IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 07 July 2014

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

Joggins Fossil Cliffs

SITE INFORMATION

Country:
Canada
Inscribed in: 2008
Criteria:
(viii)

Site description:
The Joggins Fossil Cliffs, a 689 ha palaeontological site along the coast of Nova Scotia (eastern Canada), have been described as the “coal age Galápagos” due to their wealth of fossils from the Carboniferous period (354 to 290 million years ago). The rocks of this site are considered to be iconic for this period of the history of Earth and are the world’s thickest and most comprehensive record of the Pennsylvanian strata (dating back 318 to 303 million years) with the most complete known fossil record of terrestrial life from that time. These include the remains and tracks of very early animals and the rainforest in which they lived, left in situ, intact and undisturbed. With its 14.7 km of sea cliffs, low bluffs, rock platforms and beach, the site groups remains of three ecosystems: estuarine bay, floodplain rainforest and fire prone forested alluvial plain with freshwater pools. It offers the richest assemblage known of the fossil life in these three ecosystems with 96 genera and 148 species of fossils and 20 footprint groups. The site is listed as containing outstanding examples representing major stages in the history of Earth. © UNESCO

SUMMARY

2014 Conservation Outlook

Good

Joggins Fossil Cliffs is a model of high quality performance within the World Heritage Convention, protecting geological values of global significance whilst providing benefits to local people. The site is robust, in good and stable condition and effectively managed. Threats are low, and there is highly effective and creative management that has build and maintains community support for the conservation and presentation of this site. Provided adequate resources are maintained to assure the capacity for effective site management is maintained, the future conservation of this site is highly positive. Model approaches in Joggins related to community-based management and education should be more widely disseminated within the World Heritage Convention.

Current state and trend of VALUES

Good
Trend: Stable

Joggins Fossil Cliffs protects a coastal fossil record from the Coal Age of global significance. This fossil record is maintained by active natural coastal processes and is in good condition and available for scientific and educational use.

Overall THREATS

Low Threat

The current threats mostly derive from public access to the site, and are at low levels. All are well managed, with appropriate legal backing, and should continue to be so provided the site remains adequately resourced. There are few potential threats, not already subject to the management of the property.

Overall PROTECTION and MANAGEMENT

Highly Effective

The management of Joggins Fossil Cliffs is highly effective, with a dedicated and creative local team responsible for this work, supported by regional and national expertise. Examples of good practice include the strong community processes that are the hallmark of the management of this site, and its major commitment to education, including the demonstration of this WHS as a model for sustainable development and the provision of social and economic benefits to the local community, alongside the protection and presentation of the site.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **In situ fossil record of terrestrial life in the “Coal Age”**
Criterion:(viii)

The "grand exposure" of rocks at Joggins Fossil Cliffs contains the best and most complete known fossil record of terrestrial life in the iconic "Coal Age": the Pennsylvanian (or Carboniferous) period in Earth's history. The site bears witness to the first reptiles in Earth history, which are the earliest representatives of the amniotes, a group of animals that includes reptiles, dinosaurs, birds, and mammals. The site offers the richest assemblage known of the fossil life in these three ecosystems with 96 genera and 148 species of fossils and 20 footprint groups. (SoOUV, 2008). Stratigraphy and fossil record in cliffs are in good condition, and available for study and subject to regulated scientific collection.

▶ **Ex situ fossil record**
Criterion:(viii)

Fossil material exposed by coastal erosion is available for study, and subject to regulated scientific collection and appropriate public and educational use. Important specimens are collected and curated to avoid losses to science (IUCN, 2008).

▶ **Continued natural coastal erosion maintaining the integrity of the property**
Criterion:(viii)

Natural coastal erosion continues to maintain natural exposures and evolution of coastline.

▶ **Continued scientific research**
Criterion:(viii)

The property has played a vital role in the development of seminal geological and evolutionary principles, including through the work of Sir Charles Lyell and Charles Darwin, for which the site has been referred to as the "coal age Galápagos" (SoOUV, 2008).

Assessment information

Threats

Current Threats
Low Threat

The current threats mostly derive from public access to the site, and are at low levels. All are well managed, with appropriate legal backing, and should continue to be so provided the site remains adequately resourced.

▶ **Tourism/ visitors/ recreation**
Low Threat
Inside site
Outside site

Visitor use is well controlled and not at excessive levels.

▶ **Other Activities**
Low Threat
Inside site

Fossil collection is subject to regulations that are effectively enforced, and

there is no evidence of significant losses.

► Solid Waste

Very Low Threat
Inside site
Outside site

Marine litter and some inevitable visitor litter is at levels that are managed through collection as part of site management. Impacts on values are low.

Potential Threats

Very Low Threat

There are few potential threats, not already subject to the management of the property. To the extent they exist their impacts are not known, but appear to be likely to be low, given the site is already demonstrably robust.

► Storms/Flooding, Temperature changes

Low Threat
Inside site

Scale of impacts not know, but as a very active coastline this site is already relatively robust to potential impacts.

► Identity/ Social Cohesion/ Changes in local population and community

Low Threat
Inside site

Community support is essential to the long term effective management of the site. The community is resilient, but there are constant social pressures to maintain local jobs.

► Erosion and Siltation/ Deposition

Very Low Threat
Inside site

Not a threat, provided natural coastal processes are maintained. There are effective development control policies to ensure this.

