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

Please note: this is an archived Conservation Outlook Assessment for Pitons, cirques and remparts of Reunion Island. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Pitons, cirques and remparts of Reunion Island

SITE INFORMATION

Country:
France
Inscribed in: 2010
Criteria:
(vii) (x)

Site description:
The Pitons, cirques and remparts of Reunion Island site coincides with the core zone of La Réunion National Park. The property covers more than 100,000 ha or 40 % of La Réunion, an island comprising two adjoining volcanic massifs located in the south-west of the Indian Ocean. Dominated by two towering volcanic peaks, massive walls and three cliff-rimmed cirques, the property includes a great variety of rugged terrain and impressive escarpments, forested gorges and basins creating a visually striking landscape. It is the natural habitat for a wide diversity of plants, presenting a high level of endemism. There are subtropical rainforests, cloud forests and heaths creating a remarkable and visually appealing mosaic of ecosystems and landscape features. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

While the threats to the property, principally by alien invasive species, continue to be of High Concern, the management response and commitment aimed at not only maintaining the property, but also restoring its values to previous levels, is very strong. As the property occurs on an island, opportunities not available to continental areas exist to prevent further invasions and to restore degraded areas. However, the island's rapidly growing human population will continue to pose challenges to the successful management of the property, requiring a comprehensive, collaborative approach in management and some very hard decisions.

Current state and trend of VALUES

Low Concern
Trend: Stable

As this property was recently inscribed (2010), trends in WH values cannot yet be evaluated. While it is clear that biodiversity values were better in the best-recorded historical state, there is not enough time or data to determine whether values since inscription have improved or deteriorated. However, two major wildfires since inscription in 2010 and 2011 have locally caused a deterioration in WH values. Targeted monitoring is required to determine biodiversity trends, but at this point in time the current state and trend of World Heritage values since time of inscription can be evaluated as Low Concern.

Overall THREATS

High Threat

Invasive species have been recognised as the greatest threat to the property and are also linked to other threats such as wildfires and erosion. Natural succession following volcanic eruptions or damage following periodic cyclones (which may

increase in intensity with climate change) means that newly opened areas are colonised with exotic rather than native species. Drivers of change in the vicinity of the property include increasing population and tourism pressure. More local threats include the poaching of palms and orchids, stray livestock and increased rubbish which not only spoils the landscape value of the property, but increases rat populations which in turn decimate some critically low populations of some endangered species.

Overall PROTECTION and MANAGEMENT

Mostly Effective

For a young (2007) National Park the protection and management follows best practice and experience in other French National Parks and elsewhere, mainly by the legal obligation of developing a “Charter”, or “Charte”, between all stakeholders which functions as the overarching management plan for the property, including the central core and the partnership zone (although this “Charte” still requires final validation and membership agreement from all municipalities). Long-term protection and management will be improved once governance issues over management responsibilities are resolved.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Dramatic landscape of striking beauty**
Criterion:(vii)

The combination of volcanism, tectonic landslide events, heavy rainfall and stream erosion have formed a rugged and dramatic landscape of striking beauty, dominated by two towering volcanoes, the dormant Piton de Neiges and the highly active Piton de la Fournaise. Other major landscape features include "Remparts" - steep rock walls of varying geological age and character, and so-called "cirques", which can be described as massive natural amphitheatres with an imposing height and verticality (SoOUV, 2010; Nomination, 2008).

► **Remarkable mosaic of ecosystems and landscape features**
Criterion:(vii)

The islands subtropical rainforests, cloud forests and heaths create a remarkable and visually appealing mosaic of ecosystems and landscape features (SoOUV, 2010; Nomination, 2008).

► **Exceptional plant diversity**
Criterion:(x)

The property is a global centre of plant diversity with a high degree of endemism. It contains the most significant remaining natural habitats for the conservation of the terrestrial biodiversity of the Mascarene Islands, including

a range of rare forest types (SoOUV, 2010; Nomination, 2008).

▶ **Endemic and threatened birds**
Criterion:(x)

The property is the last refuge for the survival of a large number of endemic, threatened and endangered species (SoOUV, 2010). Ten endemic species or subspecies of birds (plus two species endemic to the Mascarenes) are mostly or entirely restricted to the property (Nomination, 2008).

▶ **Endemic and threatened reptiles**
Criterion:(x)

The property is the last refuge for the survival of a large number of endemic, threatened and endangered species (SoOUV, 2010). Two endemic species of geckos are mostly or entirely restricted to the property (Nomination, 2008).

