IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 08 November 2017

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

2017 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, pressures from tourism and recreational use, as well as climate change, 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. Since inscription in 1992 the state of World Heritage values remains relatively good.

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 and impacts related to climate change and surrounding land use activities 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. 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). 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

- **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, scattered(5-15%)
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 almost totally removed. However

work on cane toads and ants has been less successful (SOC, 2002; www.fido.org.au; IUCN Consultation, 2017).

► Erosion and Siltation/ Deposition

High Threat
Inside site, localised(<5%)

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). Several road sections have been realigned and site access redesigned to minimise sedimentation issues (IUCN Consultation, 2017).

► Logging/ Wood Harvesting

Very Low Threat
Inside site, localised(<5%)

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 and when considered in the context of broad scale fire management across the site.

► Fire/ Fire Suppression

Low Threat
Inside site, scattered(5-15%)

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; IUCN consultation, 2012).

► Tourism/ visitors/ recreation

High Threat
Inside site, scattered(5-15%)

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). Vehicle related impacts are concentrated around visitor sites and travel routes and are unlikely to be negatively altering on-going geomorphological processes at the landscape level (IUCN Consultation, 2017).

► Temperature extremes

High Threat
Inside site, throughout(>50%)
Outside site

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).

► Water Pollution, Solid Waste

Low Threat
Inside site, scattered(5-15%)

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. 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).

Potential Threats

Very 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, with potential impacts on species composition, coastal processes, fire regimes and hydrological processes.

► Invasive Non-Native/ Alien Species

High Threat
Inside site, extent of threat not known
Outside site

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

► Temperature extremes

Very High Threat
Inside site, throughout(>50%)
Outside site

Overall, climate change impacts including higher temperatures, rising sea levels, and more frequent and extreme weather events pose a very high potential threat to species composition, coastal processes, fire regimes and hydrological processes (Gontz et al 2015, Wardell-Johnson et al 2015).

Protection and management

Assessing Protection and Management

► Relationships with local people

Highly Effective

The management authority (the Department of Environment and Heritage

Protection together with the Department of National Parks, Sport and Racing / Queensland Parks and Wildlife Service (QPWS) has set up two Fraser Island World Heritage Advisory Committees (a Scientific and a Community Advisory Committees) (SoOUV 2012). At the request of the Butchulla Aboriginal Corporation, the Indigenous Advisory Committee was not re-established in 2016. Four Butchulla representatives now sit on the Community Advisory Committee (IUCN Consultation, 2017). In 2014 the Federal Court of Australia made a consent determination recognizing the Butchulla people's native title rights in relation to Fraser Island (http://www.nntt.gov.au/searchRegApps/NativeTitleRegisters/NNTR%20Extracts/QCD20

► Legal framework

Highly Effective

99% of the island is included in the Great Sandy 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). Other relevant legislation includes Recreation Areas Management Act 2006; Queensland Planning Act 2016; Environmental Protection Act 1994; • Aboriginal Cultural Heritage Act 2003 and the Fraser Coast Regional Council Local Government Planning Scheme (IUCN Consultation, 2017).

► Enforcement

Mostly Effective

There is an active compliance program operating on Fraser island with a priority focus on visitor behaviour (commercial tour operators and recreational visitors) and dingo management (illegal feeding and negative interactions) (IUCN Consultation, 2017).

► Integration into regional and national planning systems

Mostly Effective

Management of the property is guided by the Great Sandy Region Management Plan 1994 (currently under revision). The revised management plan is being developed under a new values-based planning framework that

includes a reporting mechanism for condition and trend of key values (IUCN Consultation, 2017). 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. The new QPWS values-based planning framework is expected to evaluate management effectiveness on a regular basis (IUCN Consultation, 2017).

► 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)

► Boundaries

Highly Effective

Existing boundaries are operationally sufficient (SoOUV, 2012) however the Queensland Government is considering proposals to include significant additional areas of the Great Sandy Region in an expanded World Heritage property (subject to a consent framework to be developed with Indigenous Traditional Owners) (IUCN Consultation, 2017).

► Sustainable finance

Mostly Effective

Organisational changes within the Queensland Government make direct comparisons of funding over time difficult. However, operational and capital funding for Fraser Island has reportedly increased between 2011/2012 and 2016/2017 and the number of staff directly involved in management of the Island has increased from 45 (full time equivalent positions FTE) in 2011/12 to 46 FTE in 2016/17 (IUCN Consultation, 2017). Increasing investment is planned for key tourism and recreation infrastructure on the island over the next 3 years.

► Staff training and development

Mostly Effective

Staff continue to receive essential training in the use of firearms, fire management, workplace health & safety, first aid, compliance and legislation (IUCN Consultation, 2017).

► Sustainable use

Data Deficient

The site is managed primarily under National Park legislation. Sustainable

uses of the Island and adjacent waters include commercial tourism and recreation, recreational and commercial fishing, community lifestyles, natural resource management and cultural heritage protection.

