

Purpose of the report

Each year the Wet Tropics Management Authority prepares a report on the administration of the Act during the year, financial statements for the year, and a report on the state of the Wet Tropics World Heritage Area. This State of Wet Tropics report satisfies the requirements of Queensland's Wet Tropics World Heritage Protection and Management Act 1993 and the Commonwealth's Wet Tropics of Queensland World Heritage Conservation Act 1994.

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Attributio

Content from this annual report should be attributed as: Wet Tropics Management Authority (2017) Natural Beauty and Aesthetic Value of the Wet Tropics World Heritage Area.

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Further information





Wet Tropics Management Authority PO Box 2050, Cairns QLD 4870 Phone: (07) 4241 0500 | wettropics@wtma.qld.gov.au

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BACKGROUND

Each year the Wet Tropics Management Authority (the Authority) considers a different aspect of the criteria for which the Wet Tropics of Queensland is recognised on the UNESCO World Heritage List. Previous themes have focused on climate change, tourism, biosecurity and ancient, endemic, rare and threatened plants and animals of the Wet Tropics. The intention of this approach is to provide for an exploration of issues relevant to the selected theme. The Authority uses this report to inform our communities and stakeholders on the integrity and condition of that criterion in relation to the Outstanding Universal Value of the Wet Tropics World Heritage Area, and to provide guidance for management.

The selected theme for the 2016-17 State of the Wet Tropics Report is criterion (vii) Natural Beauty and Aesthetic Value of the Wet Tropics World Heritage Area: perhaps the least understood and defined of the criteria, and one with limited available guidance on its application. This may be due in part to the philosophical concepts of cultural and natural beauty, which have evolved over generations and through different cultures.

In some communities around the world, the western concept of 'aesthetic' and 'beauty' is irrelevant, and ideas of landscape beauty relate to an integrated, holistic view of the world, expressed as the oneness between nature and people.

Indeed, for some Rainforest Aboriginal communities in the Wet Tropics, western theories that attempt to articulate aesthetic

landscape values (that is, through a formalistic, experiential or environmental approaches), appear to have limited consideration of Traditional Owner perspectives of their country, and connection to their lands. These communities have associations with the lands that span extensive time depth, and consequently developed traditions as well as traditional language linked with their land. As such, certain places may evoke a spiritual connection with the land.

The concept of beauty and aesthetics is linked to emotions, perceptions and feelings, and qualities such as proportions, grace, harmony, even spiritual connections, and generally, can only tangibly relate to landscape features like mountains, waterfalls and vistas and the emotions these evoke. Nonetheless, while varied, these features can be identified and measured. This report attempts to do just that.

At the time of listing, very limited expert information was available regarding criterion (vii). For the purposes of this report, we engaged Rainforest Aboriginal people and individuals from various disciplines – all holding detailed knowledge of the Wet Tropics World Heritage Area – to work through a trial methodology to assess and evaluate criterion (vii) and suggest possible ways forward to protect it into the future.

The report reaffirms the obvious, that the Wet Tropics World Heritage Area presents aesthetics of international renown and embodies all that defines superlative natural phenomena.

By imposing from the outset a certain artistic criterion on a landscape to assess its aesthetic worth, we are closing our mind to other kinds of aesthetic values which may not fit the criteria 25.

JUNCTION CREEK ~ WET TROPICS IMAGES/PAUL CURTIS

EXECUTIVE SUMMARY

The Wet Tropics World Heritage Area is a particularly beautiful region, with spectacular scenery including rugged mountain ranges, fast flowing rivers, deep gorges and numerous waterfalls. There are extensive vistas across these, the oldest continually surviving tropical rainforests in the world. The Area is a tourism drawcard for an estimated two million visitors to the region each year from around the globe.

The Wet Tropics is also culturally rich, comprising the lands of at least 20 Rainforest Aboriginal tribal groups, including 120 clans and eight language groups which have been an integral part of the land and seascape, living in and around the region for thousands of years and using traditional practices to manage country.

In addition to the spectacular scenery, the Wet Tropics supports the highest biodiversity of any region in Australia. More than a quarter of the region's vertebrate species (190 of 693) have significant

conservation value. The area supports over 4,200 vascular plant species of which 576 are endemic. Animal diversity is also outstanding, and the Wet Tropics is home to approximately 669 species of vertebrate animals, half of which are birds. A number of these species have restricted ranges and specialised habitat requirements; ancient species considered relicts from the time of the Gondwana supercontinent.

These plants and animals are an important part of Australia's natural heritage and make a significant contribution to the Outstanding Universal Value (OUV) of the Wet Tropics World Heritage Area.

The exceptional natural beauty and superlative scenic features of the Wet Tropics provide some of the most powerful opportunities by which the Area is presented to our visitors. It is this beauty that inspires and fills the spirits and senses of the regional community: one of the most significant functions that the World Heritage Area plays in the life of the community.

The Wet Tropics World Heritage Area is listed for all four Natural Heritage criteria specified for listing of sites under the Convention Concerning the Protection of the World Cultural and Natural Heritage, including criterion (vii): to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

POUR O'CLOCK CATAPILLAR
WET TROPICS IMAGES/MICHEAL TRENERRY

The manual for preparing World Heritage nominations differentiates between the two distinct elements of criterion (vii). The first part, 'superlative natural phenomena', is often objectively measured or assessed, for example the highest mountain, the tallest waterfall or the deepest canyon. The second part of the criterion, 'exceptional natural beauty and aesthetic importance', relies on subjective, qualitative and abstract interpretation, and has proven more difficult to quantify and assess.

This report seeks to improve our current understanding of criterion (vii) in the Wet Tropics World Heritage Area. The core task involves trialling a methodology to determine and assess attributes of superlative natural phenomena: areas of exceptional natural beauty, their nature, condition and threats. It also seeks to explore the concept of criterion (vii) from a biocultural perspective.

To fully explore the topic, a review of the existing body of knowledge was undertaken. In addition, two workshops and consultation with a number of individuals with extensive knowledge, appreciation or understanding of the nature, distribution and condition of superlative natural phenomena and areas of exceptional natural beauty in the Wet Tropics was undertaken, derived from a methodology adopted for the Great Barrier Reef.

Some of the key findings are:

KEY FINDING 1

The Wet Tropics retrospective Statement of Outstanding Universal Value does not provide an adequate description of criterion (vii) and there is a need for more easily accessible and current documentation for assessment of this criterion.

The Wet Tropics retrospective Statement of Outstanding Universal Value speaks of 'exceptional natural beauty, with superlative scenic features highlighted by extensive sweeping forest vistas, wild rivers, waterfalls, rugged gorges and coastal scenery', but offers only a limited number of examples.

Significantly, there is no mention of the concept of superlative natural phenomena in the Statement, except through how it relates primarily to the biological attributes of the Wet Tropics World Heritage Area, the other natural criteria, for which it was listed. Attributes are justified through references to the 'exceptionally high genetic diversity and endemism; being a major centre of evolution of rainforest flora and a key to the origins and ancient habitats of primitive flowering plants; a key to the processes of past climatic sifting of taxa and community types and a biological link with temperate and other tropical zones'.



Many locations throughout the Wet Tropics World Heritage Area provide aesthetics of international renown and exceptional natural beauty, and embody all that define superlative natural phenomena.

Landscape elements such as mountain peaks and gorges are recognised as exhibiting 'exceptional natural beauty'. Features such as water and forests found across most of the region and locations strongly exhibit these features and include:

- Feelings of beauty and aesthetic appreciation arising from the sights, sounds, smells and touch of the environment are experienced in many locations across the region.
- Knowledge of species and their significance, knowledge of their protected status of the area, and broader knowledge of the landscape and its intact quality heighten an individual's perception of natural beauty and evoke an aesthetic response in their own right.
- Diversity of primitive plant species reflecting ancient Gondwanan forests; the presence of iconic species such as the southern cassowary and distinctive rainforest marsupial fauna; and the intact reef to rainforest landscape rising from sandy beaches adjacent to the Great Barrier Reef World Heritage Area to the summit of the tallest peaks in Queensland.

- Significant congruence between the sites and regions identified in this study with the areas identified in earlier studies. Other identified regions included places such as Cape Tribulation and the Daintree lowlands singled out as exceptional examples.
- Coastal regions including the viewscape out to the Great Barrier Reef World Heritage Area and from out at sea looking back into the Wet Tropics World Heritage Area. The knowledge that two World Heritage Areas come together along such an extended and intact part of the coastline is considered to enhance the aesthetics of these sub-regions.
- The western margins of the Wet Tropics where there is a narrow ecotone between the rainforest and tall open forests. This ecotone area represents a superlative natural phenomenon, illustrative of the history of vegetation change in the region and the dynamic interplay of topography and climate in forming the western boundary of the region.
- The Paluma Range, views from the Palmerston Highway, Downey Creek, upper reaches of the Russell and North Johnstone Rivers, Walsh's Pyramid and the Lamb Range, Roaring Meg Valley, Mt Lewis and the Windsor Tablelands.
- The coastal range and experience of driving along the Captain Cook Highway from north of Cairns to Port Douglas and up to Cape Tribulation was also recognised as a significant aesthetic experience for many visitors to the region.