▶ **Endemic and threatened invertebrates**
Criterion:(x)

The property is the last refuge for the survival of a large number of endemic, threatened and endangered species (SoOUV, 2010). While the species inventory of invertebrates is far from complete, it is recorded, for example, that of 844 described coleoptera, 335 are endemic (Nomination, 2008). This exceptional invertebrate diversity is linked with the exceptional plant diversity.

Assessment information

Threats

Current Threats

High Threat

Invasive species have been recognised as the greatest threat to the property

and are also linked to other threats such as wildfires and erosion. Drivers include increasing population and tourism pressure, with sectorial conflicts. More local threats include the poaching of palms and orchids, stray livestock and increased rubbish which not only spoils the landscape value of the property, but increases for example rat populations which in turn decimate some critically low populations of endangered plants and animals.

► Invasive Non-Native/ Alien Species

Very High Threat
Inside site
Outside site

Recognised as the single greatest threat to the property (Nom. 2008, IUCN 2010) with important efforts being undertaken to deal with the many threats. Prevention, removal, and awareness-building of the issue is underway but as Réunion is part of France, there are issues in preventing the introduction of non-native species to the island (DEAL; 2012; GEIR, 2012). Conflict exists over exotics such as deer and rainbow trout (SREPEN, 2013).

► Solid Waste

Low Threat
Inside site

Waste produced by tourists is a threat to landscape and wildlife values (e.g. waste increases rat and cat populations, Salamolard & Fouillot in prep; Charte, 2012)

► Volcanoes

Very Low Threat
Inside site

A constant but natural threat (Nom. 2008).

► Housing/ Urban Areas

High Threat
Outside site

Growing population is exerting developmental pressures on both landscape as well as biological values. These pressures are managed (Charte, 2012) but will continue. The population of Réunion was 775,000 inhabitants in 2005 and

will probably go over a million by 2030 (Nom., 2008).

► Tourism/ Recreation Areas

Low Threat
Inside site
Outside site

Tourism is increasing threats to the property such as increased rubbish and disturbance including sporting events and increasing numbers of helicopter flights over the property. However, tourism is subject to management plans (Nom. 2008; IUCN, 2010; Charte, 2012).

► Forestry/ Wood production

Low Threat
Inside site
Outside site

Conflicts in forest management between the Management Authority (the Park) and the ONF (Forestry Service, the traditional land managers who still undertake all on-ground operations within and outside the property) are problematic. For example, forest management of exotic plantations outside the property and creation of firebreaks protecting plantations may have led to more intense wildfires within the property as well as created more pathways for invasive species (Nom. 2008; PNRun, 2010; Müller & Echaubard, 2011; BNR, 2012).

► Crops

Low Threat
Inside site
Outside site

Some agriculture is permitted within the property (e.g. îlets de Mafate et des Salazes, vanilla production in the Piton de La Fournaise) (Nom. 2008; Charte, 2012; BNR, 2012). The use of non-organic agricultural products inside the property requires management (SREPEN, 2013).

► Livestock Farming / Grazing

Low Threat

Inside site
Outside site

Some non-authorised or semi-authorised livestock rearing occurs within the property (e.g. unfenced cattle at Cassé de la Rivière de l'Est, sheep and goats in the Cirque de Mafate) (Nom. 2008; Charte, 2012; BNR, 2012).

► Renewable Energy

Low Threat
Inside site
Outside site

Prospection for geothermal energy within the park would have seriously compromised its OUV but this project was abandoned (Decision 34COM8B, 2010). Various hydro, wind and solar projects remain to be evaluated (Charte, 2012; BNR, 2012).

► Commercial hunting

High Threat
Inside site
Outside site

Introduced deer are farmed and hunted in areas surrounding the property (Nom. 2008) and limited deer hunting (Charte, 2012) is allowed. The deer hunters appear to be a small but powerful force. While deer were once eradicated on the island, they were reintroduced and should be removed from the property (SREPEN, 2013; Salamolard & Ghestemme, 2004; see invasive species).

► Subsistence hunting

Low Threat
Inside site

Poaching of tenrecs (an alien invasive species) could be positive if hunting led to their eradication (very unlikely), but poachers trample vegetation and open up new paths for invasives. Some illegal bird trapping remains a problem (Nom. 2008).

► Other Biological Resource Use

Low Threat

Inside site

Poachers illegally removing plants open up new paths for invasvies thereby reducing native habitat and trample plants; illegal plant collection reduces populations (Nom. 2008).

