EUROPE / NORTH AMERICA

ANTICOSTI

CANADA

Anticosti © IUCN / Sophie Justice

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ANTICOSTI (CANADA) – ID N° 1686

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the nominated property under natural criterion (viii)

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria.
Paragraph 78: Nominated property meets integrity requirements and protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on Anticosti's protected areas, the involvement of the Ekuanitshit and Nutashkuan First Nations, a reorganisation of the Government of Quebec and on the staffing for the nominated property. The supplementary information was provided by the State Party on 28 February 2023, including direct responses from representatives of the Ekuanitshit and Nutashkuan First Nations.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the geology, protection and management as well as the comparative values of the nominated property. References included: Bureau d'audiences publiques sur l'environnement (2022). Rapport 367. Projet de désignation de réserve de biodiversité d'Anticosti. Rapport d'enquête et de consultation ciblée. Quebec. Canada. https://www.quebec.ca/nouvelles/actualites/details/reserve-de-biodiversite-danticosti-le-bape-publie-son-rapport-43341; Cloutier, R. and Lelièvre, H. (1998). Étude comparative des sites fossilifères du Dévonien. France. https://www.researchgate.net/publication/282859522_Etude_comparative_des_sites_fossiliferes_du_Devonien; Crofts, R. et al. (2020) Guidelines for geoconservation in protected and conserved areas. IUCN Best Practice Protected Area Guidelines Series No. 31. Gland, Switzerland: IUCN https://doi.org/10.2305/IUCN.CH.2020.PAG.31.en; Dingwall, P. et al. (2005). Geological World Heritage : a global framework : a contribution to the global theme study of World Heritage Natural Sites. Gland : IUCN, 2005 https://portals.iucn.org/library/node/12797; Lefebvre, B. and Ausich W. I. (2021). New Siluro-Devonian Anomalocystitids (Echinodermata, Stylophora) from Bolivia and Canada, and a Reevaluation of Skeletal Homologies in Mitrates. Paleontological Journal, 55, 9, 932–965. https://doi.org/10.1134/S0031030121090070; Lévesque, J. (2021). Validation des concepts du projet destination écotouristique Anticosti par un groupe d'experts multidisciplinaires. Québec, Canada.; Lévesque, J. (2022). Plan d'actions pour le développement touristique (Phases 1, 2 et 3). Québec, Canada; Mc Keever, P.J. and Narbonne, G.M. (2021) Geological world heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention. Gland, Switzerland: IUCN https://doi.org/10.2305/IUCN.CH.2021.12.en; Sinnesael, M. et al. (2021). Precession-driven climate cycles and time scale prior to the Hirnantian glacial maximum. Geology, 49, 11, 1295-1300. https://doi.org/10.1130/G49083.1; Riopel, G.C. (In Preparation) Les stromatopores aulacéridés de l'île d'Anticosti : Les géants fragiles des mers ordoviciennes ; Thompson, J.R. et al. (2022). The morphologic and paleobiogeographic implications of a new early Silurian echinoid from Anticosti Island, Quebec, Canada, https://doi.org/10.1139/cjes-2022-0028. Canadian Journal of Earth Sciences; Wells, T.R. (1996). Earth's geological history : a contextual framework for assessment of World Heritage fossil site nominations. Gland, Switzerland : IUCN. https://portals.iucn.org/library/node/7357; Zimmt, J., and Jin, J. (2023). A new species of Hirnantia (Orthida, Brachiopoda) and its implications for the Hirnantian age of the Ellis Bay Formation, Anticosti Island, eastern Canada. Journal of Paleontology, 97, 1, 47-62, doi:10.1017/jpa.2022.83.

d) Consultations: 7 desk reviews received. The mission was able to meet with Ekuanitshit First Nation; Nutashkuan First Nation; the municipality of Anticosti; the regional municipality (Municipalité régionale de comté de Minganie); the ministries Ministère de l'Environnement et de la Lutte contre les Changements climatiques de Québec, Ministère des Forêt, de la Faune et des Parcs de Québec (today Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs), Ministère des Relations internationales et de la Francophonie de Québec; Parcs Canada; the company of open-air establishments of Quebec (Société des établissements de plein air du Québec – Sépaq); the tourism organization Tourisme Côte-Nord; and Nature Québec.

