IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 09 November 2017

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

# Dinosaur Provincial Park

## SITE INFORMATION

Country:
Canada
Inscribed in: 1979
Criteria:
(vii) (viii)

Site description:
In addition to its particularly beautiful scenery, Dinosaur Provincial Park – located at the heart of the province of Alberta's badlands – contains some of the most important fossil discoveries ever made from the 'Age of Reptiles', in particular about 35 species of dinosaur, dating back some 75 million years. © UNESCO

# SUMMARY

## 2017 Conservation Outlook

**Good**

The conservation outlook for the Dinosaur Provincial Park World Heritage Site is good. Currently, the outstanding scenic landscapes and the geological and palaeontological values and attributes of the site are in good condition and, generally, threats are of low concern. The ongoing concern of illegal removal of fossils requires both continuing education and enforcement. The emerging concern of increased visitation and its impact needs to be addressed in the near future.

The site is strongly protected, professionally managed under effective administrative regimes and enjoys support from the local community and, in turn, the site's values support the local community economically.

## Current state and trend of VALUES

**Good**
**Trend: Stable**

Overall, the current state and condition of the Outstanding Universal Values and attributes of the site are good due to the existing legislation and financial support.

## Overall THREATS

**Low Threat**

Overall, the threats to values of the site can be assessed as low. Grazing and research can be considered as potential threats, but these pose a very low threat to the property. There are a number of current threats, but at present they pose a low threat to the key values of the property.

## Overall PROTECTION and MANAGEMENT

**Highly Effective**

Generally, the protection and management of the site are highly effective. There is a strong legal, administrative and management framework. With the exception of recent peak times, staffing and funding are adequate to meet current needs. Relationships with local communities and key stakeholders are good. Research and environmental monitoring are of the first order. Of some minor concern are the issues to do with invasive species control and continued enforcement of the illegal removal of fossils.

# FULL ASSESSMENT

## Description of values

### Values

### World Heritage values

- **Exceptional natural beauty**
  **Criterion:(vii)**

  Stark ‘badlands’ landscape displaying natural beauty with outstanding examples of landforms produced by fluvial erosion in former glacial conditions, semi-arid steppes and riparian areas supporting attractive and diverse plant cover (UNEP-WCMC, 2012; IUCN, 1979; State Party of Canada, 1979, 2006, 2014).

- **Outstanding examples of the Earth’s palaeontological history and ongoing geological processes**
  **Criterion:(viii)**

  A landscape of deeply eroded Cretaceous-age shales and sandstones dating from 75-77 million years ago when the climate was sub-tropical and lush forest covered a low, swampy coastal plain. The site is outstanding in the number and variety of high quality specimens representing every known group of Cretaceous dinosaurs. The diversity affords excellent opportunities for palaeontology that is both comparative and chronological. Fossil remains of more than 23,000 specimens and 300 skeletons from 35 distinct species of dinosaur have been found at the site. Due to its exposure of Cretaceous sediments, the site also provides an excellent opportunity to conduct associated research on other fossil remains including fish, turtles, marsupials and amphibians (UNEP-WCMC, 2012; World Heritage Committee, 1992; IUCN, 1979; State Party of Canada, 1979, 2006, 2014; Brown et al., 2013; Brinkman

et al., 2015; World Heritage Committee, 2015).

### Other important biodiversity values

- **Threatened Plains riparian cottonwood vegetation communities; rich avifauna**

  Diverse vegetation of high quality and in various successional stages ranging from pioneer willow stands to cottonwood forest, tall shrubs, ephemeral wetlands and sagebrush flats. These are critical winter habitat for native ungulates such as pronghorn, mule and white-tailed deer. The site includes some 24 kilometres of Plains cottonwood riparian vegetation communities, which are among the most threatened habitats in semi-arid regions. More than 150 species of birds are present, some of which are locally threatened or at their biogeographical limits, including golden eagle, prairie falcon and loggerhead shrike (UNEP-WCMC, 2012; IUCN, 1979; State Party of Canada, 1979, 2006, 2014).