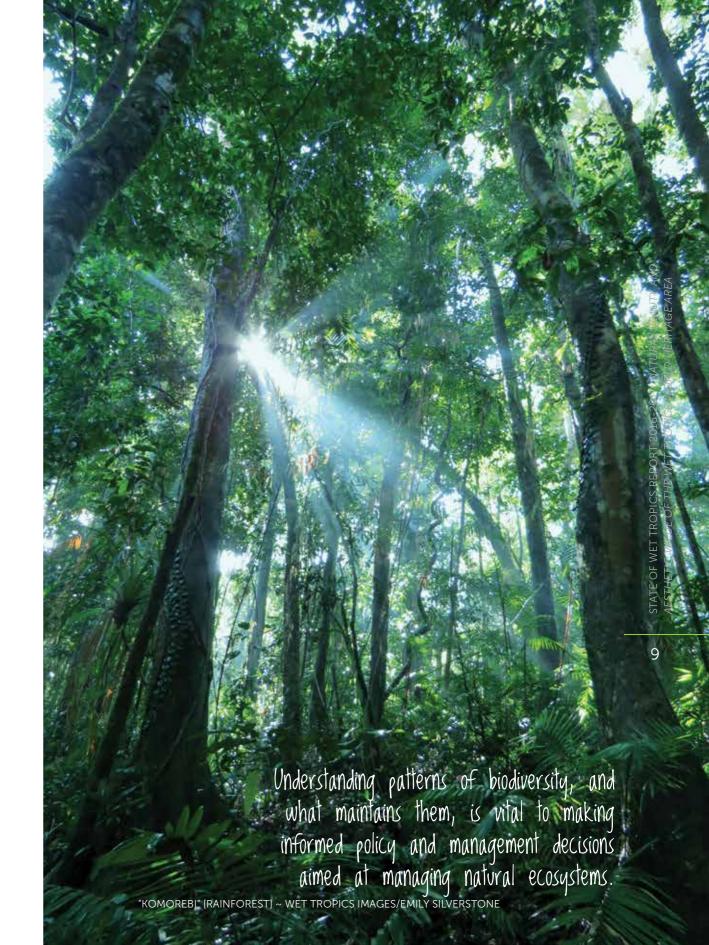
The World Heritage Centre provides limited guidance in relation to defining 'superlative natural phenomena', and there are no systematic, structured and transparent methodologies for the application and assessment for areas of 'exceptional natural beauty'.

The current interpretation of criterion (vii) described in the 2011 edition of the Preparing World Heritage Nominations resource manual provides some basic guidance, namely by clearly stating that criterion (vii) includes two distinct ideas, and that nominations of new sites proposed under this criterion can address one or the other of these ideas or both.

The resource manual also states that superlative natural phenomena can be objectively measured – but provides no further information as to how and from what value point of view – and that exceptional natural beauty and aesthetic importance can be more difficult to assess. It therefore recommends using current scholarship and recognised assessment approaches to support the justification.

In the Wet Tropics, visual aspects of the exceptional natural beauty aesthetics are easily identified. The importance of the emotional and experiential values associated with smells, sounds, feelings of spirituality, the sense of excitement and surprise of seeing spectacular fauna—such as cassowaries or lemuroid ringtail possums, or hearing a babbling stream—are less easily quantified.

At the time of listing, some work was undertaken in an attempt to identify and assess landscape units and highly scenic features. This work focused on the visual realm and ignored the other senses (smell, taste, touch and sound), all of which can all be strongly evocative of place and time. There is a need to undertake further work on the importance and definitions of non-visual and abstract qualities of emotional perceptions of aesthetics, to increase the understanding of criterion (vii) and thereby enable a holistic approach to planning, management and monitoring of those attributes, to ensure they are properly protected and maintained.



Aboriginal cultures interpret criterion (vii) differently to western systems.

While western systems of meaning and Aboriginal systems may at times overlap, especially for groups that have had long interaction with other cultures, we cannot make assumptions and must investigate relationships between different cultures in detail. Western theories that attempt to articulate aesthetic landscape values (that is, through a formalistic, experiential or environmental approach) appear to have limited consideration of Traditional Owner perspectives of their country, and connection to their lands. These communities have associations with the lands that span an extensive time and consequently developed traditions as well as traditional language linked with their land. As such, certain places may evoke a spiritual connection with the land.

In the Wet Tropics, Rainforest Aboriginal peoples continue to see landscapes as 'country' where they have responsibilities and obligations and which invokes a heartfelt sense of 'home' rather than perceptions about aesthetics and 'beautiful scenery'. The tops of peaks, for example (and by implication other 'superlative natural phenomena'), frequently have strong cultural importance, access to which requires cultural protocols.

KEY FINDING 5

Threats and impacts to the aesthetics or natural beauty described under criterion (vii) are similar to those other criteria, which concern the ecological, biological process, and biodiversity of the Wet Tropics World Heritage Area.

The threats to values described under criterion (vii) are similar to those outlined in other work concerning the ecological and biological process and biodiversity of the Wet Tropics, such as climate change, change in hydrological patterns, inappropriate fire regimes and pest plant or animal incursions. However their impacts are often discussed, defined and justified in relation to other natural criteria, such as ecological impact or biodiversity loss.

Climate change and the associated changes in species composition, extinction, and loss of habitat for numerous species including upland species and a range of flora and fauna associated with cloud forests, is likely to have the greatest impact on the superlative natural phenomena of the Wet Tropics. While cyclones and cyclonic damage to forests are part of a natural cycle, the increased frequency and intensity of cyclones is likely to disrupt natural regeneration processes and impact on aesthetic values.



Developments that existed prior to the declaration of the World Heritage Area have had a significant impact on visual amenity, but in general the values related to criteria (vii) are in good condition and stable.

Since the inscription of the Area in 1988, many infrastructure developments have been regulated through regional planning and the Wet Tropics Management Plan. In addition, a number of potentially threatening activities such as logging and mining have ceased. The subsequent management of the Wet Tropics as World Heritage Area has led to significant recovery that not only affects biological values, but also scenic amenity and the natural beauty derived from the recovering biological attributes.

The 2014 IUCN Outlook Report assessed the condition of the World Heritage values in the Wet Tropics for criteria (viii), (ix) and (x) as 'high concern' and 'deteriorating' or 'data deficient'. The values related to criterion (vii) were in good condition and stable.

I felt my lungs inflate with the onrush of scenery—air, mountains, trees, people. I thought, 'This is what it is to be happy'.

SYLVIA PLATH, THE BELL JAR







The Wet Tropics is also culturally rich. In 2012, the Area's Indigenous heritage values were included as part of the existing Australian National Heritage Listing. The listing recognises that Rainforest Aboriginal heritage is unique to the Wet Tropics, representing a remarkable and continuous Indigenous connection with a tropical rainforest environment. Rainforest Aboriginal people developed a distinctive cultural heritage determined by their Dreamtime and creation stories and their traditional food gathering, processing and land management techniques. Reliance on their traditions helped them survive in this, at times, inhospitable environment. The distinctiveness of the traditions, coupled with their use of fire, technical innovation and expertise needed to process and prepare toxic plants as food is of outstanding heritage value to the nation.

The Wet Tropics is described as a particularly beautiful region, with spectacular scenery including rugged mountain ranges, fast-flowing rivers, deep gorges and numerous waterfalls^{4,5}. The Area provides extensive vistas across intact tropical rainforest. The juxtaposition of rainforest with sandy white beaches and the fringing coral reefs in the adjacent Great Barrier Reef World Heritage Area is found in few other places in the world^{6,7}.

In addition, the Wet Tropics is internationally regarded as a living museum containing one of the most complete and diverse living records of the major stages in the evolution of land plants in the world. A recent global analysis based on bird, mammal and amphibian species ranks the Wet Tropics as the second most irreplaceable World Heritage Site, and in the top ten most irreplaceable of more than 173,000 protected areas worldwide⁸.

While the values of the Wet Tropics have been well documented in numerous scientific journals⁹, tourists and visitors to the Wet Tropics World Heritage Area indicate that it is the region's natural beauty that plays an important role in their decision to visit¹⁰.