Protection and management

Assessing Protection and Management

► Monitoring

Highly Effective

Effective support, including from State palaeontologist (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

► Research

Highly Effective

Continued research interest, and scientific advisory group as part of management structure (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

► Relationships with local people

Highly Effective

A very strong and continuing community generated nomination, with strong local programmes. Creative local leadership for the WH Site is evident (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

► Integration into regional and national planning systems

Mostly Effective

As a State driven nomination there are some questions regarding the national/federal connection to this site. In practice this provides no evident immediate concerns, but could be strengthened (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

► Management system

Highly Effective

Clear, effective, and a model of local engagement (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

▶ Management effectiveness

Highly Effective

A highly effective community driven process (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

▶ Implementation of Committee decisions and recommendations

Highly Effective

No concerns

▶ Boundaries

Highly Effective

Clearly defined, and related to the values (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

▶ Sustainable finance

Mostly Effective

Consistent funding has been achieved but requires regular renewal of support. Dependant on public sources, that need to be maintained (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

▶ Staff training and development

Highly Effective

Highly effective professional team (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

▶ Sustainable use

Highly Effective

The site manages sustainable use of the fossil resource, and in addition its visitor services model wider approaches to environmental sustainability. The main visitor facilities are LEED certificated with on site renewable energy in use, and local produce used in the visitor centre (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

► Education and interpretation programs

Highly Effective

Strong programme with dedicated officer.

► Tourism and interpretation

Highly Effective

Creative approaches, centred on a new visitor centre that was constructed to support the site on inscription.

► Legal framework and enforcement

Highly Effective

Adequate legislation, with some continuing needs to maintain effective balance of legal protection of fossil remains, with adequate enforcement and assurance of collection and curation of important specimens. Highly effective by any global standard of such approaches (IUCN, 2008; Nomination, 2007; Pers. obs., 2010).

Overall assessment of protection and management

Highly Effective

The management of Joggins Fossil Cliffs is highly effective, with a dedicated and creative local team responsible for this work, supported by regional and national expertise. Examples of good practice include the strong community processes that are the hallmark of the management of this site, and its major commitment to education, including the demonstration of this WHS as a model for sustainable development and the provision of social and economic benefits to the local community, alongside the protection and presentation of the site.

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

Highly Effective

There is both adequate legal protection extending beyond the site, and integrating its conservation into local land-use planning, and a strong

outreach programme from the site at local and regional levels.

▶ **Best practice examples**

a) Community led processes
b) Boundary design tied to values
c) Interpretive and educational offer modeling the role of WHS as beacons for promoting sustainable development approaches.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **In situ fossil record of terrestrial life in the “Coal Age”**
Good
Trend:Stable

Naturally maintained coastline with adequate management surveillance. The fossil record is maintained by active natural coastal processes and is in good condition and available for scientific and educational use.

▶ **Ex situ fossil record**
Good
Trend:Stable

Ex situ fossil record has been well preserved.

▶ **Continued natural coastal erosion maintaining the integrity of the property**
Good
Trend:Stable

Continued natural coastal erosion is being fully maintained.

▶ **Continued scientific research**
Good
Trend:Stable

Evidence of continuing scientific use with recent publications, and professional expertise supporting the site.

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**
Good
Trend: Stable

Joggins Fossil Cliffs protects a coastal fossil record from the Coal Age of global significance. This fossil record is maintained by active natural coastal processes and is in good condition and available for scientific and educational use.

Additional information

Key conservation issues

▶ **Maintenance of adequate funding and capacity for site management.**
Regional

Joggins is a robust site, which is effectively managed. There is no obvious blockage to its continued high performance, except the degree to which it is dependant on public funding. Thus the continued commitment to providing adequate funding, and to support the capacity of the staff team is the only key conservation issue identified that is of a significant nature. The several other theoretical threats to the property are subject to active management and thus provided this is maintained do not represent key conservation issues.

▶ **Climate change**
Global

More information on climate change threats to JFC is required.

Benefits

Understanding Benefits

▶ **Is the protected area valued for its nature conservation?**

The fossil resource of the site is iconic and of global significance as the most important exposure of the Coal Age, and the most significant records of the evolution of first terrestrial vertebrate life, and the fossil ecosystems of the Carboniferous.

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

The WHS is a notable local employer in the small community of Joggins.

▶ **History and tradition**

The site celebrates the local heritage of the communities of Joggins, and is deeply integrated into the life of the community. It provides an important focus for local heritage and history.

▶ **Outdoor recreation and tourism**

The site has a notable tourism role in the local community, though is not a mass tourism venue.

▶ **Importance for research**

The knowledge produced by the site, in relation to the history of life on Earth is of the highest global significance, and helped inform major developments in geological ideas.

Summary of benefits

The site performs strongly in providing benefits to the local community in relation to direct and indirect economic and social contributions. It provides a

global benefit by protecting an irreplaceable site of the highest importance for our understanding of the history of Life on Earth.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Joggins Fossil Cliffs		The principal actor in the conservation of the property. An independent community based organisation that is financially supported from mostly public sources.

REFERENCES

№	References
1	IUCN, 2008. IUCN Technical Evaluation of Joggins Fossil Cliffs Nomination.
2	Joggins Fossil Cliffs, 2007. Nomination of The Joggins Fossil Cliffs for Inscription on the World Heritage List.
3	Personal observation, 2010.
4	Statement of Outstanding Universal Value (SoOUV), 2008. World Heritage Committee Decision 32 COM 8B.9.