IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 12 November 2014

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

Miguasha National Park

SITE INFORMATION

Country:
Canada
Inscribed in: 1999
Criteria:
(viii)

Site description:
The palaeontological site of Miguasha National Park, in south-eastern Quebec on the southern coast of the Gaspé peninsula, is considered to be the world's most outstanding illustration of the Devonian Period known as the 'Age of Fishes'. Dating from 370 million years ago, the Upper Devonian Escuminac Formation represented here contains five of the six fossil fish groups associated with this period. Its significance stems from the discovery there of the highest number and best-preserved fossil specimens of the lobe-finned fishes that gave rise to the first four-legged, air-breathing terrestrial vertebrates – the tetrapods. © UNESCO

SUMMARY

2014 Conservation Outlook

Good

The conservation outlook for the Miguasha National Park is good and presents no cause for concern. The current state of the geological values and attributes of the property is good and the trend is stable. New fossil discoveries are being made as a result of continuing field investigation, and an active research program is yielding new insights into the evolution of fishes and amphibians in Devonian times. The property is essentially secure and there are no significant threats to its outstanding universal values or attributes. The current protection and management regime is very competent and effective.

Current state and trend of VALUES

Good
Trend: Stable

The current state of the geological values and attributes of the property is good and the trend is stable. New fossil discoveries are being made as a result of continuing field investigation, and an active research program is yielding new insights into the evolution of fishes and amphibians in Devonian times. Fossil sites can be vulnerable to human- induced damage and loss, but this site is well protected and illegal activities are remarkably little reported. The site is not impacted by natural destructive events.

Overall THREATS

Very Low Threat

The property is essentially secure and there are no significant threats to its outstanding universal values or attributes. Some industrial developments outside the property have either been suspended or are of no consequence for protection of the property. Any future sea level rise accompanying global warming could

lead to increased coastal erosion and consequent loss of fossils.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Overall protection and management of the property can be rated as mostly or highly effective. There is a strong legal and administrative framework and effective management guided by a comprehensive legally binding management plan. Staff and financial resources are adequate for current needs, and the property is well supported by stakeholders in the local community and elsewhere. Interpretation facilities for visitors are of high standard, education outreach is good and the scientific research program is exemplary.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Devonian age site with the highest number of best- preserved specimens of the lobe-finned fishes that gave rise to the world’s first tetrapods**
Criterion:(viii)

The property is considered to be the world’s most outstanding illustration of the “Age of the Fishes”, dating from the Devonian period some 380 million years ago. Fossil of six of the eight groups of fishes attached to this period are found here, and more than 20,000 fish specimens have been recovered. Of particular scientific importance is Eusthenopteron foordi (the Prince of Miguasha), the study of which gave rise to the modern conception of evolution from fish to terrestrial tetrapod vertebrates – the amphibians. The discovery of the first complete specimen of Elpistostege watsoni in 2010 confirmed the crucial role of Miguasha in the understanding of the transition from fish to tetrapods. The fossils are in exceptional condition allowing the study of soft body parts such as gill imprints, digestive traces, blood vessels and cartilaginous elements of skeleton. The additional presence of invertebrate, plant and spore fossils allows reconstruction of the Devonian ecosystem (Canada, 1999; IUCN, 1999; Cloutier, 2010, 2013).

Assessment information

Threats

Current Threats

Very Low Threat

The property is essentially secure in the absence of any significant threats. Some industrial developments outside the property have either been suspended or are of no consequence for protection of the property.

► Industrial/ Military Effluents

Very Low Threat

A toxic waste incinerator was established in a neighboring province some 35 km from the property, without detrimental impact on the property (29COM 7B.17).

► Oil/ Gas exploration/development

Very Low Threat
Outside site

Reported exploratory drilling for oil and gas in the buffer zone was the subject of a monitoring mission in 2005 (29COM 7B.17; IUCN, 2005). The drilling, undertaken inadvertently in ignorance of the protection status of the land, was immediately suspended and there were no physical or visual impacts on the property. The government of Québec has since changed the status of the buffer zone to a State Reserve.

Potential Threats

Very Low Threat

Loss of fossils from increased coastal erosion as a consequence of a climate-

induced rise in sea level is a long-term possibility.

▶ Temperature changes

Very Low Threat
Inside site

The site comprises a coastal cliff and beach. In the long term it could be adversely affected by sea level rise associated with global atmospheric warming (WCMC, 2011).

Protection and management

Assessing Protection and Management

▶ Management effectiveness

Highly Effective

There is a good administrative and management framework and resources appear adequate for current management needs (Canada, 1999; IUCN, 1999; WCMC, 2011).

▶ Relationships with local people

Mostly Effective

Some 120 residents in the buffer zone are generally aware of the World Heritage status of the site and support it (Canada, 1999; IUCN, 1999).

▶ Legal framework and enforcement

Highly Effective

Strong national and provincial legislation forms a basis for protection and management, including protection of the property in perpetuity, and a complete ban on mining in the property and buffer zone (Canada, 1999; IUCN, 1999).

▶ Integration into regional and national planning systems

Data Deficient

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► Management system

Mostly Effective

There is a comprehensive management plan, which is prepared with public consultation and is legally binding on the site managers and the government.