This report seeks to improve our current understanding of criterion (vii) in the Wet Tropics World Heritage Area. A recent community survey indicated that more than 50% of respondents consider natural features and scenery and the experiential aspects of being in the Wet Tropics as very important¹¹. It concluded that scenic features of the landscape are an important resource that require management and consideration along with other natural and cultural values of the Area. The report argued that protection of the high scenic qualities of the Wet Tropics, and rehabilitation of existing visual impacts, is an important objective of the Authority, in keeping with its World Heritage Area responsibilities, and is recognised in the legislation and management plan governing the Area.

The core research reported here involved trialling a methodology to assess attributes of superlative natural phenomena; areas of exceptional natural beauty, their nature, condition and threats; and to explore the concept of criterion (vii) from a biocultural perspective.

The purpose of this report is to:

- 1 Identify, define, explore and assess the aesthetic values of the Wet Tropics of Queensland World Heritage Area in relation to the aesthetic component of criterion (vii) –containing superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- 2 Trial a methodology to map the attributes that embody these values;
- 3 Explore the concept of criterion (vii) from a biocultural perspective (i.e. through the eyes of Rainforest Aboriginal people); and

UNDERSTANDING THE OUTSTANDING UNIVERSAL VALUE ASSOCIATED WITH CRITERION (VII) - A REVIEW

Criterion (vii) has been one of the lesser understood and more challenging of the ten criteria for World Heritage listing, although it has been one of the most frequently used in combination with other natural or cultural criteria¹². As at June 2017, 145 properties have been inscribed on the World Heritage List on the basis of criterion (vii), in combination with other natural or cultural criteria. Only eight properties have been listed on the basis of criterion (vii) alone (Table 1).

In Australia, 16 World Heritage properties are recognised for their natural OUV, with 12 inscribed for criterion (vii) in addition to one or more of the other natural World Heritage Criteria. These include the Great Barrier Reef, Kakadu National Park, Lord Howe Island, Tasmanian Wilderness, Uluru-Kata Tjuta National Park, Shark Bay, Fraser Island, Macquarie Island, Purnululu National Park, Ningaloo Coast and the Wet Tropics. The application of criterion (vii) tends to be considered in conjunction with at least one other natural criterion¹³.



Table 1. Examples of World Heritage Properties enlisted only for criterion (vii)

World Heritage Site and year listed	Attributes
1979. Sagarmatha National Park, Nepal	An exceptional area with dramatic mountains, glaciers and deep valleys, dominated by Mount Everest, the highest peak in the world.
1987. Kilimanjaro National Park, United Republic of Tanzania	The largest free-standing volcanic mass in the world and the highest mountain in Africa. With its snow-capped peak, Kilimanjaro is a superlative natural phenomenon, standing in isolation above the surrounding plains overlooking the savannah.
1992. Huanglong Scenic and Historic Interest Area, China	In addition to its mountain landscape, diverse forest ecosystems can be found, as well as spectacular limestone formations, waterfalls and hot springs.
1992. Jiuzhaigou Valley Scenic and Historic Interest Area, China	The jagged Jiuzhaigou Valley reaches a height of more than 4,800m, thus comprising a series of diverse forest ecosystems. Its superb landscapes are particularly interesting for their series of narrow conic karst land forms and spectacular waterfalls.
1992. Wulingyuan Scenic and Historic Interest Area, China	Dominated by more than 3,000 narrow sandstone pillars and peaks, many over 200m high. Between the peaks lie ravines and gorges with streams, pools and waterfalls, some 40 caves, and two large natural bridges. In addition to the striking beauty of the landscape, the region is home to a number of endangered plant and animal species.
2008. Mount Sanqingshan National Park, China	Exceptional scenic quality, marked by the concentration of fantastically shaped pillars and peaks, many of which resemble human or animal silhouettes. The natural beauty of the 1,817m Mount Huaiyu is further enhanced by the juxtaposition of granite features with the vegetation and particular meteorological conditions, which make for an everchanging and arresting landscape with bright halos on clouds and white rainbows.
2008. Monarch Butterfly Biosphere Reserve, Mexico	Every autumn, millions, perhaps a billion, butterflies from wide areas of North America return to the site and cluster on small areas of the forest reserve, colouring its trees orange and literally bending their branches under their collective weight.
2012. Lakes of Ounianga, Chad	An exceptional natural landscape of great beauty with striking colours and shapes.

As with many international examples of statements of OUV which address criterion (vii), there is no clear or specific distinction between the two elements 'superlative natural phenomena' and 'natural beauty or aesthetic value'. Internationally, some properties have been inscribed for their exceptional natural beauty and aesthetic importance, while others were inscribed for their superlative natural phenomena.

A 2013 study of the application of criterion (vii) by Mitchell et al¹⁴ recommended that World Heritage properties are expected to clearly articulate whether the property includes either a) superlative natural phenomena or b) areas of exceptional natural beauty and aesthetic importance, or both, and what values are conveyed.





What is the Wet Tropics Statement of Outstanding Universal Value (OUV)?

The World Heritage Committee has explicitly made the Statement of OUV the basis of future protection and management for World Heritage properties¹⁵.

The requirement for a Statement of OUV was introduced into the Operational Guidelines in 2005. The statement encapsulates why the property is of OUV and how it meets the three pillars of OUV. The statement should 'help raise awareness of the value of the property, guide the assessment of its state of conservation and inform protection and management'16.

World Heritage properties listed prior to 2005 have been required to develop a retrospective Statement of OUV. The retrospective statement 'should reflect the OUV of the property at the date on which it was inscribed on the World Heritage List, based on the decision of the World Heritage Committee at that time, supported by the evaluation undertaken by the Advisory Body and the nomination prepared by the State Party'¹⁷.

The World Heritage Committee officially endorsed the retrospective Statement of OUV for the Wet Tropics of Queensland in 2012.

STATE OF WET TROPICS REPORT 2016-2017: NATURAL BEAUTY AND AESTHETIC VALUE OF THE WET TROPICS WORLD HERITAGE AREA

The retrospective Statement of OUV for the Wet Tropics World Heritage Area describes 'exceptional natural beauty, with superlative scenic features highlighted by extensive sweeping forest vistas, wild rivers, waterfalls, rugged gorges and coastal scenery.' The updated statement offers a limited number of examples:

- ~ Between the Daintree River and Cedar Bay there is exceptional coastal scenery that combines tropical rainforest, white sandy beaches and fringing reefs just offshore.
- ~ Rugged mountain peaks and gorges Bellenden Ker, Walter Hill Range, Russell, Mulgrave and Johnstone Rivers, and
- ~ Wallaman Falls, Australia's highest single drop waterfall.

There is scope to systematically identify and describe the aesthetic and scenic values of the Wet Tropics World Heritage Area more fully, as has been done recently for the Great Barrier Reef World Heritage Area¹⁸.

What does superlative natural phenomena mean?

The term superlative natural phenomena has generally referred to impressive or dramatic expression of natural features and natural processes that possess scientific and/or aesthetic values. The majority of properties inscribed for superlative natural phenomena, under criterion (vii), relate to animal concentrations and migrations; for example, the Monarch Butterfly Biosphere Reserve in Mexico.

Other properties have been inscribed as examples of biological and geological processes such as the complex underwater hydrological systems of Chad's Lakes of Ounanga. The third element of superlative natural phenomena relates to natural features such as the highest mountain in the world (Sagarmatha) or on a continent (Mt Kilimanjaro) although such features are usually also considered for their aesthetic importance as well.

In most cases, where a nomination describes superlative natural phenomena under criterion (vii), comparative assessment against other properties with similar types of natural phenomena is quantitative, the phenomenon being evaluated as to whether it is, for example, the highest, the longest or the largest concentration, according to the character of the phenomenon. This quantitative assessment is commonly included in the description of values under criterion (vii), although the use of measurable dimensions should not be the only element of the assessment in relation to this criterion.

The original nomination document for the Wet Tropics¹⁹ refers to 'the exceptionally high genetic diversity and endemism making it a superlative example of tropical rainforest'. It has also been described as 'a key to the origins and ancient habitats of primitive flowering plants, as a key to processes of past climatic sifting of taxa and community types, and as a biological link with temperate and other tropical zones'. However, these data were not included in the recommendation from the IUCN technical evaluation, and were not included in either the initial Statement of OUV, or the retrospective Statement of OUV.

The Wet Tropics is listed for the other three natural criteria under the World Heritage Convention. These criteria recognise the evolutionary history of flowering plants, particularly in the context of Gondwana; of endemism for the region; and recognise the area as containing important natural in situ conservation for biological diversity and



What does 'exceptional natural beauty and aesthetic importance' mean?