e) Field Visit: Sophie Justice, 2 to 9 September 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The island of Anticosti is situated in the Gulf of Saint Laurence, Quebec, Canada, and has a surface area of 795,300 ha. The nominated property covers almost the entire coastline of the island comprising the wave-cut platform, beach and cliffs, with the minor exception of the only permanent settlement, the village of Port Menier. It also includes the high flow channels of the two principal rivers, Jupiter and Vaureal. Anticosti is a natural island covered by forest and wetlands and subject to a subpolar, subhumid climate. The nominated property is entirely located on provincial state land that is also administered by the provincial government of Quebec (environment ministry – Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs). External to the nominated property, seaward of the wave-cut platforms and beaches, the marine zone is also state owned.

The nominated property comprises gently south westerly dipping fossiliferous carbonate ramp sediments of upper Silurian to lower Ordovician age that cover an interval from 447 to 437 million years, a time period known as the Ordovician/Silurian (O/S) boundary interval. The O/S boundary interval was a period of profound change on Earth and the life it supported. Ecosystems were dominated by marine invertebrates and vertebrates and land plants were only emerging. A generally prolonged "greenhouse" climate was punctuated by a glaciation that achieved its maximum in the late Ordovician (Hirnantian). This corresponds to the first recorded mass extinction event, which affected almost every marine organism. An estimated 85% of species became extinct. Marine fauna took around 4 million years to re-establish and diversify, for example, to resume reef building. The superlative wealth of information at Anticosti enables reconstruction of communities, ecosystems and modes of life. It provides deep insights into how life adapted, for example to varying water depth, temperature, sedimentary input and turbulence levels. The testimony Anticosti provides of these landmark events in earth history is the focus of the potential Outstanding Universal Value identified in the nomination.

Whilst not the direct focus of this nomination, the nominated property covers over 245 species of fauna, of which 221 are birds (including more than 100 that breed on the island), it is one of the most important bird sites in North America. The boreal flora of Anticosti is well documented and rich. Grazing by White Tailed Deer (*Odocoileus virginianus*, LC) introduced in the 19th century has altered the ecosystem and active management is in place to conserve the natural diversity on the island. The waters of the Gulf of Saint Laurence are home to fish species such as Atlantic Salmon (*Salmo salar*, LC) and Brook Trout (*Salvelinus fontinalis*). It also displays rich geomorphology in the form of karst landforms, coastal landforms, raised beaches, lakes and wetlands and glacial geomorphology.

3. COMPARISONS WITH OTHER AREAS

Anticosti has been nominated under criterion (viii). The nomination dossier includes a detailed global comparative analysis based on two overarching steps. In the first step, the analysis screened 41 relevant stratigraphic and palaeontological sites representative of the first mass extinction of life at the end of the Ordovician, shortlisting 10 sites based on the application of five criteria: (a) fossil abundance and diversity, (b) elimination of graptolites (i.e. the record filter-feeding organisms), (c) geographic and stratigraphic extent, (d) accessibility and (e) range of lithofacies (i.e. body of rocks in any particular sedimentary environment) critical to understand the Earth and life events across the Ordovician/Silurian (O/S) boundary interval. In the second step, the global comparative analysis studies in depth the ten sites most pertinent for the O/S boundary interval, applying 12 criteria determining the ranking of the sites in three categories: (a) quality of the paleontological archive, (b) significance of the fossil groups and stratigraphic succession, and (c) long-term viability as a World Heritage property. The analysis also incorporates IUCN's Fossil Site Evaluation Checklist. Based on in-depth study, Anticosti is ranked first on all 12 criteria. The comparative analysis concludes that Anticosti's stratigraphic and paleontological record is the world's best archive of marine ecosystem changes during the O/S interval.

