IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 06 October 2014

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

Fraser Island

SITE INFORMATION

Country:
Australia
Inscribed in: 1992
Criteria:
(vii) (viii) (ix)

Site description:

Fraser Island lies just off the east coast of Australia. At 122 km long, it is the largest sand island in the world. Majestic remnants of tall rainforest growing on sand and half the world’s perched freshwater dune lakes are found inland from the beach. The combination of shifting sand-dunes, tropical rainforests and lakes makes it an exceptional site. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

Fraser Island has been viewed as a model in participatory conservation management between many different stakeholders and a number of excellent management plans for a variety of issues have been put in place. The state of the site's World Heritage values remains relatively good and significant human and financial resources are being directed to the management of the threats to these values. However, high levels of visitation and pressures from recreational use will require continuing monitoring and increased management efforts to ensure preservation of the site's values in the long-term.

Current state and trend of VALUES

Low Concern
Trend: Stable

Since inscription in 1992 the state of World Heritage values remains relatively good and significant human and financial resources are being directed to the management of the threats to these values.nce inscription in 1992 the state of World Heritage values remains relatively good, although two of the six values indicate some deterioration, and it is possible that the other four values may not be stable if management concerns are correct.

Overall THREATS

High Threat

Increased visitation and climate change are the two major threats to the property. Increased tourism is acting as a driver for a number of other threats, which include pollution, siltation, disturbance, and the introduction of invasive species. Management capacity is high but significant negative effects on the site's values and integrity is probable unless management is increased. Climate change seems to be irreversibly changing some of the physical properties of the

site has already been demonstrated as a threat to several of the values of the property, and will probably gain in importance in the future.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Protection and management is mostly effective. However, high levels of visitation and pressures from recreational use will require continuing monitoring and increased management efforts to ensure preservation of the site’s values in the long-term.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Largest sand island in the world with spectacular beaches, cliffs and blowouts**
  Criterion:(vii)

  Largest sand island in the world, containing diverse range of features of exceptional natural beauty including over 250 km of clear sandy beaches, more than 40 km of strikingly coloured sand cliffs, and spectacular blowouts (SoOUV, 2012).

- **Tall rainforest growing on high coastal sand dunes**
  Criterion:(vii)

  The development of rainforest vegetation communities, with trees up to 50 metres tall on tall coastal dunes, is a phenomenon believed to be unique in the world (SoOUV, 2012).

- **Largest unconfined aquifer and perched freshwater dune lakes**
  Criterion:(vii)

  World’s largest unconfined aquifer on a sand island and half of the world’s perched freshwater dune lakes which are significant in terms of number, diversity and age (SoOUV, 2012).

- **Most complete age sequence of coastal dune systems**
  Criterion:(viii)

Immense sand dunes, which are part of the longest and most complete age sequence of coastal dune systems in the world and still evolving (SoOUV, 2012).

► **Unique process of soil formation with deepest podzols in the world**
Criterion:(viii)

Unique process of soil formation due to the successive overlaying of dune systems, meaning soil profiles range from rudimentary profiles less than 0.5 metres thick to giant forms more than 25 metres thick, deeper than any podzols anywhere else in the world (SoOUV, 2012).

► **Unique flora and fauna demonstrating ongoing succession, speciation and radiation**
Criterion:(ix)

Unique relict and disjunct populations of ancient angiosperm heathland and closed forest plant communities and associated vertebrate and invertebrate fauna with specialised adaptations to low fertility, fire, waterlogging and aridity, demonstrating ongoing speciation and radiation. The low shrubby heaths (‘wallum’) are of considerable evolutionary and ecological significance (SoOUV, 2012). The area provides most of the world's known habitat for 'acid' frogs, threatened species which have adapted to the highly specialised acidic environment associated with wet heathlands and sedgelands in this siliceous sand environment (SoOUV, 2012).

Other important biodiversity values

► **Patterned fens**

Discovered after inscription, the island has the only examples of sub-tropical patterned fens (along with those at Cooloola) known in the world. These fens support an unusual number of rare and threatened invertebrate and vertebrate species (SoOUV, 2012).