The aesthetic characteristics of World Heritage properties inscribed for criterion (vii) are primarily visual, characterized by four categories: mountains, uplands, lowlands and coasts, including islands. Certain types of landscape characteristics have been repeatedly preferred, such as surface water (lakes, streams, open water); relief (more relief is associated with higher visual quality); woodlands (presence is associated with spaciousness); and natural land use.

Evoking the senses to describe criterion (vii)

Methodologies for assessing aesthetics in natural landscapes have been recently documented with descriptive approaches, including mapping attributes, annotating photographs and sketches.

Sensory, experiential and emotional responses to places are being documented and incorporated into aesthetic values, with examples of references to sound such as moving ice included in the inscription of the Ilulissat Icefjord World Heritage Area in Greenland (Denmark):

"The wild and highly scenic combination of rock, ice and sea, along with the dramatic sounds produced by moving ice, combine to present a memorable natural spectacle²⁰".

The aesthetic values often describe the visual attributes of the scientific values of the property described in other natural criteria²¹. This is the case in the Wet Tropics. Aesthetic value is almost always associated with appreciation of the large scale, grandeur or diversity of a landscape. Aesthetic qualities are often a descriptive inventory in which the values are primarily qualitative and rhetorical, argued through the language of description of the attributes, often equating aesthetic values with visual amenity. A number of characteristics or descriptors, in particular, diversity, abundance or contrast of forms, animals, shapes, colours, features and scales are consistently used to articulate the aesthetic values of properties.

Aesthetic values need to be understood and managed for, to avoid being inadvertently lost. Previous research²² suggests that while some contexts elicit aesthetic experiences that have traditionally been called 'scenic beauty', other contexts elicit different aesthetic experiences, such as perceived care, attachment, and identity. Recognition of these attributes is needed to ensure appropriate management is in place to protect them.



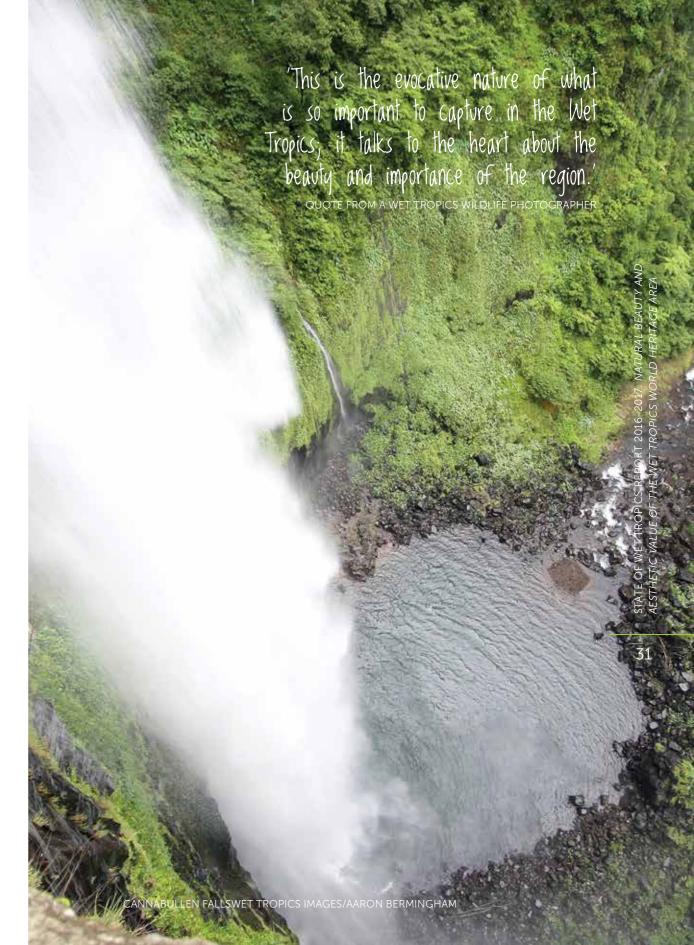
Aesthetic values tend to have been restricted to a visual sensory experience, although smell, taste, touch and sound, are sensory experiences that can also elicit an aesthetic response²³.

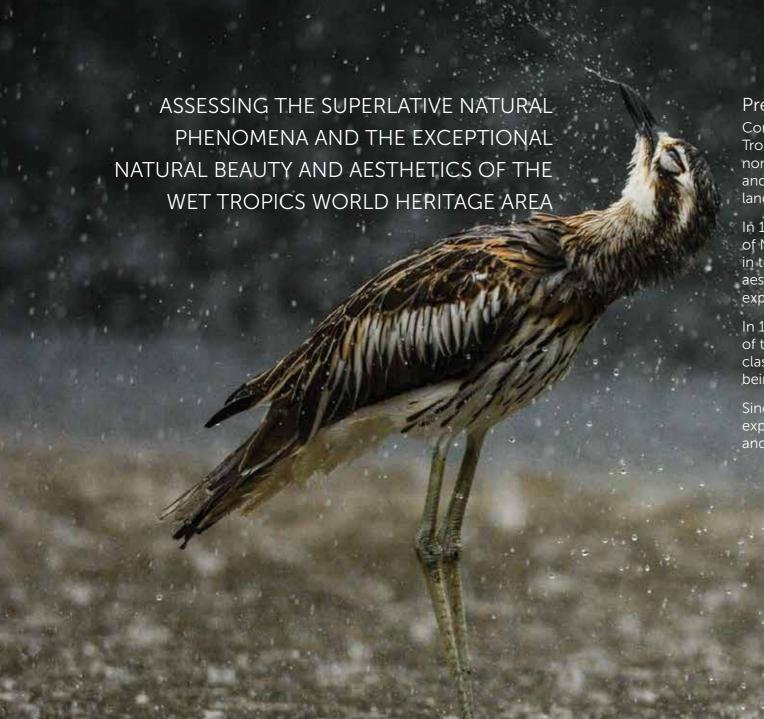
For example, in a study of aesthetics within the Great Barrier Reef World Heritage Area, aspects of aesthetics that relate primarily to nonvisual stimuli, such as the sound of sighing she-oaks along a coastline, were identified as important. The lack of preservation of she-oaks close to tourist sites and their replacement by coconut palms can be considered to diminish the aesthetic value for visitors.

For a World Heritage nomination, 'in the case of criterion (vii), exceptional natural beauty and aesthetic importance must be supported by clear evidence and rigorous intellectual analysis. Merely asserting that a property has exceptional natural beauty and providing attractive photographs is inadequate'²⁴. The World Heritage Centre and IUCN do not recommend any particular system of evaluation for aesthetic importance and scenic beauty, but they do suggest a comparative approach based on similar types of properties with international recognition.

Mitchell et al (2013)²⁵ suggests two distinct approaches. Comparative analysis should be used to demonstrate whether the natural beauty or aesthetic importance of a property is different from, or of greater quality to, that of similar kinds of properties already inscribed on the World Heritage List.

A typological approach using comparative analysis is evident from the IUCN evaluations of nominations of properties. That is, the 'type' of property (for example volcanic landscapes or lake systems) along with the specific features of the property, frames the selection of sites for comparative assessment on the assumption that the natural beauty or aesthetic importance of similar types of properties which can be comparable. The second approach to assessment of criterion (vii)—that of justifying OUV, is through evidence of international recognition of the aesthetic values or natural beauty of the property—appears from the IUCN evaluations and statements of OUV is increasingly favoured.





Previous studies

Consideration (an inventory) of the aesthetics of landscapes in the Wet Tropics was initially undertaken by Keto and Scott (1987)²⁶ as part of the nomination for World Heritage listing process. A further identification and assessment of landscape units and highly scenic features and landscapes was undertaken by Scenic Spectrum (1992)²⁷.

In 1987, Keto and Scott assessed the values of Wet Tropical Rainforests of Northern Queensland. In this report, landscapes were considered in terms of their value as a functioning environmental system; as aesthetics (i.e. as scenic landscapes); as (the record of) history; or as experience, sense of place²⁸.

In 1992, Scenic Spectrum assessed the significance and the sensitivity of the 'spectacular landscape and scenic quality' of the Wet Tropics and classified landscape units into five classes of scenic quality, with Class 1 being of highest quality and Class 5 being of lowest quality²⁹.

Since these reports, the understanding of criterion (vii) has been expanded, and the methodologies to identify sites have been reviewed and further developed³⁰.

"Context affects aesthetic experience of landscapes. Context includes both effects of different landscape types (wild, agricultural, cultural, and metropolitan landscapes) and effects of different personal-social situational activities or concerns²⁵."

In 2013, a methodology to identify the aesthetic values of the Great Barrier Reef World Heritage Area was published³¹. They noted that the existing nomination and evaluation processes for assessing criterion (vii) were predominately expert-based, and that there was value in incorporating public or stakeholder preferences into those processes. Their work established a typology for environmental and experiential attributes using existing data, including historical and contemporary and images, visitor, reef community and expert perceptions.