► Fire/ Fire Suppression

High Threat
Inside site
Outside site

Wildfires threaten the drier areas of the property (Nom., 2008), with two important wildfires occurring in 2010 and 2011 (PNRun, 2010; Müller & Echaubard, 2011).

► Avalanches/ Landslides

Low Threat
Inside site

A constant but natural threat (Nom. 2008) although replacement of native by non-native vegetation increases the risk of landslides and erosion.

Potential Threats

High Threat

Containing one very active and one long dormant volcano, volcanoes would not be a threat if so many invasive species were not present which hijack natural succession following volcanic eruptions. Climate change including expected sea level rise and a predicted increase in intensity of cyclones which will open up native areas that will be colonised by invasive rather than native species.

► Habitat Shifting/ Alteration

Data Deficient
Inside site
Outside site

A “climate plan” including mitigation and adaptation is in effect (Nom. 2008).

► Droughts

Data Deficient

Inside site
Outside site

A “climate plan” including mitigation and adaptation is in effect (Nom. 2008).

► Temperature changes

Data Deficient
Inside site
Outside site

A “climate plan” including mitigation and adaptation is in effect (Nom. 2008).

► Storms/Flooding

Data Deficient
Inside site
Outside site

A “climate plan” including mitigation and adaptation is in effect (Nom. 2008).

Protection and management

Assessing Protection and Management

► Monitoring

Mostly Effective

Protocols for monitoring in place (Charte, 2012).

► Research

Highly Effective

Appears good (Nom., 2008).

► Relationships with local people

Mostly Effective

Intense process of developing the “Charter”, or “Charte” with all local communities concerned (Nom., 2008; Charte, 2012). It is clear from local news articles that conflict remains among diverse interest groups (e.g. livestock farmers, hunters, fishermen, tourist sector) in a complex local

setting but major continuing consultative negotiation is being undertaken.

▶ Legal framework and enforcement

Highly Effective

Declared National Park in 2007, with structure in place for enforcement (Nom. 2008, Charte, 2012).

▶ Integration into regional and national planning systems

Highly Effective

Defined process for integration into regional and national planning systems (Charte, 2012).

▶ Management system

Mostly Effective

The “Charte”, a highly consultative agreement used as a management plan and required for all French National Parks, has been considered as the overarching management plan for the property. Unfortunately, while it was expected that the “Charte” would be finalised in 2011 (IUCN, 2010), it still awaits validation in 2013 although it is expected to be finalised soon (SOC, 2013). Given the large number of stakeholders, it is clear that the “Charte” will never attain unanimity. In the meantime, a number of other conventions and action plans for managing the park and its values are in place, guided by a Park Administrative Council and a Scientific Council and implemented by the Park (88 permanent staff in 2012) and the Forestry Service (ONF) which manages the labour force (IUCN, 2010).

▶ Management effectiveness

Some Concern

Clear governance issues between the recognised management authority (the Park) and the authority that undertakes the on the ground management (the Forestry Service, ONF) (BNF, 2012). The different responsibilities between the Park and the ONF need resolution.

▶ Implementation of Committee decisions and recommendations

Data Deficient

Given recent inscription - not yet applicable.

► Boundaries

Highly Effective

Boundaries are the core area of the National Park which comprise 96% of all remaining natural areas of La Réunion, and exclude major settlements so as to avoid potential impacts associated with urban development plans. Three inhabited “buffer zones” in the cirques, which serve as gateways to the Park (IUCN, 2010).

► Sustainable finance

Mostly Effective

Assured through a number of governmental mechanisms (Nomination, 2008) with a Park budget in 2009 of Euro 8,09m., an increase of 25% over 2008 (IUCN, 2010).

► Staff training and development

Highly Effective

Appears good (Nom., 2008).

► Sustainable use

Data Deficient

It appears that some sustainable use (tenrec and deer, both invasive aliens) is allowed within the park but that this has negative consequences (SREPEN, 2013). Some agriculture also allowed within the Park, although not clear how sustainable this use is (Charte, 2012; SREPEN, 2013).

► Education and interpretation programs

Highly Effective

Good (IUCN, 2010).

► Tourism and interpretation

Highly Effective

Good (IUCN, 2010).

Overall assessment of protection and management

Mostly Effective

For a young (2007) National Park the protection and management follows best practice and experience in other French National Parks and elsewhere, mainly by the legal obligation of developing a “Charter”, or “Charte”, between all stakeholders which functions as the overarching management plan for the property, including the central core and the partnership zone (although this “Charte” still requires final validation and membership agreement from all municipalities). Long-term protection and management will be improved once governance issues over management responsibilities are resolved.