## Assessment information

### Threats

### Current Threats

**Low Threat**

Current threats are minor. Although the most problematic threat to the site’s palaeontological values is from recurring, illegal removal of fossils, education, monitoring and enforcement generally provide adequate deterrents. The increasing level of visitation has the potential to become a more pronounced threat to the site’s natural beauty and the related social value of visitor experience. A review of site capacity coupled with appropriate infrastructure development is necessary.

### ► Oil/ Gas exploration/development

**Low Threat**
**Outside site**

Gas exploration and development occurs on portions of the perimeter of the site and associated infrastructure has the potential to degrade the beauty of the site in those areas. The development is subject to resource impact assessments, guidelines to minimise visual impact and ongoing monitoring, and the park agency is engaged in those reviews (UNEP-WCMC, 2012; Alberta Department of Tourism, Parks and Recreation, 2010; State Party of Canada, 2006; Wells and Benner, 2004).

### ► Other Activities

**Low Threat**
**Inside site, localised(<5%)**
**Outside site**

Illegal removal and pilfering of fossils remain a threat. Access to the restricted zone in the park is only permitted with a guide which reduces the occurrences (UNEP-WCMC, 2012; Alberta Department of Tourism, Parks and Recreation, 2010; State Party of Canada, 2006).

### ► Invasive Non-Native/ Alien Species

**Low Threat**
**Inside site, localised(<5%)**
**Outside site**

Weed infestation occurs but mainly in moist areas and not in the ‘badlands’ terrain. A monitoring and control programme for invasive species is in place that addresses defined species, but not all invasive species in the park have been recognised by the Agriculture Department of the government for removal, hence funding for their removal is a challenge (State Party of Canada, 2006; Wells and Benner, 2004).

### ► Tourism/ visitors/ recreation

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

The appropriate level of park development within the park component of the

site has been debated throughout the park's existence: seeking a balance between protection of the site's values and visitor use and experience. Visitation has recently spiked in peak months due to external tourism promotion, and park facility development has not kept pace (UNEP-WCMC, 2012; Alberta Department of Tourism, Parks and Recreation, 2010; State Party of Canada, 1979, 2006, 2014).

### Potential Threats

**Very Low Threat**

Potential threats are also minor as research involving excavations requires a permit and grazing is only permitted under license.

#### ► Other Activities

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

Research involving removal of in-situ specimens has the potential to alter the immediate environment.

#### ► Livestock Farming / Grazing

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

Within the site, all pre-existing grazing rights, both inside and outside the park, are subject to regulation pursuant to lease agreements and are monitored on an ongoing basis. The current grazing management regime adequately mitigates any risk to the Outstanding Universal Value of the site (UNEP-WCMC, 2012; State Party of Canada, 1979; Wells and Benner, 2004).

## Protection and management

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### Assessing Protection and Management

#### ► Relationships with local people

**Mostly Effective**

Personal relationships have been established with First Nations, ranchers and other landowners in areas both within and surrounding the site and many are directly engaged in assisting site managers with surveillance and monitoring (State Party of Canada, 1979, 2014; IUCN consultation, 2017a).

### ► Legal framework

**Highly Effective**

Overall, the site is subject to the Historical Resources Act which prohibits the unauthorised excavation and collection of fossils. The majority of the site is further protected by designation and management as a provincial park under the Provincial Parks Act. Perimeter portions of the site outside the park are subject to land use policies of Special Area #2 under the Municipal Government Act. Special Area #2 is managed by a Board which ensures notification on leases such as domestic grazing to ensure site protection. The Special Areas Board does not generally consider any land use other than grazing (UNEP-WCMC, 2012; State Party of Canada, 1979, 2006, 2014; IUCN consultation, 2017b).

### ► Enforcement

**Highly Effective**

Enforcement under the three pieces of applicable legislation is carried out by park and Board management staff (State Party of Canada, 2014; IUCN consultation, 2017).

### ► Integration into regional and national planning systems

**Mostly Effective**

Staff responsible for the management of the site, both inside and outside the park, have participated in regional planning initiatives. As with most government agencies, closer cooperation between the conservation management agencies and the tourism promotion agencies would ensure a better level of site management (IUCN consultation, 2017).