As part of this study, a trial methodology that involved workshops and consultations with individuals with extensive knowledge of the Wet Tropics was conducted to develop a current understanding of the nature, distribution and condition of superlative natural phenomena and areas of exceptional natural beauty in the Wet Tropics. This was adapted, using a similar methodology for an aesthetic assessment of the Great Barrier Reef.

Two workshops were held with diverse participants possessing extensive knowledge and experience across the Wet Tropics region. The background and expertise of participants included science, tourism, recreation, and conservation. In addition, writers, artists, photographers, and government representatives were included. The second workshop was specific to Rainforest Traditional Owners and other Indigenous stakeholders.

The workshops consisted of the following steps:

- 1 Exploring the concepts of superlative natural phenomena and exceptional natural beauty in the Wet Tropics;
- 2 Development of a framework describing the characteristics of:
 - a. Superlative natural phenomena; and
 - b. Outstanding natural beauty and aesthetics
- 3 Geography of superlative natural phenomena and outstanding natural beauty and aesthetics;
- 4 Mapping attributes to a Geographic Information System with associated attribute tables;
- 5 An assessment of potential threats through the following three steps:
- a. Develop a list of potentially impacting activities in workshop and from previous State of Wet Tropics Reports;
- b. Tabulate environmental and experiential attributes most likely to be impacted and assess likelihood, consequence and resultant risk; and
- c. Annotate maps to record locations of attributes relevant to criterion (vii) with known impacts, indicating the location of the threat and providing a text description of the threat and its impact.

The outcomes of the workshops were compared with the findings from the early work undertaken in the Wet Tropics.



Defining 'superlative natural phenomena' and 'the exceptional natural beauty and aesthetics' in the context of the Wet Tropics

A classification of attributes that underpin 'superlative natural phenomena' and 'exceptional natural beauty and aesthetics' was developed based on the input of workshop participants, interviews and background literature. These fall into three broad components³²:

- 1 Superlative natural phenomena relate primarily to the biological attributes of the Area and underpin the other three World Heritage natural criteria for which the site was listed. These include the diversity of primitive plant species reflecting ancient Gondwanan forests, as well as iconic and spectacular species such as the southern cassowary and distinctive rainforest marsupial fauna. One distinctive element identified as a superlative phenomenon is the intact 'reef to rainforest' landscape rising from sandy beaches adjacent to the Great Barrier World Heritage Area to the summit of the tallest peaks in Queensland.
- 2 A series of habitat and landscape features exhibiting exceptional natural beauty and aesthetic appeal. These include landscape elements such as mountain peaks and gorges that, while often widespread across the region, can be identified to particular locations that are recognised as exhibiting exceptional natural beauty.

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This component also includes features such as water and forests that will be found across most of the region. Again, locations that strongly exhibit these features (e.g. Mossman Gorge) can be recognised but people can experience these aspects of natural beauty throughout most of the region.

ON THE HUNT" CHAMELEON GECKO ~ WET TROPICS IMAGES/WISE LUM

3 Experiences and perceptions of people within Wet Tropics environments that evoke feelings of beauty and aesthetic appreciation. These feelings and perceptions arising from the sights, sounds, smells and touch of the environment will be able to be experienced in many locations across the region although workshop participants were able to map particularly significant locations that evoke these aspects of natural beauty.

Significantly, the knowledge of the perceiver was considered to be a very important element of many of these components of natural beauty. Knowledge of species and their significance, knowledge of the protected status of the Area and broader knowledge of the landscape and its intact quality were all considered to heighten an individual's perception of natural beauty and to evoke an aesthetic response in their own right. An implication of this is that a naïve observer, lacking this knowledge, may not perceive the areas as particularly beautiful or aesthetically pleasing.

Identification of sites of significance in relation to criterion (vii)

In the workshops, participants were asked to identify sites on maps that they believed provided good examples of criterion (vii) and to distinguish whether they thought the site was associated with 'superlative natural phenomena' or 'exceptional natural beauty and aesthetics'. The data from the mapping exercise indicate that the two ideas are intertwined in the participants' perceptions of the areas and, in many cases, similar underlying attributes were recorded under different categories by different participants³⁴.

A total of 381 locations were mapped in this exercise. These locations are spread across the entire Wet Tropics Area, although some grouping is evident in places such as the Paluma Range, Mt Windsor Tableland, Cape Tribulation and the Daintree. Some common features were identified as being significant, including:

- 1 Coastal regions including the viewscape out to the Great Barrier Reef World Heritage Area and from out at sea looking back into the Wet Tropics World Heritage Area. In addition to the scenic beauty encapsulated in these coastal areas, the knowledge that two World Heritage Areas come together along such an extended and intact part of the coastline (approximately 450km) is considered to enhance the aesthetics of these sub-regions.
- 2 The western margins of the Wet Tropics where there is a narrow ecotone between the rainforest and tall open forests. This ecotonal area represents a superlative natural phenomenon, illustrative of the

history of vegetation change in the region and the dynamic interplay of topography and climate in forming the western boundary of the region. The knowledge of the observer may enhance appreciation of the aesthetic values associated with this ecotone, although the tall open forests bordering the rainforest is likely to be considered an area of natural beauty by most people.

3 A number of sub-regions were identified as significant for their natural phenomena and natural beauty, lying between the coastal margins and the western boundary. Notable areas are the Paluma Range, views from the Palmerston Highway, Downey Creek, upper reaches of the Russell and North Johnstone Rivers, Walsh's Pyramid and the Lamb Range, Roaring Meg Valley, Mt Lewis and the Windsor Tablelands. The coastal range and experience of driving along the Captain Cook Highway from north of Cairns to Port Douglas and up to Cape Tribulation was also recognised as a significant aesthetic experience for many visitors to the region.

Factors linked to perceptions of scenic beauty such as perceived naturalness, presence of water and land-water edges and the extent of wider and more distant views, are similar to those identified and summarised in other studies³⁵.

Comparison with previous studies

In 1987, Keto and Scott identified four principal areas within the Wet Tropics where landscape values are high. These are:

 the tablelands and peaks in the north of the region covering the Finnigan Uplands, Thornton Peak Uplands, Windsor and Carbine Tablelands and Main Coast Range;

> Mt Bellenden Ker, Mt Bartle Frere, Upper Mulgrave and Upper Russell in the central Wet Tropics;

> > the Walter Hill Range, Cardwell Range, Seaview Ranges including the Tully and Herbert Gorge; and

> > > Hinchinbrook Island and channel (lies outside the Wet Tropics World Heritage Area).

> > > > All of these areas were likewise identified as significant through the workshops. However additional localities were identified,

particularly in the west of the bioregion. This may be due, in part, to the inscription on the World Heritage List in 1988, and the subsequent cessation of forestry. This has led to significant recovery that not only affects biological values, but also scenic amenity and the natural beauty derived from the recovering biological attributes. It is also a reflection of the improved science knowledge and understanding of the unique values of rainforest ecotones³⁶.

Condition of mapped locations and attributes

The condition of the World Heritage values of the Wet Tropics was assessed by IUCN as part of the 2014 World Heritage Outlook assessment³⁷. This assessment rated the Wet Tropics overall as being 'significant concern' (number three on a four-point scale from a 'good' state of conservation to 'critical'). The Outlook assessment rated the condition of World Heritage values relating to criteria (viii), (ix) and (x) as 'high concern' and 'deteriorating' or 'data deficient'. However, the Outlook assessment concluded that the values related to criterion (vii) in the Wet Tropics were in good condition and stable (i.e. not in the process of being degraded by threats). This finding—that values related to criterion (vii) are in good condition and stable—accords generally with the results of the workshops outlined above.

While direct impacts on natural beauty and aesthetics are currently low, the indirect impacts from threats were assessed in the Outlook Report as being high or very high. Impacts from invasive species, severe storms (such as Cyclone Larry in 2006, and Cyclone Yasi in 2011 which impacted on much of the coastal region) and other climate change related shifts in species composition and distribution, will eventually flow through to degrade the condition of criterion (vii) too.

In these workshops, those sites rated as being in poor condition fell predominantly into three categories³⁸:

- sites where the impact is primarily on a species that represents superlative natural phenomena such as the habitat of rare or threatened species such as mahogany glider or southern cassowary;
- sites where there has been a general decline in environmental quality (water quality or habitat condition); and
- sites where visual amenity has been impacted, such as the view over the Hinchinbrook Channel.