External desk reviewers unanimously commended the quality of the global comparative analysis presented in the nomination dossier, which follows a robust methodology with clear criteria and a careful search of comparable sites worldwide. Reviewers highlighted the global importance of the nominated property, holding evidence of the first mass extinction in Earth's history with superbly preserved and highly abundant fossils from that period of time. The nominated property is a complete and high-resolution testimony of the history of life at a crucial period, the first global mass extinction of animal life, making the nominated property the best of the best to represent this end-Ordivician extinction. This record is complete, uninterrupted and intact, according to desk reviewers.

The 2021 IUCN study *Geological World Heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention* highlighted as a significant gap on the World Heritage List "the interface between Palaeontology and global change over geological timescales, especially the mass extinction events", noting that the terminal Cretaceous extinction is represented by the fossil record at the Stevns Klint (Denmark) World Heritage property, whereas the equally profound Palaeozoic extinctions at the end of the Ordovician, Devonian and Permian are not yet represented on the World Heritage List. As a representative site of the O/S boundary interval, the nominated property would therefore fill an important identified gap on the World Heritage List.

Based on the above, IUCN considers that the nominated property makes a compelling case as the most globally representative site for Ordovician biodiversity, the conclusion of the Ordovician Mass Extinction event and the lower Silurian post-extinction recovery of life. The extraordinary wealth of paleontological, sedimentary, stratigraphic, and geochemical information give insight into the highly complex relationships between Earth systems and events and living organisms. Of all global sites for the O/S boundary interval, Anticosti presents the highest taxonomic diversity, the greatest number of species and invertebrate abundance. More than 1,440 taxa have been identified that include the recently described "lagerstätten", which exhibit diverse soft bodied "benthic fauna (i.e. sedimentary deposits of seafloor fauna) including a meiofauna (i.e. benthic invertebrates) and marine algae. The extensive, well preserved and accessible nature of the nominated property holds detailed information about changes to life, the local environment and the global environment from 447 to 437 million years ago. The detailed spatial and temporal insight Anticosti provides into how ancient populations, communities and ecosystems reacted to global changes provides a globally unparalleled insight into the causes and consequences of the complex Ordovician mass extinction event and the subsequent Silurian recovery of life.

In conclusion, IUCN considers that the nomination demonstrates the global significance of Anticosti under criterion (viii).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The protection of the nominated property falls under the responsibility of the provincial government of Québec (Gouvernement du Québec), the Government of Quebec. The environment ministry of the provincial government (Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs) is responsible for the relevant protected areas and their management. Several small federal and private properties are excluded from the designated zones; however these do not impact the integrity of the nominated property, according to the field evaluation mission.

The entire nominated property is covered by protected areas under the Natural Heritage Conservation Act of Quebec, corresponding to IUCN Protected Area categories Ia, II and III. The Proposed Biodiversity Reserve of Anticosti (category III), which is set to become a Permanent Biodiversity Reserve in 2023, was designed to protect the islands geological heritage and the biodiversity of its representative ecosystems. The Reserve covers 94.3% of the nominated property. The remaining areas of the nominated property are covered by Anticosti National Park (category II, 9.8%), and the Ecological Reserves of Pointe-Heath (category Ia, 0.4%) and Grand-Lac-Salé (category Ia, 0.2%). The entire area of the nominated property is owned by the provincial government. In the area covered by the proposed Biodiversity Reserve (IUCN category III), no new leases will be permitted for tourist resorts.

Similar to the nominated property, the buffer zone of the nominated property is protected through the Proposed Biodiversity Reserve, Anticosti National Park, the Ecological Reserve of Pointe-Heath and the Ecological Reserve of Grand-Lac-Salé. It is important to note that a legal mechanism has been established so that future boundary adjustments can be made to accommodate natural changes in the landscape. This has been legally defined through a well-conceived mechanism that pins the 1km wide buffer zone to the position of the cliff top or talus slope of the nominated property.