### ► Management system

**Highly Effective**

The administrative and management framework for the site is well developed between the provincial park management and the Special Area #2 municipal management (State Party of Canada, 2014; IUCN consultation, 2017).

### ► Management effectiveness

**Highly Effective**

The site benefits from a draft management plan, developed with public input, for the provincial park component of the site and cooperative agreements with the Special Areas Board for the area outside the park. Annual operating plans are prepared and implemented in keeping with the management plan (State Party of Canada, 2014; IUCN consultation, 2017).

### ► Implementation of Committee decisions and recommendations

**Highly Effective**

Previous issues to do with boundary changes and the extent of the site have been the subject of Committee recommendations, all of which have been addressed (World Heritage Committee, 1991, 1992).

### ► Boundaries

**Highly Effective**

The current boundaries are sufficient to maintain the integrity of the property (State Party of Canada, 2006, 2014).

### ► Sustainable finance

**Mostly Effective**

Park development was based on a general local visitation, however recent international marketing has resulted in increases in park visitation during the peak summer months. The balance between protection and the extent of park development and management to address this recent change in visitation has yet to be addressed. Funding levels for staffing and support are adequate for the rest of the year. Previous studies recommended that the authorities seek to establish more business partnerships and identify additional sources of revenue (State Party of Canada, 1979, 2006).

### ► Staff training and development

**Highly Effective**

Staff are generally well qualified and training opportunities are readily available (State Party of Canada, 1979).

### ► Sustainable use

**Highly Effective**

The permits authorising grazing and recreational guiding within the park portion of the site ensure that those uses do not impact the site's values. Domestic grazing outside the park is also leased and controlled to limit the impact on the site's values. Notations are placed on the lease that the lease falls within the World Heritage Site.

### ► Education and interpretation programs

**Highly Effective**

Education and interpretation programmes are highly effective with a field office of the Royal Tyrell Museum at the site and an interpretation centre in the park devoted to the park's natural and cultural history as well as its geological and palaeontological resources.

### ► Tourism and visitation management

**Mostly Effective**

The park's management plan and the Special Areas' plans and policies address the site's values and strive to ensure that management programmes, as well as external policies on tourism, are supportive. As noted, management of tourism and visitation in the park portion of the site is highly effective for the majority of the year. However, recent tourism promotion has resulted in a significant increase in visitation in July and August: at times, beyond the capacity of the site's present infrastructure. This impact needs to be reviewed to consider its consistency and acceptability to ensure the site's values are maintained.

Environmental impact and facility design standards associated with Alberta

provincial parks are implemented.

Facilities to cater for tourists visiting the site are established at the entrance to the site.

### ▶ Monitoring

**Mostly Effective**

As with most parks, monitoring focuses on visitors; monitoring of resources occurs as a secondary priority. Monitoring outside the park is done primarily by lease holders.

### ▶ Research

**Highly Effective**

Both domestic and international scientific effort remains strong in all relevant fields of research and there are excellent professional relationships with research institutes. Individual research reviews with park staff could be strengthened as researchers can be tardy in sharing results (Confidential consultation, 2017). Research results contribute to displays in the visitor centre and guide management, and researchers assist site managers as eyes in the field. Fossils from the property are held in the collections of some 30 international institutions (UNEP-WCMC, 2012; State Party of Canada, 1979, 2014; Brown et al., 2013; Brinkman et al., 2015).

## Overall assessment of protection and management

**Highly Effective**

Generally, the protection and management of the site are highly effective. There is a strong legal, administrative and management framework. With the exception of recent peak times, staffing and funding are adequate to meet current needs. Relationships with local communities and key stakeholders are good. Research and environmental monitoring are of the first order. Of some minor concern are the issues to do with invasive species control and continued enforcement of the illegal removal of fossils.

### ▶ Assessment of the effectiveness of protection and management in

**addressing threats outside the site**
**Highly Effective**

Outside threats are very low and primarily restricted to gas exploration. Staff are engaged to address visual quality objectives.