► 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. Overall, education and interpretation programs can be evaluated as highly effective (IUCN Consultation, 2017).

► Tourism and visitation management

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). Key value health checks have recently being undertaken to support revision of the management plan (IUCN Consultation, 2017).

► 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 and impacts related to climate change and surrounding land use activities 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**

Some Concern

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**

Low 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). However, the property is still the largest sand island in the word and has spectacular beaches, cliffs and blowouts. Colonisation of sand blows is largely a natural process fundamental to on-going geological processes (IUCN

Consultation, 2017).

▶ 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 localized 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 impacts appear to be aesthetic and relate to localised erosion and infilling at key visitor access points (IUCN Consultation, 2017).

▶ 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) however, the underlying natural processes of soil formation are continuing at the property scale (IUCN Consultation, 2017).

▶

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).

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. Since inscription in 1992 the state of World Heritage values remains relatively good.

► 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

Benefits

Understanding Benefits

► 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).

The intensity of use during peak visitation periods at key sites and travel routes may impact on the quality of the visitor experience.

► History and tradition, Sacred natural sites or landscapes

Fraser Island is of great cultural and spiritual significance and home to some 450-500 recorded Indigenous archaeological sites (DERM, 2012). The Butchulla people are the Indigenous Traditional Owners for K’Gari (Fraser Island) and have continuing connection to country. The 2014 Native Title Determination has major implications for involvement of Butchulla people in the management of the World Heritage Area.

The current patterns and levels of visitor use may conflict with Indigenous cultural values and aspirations for the future.

► 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.

Climate change may impact on long-term hydrological processes operating at the property scale.

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. Many aboriginal artifacts and sites occur on the island, and the Indigenous Traditional Owners are becoming increasingly involved in management of the property. 2014 Native Title Determination has major implications for involvement of Butchulla people in the management of the World Heritage Area.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Fraser Island Natural Integrity Alliance		Acts as an umbrella organisation for government and non-government organisations to work collaboratively to protect and restore the natural integrity of Fraser Island. Projects have included: weed management, pest management – cane toad and Jamella (Padanus leaf-hopper) workshops, restoration of the Eurong nursery, revegetation, education and awareness initiatives – website, signage and quarterly Newsletter.
2	Conservation Volunteers		Marine debris clean-up, flora and fauna monitoring and Dingo population research involving collection of biological specimens (working with DERM).

№	Organization/ individuals	Project duration	Brief description of Active Projects
3	Fraser Island Defenders Organisation		Eurong Bush Regeneration Project (removal of invasive species around inhabited areas) (and other projects, see website).
4	Wildlife Preservation Society of Queensland		Biosecurity on Fraser Island, and other projects

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Social science research and improved monitoring of visitor use	More complete and reliable information is required on the levels and patterns of visitor use and associated impacts and benefits.	
2	Erosion and sedimentation mitigation measures at key visitor sites	Localised impacts associated with erosion and sedimentation at key visitor sites remain a concern particularly at pristine lakes.	

REFERENCES

№	References
1	A.M. Gontz, P.T. Moss, C.R. Sloss, L.M. Petherickd, A. McCallume and F. Shapland (2015) Understanding past climate variation and environmental change for the future of an iconic landscape – K'gari Fraser Island, Queensland, Australia Australasian Journal of Environmental Management, Vol. 22, No. 2, 105–123, http://dx.doi.org/10.1080/14486563.2014.1002120
2	Australia (2012). Australia's World Heritage Places: Fraser Island Information Sheet. http://www.environment.gov.au/heritage/education/pubs/facts… downloaded September 2012.
3	Corbett, L.K. (2008). Canis lupus ssp. dingo. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. www.iucnredlist.org. Downloaded on 15 September 2012.
4	DERM (Department of Environment and Resource Management) (2008). Fraser Island Sustainable Visitor Capacity Study. Queensland Government, Brisbane. 211 pp.
5	DERM (Department of Environment and Resource Management) (2010). Environmental Protection (Water) Policy 2009. Fraser Island environmental values and water quality objectives Basin No. 139. Water Quality & Ecosystem Health Policy Unit, Department of Environment and Resource Management. Brisbane.
6	DERM (Department of Environment and Resource Management) (2012). Australia's World Heritage Places: Fraser Island Information Sheet. http://www.environment.gov.au/heritage/education/pubs/facts…. Downloaded September 2012.
7	Dowdy, A. et al. 2015, East Coast Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia . Accessed 10 October 2017.
8	EPA (2005). Fraser Island Pest Management Plan. Cited in Draft Fraser Coast Regional Council Pest Management Plan 2010 – 2014 (reported in www.fido.org.au).
9	EPA (Environmental Protection Agency) (1999) Fraser Island World Heritage Area draft Camping Management plan: summary report. Queensland Parks and Wildlife Service. Brisbane. 32 pp.
10	EPA (Environmental Protection Agency) (2001a). Fraser Island Dingo management strategy. Conservation management report. Queensland Parks and Wildlife Service (2001), Brisbane. 20 pp.

