IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 22 May 2014

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

Morne Trois Pitons National Park

SITE INFORMATION

Country:
Dominica
Inscribed in: 1997
Criteria:
(viii) (x)

Site description:

Luxuriant natural tropical forest blends with scenic volcanic features of great scientific interest in this national park centred on the 1,342-m-high volcano known as Morne Trois Pitons. With its precipitous slopes and deeply incised valleys, 50 fumaroles, hot springs, three freshwater lakes, a 'boiling lake' and five volcanoes, located on the park's nearly 7,000 ha, together with the richest biodiversity in the Lesser Antilles, Morne Trois Pitons National Park presents a rare combination of natural features of World Heritage value. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

Though there have been serious human and financial resource limitations on management, immediate threats that can be dealt with on-site are relatively small, and the values of the site have been relatively well conserved. However, while the site's geological values are not threatened, there is concern regarding the effects of increasingly severe weather events, shifting agriculture, and tourism activities in and around the site that cause habitat loss and fragmentation and disturb threatened and vulnerable wildlife. Future threats from climate change, potential geothermal exploration and development, or eventual renewed volcanic activity, are significant concerns.

Current state and trend of VALUES

Low Concern
Trend: Deteriorating

While the site's geological values are not threatened, there is concern regarding the effects of increasingly severe weather events, shifting agriculture, and tourism activities in and around the Park that cause habitat loss and fragmentation and disturb threatened and vulnerable wildlife. Though not currently foreseen, there is always the future possibility of renewed volcanic activity which would have devastating effects on the site's biota.

Overall THREATS

Low Threat

Current threats from shifting agriculture and commercial activities impact relatively small areas of the site, while severe weather events, the severity of which is projected to increase because of climate change, will have major impacts on the site's flora and fauna. Potential threats range from the very high threats of climate change, and geothermal exploration and development, to the

more remote threat of a volcanic eruption, which according to some scientists is long overdue. Geothermal exploration and development would have severe effects on the site’s values. Renewed volcanic activity would be a natural part of the geological processes of the site, but would devastate local biota.

Overall PROTECTION and MANAGEMENT

Some Concern

Protection and management of the site are handicapped by limited human and financial resources. Fortunately, however, the threats are few, and even with a relatively low management input, the site’s values have been relatively well protected.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Scenic volcanic features of great scientific interest**
Criterion:(viii)

The Park presents a rare combination of scenic volcanic features of great scientific interest centered on the 1,342-m-high Morne Trois Pitons volcano, characterized by volcanic piles with precipitous slopes and deeply incised valleys. Key features include 50 fumaroles, hot springs, sulphur vents, mudpots, three freshwater lakes, a 'boiling lake' (the second largest of its kind in the world) and five volcanoes. (World Heritage Center website, 2013)

▶ **Rich biodiversity with endemic plant and animal species**
Criterion:(x)

Luxuriant natural tropical forest, which mantles the Park’s mountainous terrain, is the largest and most pristine remaining in the Lesser Antilles, and is characterized by a diverse flora with many endemic vascular plants. Five natural vegetation zones are recognized within the area, including elfin woodlands (or cloud forest), montane thicket, montane rainforest, mature rainforest, and secondary rainforest.. Some of the more notable threatened fauna species are the endemic imperial Amazon parrot, which was formerly common but is now threatened , and the red-necked Amazon parrot, which was once a commonly seen species, but now is rarely observed in only a few small areas of the park. (World Heritage Center website, 2013; Edwards, 2011)

Other important biodiversity values

► Other International designations.

The Park lies within a Conservation International-designated Conservation Hotspot, a WWF/IUCN Centre of Plant
Diversity and a BirdLife-designated Endemic Bird Area.

Assessment information

Threats

Current Threats

Low Threat

While current threats from shifting agriculture and commercial activities impact relatively small areas of the site, severe weather events, such as hurricanes, have major impacts on the Park’s flora and fauna.

► Storms/Flooding

Very High Threat
Inside site
Outside site

Dominica lies in the path of the Eastern Caribbean hurricane belt and as a result is vulnerable to hurricanes and tropical storms. In addition, climate change is beginning to impact the Park with higher temperatures, greater intensity of droughts in the dry season and increased severity of tropical storms and hurricanes in the wet season. (BirdLife, 2012; Edwards, 2011)

► Crops

Low Threat

Inside site
Outside site

Squatters undertake shifting agricultural in isolated areas of the Park. This involves the clearing of trees and other vegetation that can lead to erosion, silting of waterways and disturbance of wildlife. Some of these areas were cultivated prior to Park establishment (Edwards, 2011).