► **Dingoes**

The Fraser Island dingo population is of great relevance and high importance to the status of Fraser Island as a World Heritage site (WHC-01/CONF.208/4_COM25, p. 7) (WHC-01/CONF.208/10_COM25 p.9). Although the Fraser Island dingo population is not 100% pure, Fraser Island represents the best opportunity to establish and maintain a self-sustaining population of wild genetically pure dingoes. (WHC-01/CONF.208/4_COM25, p. 7) (WHC-01/CONF.208/10_COM25 p.9)

► **Marine biodiversity**

Although only an area of 500 m from the high-water mark surrounding the island is included in the WH Site, a substantial amount of internationally important marine biodiversity including shorebirds, waterfowl and seabirds, marine fish, crustaceans, oysters, sea turtles, dugongs, cetaceans and seagrass meadows occur within the site, which lies adjacent to the Great Sandy Marine Park and includes the Great Sandy Strait Ramsar site (Fraser Island nomination, 1991; SOC, 2002).

Assessment information

Threats

Current Threats

High Threat

Increased tourism is acting as a driver for a number of threats to the property, which include pollution, siltation, disturbance, and the introduction of invasive species. Management capacity is high but significant negative effects on the site’s values and integrity is probable unless management is increased.

► **Invasive Non-Native/ Alien Species**

High Threat

Inside site
Outside site

A number of invasive species (many species of plants and animals such as cane toads, cats and ants) have been introduced to the site and are damaging forest and heath systems and native wildlife. Management is good and some species (like horses) have been removed. However work on cane toads and ants has been less successful (SOC, 2002; www.fido.org.au; Confidential consultation, 2012).

► Logging/ Wood Harvesting

Low Threat
Inside site

Logging was a problem prior to inscription, but under recovery. However illegal firewood collection by tourists remains a threat (Sinclair, 2008; www.fido.org.au). However, the impacts of firewood collection are limited spatially and overlay areas of existing edge effects, and have little effect on the integrity of vegetation at an ecosystem level.

► Tourism/ visitors/ recreation

High Threat
Inside site

The large numbers of 4WD vehicles driving along the beaches and beach camping disturb the littoral fauna, changes sand deposition and violates the wilderness feeling of the area. Increased numbers of tourists also disturb the native fauna and flora, especially by trampling vegetation around lakes. Work by Schlacher et al. (2008) has shown that macrobenthic invertebrate populations are reduced on ORV-impacted beaches and the death of such species can impact on sandy-beach food chains thus influencing the abundance of birds, crabs and fish that rely on them for food.
While management capacity is high, a solution to what seems excessive 4WD traffic in the property needs to be put into place (SOC 2002; www.fido.org.au).

► Fire/ Fire Suppression

Low Threat

Inside site

Fire hazards caused by changing fire regimes (from those of the aboriginal populations to those when the island was managed for forestry) will influence vegetation sequence on sand dunes and damage relictual vegetation types, forest and heath systems. Contemporary management of fire regimes may temporarily or permanently alter the structure and floristics of some vegetation types compared to previous historic regimes. Modern regimes may increase biodiversity and diminish the risk of damage to non-fire adapted vegetation. (SoOUV 2012; SOC, 2002; www.fido.org.au; Confidential consultation, 2012).

► Water Pollution, Solid Waste

Low Threat
Inside site

Tourist numbers have doubled since inscription in 1992 and tourism is considered as a major driver for most of the current threats facing the site today. Increasing numbers of tourists in 4WD vehicles pollute, litter and contaminate the environment with human waste which includes polluting perched freshwater dune lakes with sunscreen. However, although ‘sunscreen’ was not specifically targeted, comprehensive and contemporary water quality monitoring by University of Queensland and the Queensland Government of several lakes (ranging from low to high visitation) concluded that water quality was good and unchanged from monitoring conducted in 1988 (Arthington 1988, Moss 2009, DSITIA 2012).

► Erosion and Siltation/ Deposition

High Threat
Inside site

The large number of 4WD vehicles used by tourists and residents and coastal urban development compact the soil and provoke erosion and siltation, filling pristine hanging dune lakes with sediment (SOC, 2002; GHD, 2002; www.fido.org.au). The impacts of recreational use and vehicular access were under active management to ensure resource conservation (SOC, 2002).

► Temperature changes

High Threat

Inside site
Outside site

Changing wind regimes are causing changes in geological character, such as erosion of the coastline. Climate change may already be responsible for sandblows (naturally devoid of vegetation) being colonized by encroaching vegetation (SOC, 2002; www.fido.org.au). Sea level rise of approximately 100mm since the early 1900s may also effect erosion rates (CSIRO, undated).

Potential Threats

High Threat

Climate change seems to be irreversibly changing some of the physical properties of the site. Climate change has already been demonstrated as a threat to several of the values of the property, and will probably gain in importance in the future.