№	References
11	EPA (Environmental Protection Agency) (2001b) Risk Assessment – Risk to humans posed by the Dingo population on Fraser Island. Conservation management report. May 2001. Queensland Parks and Wildlife Service, Brisbane. 32 pp+ attachments.
12	EPA (Environmental Protection Agency) (2001c). Fraser Island world heritage area: draft fire strategy summary. Queensland Parks and Wildlife Service, Brisbane. 57 pp.
13	EPA (Environmental Protection Agency) (2006). Fraser Island dingo management strategy – review. Queensland Parks and Wildlife Service, Brisbane. 46 pp.
14	Elmes, G. (2010). LNP Report: Fraser Island Discussion Paper.
15	FIDO (2004). Fraser Island inspiring research. MOONBI 108 (newsletter). http://www.fido.org.au/moonbi/moonbi108/MOONBI108_pp_6-7.pdf
16	Fraser Island Nomination (1991). Nomination of Fraser Island and the Great Sandy Region by the Government of Australia for inclusion in the World Heritage List (Department of the Arts, Sport, the Environment, Tourism and Territories, December 1991. http://whc.unesco.org/en/list/630/documents/
17	G. Wardell-Johnson, D. Schoeman, T. Schlacher, A. Wardell-Johnson, M.A. Weston, Y. Shimizu and G. Conroy (2015) Re-framing values for a World Heritage future: what type of icon will K'gari-Fraser Island become? Australasian Journal of Environmental Management, 2015 Vol. 22, No. 2, 124–148, http://dx.doi.org/10.1080/14486563.2014.985267
18	GHD (Gutteridge, Haskins and Davey) (2002). Fraser Island Sustainable Transport Management Study — Transport Strategies Working Paper — Report 41-10875, GHD, Brisbane.
19	GHD (Gutteridge, Haskins and Davey) (2002). Fraser Island Sustainable Transport Management Study — Transport Strategies Working Paper — Report 41-10875, GHD, Brisbane.
20	Hadwen, W.L. & Arthington, A.H. (2003). The significance and management implications of perched dune lakes as swimming and recreation sites on Fraser Island, Australia. J. of Tourism Studies 14(2): 37-43.
21	Hines, H., Meyer, E., Hero, J-M, Newell, D. & Clarke, J. (2004). Litoria cooloolensis, Litoria olongburensis. Litoria freycineti. Crinia tinnula. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. www.iucnredlist.org. Downloaded on 15 September 2012.
22	Hockings, M. and Hobson, R. (2000). Fraser Island World Heritage Area Monitoring and Management Effectiveness Project Report. University of Queensland, Brisbane.

№	References
23	Hockings, M. and Twyford, K. (1997). Assessment and Management of Beach Camping Impacts within Fraser Island World Heritage Area, South-east Queensland, Australia. Aust. J. Environmental Management 4(1): 26-39.
24	IUCN (1992). World Heritage Nomination-IUCN Technical Evaluation 630: Fraser Island and the Great Sandy Region (Australia).
25	IUCN (2005). Submission of the IUCN World Commission on Protected Areas (Australia and New Zealand) to the Senate Inquiry into the funding and resources available to meet the objectives of Australia’s National Parks, other conservation reserves and marine protected areas. Unpublished report. (47 pp.)
26	Kleinhardt (Kleinhardt –FGT Coorperate Advisors) (2002). Tourism & Recreation Values of the Daintree and Fraser Island. Prepared for the Australian Tropical Research Foundation (AUSTROP). Unpublished report, Cairns. 58 pp.
27	Marsh, H. (2008). Dugong dugon. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. . Downloaded on 15 September 2012.
28	Meyer, E., Hero, J-M., Shoo, L. and Lewis, B. (2006). National recovery plan for the wallum sedgefrog and other wallum-dependent frog species. Report to Department of the Environment and Water Resources, Canberra. Queensland Parks and Wildlife Service, Brisbane.
29	Monitoring Report (1993). Monitoring Report on Australia’s World Heritage Properties July 1992-June 1993. http://whc.unesco.org/en/list/630/documents/
30	SOC (2002). Australian National Periodic Report Section II: Report on the State of Conservation of Fraser Island. http://whc.unesco.org/en/list/630/documents/
31	Schlacher, T.A., Richardson, D. and McLean, I. (2008) Impacts of off-road vehicles (ORVs) on Macrobenthic assemblages on sandy beaches. Environmental Management 41, 878–892.
32	Sinclair, J. (2008). Fraser Island Report – August 2008. www.fido.au.org
33	Sinclair, J. (2011). What has World Heritage Listing meant for Fraser Island? FIDO Backgrounder 52 at www.fido.au.org
34	www.fido.org.au