In conclusion, IUCN considers that the entire nominated property is protected by adequate legal protections and comprehensive management frameworks which are listed in the Quebec register of protected areas.

IUCN considers that the protection status of the nominated property meets the requirements of the *Operational Guidelines*.

4.2 Boundaries

The nominated property is of a significant extent and has well defined, clearly mapped boundaries. It is bordered by a buffer zone with a width of 1 km wide on its landward side. The field evaluation mission found that the nominated area completely expresses the property's potential OUV and exhibits excellent connectivity with its surrounding landscape. The roughly ring-shaped exposure around the coastal perimeter of the island features the entire Ordovician – Silurian interval for which the property is nominated. In addition, the inclusion of the incised Jupiter and Vaureal river valleys to the nominated property provides significant further exposures in the interior of the island. The coastline presents irregular relief, and, in some sectors, beaches are developed that largely cover the outcrop. However, given the nature of the sediments of the nominated property, strata have been correlated between outcrops to provide the continuous vertical sections.

The nominated property is a very long-lasting feature because the entire island of Anticosti is formed of the gently south easterly inclined bedrock of Ordovician to Silurian age that is the basis for its proposed nomination. The natural evolution of its coastline and rivers will reveal new outcrop of the same interval. It is anticipated that zones with no outcrop today will provide future exposures of the strata expressing the nominated property's OUV and vice versa.

As mentioned in the preceding section, the nominated property will gradually evolve over time. Therefore, these boundaries need to be mobile and accommodate the natural evolution of the nominated property over time, with a buffer zone which remains 1 km wide, slowly migrating inland over time. A legal mechanism has been established so that future boundary adjustments can be made to accommodate natural changes in the landscape. This has been legally defined through a well-

conceived mechanism that pins the 1km wide buffer zone to the position of the cliff top or talus slope of the nominated property. The nominated property will gradually evolve over time, the buffer zone which remains 1 km wide will slowly migrate over time with these modifications. If the nominated property is inscribed on the World Heritage List, IUCN considers that these updates to the boundaries will eventually need to be mirrored on the List through the minor boundary modification process, to ensure the boundaries of the potential World Heritage property would reflect the actual stage of the natural evolution.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines*.

4.3 Management

The nominated property is overseen principally by staff of the Quebec's environment ministry. A management plan with measurable objectives has been established and the new team will detail the working objectives for the nominated property. Information panels are already in place in the areas of highest frequentation to inform the public of their need to respect the geological heritage and the tight restrictions on collecting fossils. Legal enforcement is possible. In the section of the nominated property that is covered by Anticosti National Park, the implementation of the national park's management plan is ensured by the ministry and delegated to the Sépaq (the company of open-air establishments of Quebec). The protection measures for the geological heritage stipulate it cannot be sampled, altered, or painted. Legal enforcement is possible and enforceable by the team on the site.

Although the remoteness of the nominated property will provide some protection, planning is in place to improve conservation measures for example through communication about the restrictions of fossil collecting and to develop public awareness around the geological heritage. In certain sectors of the proposed Biodiversity Reserve, visitors are permitted each year to collect five samples no greater than 10cm in size that have been naturally eroded and are no longer in situ. All personnel linked to the management of the natural heritage on Anticosti and met by the field evaluation mission commented on the respectful behaviour of visitors and that interventions are extremely rare.

Additional planning has been undertaken by the Municipality of Anticosti with the preparation of a tourism strategy and a strategic development plan (2017 – 2020). The regional development plan of the regional municipality of the county of Minganie also identifies Anticosti as a protection-conservation zone with a potential for recreation and tourism. Regular stakeholder discussions have taken place with the Ekuanitshit and Nutashkuan First Nations, the municipality of Anticosti, the regional municipality of the county of Minganie, Nature Quebec, the Sépaq (the company of open-air establishments of Quebec) and other outfitters, Tourisme Côte-Nord, residents, environmental and citizen groups. A community committee will ensure that local and indigenous concerns as well as indigenous knowledge will be taken up in management and conservation. A scientific committee will support the management board of the nominated property.