▶ Invasive Non-Native/ Alien Species

High Threat
Inside site
Outside site

Increased visitation increases the probability that other invasive species will be introduced (SOC, 2002; www.fido.org.au).

▶ Temperature changes

High Threat
Inside site
Outside site

Rising temperatures will eliminate species at the northern limit of their range, and now that Fraser Island is an island (previously it was connected to the mainland), immigration of other native species to fill the gaps can no longer occur. Climate change will also favour the spread of more banal or invasive species (SoOUV 2012; SOC, 2002; www.fido.org.au).

Protection and management

Assessing Protection and Management

► Boundaries

Highly Effective

Boundaries are sufficient (SoOUV, 2012). There was mention of extending the boundaries to include more marine areas (SOC, 2002). The extension of the WHA to include Cooloola is on the tentative list. The Queensland Government has done work on the re-nomination document last year, but this has yet to be progressed by the commonwealth.

► Relationships with local people

Mostly Effective

The management authority (the Department of National Parks, Recreation, Sport and Racing / Queensland Parks and Wildlife Service (QPWS) has set up three Fraser Island World Heritage Advisory Committees including advice from indigenous, community and scientific groups (SoOUV 2012).

► Legal framework and enforcement

Highly Effective

99% of the island is included in the Great Sandy Region National Park and strictly protected under the Nature Conservation Act 1992. The narrow marine zone (500m) surrounding the island lies within the Great Sandy Marine Park and is subject to the Marine Parks Act 2004. There is also specific legislation for World Heritage properties (Environment Protection and Biodiversity Conservation Act 1999). Legislation is rigorously enforced (SoOUV, 2012).

► Integration into regional and national planning systems

Mostly Effective

Management guided by the Great Sandy Region Management Plan 1994 (currently under revision). The Queensland Sustainable Planning Act 2009 provides for regional plans that govern whole of landscape land use planning.

► Management system

Mostly Effective

The Queensland Parks and Wildlife Service (QPWS) is regarded as developing “best practice” for many aspects of protected areas management. There is no specific management plan for Fraser Island (it falls under the Great Sandy Region Management Plan which covers the Great Sandy Region National Park, of which Fraser Island is a part, and also adjacent marine areas and some lands outside the protected area). Specific plans for Fraser Island include Dingo Management Strategies (EPA 2001a, 2001b, 2006, 2013), a draft camping plan (EPA, 1999) a draft fire strategy (EPA, 2001c), a sustainable transport study (GHD, 2003), a pest management plan (2005), a water policy (DERM, 2010), and a Sustainable Visitor Capacity Study (DERM, 2008).

► Management effectiveness

Mostly Effective

The last state of conservation report (2002) notes a general paucity of social science research addressing visitor and social impact management, adding that the greatest potential threats to site’s values include recreational activities and a lack of knowledge about the ecological impacts of visitors. Sinclair (2011) notes that the tourist management system needs to be improved ensure preservation of some of the site’s values.

► Implementation of Committee decisions and recommendations

Highly Effective

No Committee decisions and recommendations recorded. Note 2000 Bureau CONF.202/5 discussion about the state of conservation of this property, including: (i) impacts associated with increasing tourism, particularly on fresh water environments; (ii) the unique dune lake system; (iii) adequacy of the fire management programme; and (iv) reduction in state government funding associated with other revenue generation mechanisms. (WHC-01/CONF.208/24, p. 110) In 2000 the Bureau commended the State Party/QPWS on the Risk Assessment and the draft Dingo Management Strategy, and invited the State Party to provide further information on the visitor management strategy as it is developed. (WHC-

01/CONF.208/4_COM25, p. 7)

► Sustainable finance

Mostly Effective

The property receives funding from the Commonwealth (said to be to small a percentage of the total by Sinclair (2011) and the state of Queensland. All sources note that this is not enough. SOC (2002) notes that the majority of funding comes from receipts under the 1988 Recreation Areas Management Act which increased from US$ I.47 million in 1992-93 to US$4.1 million in 2001-2002. Supplementary revenue received by the Board (service permits, penalties, brochures sales) is paid into the Queensland Recreation Areas Management Board Fund. Sinclair (2011) adds that most of the funds are spent on recreation management rather than natural resource management. An IUCN submission to the Australian Senate stated that “The Commonwealth component of funding for the four World Heritage areas, wholly or partly in Queensland, the Wet Tropics, CERRA, Fraser Island and Riversleigh Fossil Site has fallen from $7,066,000 in1997-8 to $3,366,600 for the 2004/5 financial year (Queensland EPA data). (IUCN, 2005).