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

Mostly Effective

Numerous conflicts of interest between different stakeholders are evident and much negotiation over these issues have been undertaken while preparing the “Charte”, with communes in the “adhesion” area (outside the site) free to adhere or not. Some issues such as renewable energy could have wider impact on the protection and management of the property.

► Best practice examples

The creation of Park staff positions of “mediateur de la nature” (who differ from Park Guards as their role is to build awareness with park users) has been cited by the Park as being so innovative and exemplary that the idea has since been taken up with other National Parks in France (cited from Daniel Gonthier, Park President).

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Dramatic landscape of striking beauty

Low Concern
Trend:Deteriorating

While invasive species have had an impact on the property, there still remain vast areas in nearly pristine condition. Although the natural beauty of the site is not as good as the best-recorded historical state since degraded areas do exist on the steep mountainous slopes, at the same time the natural beauty is still superlative The wildfires of 2010 and 2011 damaged just a small percent of the overall property but did reduce this site’s beauty in the affected area (SOC, 2013).

▶ Remarkable mosaic of ecosystems and landscape features

Low Concern
Trend:Deteriorating

While invasive species have reduced the mosaic of ecosystems and landscape features from the best-recorded historical state, there are still good examples in nearly pristine condition. The wildfires of 2010 and 2011 damaged just a small percent of the overall property but did reduce the value in the affected area (SOC, 2013).

▶ Exceptional plant diversity

Low Concern
Trend:Stable

While many plant species are threatened or extinct compared to the best recorded historical conservation state, the plant diversity that remains is still exceptional. Despite the wildfires no records of a reduction (or increase) in plant diversity has been recorded.

▶ Endemic and threatened birds

Low Concern
Trend:Stable

While more bird species have become extinct from the island than the number of species that exist on the island today, no records of either a

decrease or an increase in birds have been recorded.

▶ **Endemic and threatened reptiles**

Low Concern
Trend:Stable

No records of a decrease in reptiles have been recorded.

▶ **Endemic and threatened invertebrates**

Low Concern
Trend:Stable

While little invertebrate data exists, it was certainly richer in the past, although diversity is still very high today. The wildfires could have caused a reduction in some very localised species, but no reports on whether there has been a decrease or an increase in invertebrates have been recorded.

Summary of the Values

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

Low Concern

Trend: Stable

As this property was recently inscribed (2010), trends in WH values cannot yet be evaluated. While it is clear that biodiversity values were better in the best-recorded historical state, there is not enough time or data to determine whether values since inscription have improved or deteriorated. However, two major wildfires since inscription in 2010 and 2011 have locally caused a deterioration in WH values. Targeted monitoring is required to determine biodiversity trends, but at this point in time the current state and trend of World Heritage values since time of inscription can be evaluated as Low Concern.

Additional information

Key conservation issues

▶ Invasive species

Local

Reduction of native biodiversity through competition or predation by introduced species. Conflict over species allowed to be introduced to the island, as the island adheres to the same laws as France even if biologically it is very different.

▶ Urban development requirements

Local

Rapidly increasing local population and competing economic interests create pressure on limited territory, including the wish for the island to become energy independent.

▶ Forest management and governance

National

Lack of clarity and responsibility over which government agency (the Park or the ONF) is responsible for management issues (such as invasive species and wildfire management).

▶ Tourism management

Local

Increasing tourism both a driver for maintaining the property as well as a pressure requiring management.

▶ Climate change

Global

While a climate plan of mitigation and adaptation is in place, the effects of climate change are still unknown.

▶ Poaching

Local

Local poaching of orchids, palms, and tree ferns can have a large effect on critically endangered species.

Benefits

Understanding Benefits

- **Legal subsistence hunting of wild game, Collection of wild plants and mushrooms**

  Hunting of introduced Tenrec in the property (illegally or not) provides some meat locally as does the collection of wild fruit such as guava (another alien invasive species that is widely collected and transformed into e.g. jam).

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

  The property is essential for the protection of a high percentage of the unique flora and fauna of the Mascarene Islands.

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

  Provision of revenue and jobs through tourism and park management

- **Outdoor recreation and tourism**

  Beneficiaries include local and regional businesses that rely on tourism, and the tourists themselves

- **Sacred natural sites or landscapes**

  While the area is too small to really qualify as wilderness, in relation to the size of the island and the inaccessibility of its mountains and valleys, the “wilderness” feeling is definitely present in certain areas.

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

  The property has advanced scientific knowledge on island succession and invasive species, and provides many educational opportunities.