► Dams/ Water Management or Use

Low Threat
Inside site

Construction of a hydropower dam and diversion of water courses have impacted the flow of streams coming out of the Park and contributed to habitat loss and fragmentation, landslides, and soil erosion through road and power line construction. Erosion along roads increases siltation of water courses. (Edwards, 2011; TNC, n.d.).

► Tourism/ visitors/ recreation

Very Low Threat
Inside site
Outside site

Tourism has had minor impacts on the site because of the construction of infrastructure, such as roads, trails, and car parks; wildlife disturbance, and increased fire risk (Edwards, 2011; TNC, n.d.).

► Mining/ Quarrying

Low Threat
Inside site

Quarrying near the Park boundary is contributing sediments to the Emerald Pool, one of Dominica’s premiere tourism destinations (Edwards, 2011; TNC, n.d.).

► Logging/ Wood Harvesting

Low Threat
Inside site
Outside site

Trees are felled in small areas for agriculture and to plant bay trees, used in

the production of bay rum, a scent used in perfume manufacture. (Edwards, 2011; TNC, n.d.)

Potential Threats

High Threat

Potential threats range from the very high threats of climate change, and geothermal exploration and development, to the more remote threat of a volcanic eruption, which according to some scientists is long overdue. While a volcanic eruption would be a natural part of the Park's geological processes, it would be devastating for the Park's biota.

► Temperature changes

Very High Threat
Inside site
Outside site

The Park is one of the 16 World Heritage sites considered most at risk from climate change (Perry, 2011). It is projected that temperatures will increase 2.5 Cº, and that the dry season will be 10-20% drier. Droughts are associated with increased fire threat, and increases in disease and invasive species. Hurricane intensity is likely to increase, causing stronger peak winds and more rainfall, but not necessarily hurricane frequency. High winds negatively impact wildlife through destruction of feeding grounds, nesting sites and roosting areas. When feeding grounds are destroyed by hurricanes or storms, parrots in particular tend to feed on fruits from agricultural lands adjacent to the site and are then considered as pests, because they threaten the livelihoods of some farmers. The Park's vegetation exhibits a pronounced altitudinal zonation, and any changes in climate are likely to affect these zones. For example, assuming a lapse rate of 1° C per 500 ft, the low scenario of 1.7^{o}C would elevate vegetative zones by 850 ft and the high scenario (3.5^{o}C) by 1750 ft. Under high temperature scenarios, cloud forests could disappear completely, and some endemics could be lost. An indirect effect of tropical weather systems is the conversion of wildlife habitat to agriculture. In accessible areas, toppled trees provide an opportunity to more easily clear land for farming, thus resulting in a further reduction and fragmentation of wildlife habitat. (Edwards, 2011)

► Other

High Threat
Inside site
Outside site

Studies are underway in Wotten Waven near the Park boundary to explore the geothermal potential for power production in Dominica, and the study area includes a part of the Park, especially the Valley of Desolation and the Boiling Lake. Geothermal exploration and development would have major negative effects on the Park including habitat loss and fragmentation, landslides and soil erosion, alteration of geologic features, wildlife disturbance, and chemical and thermal pollution. (De Roche, 2010)

► Volcanoes

Very Low Threat
Inside site
Outside site

The Park encompasses one of the more active volcanic centers on Dominica, which in turn is the most active of all the Caribbean volcanic areas. Several scientists have suggested that the island
is long overdue for an eruption. (BirdLife, 2012; De Roche, 2010)

Protection and management

Assessing Protection and Management

► Sustainable use

Mostly Effective

Use of the site for conservation and tourism, is being done on a sustainable basis.

► Boundaries

Some Concern

Boundaries of the site are not fully demarcated on the ground; work on development of a buffer zone, and of community projects that are

compatible with the site, are underway. (Edwards, 2011)

▶ Sustainable finance

Serious Concern

Financial resources for management are inadequate. A proposal put forward for development of a national parks trust fund has not yet been implemented (Edwards, 2011)

▶ Education and interpretation programs

Some Concern

Though there have been many isolated attempts at developing environmental education through the National Park, no long-term program has been achieved. (Edwards, 2011)

▶ Staff training and development

Some Concern

The main difficulties in establishing a National Park Service have been the shortage of trained personnel as well as limited financial resources for management. Advanced degree and certificate training is required in areas of park management, site planning, freshwater fisheries management, wildlife management, general ecology and environmental education. There is a need for both degree and short-term on-the-job training. (Edwards, 2011)

▶ Relationships with local people

Mostly Effective

Major conflicts regarding Park use have been in areas zoned for Special Use, where incompatible activities have been legally sanctioned. These include a shooting range; a quarry close to the Emerald Pool tourist attraction; and hydropower infrastructure and transmission lines. The legislative act for the Park makes provisions for a National Parks Advisory Council, and for public review and approval of the Park management plan, but these provisions have never been implemented. (Edwards, 2011).