National Park operations are delegated to Sépaq, while certain management activities of the Biodiversity Reserve and ecological reserves may be carried out with local authorities and Innu communities. The human and financial commitments to the nominated property are substantial and the prospects for further conservation financing are strong. The provincial government of Quebec has committed considerable financial resources for the integrated management of the nominated property through the establishment of the Biodiversity Reserve of Anticosti. The ministry has secured a budget of USD 1.09 million over five years for operating costs, USD 0.36 million for third party costs and an additional USD 1.74 million over five years for remuneration. In addition, resources have been allocated to the municipality of Anticosti. For example, USD 0.58 million was allocated over three years to participate in the management of the proposed Biodiversity Reserve during the progressive recruitment of the management team.

The provision of geological expertise is ensured through the scientific committee and site management positions that require strong geological backgrounds. In supplementary information, the State Party notes a new programme worth USD 1.02 million to support research closely related to the proposed OUV of the nominated property. In response to discussions with the field evaluator, the State Party also confirmed in supplementary information that an additional geologist position will be created to support the protection and management of the nominated property's geological values.

IUCN considers the management of the nominated property meets the requirements of the *Operational Guidelines*.

4.4 Community

The nominated property and its buffer zone are located on the Nitassinans or territories claimed by the Innu communities of Ekuanitshit and Nutashkuan. The Ekuanitshit and Nutashkuan First Nations are supportive of the nomination of Anticosti to the World Heritage List, and the long-term preservation of the island. Distanced from their traditional practices on Anticosti due to the historic management of the island, the inscription of the nominated property provides in the view of the mission an opportunity for the First Nations to re-establish their links and traditional oversight of this important heritage and its effective protection and management.

There is effective dialogue between the many island stakeholders: the Ekuanitshit and Nutashkuan First Nations, Quebec's ministries for environment and international relations, the municipality of Anticosti, the regional municipality of the county of Minganie, Nature

Quebec, the Sépaq (the company of open-air establishments of Quebec), Tourisme Côte-Nord. The preparation and ongoing development of the nominated property has been fully and openly discussed with the First Nations and local community. The intention for this dialogue to continue is enshrined in the proposed management structure through the creation of the Site Management Advisory Board. Regular dialogue and information sharing is proposed.

The Ekuanitshit First Nation reiterated their support for World Heritage listing of Anticosti in a letter provided as part of the supplementary information. The Nutashkuan First Nation also reiterated their support for World Heritage listing of Anticosti in a letter provided as part of the supplementary information, confirming their consent in line with Article 32 of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and their expectation that the State Party swiftly formalises the joint governance upon inscription with the necessary financial and professional resources supporting its implementation. In supplementary information, the State Party also specified that the Government of Quebec will have the necessary resources to support the Innu communities in this partnership with wider investments announced in the order of USD 16.72 million as part of the Nature 2030 Plan to support Indigenous leadership in conservation.

Port Menier, the only town on the island is home to 218 permanent residents. 250 temporary residents are living from May to November in the tourist facilities linked to hunting and fishing outside the municipality. The principal economic activities on the island are forestry, hunting and salmon fishing.

4.5 Threats

The nominated property faces only limited threats due to its natural state, its remote location and the difficulty of access. The provincial government of Quebec has introduced the Law 21 to end the discovery and production of hydrocarbons and the public financing of these activities. This applies generally to the island and its surrounding waters. The nominated property within the proposed Biodiversity Reserve is protected from commercial activity that prohibits amongst other uses the construction of hydroelectric dams, forestry activity and the creation of new tourist resorts.