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

The steep forested slopes provide coastal protection, soil stabilisation and ground-water renewal. Mineral water from the property (Cilaos) is collected and bottled.

Summary of benefits

The greatest benefit of the Park is to the conservation of a large number of endemic species found nowhere else in the world. Locally and to visitors the Park provides enormous tourism and relaxation benefits as well as ecosystem services, ensuring water quality, coastal protection and soil stabilisation. Locally the property generates employment and to a small extent some medicinal plants and fruit (even if these are from invasive species that should be eradicated).

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Projet LIFE+ Corexerun (PNRun, Conservatoire de littoral, DEAL, Region and Dept REU).		Conservation of semi-dry forest, 30 ha forest restored and 9 ha reconstituted.
2	SEOR (Société d’Etudes Ornithologiques de la Réunion), PNRun.		2010-2015 Conservation de l’avifaune prioritaire des DOM. Projects on the Réunion Cuckoo-shrike and Réunion Harrier. Rat control at the Roche-Ecrite.

№	Organization/ individuals	Project duration	Brief description of Active Projects
3	CIRAD (Centre International de Recherche Agronomique pour le Développement)		Biological control of invasive Rubus by tenthrid fly Cibdela janthina (undertaken in 2008). The fly dramatically reduced Rubus, one of the worst invasives in the Park, but now there are conflicts with local bee-keepers who say the fly biocontrol agent competes with their bees and also removed an important source of pollen (the Rubus). Continued studies.

REFERENCES

№	References
1	BRL (2012). Rapport d'évaluation environnementale du projet de charte du parc national de La Réunion. BRL ingénerie. (101 pp + annexes, in SOC 2013).
2	Charte (2012). La Charte du Parc national de La Réunion - Les Pitons, cirques et remparts au centre d'un projet de territoire. Projet arrêté par le conseil d'administration le 21 juin 2012 (In SOC 2013, not yet approved).
3	DEAL (2012). Note sur le fonctionnement du POLI (Programme Opérationnel de Lutte contre les Invasives) à La Réunion. (Note en cour de validation, 6 pp in SOC 2013).
4	GEIR (2012). Stratégie de lutte contre les Invasives à La Réunion : Etat d'avancement et Bilans 2010-2011 du Programme Opérationnel de Lutte contre les Invasives (présenté lors du Comité des Directeurs du 21 décembre 2012). Groupe Espèces Invasives de la Réunion. (4 pp. in SOC 2013).
5	IUCN (2010). IUCN Technical Evaluation. Pitons, cirques and remparts of Reunion Island (France).
6	Muller, S. & Echaubard, M. (2011). Rapport de mission d'expertise sur les impacts écologiques des incendies du Maïdo (île de La Réunion). (19 pp+annexes, in SOC 2013).
7	Nomination (2008). Pitons, cirques and remparts of Reunion Island (France).
8	PNRun (2010). Rapport sur les incendies survenus en octobre et novembre 2010 dans les Pitons, Cirques et Remparts de l'Ile de la Réunion : Sites du Maïdo, de Mafate et du Massif du Piton de la Fournaise. Réunion National Park. (28 pp, in SOC 2013).
9	Press articles (2011-2013) in the Journal de la Réunion (http://www.clicanoo.re/)
10	SOC (2013). Note sur l'état de conservation des Pitons, Cirques et Remparts de l'Ile de la Réunion (France). Submitted by the State Party (February, 2013). 1 pp.
11	SREPEN (2013). Observations de la SREPEN sur l'Enquête Publique relative à la Charte du Parc National de la Réunion du 4 décembre 2012 au 24 janvier 2013. Société Réunionnaise pour l'Etude et la Protection de l'ENvironnement. http://www.reunion-parcnational.fr/Enquete-publique/LE-SREP…

№	References
12	Salamolard, M. & Fouillot, D. (in prep.). Plan national d'actions en faveur de l'Echenilleur de la Réunion, Coracina newtoni 2013-2017. Ministère de l'écologie, du développement durable, des transports et du logement, Direction de l'Environnement, de l'Aménagement et du Logement. Parc national de la Réunion / Société d'Etudes Ornithologiques de la Réunion, 134 pp.
13	Salamolard, M. & Ghestemme, T. (2004). Plan de conservation de l'Echenilleur de la Réunion (Coracina newtoni). SEOR Réserve Naturelle Roche Ecrite. 46 pp.
14	SoOUV (2010). Statement of Outstanding Universal Value Pitons, cirques and remparts of Reunion Island (France). In Decision 34COM 8B.4