Indigenous (Australian) meanings are frequently inscribed in World Heritage listings against criterion (vii) as 'spiritual' or 'traditional' such as for Uluru - Kata Tjuta National Park. Although the words 'beauty' and 'aesthetic' are not usually part of traditional Indigenous language, the evocations and meanings from the landscape would equate to the fuller meaning of 'aesthetic'. The anthropologist, Deborah Bird Rose⁴² notes that 'People talk about country in the same way that they would talk about a person: they speak to the country, sing to the country, visit the country, worry about country, feel sorry for country and long for country.' She also explains that 'country is home and peace: nourishment for body, mind, and spirit'.

This key distinction between Indigenous and non-Indigenous perspectives was explored as part of this study. Feedback from the workshop demonstrated that Rainforest Aboriginal people perceive landscape with significant additional associated meaning, gaining meaning from knowledge of country. Tops of mountain peaks, for example (and by implication other 'superlative natural phenomena'), are frequently 'sacred areas', access to which requires cultural protocols, rather than places open to all to facilitate access to scenic vistas. It was emphasised that Aboriginal people traditionally had profound three- dimensional spatial intelligence based on all the senses, not just the visual dimension, and that, despite colonial history, Aboriginal people continue to see landscapes as 'country' where they have responsibilities and obligations and which invokes a heartfelt sense of 'home', rather than thoughts about aesthetics and 'beautiful scenery'. Country-based cultural mapping was identified as one means to appropriately document traditional knowledge, and protect the cultural interpretation of 'aesthetics'.

What this means is that criterion (vii) does not make sense in Aboriginal terms. Aboriginal people do not conceive of landscape in the terms used to define 'superlative natural phenomena', or 'natural beauty and aesthetics' in the Western sense. The values Aboriginal people invest in their 'country' – and mapped separately in the Indigenous workshop – are those associated with rights and obligations to land viewed, not as something separate from humans, but, as the entity from which people and their physical and cultural (including linguistic) characteristics flow, almost 'biologically' in western terms. Hence the oft-quoted saying, "the land is our mother".

On this basis, land is treated as a living thing to be included like a person in the everyday, as well as the more esoteric dimensions of life. Aboriginal people and their culture do not stand separately from nature; they are an integral part of a nature-culture continuum that has nothing to do with conceptions of superlative natural phenomena, natural beauty and aesthetics like those underpinning criterion (vii) or the World Heritage Framework more generally⁴⁴.

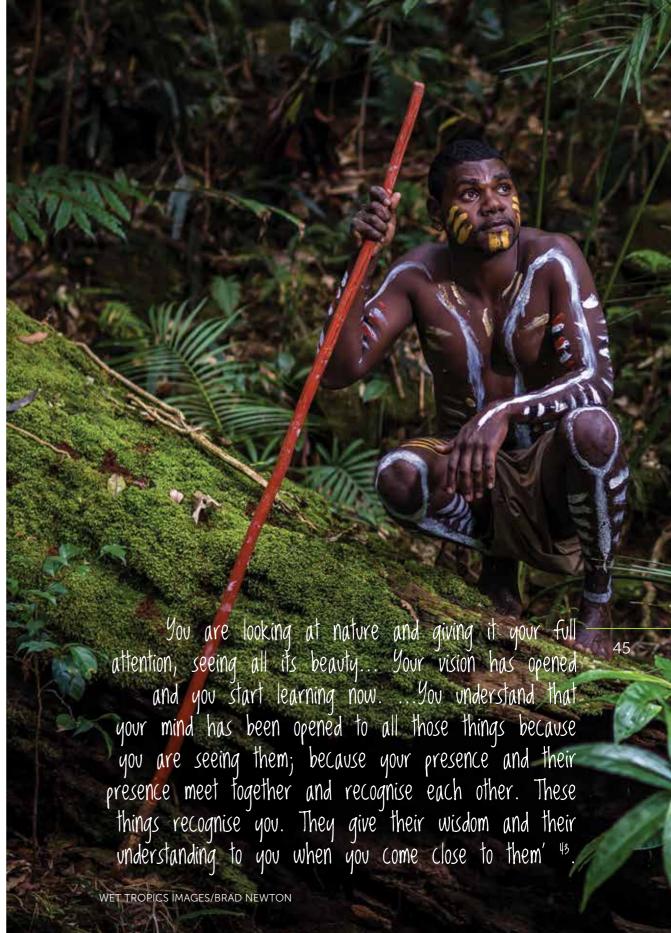
That said, there are parallels in a very abstract sense between the aesthetic value Aboriginal people might find in landscape on the basis of their deep cultural knowledge and the aesthetic value recognised by Western observers on the basis of deep scientific knowledge. Aboriginal participants agreed with the general proposition that a sense of beauty and aesthetic value can be based on deep specialised knowledge. Participants also agreed though that the matters in question are wrapped up in definitions of what is called 'beauty' and what is called 'aesthetics'. Participants also drew attention to gender-based variation in connection to country, including what might be classified as superlative natural phenomena, as well as issues around skin and totem associations of different people with different places and species.

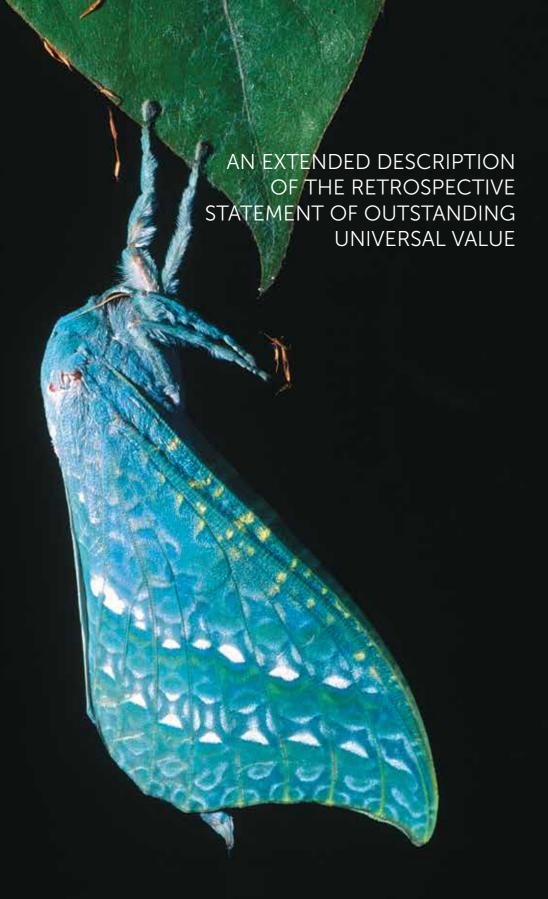


A principal threat to Aboriginal values in the Wet Tropics that relates to all the values and all criteria underpinning the World Heritage listing was seen to be the broader issue of management. The view was expressed that current approaches do not sufficiently incorporate Indigenous views in meaningful ways, with a lack of Aboriginal knowledge and management approaches integrated into agency policy and procedure or practice on the ground. It was acknowledged that some aspects of traditional knowledge were stronger than others, or stronger in some regions than others, but there was strong criticism of management approaches that limited, or even prevented engagement with Indigenous issues on Indigenous terms. Contemporary research identifies unambiguously that such views are widely held by Aboriginal Australians with ties to the nation's World Heritage properties.

Research suggests that Traditional Owners and other Indigenous stakeholders in World Heritage around Australia hold a similar view⁴⁵.







The retrospective Statement of Outstanding Universal Value for criterion (vii) is comparatively brief when compared to descriptions for other World Heritage properties in Australia. It reads:

'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. The winding channels of the Hinchinbrook Channel contain the most extensive mangroves in the region, providing a rich visual mosaic of rainforests and mangroves, and a terrestrial continuum with the Great Barrier Reef.'

Mitchell et al (2013)⁴⁶ outlines three recommendations for the improved application of criterion (vii).

The first recommendation focusses on articulating the clear distinction between the superlative natural phenomena and the exceptional natural beauty and aesthetics. As mentioned previously the retrospective Statement of OUV does not do this for the Wet Tropics. While there was some intertwining of ideas amongst the participants at the expert workshops, there was also a definite sense of the two concepts, and participants gave numerous examples of both the superlative natural phenomena and the exceptional natural beauty and aesthetics. Further work to tease out the two concepts of superlative natural phenomena and exception natural beauty and aesthetics of the Wet Tropics is needed.

The second recommendation requires clear evidence of a rigorous and systematic identification of attributes that convey the values of the nominated property. Community perceptions can be combined with expert assessments to expand the understanding of aesthetic⁴⁷. This report is the first attempt to use recognised methods of expert workshops to systematically identify and articulate the superlative natural phenomena and the exceptional natural beauty and aesthetics of the Wet Tropics. Further work using photographic images and social media data, in addition to further community and Indigenous engagement could be undertaken.