The most significant ongoing impact is that of natural erosion. In the proposed Biodiversity Reserve of Anticosti monitoring of the coastal erosion is the overseen by Quebec's environment ministry which is working with the University of Quebec at Rimouski. A study of coastal erosion was completed in 2021 that analysed data from 1973 until 2019. Erosion of Anticosti occurs at a median rate of 8cm per year, this was considered low compared to other natural sites on the World Heritage List. Climate change is a potential threat for increasing erosion due to the potential loss of protective winter sea ice, increased storm frequency and intensity, and higher sea levels, however the extent and nature of such changes are currently unknown and will be addressed in ongoing regular monitoring as set out in the management plan.

The municipality of Anticosti and the regional municipality of the county of Minganie would like to develop well managed sustainable tourism based on the nominated property. This is supported by the First Nations and the local community. Round table discussions have taken place that include all stakeholders accompanied by Tourism Cote-Nord (the regional destination management organisation). Plans have been developed for a larger, new visitor centre and linked research facilities. Given the limited transport links and the restricted accommodation on the island, the modest projections for tourism development seem realistic and unlikely to create adverse effects.

In summary, IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are met.

5. ADDITIONAL COMMENTS

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6. APPLICATION OF CRITERIA

Anticosti (Canada) has been nominated under natural criterion (viii).

Criterion (viii): Earth's history and geological features

The nominated property, Anticosti, is a fossil site globally representative of Ordovician biodiversity, the end-Ordovician Mass Extinction event and the lower Silurian post-extinction recovery. This time period relates to the first mass extinction event in earth history, which is the only mass extinction event to have coincided with a major glacial event. Anticosti holds an extraordinary wealth of paleontological, sedimentary, stratigraphic, and geochemical information. It presents detailed information about changes to life, the local environment and the global environment from 447 to 437 million years ago. It provides insight into the hugely complex relationships between Earth systems and events and living organisms. The site has important potential for further significant discoveries through continued site investigation and future interdisciplinary studies.

The quality of the fossil record at Anticosti, a window into life in the past, is outstanding. Of all global sites, Anticosti presents the highest taxonomic diversity and the greatest number of species for the Ordovician-Silurian (O/S) boundary interval. More than 1,440 taxa have been identified. It includes a variety of palaeontological information from shelly fossils, microfossils, soft body fossil preservation and trace fossils. The fossil assemblages include green and red algae, cyanobacteria, foraminifera, sponges, corals, annelids, molluscs, brachiopods, arthropods, crinoids, graptolites and conodonts. The nominated property also contains the greatest abundance of marine invertebrate

fossils distributed throughout the succession, and features dense fossil concentrations in the form of brachiopod shell beds, thick crinoid units and organic accumulations such as tropical reefs. It also presents the best global examples of acritarch and chitinozoan microfossils and recently, diverse “lagerstätten” of soft bodied of benthic fauna, including a meiofauna and marine algae have been described.

The diversity and high-quality of the geological information preserved at Anticosti marks the site as the best worldwide for evaluating biotic evolution and ancient environmental change during the O/S boundary interval. The near complete, expanded sedimentary sequence is a high-resolution archive of changes which are exposed in hundreds of kilometres of outcrop. Its superlative contribution however is the detailed spatial and temporal insight it provides into how ancient populations, communities and ecosystems reacted to global changes. This, combined with insights into global environmental change, provides a globally unparalleled insight into this complex mass extinction event and subsequent recovery.

IUCN considers that the nominated property meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision:

The World Heritage Committee,

1. Having examined documents WHC/23/46.COM/8B and WHC/23/46.COM/INF.8B2,
2. Inscribes **Anticosti (Canada)** on the World Heritage List under **criterion (viii)**;
3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

Anticosti is a stratigraphic and fossiliferous site of worldwide importance with an exceptionally well preserved, abundant and diverse fossil fauna. Anticosti is the largest stratigraphic record in thickness and the most complete and best preserved palaeontological record representing the first mass extinction of animal life on a global scale, 447-437 million years ago. The property and buffer zone are located within protected areas that are free of any industrial activity.