▶ Legal framework and enforcement

Highly Effective

The National Park was legally established in 1975 by legislative act and is currently managed by the Division of Forestry, Wildlife and National Parks. Given the rough topography, relative lack of threats, and government ownership of Park lands, law enforcement has never been a major problem. (Edwards, 2011)

► Integration into regional and national planning systems

Highly Effective

The Park is well integrated into government planning systems at the national level.

► Management system

Some Concern

Institutional arrangements for management of the National Parks are shifting. There is a project underway to develop an autonomous National Park Service. To date, no one has been appointed as Director of National Parks and the Director of Forestry continues to cover the responsibilities of Director of National Parks. (Edwards, 2011).

► Management effectiveness

Serious Concern

A management plan for the period 2002 to 2012 never underwent public review or was presented to Cabinet for adoption. A recent review indicated that none of the activities outlined in the plan have been implemented over the last 8 years due to manpower and budgetary limitations (Edwards, 2011).

► Implementation of Committee decisions and recommendations

Data Deficient

No Committee decisions on the property have been taken since 1999.

► Tourism and interpretation

Some Concern

The site has a Nature Center that is administered by a concessionaire, but there are few other interpretive facilities or much signage. It is particularly

noticeable that there is no interpretation of the geologic features that represent the site's Outstanding Universal Value. (Edwards, 2011)

► Monitoring

Some Concern

There is no established overall monitoring program for the National Park resources nor for detection of climate change, though there has been monitoring of frog populations. (Edwards, 2011)

► Research

Mostly Effective

Though there is no overall integrated research program, there are several on-going research activities. There has been some research on forest dynamics by the Forestry Division, on hummingbirds by the Smithsonian, and on frog populations. (Edwards, 2011) Other on-going research focuses on Dominica's two parrot species (in collaboration with the Rare Species Foundation), and on tink frogs within the area of Freshwater Lake and along the Boeri Lake Trail and the Morne Trois Pitons Trail by Forestry, Wildlife and Parks Division in collaboration with MoAFE and Zoological Society of London (ZSL). Various forms of short-term research on wild flora, fauna and geology are conducted in the park by overseas-based institutions. The Seismic Research Unit of the University of the West Indies/Trinidad is also conducting ongoing research on volcanic and seismic activity in the park. (BirdLife, 2012)

Overall assessment of protection and management

Some Concern

Protection and management of the site are handicapped by limited human and financial resources. Fortunately, however, the threats are few, and even with a relatively low management input, the site's values have been relatively well protected.

► Assessment of the effectiveness of protection and management in

addressing threats outside the site

Some Concern

Climate change, agricultural encroachment and tourism are the major threats originating outside the site. Climate change mitigation activities are being studied, but have not been implemented. Agricultural encroachment and tourism impacts are small, and the Forestry Division attempts to address these threats as they occur, but are hampered by limited personnel and budgets.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► Scenic volcanic features of great scientific interest

Good
Trend:Stable

The geological features of the site are not threatened though it should be noted that there is no research on, or interpretation of, these values. (Edwards, 2011)

► Rich biodiversity with endemic plant and animal species

High Concern
Trend:Deteriorating

There is concern regarding habitat loss and fragmentation caused by shifting cultivation in small areas in and around the site, as well as for threatened and vulnerable parrot and forest thrush populations that are in decline, and for several species of endemic bats, butterlies, reptiles, orchids and trees. There is growing awareness of the potential future negative effects from climate change. (BirdLife, 2012, Edwards, 2011; TNC, n.d.).

Other important biodiversity values

► **Other International designations.**

The Park lies within a Conservation International-designated Conservation Hotspot, a WWF/IUCN Centre of Plant
Diversity and a BirdLife-designated Endemic Bird Area.

Summary of the Values

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

Low Concern

Trend: Deteriorating

While the site's geological values are not threatened, there is concern regarding the effects of increasingly severe weather events, shifting agriculture, and tourism activities in and around the Park that cause habitat loss and fragmentation and disturb threatened and vulnerable wildlife. Though not currently foreseen, there is always the future possibility of renewed volcanic activity which would have devastating effects on the site's biota.