▶ **Best practice examples**

The park, in partnership with the Royal Tyrell Museum, has offered an opportunity for park visitors to learn about palaeontology research by participating in day and overnight dinosaur dig programmes for a fee.

In addition, there is a high-level, online process to review, coordinate and manage research permits to ensure both resource protection and meaningful scientific contributions.

## State and trend of values

### Assessing the current state and trend of values

#### World Heritage values

▶ **Exceptional natural beauty**
**Low Concern**
**Trend:Stable**

The condition of scenic and aesthetic qualities of the site is of low concern. There is a need to address the recent increased visitation in the peak months.

▶ **Outstanding examples of the Earth’s palaeontological history and ongoing geological processes**
**Good**
**Trend:Stable**

The park’s dinosaur fossils are widely recognised through continuing research and well protected by provincial legislation. As noted, there is a continuing problem regarding the illegal removal and pilfering of fossils, and the need identified for management to respond with improved education, monitoring, surveillance and more vigorous prosecution of offences remains

(UNEP-WCMC, 2012; IUCN, 1979; State Party of Canada, 1979, 2006).

### Summary of the Values

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

**Good**

**Trend: Stable**

Overall, the current state and condition of the Outstanding Universal Values and attributes of the site are good due to the existing legislation and financial support.

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

**Good**

**Trend: Stable**

Research studies are subject to permit conditions.

## Additional information

### Benefits

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### Understanding Benefits

▶ **Importance for research, Contribution to education**

The site is an internationally significant source of knowledge about the former ‘Age of the Dinosaurs’. Large numbers of scientists from national and international institutions have conducted research at the site and new fossil discoveries are ongoing as more material is exposed by erosion. Fossil specimens are held in the collections of some 30 international institutions and education locally is provided by programmes in the visitor centre.

▶

**Soil stabilisation, Water provision (importance for water quantity and quality)**

The site is important for conservation of soil and freshwater resources especially through the protection of unmodified semi-arid steppe vegetation cover.

► **Outdoor recreation and tourism, Natural beauty and scenery**

The park contributes to recreation and tourism at the local, national and international level.

Although park development and management due to recent tourism promotion is currently acceptable, a trend toward increased visitation may be occurring. This trend should be reviewed to ensure that it does not lead to park development that would negatively impact the site's values.

► **Direct employment, Tourism-related income, Provision of jobs**

The park contributes to the local economy through visitation.

## Summary of benefits

The site is internationally important for protection, scientific research and curation of dinosaur fossil material dating from the Cretaceous period and contributes significantly to our understanding of the 'Age of the Dinosaurs', ranking among the world's most important palaeontological sites. It also plays an important role in conservation of soil and water resources and biodiversity as a continental semi-arid steppe biome and provides opportunities for recreation and education.

Visitation contributes to the local economy.

## Projects

## Compilation of active conservation projects

| № | Organization/ individuals | Project duration | Brief description of Active Projects |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1 | Royal Tyrell Museum | From: 2009 | Continuing paleontology research |
| 2 | Dinosaur Research Institute | From: 2009 | Continuing paleontology research |

## Compilation of potential site needs

| № | Site need title | Brief description of potential site needs | Support needed for following years |
|---|---|---|---|
| 1 | Study of increased visitation of the provincial park component of the World Heritage Site | The management of tourism and visitation in the park portion of the site is highly effective for the majority of the year. However, recent tourism promotion has resulted in a significant increase in visitation in July and August: at times, beyond the capacity of the site's present infrastructure. This impact needs to be reviewed to consider its consistency and acceptability to ensure the site's values are maintained and the results integrated into the draft management plan. | From: 2018 To: 2019 |

# REFERENCES


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| 3 | Brown, S.A.E., Collinson, M.E. and Scott, A.C. (2013). Did fire play a role in formation of dinosaur-rich deposits? An example from the Late Cretaceous of Canada. Palaeobiodiversity and Palaeoenvironments, 93(3), pp. 317–326. [online] Available at: http://www.researchgate.net/publication/271951409 (Accessed: 18 February 2019). |
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