The third recommendation requires the same degree of global comparative analysis using the evidence and rigorous identification and comparison of attributes of the values. While this recommendation is aimed at developing nominations under the criterion, once more detailed data has been collated, it is suggested that a global comparison could be undertaken.

While the workshop participants understood the two separate concepts of superlative natural phenomena and exceptional beauty and aesthetic value the descriptors of the two concepts are closely intertwined. Similarly, Keto and Scott (1987)⁴⁸ did not focus on the superlative nature phenomena in criterion (vii), however it must be recognised that much of their work extensively documented the biodiversity and evolutionary history of the area relevant to criterion (viii), (ix) and (x).

There is an opportunity to better articulate and contemporise the values of the Wet Tropics World Heritage Area that support its inclusions for criterion (vii). The following statements are proposed to support the understanding of criterion (vii). Importantly, the statements attempt to separate the two concepts of superlative natural phenomena and exceptional beauty and aesthetic value. The statements can assist in the planning, management, assessment and monitoring of conditions and trends of these attributes.

• The statements which have been collated as part of this case study support the original nomination of the Property⁴⁹. Further work is required to test the statements with experts and the broader community, and to refine locations of these attributes.

- The variety of forests range from tropical rainforest through to tall open forests of Eucalyptus grandis. These forests support a range of endemic and rare fauna species that are often visually spectacular and unusual to see, providing the visitor with the surprise of discovery;
- Rugged mountain peaks and gorges are among the dominating superlative features of the landscape;
- Spectacular waterfalls abound. Wallaman Falls, on Stoney Creek, drops 278m in a deep canyon, the longest single drop of any waterfall in Australia. Other major waterfalls within the World Heritage Area include Roaring Meg Falls, Wujal Wujal (Bloomfield) Falls, Crystal Cascades, Barron Falls, Kearneys Falls, Josephine Falls, Nandroya Falls, Wallicher Falls, Tchupala Falls, Tully Falls, Murray Falls and Jourama Falls;
- The significance of the property is enhanced and derives from knowledge of the diversity and variety of vegetation across the wet/ dry ecotone;
- The superlative natural phenomena of the property are associated with the knowledge of significant cultural sites of importance to the Rainforest Aboriginal people;
- The superlative natural phenomena and aesthetics of the property are associated with the knowledge of the protection of relicts of the lowland and littoral rainforest that were previously more extensive;
- A superlative natural phenomenon of the property is associated with the knowledge of internationally significant wetlands, and the species contained within;
- The superlative natural phenomena of the property are enhanced by knowing that the Wet Tropics abuts the Great Barrier Reef World Heritage Area, which is intact and undisturbed along more than



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Statements relevant to exceptional natural beauty and aesthetic importance

- The aesthetic importance of the property is underpinned by a connection between the naturalness and beauty, and the experience of being in an intact natural place;
- The aesthetic importance of the property is underpinned by the knowledge of the protected status of the area and broader knowledge of the landscape and its intactness;
- The exceptional natural beauty of the property is associated with the visual aspect of a vast expanse of intact forest;
- The region between Bellenden Ker Range and the Atherton Uplands including Walter Hill Range contains superb gorge scenery with swiftly flowing rivers;
- The Russell, Mulgrave and Johnstone Rivers have become popular with canoeists;
- The exceptional natural beauty and aesthetic of the property is associated with the soundscape of bird and frog calls, rushing water, wind through the trees and silence of the forest;
- The exceptional natural beauty and aesthetic of the property is enhanced by the visual impact of cloud forests, mist on the mountains and the feeling of mist on the skin;
- The exceptional natural beauty and aesthetic of the property is associated with Rainforest Aboriginal people having occupied the country for tens of thousands of years;
- The exceptional natural beauty is associated with a stark contrast of deep green of tropical rainforest and the white sandy beaches. The added visual impact of the blue of the fringing offshore coral reefs in the adjacent Great Barrier Reef World Heritage Area complements the green and white of the forests and beaches;
- The aesthetic importance of the property is enhanced by interacting with the environment through walking, cycling and white-water rafting; and
- The natural beauty and aesthetic importance of the property is enhanced by interacting with the environment through birdwatching.



THREATS TO THE SUPERLATIVE NATURAL PHENOMENA AND THE EXCEPTIONAL NATURAL BEAUTY AND AESTHETICS

The aesthetic values of World Heritage properties often describe scientific values of the property that underpin the other natural criteria. It is, therefore, unsurprising that the threats to values described under criterion (vii) are similar to those outlined in other work concerning the ecological and biological process and biodiversity of the region. A number of the threats to the aesthetics of the Area ('landscape detractors') such as mining are decreasing in relevance to the Area following the World Heritage listing⁵⁰.

The 2014 Outlook Report⁵¹ for the Wet Tropics World Heritage Area also recognised mining, quarrying, logging, roads, railway lines and utilities as being of low to very low threat. Increased pressures from the growing urban population and tourism numbers is seen as a potential threat to the beauty of the Area, with possible increased fragmentation of the rainforest, particularly in coastal areas. The section below summarises the key threats, and the implications of these threats to the aesthetics of the Wet Tropics.

"The creek that was an iconic photographic site will never be the same in my lifetime. The tall stands of timber along the creek line are gone and the crystal-clear water is now under a mountain of fallen logs."

COMMENT FROM WORKSHOP PARTICIPANT

Climate change

Climate change is recognised as one of the major threats to the aesthetics of the Wet Tropics⁵². An increase in temperature is likely to have a dramatic effect on upland species and a range of flora and fauna associated with cloud forests⁵³, thus potentially impacting on the superlative natural phenomena of the region. Extinction and loss of habitat for numerous species are expected over coming decades. Climate change is also seen as one of the key threats to other elements of the OUV of the Wet Tropics.

This study identified mountain top areas such as Mt Finnigan, Thorton Peak, Windsor Tableland, Carbine Upland, Lamb Ranges, Mt Bellenden Ker and Mt Bartle Frere as examples of areas that meet criterion (vii). These areas have also been identified as plant species "hotspots" with more than 90% of endemic species forecast to be extinct by 2085 under a worst-case climate change scenario⁵⁴. It is therefore suggested that the loss of these species from the mountain tops will negatively impact on the superlative natural phenomena of the region.

While cyclones and cyclonic damage to forests are part of a natural cycle, the increased frequency and intensity of cyclones may disrupt natural regeneration processes, so impacts on aesthetic values are likely to increase. In addition, models indicate an increase in the severity of extreme weather conditions such as heat waves, floods and drought. The increase in the number and intensity of cyclones associated with climate change will also impact significantly on habitat loss and degradation, at least in the short to medium term^{55,56,57}. The accompanying visual impact of fallen timber and trees stripped of leaves affects the aesthetics of the region.

Infrastructure Development

Infrastructure development is recognised as a low threat to the aesthetic values of the Wet Tropics⁵⁸. In this context, community services infrastructure includes roads, powerlines, transmission lines, railway lines, communication towers, water impoundments as well as buildings. Roads and power transmission line development have the potential to produce visual scars across the landscape and impact on the habitat for flora and fauna. Development edges also provide fertile ground for weeds. There have been some significant impacts on visual amenity from developments that existed prior to the declaration of the World Heritage Area. The powerlines visible from the lookout on the highway south of Cardwell over the Hinchinbrook channel are cited as a case in point, as is the communications infrastructure on the top of Mt Bellenden Ker. However, the impact of development is now managed through the legislation governing the Wet Tropics⁵⁹, and the control of development that may impact on World Heritage values is seen to be effective.

The Authority provides best practice environmental guides, as well as advising planning authorities and Community Services Infrastructure agencies codes on how best to maintain the OUV of the region^{60,61}. The Authority has supported significant work on developing guidelines for habitat friendly roads⁶² and other design aspects intended to limit visual intrusion. This is supported by local government planning. For example the CairnsPlan⁶³ supports the maintenance of scenic amenity values in its conservation zone, with an assessable code providing guidance for suitable development. In addition, Environmental Impact Assessments for major activities include an assessment of the impact of the development on aesthetic values.

The practical management of scenic amenity appears to be prominent in both regional and council planning, however the other aesthetic attributes concerning sense of place are more difficult to define in planning schemes. Further work in relation to the non-visual aesthetics, such as noise, is needed.



Invasive species are recognised as having direct and indirect impacts on native species, causing land degradation and soil loss, biodiversity loss and habitat loss and fragmentation. These impacts also translate as a loss of aesthetic appeal through changing the visual appeal of uninterrupted forests and a reduction in species, bird and frog calls and sightings of particular species. Feral animals and plants were perceived by the community as constituting the most serious threat to the Wet Tropics and the 2014 Outlook Report⁶⁴ for the Wet Tropics World Heritage Area recognises alien species as very high risk to World Heritage values.