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

High Concern

Trend: Deteriorating

Park values related to its location in a CI Hotspot and WWF/IUCN Centre of Plant diversity are not threatened. There is concern, however, for declining parrot and forest thrush populations that are part of the reason for designation of the Park as a BirdLife Endemic Bird Area.(Birdlife, 2012, Edwards, 2011)

Additional information

Key conservation issues

► Climate change

Local

The Park is one of the 16 World Heritage sites considered most at risk from climate change (Perry, 2011.) It is projected that temperatures will increase 2.5 Cº, and that the dry season will be 10-20% drier. Droughts are associated with increased fire threat, and increases in disease and invasive species. Hurricane intensity is likely to increase, causing stronger peak winds and more rainfall, but not necessarily hurricane frequency. High winds negatively impact wildlife through destruction of feeding grounds, nesting sites and roosting areas The Park's vegetation exhibits a pronounced altitudinal zonation, and any changes in climate are likely to affect these zones. For example, assuming a lapse rate of 1° C per 500 ft, the low scenario of 1.7^{o}C would elevate vegetative zones by 850 ft and the high scenario (3.5^{o}C) by 1750 ft. Under high temperature scenarios, cloud forests could disappear completely, and some endemics could be lost. An indirect effect of tropical weather systems is the conversion of wildlife habitat to agriculture. In accessible areas, toppled trees provide an opportunity to more easily clear land for farming, thus resulting in a further reduction and fragmentation of wildlife habitat. (Edwards, 2011)

► Geothermal exploration and development

National

Geological studies underway to determine the geothermal potential of areas in and adjacent to the Park are underway. Given the fact that hydro power development was specifically authorized and developed in the National Park, despite considerable opposition from environmentalists, the possibility of future geothermal power development cannot be under-estimated. (Edwards, 2011; De Loche, 2010)

► On-going commercial activities

National

Commercial activities have had isolated impacts on the Park. These include (1) hydropower generation, which has diverted water courses and contributed to habitat loss and fragmentation through road and power line construction; (2) tourism which has had minor impacts through construction of infrastructure, such as roads, trails, picnic shelters, and car parks; wildlife disturbance, and increased fire risk; (3) quarrying for road construction, leading to the siltation

of one of Dominica's premier tourist attractions, the Emerald Pool; and (4) the clearing of vegetation to plant bay trees, used in the production of bay rum, a scent used in perfume manufacture. (Edwards, 2011)

▶ **Agricultural encroachment**

Local

Squatters undertake shifting agricultural in isolated areas of the Park. This involves the clearing of trees and other vegetation that can lead to erosion, silting of waterways and disturbance of wildlife. Some of these areas were cultivated prior to Park establishment (Edwards, 2011)

Benefits

Understanding Benefits

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

Listing the property as a World Heritage site is an indication of the quality of the site's OUV.

▶ **Access to drinking water, Commercial wells**

The site protects the upper watersheds for all the rivers of southern Dominica, the waters of which drive the turbines that generate much of the island's electricity and provides drinking water for the capital city of Rousseau and the cruise ships that dock there (TNC, n.d.)

▶ **Importance for research**

The site is used for scientific research by national and international entities, and is an important resource for the generation of knowledge on biodiversity, geology, and climate change. (BirdLife, 2012; Edwards, 2011)

▶ **Outdoor recreation and tourism**

The site provides tourism (about 70,000 visitors/year) and recreation services that are economically important and also important for local quality of life.

(Edwards, 2011; TNC, n.d.)

Summary of benefits

Conservation of the site's OUV, and the development of knowledge through research and analysis are the most important benefits at the global level, while water resources, tourism, recreation, and the generation of hydropower are the benefits most valued at the national level.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	GEF-World Bank		The Special Program for Adaptation to Climate Change (SPACC) project is currently undertaking a project to establish buffer zones for the Park. Project development in communities adjacent to the Park aims at reducing negative impacts on Park. .
2	Government of the Commonwealth of Dominica (COD) with support from the Caribbean Development Bank (CDB)		Project aimed at establishing and operationalizing a National Parks Service (NPS). The project comprises two phases with Phase I focusing on a review of the legal framework for the management of national parks and protected areas as well as the conduct of amendments to existing legislation to address identified deficiencies. Phase II focuses on the institutional framework including the establishment and operationalization of a NPS.
3	Yale University		DOMEX Project: Emplacement of automated weather stations, data collection and analysis. The objective is to: ➢ To understand the physics of mountain triggered convection and precipitation in the tropics, using Dominica as a natural laboratory ➢ To develop data sets that can be used to test and improve numerical models of convection and precipitation in the tropics ➢ To better understand and predict the weather and climate of the Lesser Antilles including Guadeloupe, Dominica and Martinique.

REFERENCES

№	References
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