The property is situated on the island of Anticosti, the largest island in Quebec at the entrance to the Gulf of St. Lawrence in eastern Canada. The area of the property is 18,240 hectares with a buffer zone of 89,740 hectares, together covering nearly 14% of the total area of Anticosti Island. Both the property and buffer zone are situated on the Nitassinans or territories claimed by the Innu communities of Ekuanitshit and Nutashkuan who have both provided their consent to the inscription of the property.

Criterion (viii)

Anticosti is the best natural laboratory in the world for the study of fossils and sedimentary strata from the first mass extinction of life, at the end of the Ordovician period, which represents an important milestone in the history of Earth. It contains the largest stratigraphic record in thickness and the most complete, and best preserved fossil record of marine life covering 10 million years of Earth history, from the Upper Ordovician to the Lower Silurian, 447-437 million years ago. The abundance, diversity, and state of conservation of the fossils are exceptional and allow for world-class scientific work.

Thousands of large bedding surfaces allow the observation and study of shell and sometimes soft-bodied animals that lived on the shallow sea floor of an ancient tropical sea. These animals were buried by the continual passage of strong storms, which completely preserved the organisms and the ecological structure of the ancient marine communities. The exquisite preservation of the fossil shells allows the analysis of their geochemical composition to identify ancient climatic and oceanographic signals, and to study in depth the causes of the mass extinction of life at the end of the Ordovician period.

Integrity

The fossiliferous strata included within the boundaries of the property have all the attributes to bear full witness to the first mass extinction of life on Earth. The property includes all coastal outcrops extending from low tide to cliff top for nearly 550 kilometres and outcrops along the Vaureal and Jupiter rivers respectively. Natural erosion plays an important role as the retreat of the cliffs uncovers new fossil horizons and serves to maintain the Outstanding Universal Value in the long term. Whilst the vast majority of the millions of fossils are found in-situ *on the bedding surfaces of rocks within the property,* ex-situ *fossils are also found in the collections of major museums around the world, and these collections outside the property are accessible to researchers from all over the world and help to enhance the understanding of the Outstanding Universal Value of the property.*

Protection and management requirements

The property and its buffer zone benefit from strong and long term legal protection. They are part of a network of publicly owned protected areas managed by the Quebec provincial government, free from any industrial activity, and there are no permanent residents in the property or its buffer zone. The prospect of new developments in or near the property and its buffer zone is minimal, and any potential development will be subject to strict guidelines. The Natural Heritage Conservation Act and the Quebec Parks Act ensure the protection and maintenance of all stratigraphic and palaeontological attributes essential to the full expression of the Outstanding Universal Value of the property as well as the island’s biological diversity, with additional protection ensured by the buffer zone.

The Permanent Biodiversity Reserve covers 94.3% of the property and was designed to protect the island's geological heritage and biodiversity. The remaining areas of the property are covered by Anticosti National Park and the Ecological Reserves of Pointe-Heath and Grand-Lac-Salé. The buffer zone of the property is also covered by the Biodiversity Reserve, the National Park and the Ecological Reserves. A legal mechanism has been established to enable future boundary adjustments to accommodate natural changes.

The management team established by the Quebec provincial government enforces protective legislation, carries out day-to-day management activities and monitors natural factors and human activities threatening the property and its buffer zone. The management is guided by the property's management plan, which includes measurable objectives. In addition, the management plan of Anticosti National Park guides the management of those areas of the property covered by the national park. A community committee ensures that local and indigenous concerns and knowledge are integrated into management and conservation. A scientific committee supports the management board of the property.

Information panels inform the public of the need to respect the geological heritage and the tight restrictions on collecting fossils, enforceable by the management team on the property. The protection measures for the geological heritage stipulate it cannot be sampled, altered, or painted. In certain sectors, visitors may collect a few small samples that have been naturally eroded and are no longer in-situ*.*

4. Commends the State Party for the high quality of the comparative analysis and nomination dossier, welcomes the strong financial and scientific support to the property provided by the State Party, and the involvement by the Innu communities of Ekuanitshit and Nutashkuan whose participation and knowledge will be an essential element for the property's protection and management.

Map 1: The nominated property and buffer zone.