► Staff training and development

Mostly Effective

63 staff and 12 volunteers in 2002 (SOC, 2002). Staff have received training in the use of firearms, fire management, workplace health & safety, first aid, compliance and legislation (SOC, 2002). No more recent info on staff training and development.

► Sustainable use

Data Deficient

The site is managed under National Park legislation, no information on any sustainable use.

► Education and interpretation programs

Highly Effective

Visitors are able to access information on Fraser Island through a variety of media: brochures, videos, maps, websites, and an information kit (SOC,

2002).

▶ Tourism and interpretation

Mostly Effective

Visitor management covers: (i) pre-visit information; (ii) off-site orientation; (iii) on-site orientation; (iv) site interpretation; and (v) post-visit reinforcement (SOC, 2002).

▶ Monitoring

Mostly Effective

A substantial monitoring program is conducted by QPWS on Fraser Island, and is complemented by programs conducted by outside research organizations and consultants (SOC, 2002).

▶ Research

Mostly Effective

There is a World Heritage Scientific Advisory Committee and a long list of research topics and collaborating institutions provided in SOC (2002) and FIDO (2004).

Overall assessment of protection and management

Mostly Effective

Protection and management is mostly effective. However, high levels of visitation and pressures from recreational use will require continuing monitoring and increased management efforts to ensure preservation of the site’s values in the long-term.

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

Mostly Effective

Threats originating outside the site include climate change and a significant growth in population in the Great Sandy Region, an expansion of residential development and an increase in tourism and support industries. These issues

are being addressed in management plans.

▶ **Best practice examples**

The Fraser Island Sustainable Visitor Capacity Study (2008) is an impressive management document. As recreational use is a driver of many of the threats facing the property, if implementation of this study alleviates the threats then it could be used as an example of best practice.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Largest sand island in the world with spectacular beaches, cliffs and blowouts**
High Concern
Trend:Stable

Some alteration in sandy beaches caused by beach compaction and colonisation of sandblows by vegetation, as well as the erosion of some landscape features have been recorded (Sinclair, 2011; www.fido.org.au)

▶ **Tall rainforest growing on high coastal sand dunes**
Low Concern
Trend:Stable

Rainforest seems to be mostly intact (SOC, 2002; www.fido.org.au) and may even be recovering after pre-inscription logging. However sand dune destabilization (www.fido.org.au) could be a problem.

▶ **Largest unconfined aquifer and perched freshwater dune lakes**
Low Concern
Trend:Stable

Comprehensive water quality monitoring by University of Queensland and DSITIA of several lakes (ranging from low to high visitation) concluded that water quality was good and unchanged from monitoring conducted in 1988

(Moss 2009, DSITIA 2012).

▶ Most complete age sequence of coastal dune systems

Low Concern
Trend:Stable

Some dunes said to be destabilized due to 4WD traffic and colonising vegetation (www.fido.org.au). Some re-vegetation and erosion has potential to be a natural occurrence.

▶ Unique process of soil formation with deepest podzols in the world

Low Concern
Trend:Stable

Some soils said to be compacted due to 4WD traffic (www.fido.org.au).

▶ Unique flora and fauna demonstrating ongoing succession, speciation and radiation

Low Concern
Trend:Stable

No reports of flora and fauna becoming increasingly threatened on the island, although given management issues monitoring of island populations is needed. Four species of “acid frogs” occur on the island: Cooloola Tree Frog Litoria cooloolensis, Freycinet's rocket frog L. freycineti, Wallum sedgefrog L. oblongburensis and Wallum Froglet Crinia tinnula (Meyer et al., 2006). All evaluated as VU by IUCN apart from the Cooloola Tree Frog as EN (Hines et al., 2004).

Other important biodiversity values

▶ Patterned fens

Discovered after inscription, the island has the only examples of sub-tropical patterned fens (along with those at Cooloola) known in the world. These fens support an unusual number of rare and threatened invertebrate and vertebrate species (SoOUV, 2012).

