 100 species have been planted along Rock Road andEast Evelyn Road by TRC, CVA's Better Earth programme and more than 120 volunteers from the School for Field Studies and community groups like TREAT and TKMG. To date, 6.5 hectares have been replanted, and over 2.5 kilometres of fencing has been erected to protect plantings from cattle.

№	Organization/ individuals	Project duration	Brief description of Active Projects
2	Terrain NRM, Hinchinbrook Shire Council (HSC), Herbert Cane Productivity Services, Forestry Plantations Queensland, and Queensland Parks and Wildlife Service, other local governments		1,525 pigs killed as part of a critical and coordinated pest management partnership in Cassowary Coast and Hinchinbrook between Terrain and local governments, land managers and government agencies.
3	Terrain NRM, Mulgrave Landcare and Catchment Group, Hinchinbrook Shire Council,		Weed control efforts in many areas, including six year $740,000 Biodiversity Fund project, for corridor restoration and Weeds of National Significance (WONS) control in the Mulgrave catchment.
4	Terrain NRM, Australian Centre for Freshwater Research, local governments, Queensland Government		Development of the Wet Tropics region Healthy Waterways Management Plan, due to be completed in 2013.

№	Organization/ individuals	Project duration	Brief description of Active Projects
5	Terrain NRM, Australian Government Caring for Our Country		Programs to protect endangered species (eg. Cassowary, Mahogany glider) in the Tully, Murray and Herbert catchment areas. Recovery Plans may be developed for threatened animals, plants and ecological communities listed under the Environment Protection and Biodiversity Conservation Act 1999. They set out the research and management actions necessary to stop the decline of a species and how to support its recovery. Recovery Plans have been developed for the following species and vegetation communties: • cave-dwelling bats (Rhinolophus philippinensis, Hipposideros semoni and Taphozous troughtoni) • giant filmy fern (Chingia australia) • Mabi forest • magnificent broodfrog • mahogany glider • northern bettong • stream dwelling rainforest frogs of the Wet Tropics (sharp-snouted day frog, northern tinker frog, armoured mistfrog, waterfall frog, mountain mistfrog, common mistfrog and Australian lacelid. • southern cassowary • spectacled flying fox • spotted-tailed quoll
6	WTMA, Conservation Volunteers Australia (CVA), James Cook University, Queensland Parks and Wildlife Service, local governments		In June 2013, the Wet Tropics Management Authority, Biosecurity Queensland and Conservation Volunteers completed the Stamp Out Tramp Ants project to identify where tramp ants were established along the boundaries of the Wet Tropics World Heritage Area. In 2013 the Wet Tropics Management Authority was funded $2M over five years by the Caring for Our Country program to eradicate a large infestation of up to 600ha in the Edmonton area. The Authority commenced an eradication program for the Edmonton and Kuranda infestations in May 2014.
7	Cooperative effort between the Australian and Queensland governments.		The National Four Tropical Weeds Eradication Program commenced in 2002 with the aim of eradicating the incursions of Koster’s curse, limnocharis, mikania vine and three miconia species in the Wet Tropics from Australia. The nationally coordinated program is managed and operated by the Queensland Government. The program involves extensive community engagement to identify infested areas, targeted weed surveys and weed control, and research components. The only recorded infestations of these four weeds in Australia currently occur in the Wet Tropics of Queensland.

REFERENCES

№	References
1	United National Environment Program, World Conservation Monitoring Centre: “Wet Tropics of Queensland, Australia” (WCMC Datasheet), 2011
2	Wet Tropics Conservation Strategy 2000
3	Wet Tropics Management Authority Annual Report and State of Wet Tropics Reports 2010/11 and 2011-12. (SoWT Report)
4	Wet Tropics Management Authority Strategic Plan 2013-18, Wet Tropics Management Authority, Cairns, QLD, 4870