Vertebrate pests such pigs, deer and cane toads, invasive invertebrates such as yellow crazy ants, and exotic fungi such as myrtle rust and the frog chytrid fungus all impact negatively on the natural values of the Wet Tropics. Weeds such as siam weed, pond apple and yellow allamanda replace the native flora and can change fire regimes. However, to the uninitiated, these weeds, often with attractive foliage and flowers, may not negatively impact of the aesthetics of the region.

While the threat posed by invasive weeds, pests and pathogens, exacerbated by predicted climate change is recognised to be beyond the control of the Authority, on-going feral animal and weed eradication programs need to be maintained in partnership with other government agencies. Prevention of incursions is also needed as management of incursions is very costly.

Fire regimes

Fire regimes were identified as a threat to the aesthetics from two different perspectives. Some ecosystems are burnt on a regular basis to reduce the risk on wildlife. Tourism interests in particular have identified that areas of 'burned bush' have little aesthetic appeal. However, such controlled burns are not considered to threaten the Outstanding Universal Value of the Wet Tropics, and are in fact necessary to maintain the balance of ecosystems in the region.

Absence of fire in some landscapes can result in vegetation communities changing. For example, rainforest expanding into areas that were previously sclerophyll forests may, in the longer term, disrupt the balance of the ecotones on the drier western edges of the Wet Tropics bioregion. These ecotones are important habitat for some of the endemic species of the region, and may impact on the superlative natural phenomena of the region. Alternatively, changed fire regimes associated with climate change may result in a risk to the rainforest ecosystems⁶⁵.

The vista of green rainforests has been expressed as an important element of the aesthetics of the Wet Tropics, and a change to the forest composition may impact on the region's exceptional natural beauty.





"I know it is beautiful in the common sense of the word, but this is my mother's country, and it talks to my heart".

CONCLUSIONS AND FUTURE DIRECTIONS

QUOTE FROM RAINFOREST ABORIGINAL WORKSHOP PARTICIPANT

This study supports the early work of Keto and Scott (1987)⁶⁶ and Scenic Spectrum (1992)⁶⁷ and informs further work into the condition and trend of the superlative natural phenomena and exceptional natural beauty and aesthetics of the Wet Tropics. The management of the Wet Tropics as World Heritage Area has led to significant recovery of the biological attributes, and the scenic amenity and the natural

This work supports the values outlined in retrospective Statement of Outstanding Universal Value, however the two concepts of 'superlative natural phenomena' and 'exceptional natural beauty and aesthetics' are closely intertwined in the minds of the workshop participants, and the retrospective Statement does not clearly articulate the superlative

As expected, and as is the case in many other World Heritage properties⁶⁸, the concept of the superlative natural phenomena is closely linked to values articulated in criteria (viii), (ix) and (x), with attributes such as endemic species, refugia, and evolutionary history commonly identified. However, these values are not expressed

beauty are likely to have increased in value as a result.

natural phenomena of the Wet Tropics.

explicitly in the retrospective Statement.

While the visual aspects of the exceptional natural beauty aesthetics were easily identified, many of the workshop participants also wanted to express the importance of the emotional and experiential values associated with smells, sounds, feeling of spirituality, sense of excitement and surprise of seeing spectacular fauna such as cassowaries, rifle birds and lemuroid ringtail possums. These latter attributes are not well captured in the retrospective Statement either.

The finding that experiential attributes are integral to the understanding of aesthetic values is similar to that articulated into the study of criterion (vii) in the Great Barrier Reef World Heritage Area.

As expressed previously, the aesthetic values are shaped through culture and experience and can be expected to vary across time and generations and across cultures⁶⁹. Representatives of the Rainforest Aboriginal people of the Wet Tropics had a keen interest in and understanding of the importance of the exceptional natural beauty and aesthetics of the region, although perceived in different ways.

The study only spoke with people familiar to the area. The views of tourists who may know little about the Wet Tropics, and others who may have had a long engagement with the Wet Tropics from other parts of Australia or the world, were not obtained in this review. Similar work defining the aesthetic values in the Great Barrier Reef suggests that there may be significant differences between first-time and repeat visitors. A structured study to gain the insights from the broader range of people would be beneficial. Additional techniques such as an analysis of photographs and social media to gain a more complete picture of the attributes of the values may also be appropriate^{70,71}.



Further work on the importance and definitions of non-visual aesthetics, will increase the understanding of criterion (vii), enabling planning, management and monitoring to ensure those attributes are maintained.

Monitoring the condition and trend of the attributes in conjunction with other aspects of the World Heritage attributes such as those found under criteria (viii), (ix) and (x) will provide stronger direction for management to maintain the OUV of the property.

Threats to the values of criterion (vii) are similar to the threats identified for other World Heritage values. The current management and planning regime appears to be satisfactory in many respects. However, the impacts of climate change and associated increases in destructive cyclones and fire pressure have particular potential to negatively impact on superlative natural phenomena and exceptional natural beauty and aesthetics.

Aboriginal participants strongly expressed a desire for management agencies to empower Traditional Owners to gather all their traditional knowledge together. The idea is to link the information in a sustainable way from across the entire Wet Tropics that is currently or might in future otherwise be siloed in individual Indigenous organisations.

There was also a call for help with detailed country-based cultural mapping and management, and especially data management over the long term, accounting for technological change. A requirement for legal agreements between Traditional Owners and agencies and researchers was recognised, to help reduce misuse and exploitation of traditional knowledge.

Participants were concerned about the security of the intellectual property shared in the mapping exercise, and noted the need to 'ground truth' their information with Traditional Owners, as the workshop included a relatively narrow group of people.

The overall conclusion is that while the attributes underpinning criterion (vii) can be much better understood, they are well recognised and are generally in good condition. The sites identified in this study, and the earlier research, show a congruence in understanding the aesthetics of the region. The implications of the World Heritage inscription in removing logging and other disturbances has likely resulted in restoration or improvement of the aesthetic values in many parts of the property. The maintenance of superlative natural phenomena has been achieved in the process of managing for the other World Heritage values related to species and ecosystems. The provisions of the Wet Tropics Management Plan, impact assessment processes and the local government plans are all designed to maintain the natural beauty and aesthetics of the region.



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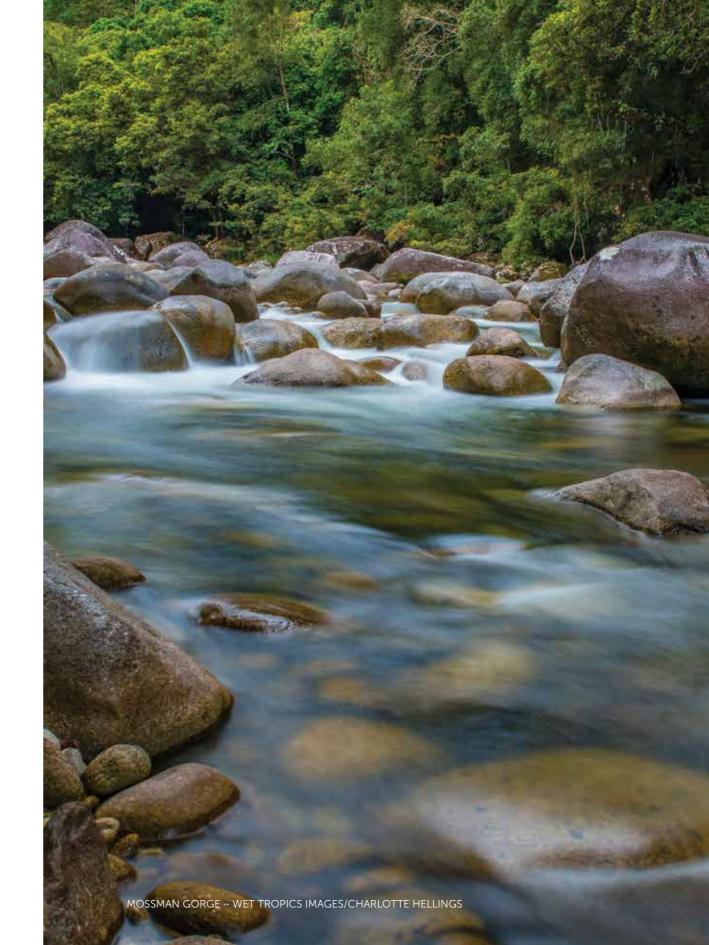
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Ground Floor, Cairns Port Authority | Cnr Grafton and Hartley Streets Cairns Qld 4870 | Po Box 2050 Cairns Qld 4870

Ph: 07 4241 0500 | wettropics@wtma.qld.gov.au | www.wettropics.gov.au