▶ Dingoes

The Fraser Island dingo population is of great relevance and high importance to the status of Fraser Island as a World Heritage site (WHC-01/CONF.208/4_COM25, p. 7) (WHC-01/CONF.208/10_COM25 p.9). Although the Fraser Island dingo population is not 100% pure, Fraser Island represents the best opportunity to establish and maintain a self-sustaining population of wild genetically pure dingoes. (WHC-01/CONF.208/4_COM25, p. 7) (WHC-01/CONF.208/10_COM25 p.9)

► **Marine biodiversity**

Although only an area of 500 m from the high-water mark surrounding the island is included in the WH Site, a substantial amount of internationally important marine biodiversity including shorebirds, waterfowl and seabirds, marine fish, crustaceans, oysters, sea turtles, dugongs, cetaceans and seagrass meadows occur within the site, which lies adjacent to the Great Sandy Marine Park and includes the Great Sandy Strait Ramsar site (Fraser Island nomination, 1991; SOC, 2002).

Summary of the Values

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

Low Concern

Trend: Stable

Since inscription in 1992 the state of World Heritage values remains relatively good and significant human and financial resources are being directed to the management of the threats to these values.nce inscription in 1992 the state of World Heritage values remains relatively good, although two of the six values indicate some deterioration, and it is possible that the other four values may not be stable if management concerns are correct.

► **Assessment of the current state and trend of other important biodiversity values**

Low Concern

Trend: Stable

This review cannot adequately assess the trend of the many biodiversity

values on the island, but there have been no reports of a major decline in any of the flagship species.

Additional information

Key conservation issues

▶ **Excessive 4WD transport over island.**
Local

4WD transport for recreational use has turned the beaches (V1) into highways and is causing deterioration of WH scenic, geological and biodiversity values. Monitoring to determine patterns of recreation (including visitor numbers) and implementing alternatives to 4WD transport is needed. Mediation between commercial recreation interests and conservation interests to create a strategy to resolve the issue is needed.

▶ **Invasive species**
Local

Invasive species have the potential to irretrievably alter many World Heritage values on the island. Projects are in place to control/eradicate the invasive species already present on the island and need to be continued. More effort towards preventing new introductions is urgently required (especially with the large numbers of people and vehicles visiting the island).

▶ **Illegal firewood collection**
Local

Monitoring on the impact of illegal firewood collection by tourists needs to be undertaken.

Benefits

Understanding Benefits

► Is the protected area valued for its nature conservation?

Fraser Island conserves a wide swathe of internationally important biodiversity including its flagship species (“acid” frogs, dingoes, sea turtles, dugongs mentioned in this evaluation) as well as numerous other species of plants and animals and their habitats.

► Does management of the site provide jobs (e.g. for managers or rangers)?

The Island is the source of many jobs (hence the conflict between tourism and nature conservation) In 2002 FIDO commissioned an independent study to assess the regional benefits of tourism. The study showed that the annual value of Fraser Island tourism to the Queensland economy was then estimated to be in the order of $277 million generating up to 2,880 jobs (Kleinhardt, 2002).

► Outdoor recreation and tourism

With its clean beaches and pristine lakes the island is an important source of recreation for visitors and the small community living on the island. The scenic benefits for tourism of giant dunes, towering rainforest and coloured cliffs is very high. Despite high visitation, there are still “wilderness” values on the island given lack of facilities, which in turn increases human pollution by hikers and swimmers seeking a “wilderness” experience (Hadwin & Arthington, 2003).

► History and tradition, Wilderness and iconic features

Fraser Island is of great cultural and spiritual significance and home to some 450-500 recorded Indigenous archaeological sites (DERM, 2012).

► Access to drinking water

With the largest aquifer on a sand island in the world and half of the world’s perched dune lakes, the property, even if the water is not used apart from local and tourist use, is an important reservoir of fresh water. The sand island also protects the mainland.

Summary of benefits

Fraser Island provides major local and international benefits for nature conservation, tourism (with its scenery and wilderness values) and recreation. The island is a living laboratory to increase scientific knowledge. It is also an important source of income, providing jobs and revenue to people living within and outside the property. Its large aquifer and perched dune lakes provide an important fresh water reserve. Although many aboriginal artifacts and sites occur on the island, few if any aboriginal people live on the island and the benefit of their conservation lie to the outside community

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Conservation Volunteers		Marine debris clean-up, flora and fauna monitoring and Dingo population research involving collection of biological specimens (working with DERM).
2	Fraser Island Defenders Organisation		Eurong Bush Regeneration Project (removal of invasive species around inhabited areas) (and other projects, see website).
3	Wildlife Preservation Society of Queensland		Biosecurity on Fraser Island, and other projects

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