► Implementation of Committee decisions and recommendations

Mostly Effective

The Committee has raised matters regarding industrial drilling and toxic waste disposal outside the property, both of which have been satisfactorily addressed by the SP (29COM 7B.17).

► Sustainable finance

Mostly Effective

The budget of the site is 700,000 CAD.

► Staff training and development

Data Deficient

Training opportunities are available for staff.

► Sustainable use

Data Deficient

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► Education and interpretation programs

Mostly Effective

An excellent visitor centre has good interpretation facilities and programs, and there is an interactive program with schools (Canada, 1999; IUCN, 1999; WCMC, 2011).

► Tourism and interpretation

Mostly Effective

Numbers are low and. visitors are low-impact day-users only. There is no overnight accommodation or camping in the property. There is an excellent interpretation program. Visitors are helpful in making new fossil discoveries and there is remarkably little reported illegal removal of fossils (WCMC, 2011).

► Monitoring

Highly Effective

Monitoring and surveillance programs are in place .

► Boundaries

Some Concern

C’est le gouvernement du Québec qui est responsable des projets d’agrandissement, dans le cadre d’ententes de gré à gré avec les propriétaires avoisinants. D’ailleurs, la plus récente phase d’acquisition est survenue en 2005 et ce processus d’agrandissement se poursuivra dans le futur.

► Research

Highly Effective

There is a long history of research, by both domestic and international scientists, since fossils were first discovered here in 1842. More than 18.000 fish specimens have been collected and recorded in the site database, and many are exchanged with museums and other collections. Thousands of specimens are held in institutions elsewhere. The property is one of the most significant paleontological research sites in the world (Cloutier, 2010; 2013).

Overall assessment of protection and management

Mostly Effective

Overall protection and management of the property can be rated as mostly or highly effective. There is a strong legal and administrative framework and effective management guided by a comprehensive legally binding management plan. Staff and financial resources are adequate for current needs, and the property is well supported by stakeholders in the local

community and elsewhere. Interpretation facilities for visitors are of high standard, education outreach is good and the scientific research program is exemplary.

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

Highly Effective

Past threats from exploratory oil and gas drilling in the buffer zone have been removed without impacting the property (29COM B.17; IUCN, 2005).

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Devonian age site with the highest number of best- preserved specimens of the lobe-finned fishes that gave rise to the world's first tetrapods**

Good
Trend:Stable

The current state of the fossil values and attributes of the property is good and the trend is stable. There are no significant concerns about their protection status. With ongoing field investigation and research new discoveries are being made and the property remains one of the most important paleontological sites in the world (SOC report, 2005; WCMC, 2011; Cloutier 2010, 2013).

Summary of the Values

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

Good

Trend: Stable

The current state of the geological values and attributes of the property is

good and the trend is stable. New fossil discoveries are being made as a result of continuing field investigation, and an active research program is yielding new insights into the evolution of fishes and amphibians in Devonian times. Fossil sites can be vulnerable to human- induced damage and loss, but this site is well protected and illegal activities are remarkably little reported. The site is not impacted by natural destructive events.

Additional information

Key conservation issues

▶ **.**

Local

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Benefits

Understanding Benefits

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

The property is one of the most important paleontological sites in the world, and is of paramount significance to science and conservation.

▶ **Importance for research**

The property plays a fundamental role in interpretation and education about the Devonian period and the evolution of life on Earth.

Summary of benefits

The Miguasha National Park is a globally significant fossil locality for investigating and understanding the evolution of life on planet Earth,

particularly the origins the terrestrial vertebrates, the tetrapods.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Dr. Richard Cloutier (Université du Québec à Rimouski), Isabelle Béchard (Centre de développement et de recherche en imagerie numérique) et parc national de Miguasha		Étude de l’anatomie, de la morphologie fonctionnelle et des relations phylogénétiques d’Elpistostege watsoni
2	Dr. Richard Cloutier (Université du Québec à Rimouski) et parc national de Miguasha		Étude du développement chez Bothriolepis canadensis
3	Dr. Richard Cloutier (Université du Québec à Rimouski) et parc national de Miguasha		Investigation du contexte de mise en place des laminites de la Formation d’Escuminac et étude paléoécologie d’Elpistostege watsoni

REFERENCES

№	References
1	23COM VIIIA.1
2	29COM 7B.17
3	Canada, 1999. Miguasha National Park, Canada - World Heritage nomination file.
4	Cloutier, R. 2010. The late Devonian biota of the Miguasha National Park UNESCO World Heritage site. GeoCanada: Working with the Earth, 2010, 4pp.
5	Cloutier, Richard 2013. The Devonian Miguasha biota (Quebec): UNESCO World Heritage site and a time capsule in the early history of vertebrates. Geoscience Canada Vol. 40: 149-163.
6	IUCN, 1999. Miguasha National Park, Canada - World Heritage evaluation.
7	IUCN, 2005. Report on monitoring mission to Miguasha World Heritage site, Quebec, Canada.
8	SOC report, 2005. Miguasha National Park, Canada.
9	WCMC, 2011. Miguasha National Park, Canada : Fact Sheet.