IUCN Conservation Outlook Assessment 2017 **(archived)**
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Central Highlands of Sri Lanka

SITE INFORMATION

Country:
Sri Lanka
Inscribed in: 2010
Criteria:
(ix) (x)

Site description:
Sri Lanka's highlands are situated in the south-central part of the island. The property comprises the Peak Wilderness Protected Area, the Horton Plains National Park and the Knuckles Conservation Forest. These montane forests, where the land rises to 2,500 metres above sea-level, are home to an extraordinary range of flora and fauna, including several endangered species such as the western-purple-faced langur, the Horton Plains slender loris and the Sri Lankan leopard. The region is considered a super biodiversity hotspot. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

The Central Highlands of Sri Lanka were inscribed onto the World Heritage List in 2010 in recognition of the site's values within one of the world's richest concentrations of biodiversity. The site conserves the largest remaining stands of sub-montane and montane rainforest in Sri Lanka and protects the habitat of an assemblage of associated species displaying extraordinary levels of endemism, many of which are site endemic. The property is home to several endangered flagship species such as the Purple-Faced Langur of Sri Lanka and the Sri Lankan Leopard. These values of the site remain intact due to relatively low levels of threat coupled with sound protection and a largely effective management regime. The recent completion of a more effective management planning framework for the site is welcome. However, the maintenance of the values is dependent on the continued efforts to address issues of concern and put in place the necessary staffing and funding to guarantee implementation of planned actions. Tourism impacts, invasive species and indirect impacts from the buffer zones appear to be the most significant current threats to the site. The management authorities will need to continually monitor the condition of values and adapt management accordingly to ensure the conservation outlook for this property remains positive.

Current state and trend of VALUES

Low Concern
Trend: Stable

The values of the site remain intact despite the presence of threatening processes, such as presence of invasive species, impacts of increasing tourism and other ecosystem modifications which will need on-going management effort and adequate staffing and funding. There remains a need to fully develop a management and monitoring framework for ecotourism. This is essential as the high number of visitors, including pilgrims, has an environmental impact on the

site. There remains a need for clearer demarcation of the property boundaries. Illegal activities are still being undertaken in the property's buffer zones, including poaching, small scale illegal logging and land clearing and more effective law enforcement could address this.

Overall THREATS

Low Threat

The environmental impact of the high number of visitors to the site continues to be of concern however the development and implementation of a management and monitoring framework for ecotourism is underway. Better demarcation of the site boundaries, and an increase in the effectiveness of law enforcement should address illegal activities in the property's buffer zones such as poaching, small scale illegal logging and land clearing. Continued efforts will be required reinforcing the need for adequate staffing and funding to ensure that these measures are carried out effectively. Several new national level programs (Ecosystem conservation & Management Project (ESCAMP) 2017 and National REDD+ Investment Framework and Action Plan (NRIFAP) 2018-2022) are expected to address most of these issues in protected areas including the components of the property.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The site enjoys adequate legal protection under Sri Lankan law and it is clear that management efforts continue to be directed at threatening processes. An overall management framework has been developed for the serial site, as well as management plans for each of the component parts of the property. A need for the development of an effective management and monitoring framework for tourism has been identified and this is underway. In order to implement these planning strategies adequate staffing and funding need to be made available for the effective implementation of the new management plans. A number of new internationally funded projects for protected areas management have been developed recently in Sri Lanka and will also contribute to addressing some of the issues faced by the components of the property.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► A critical habitat refuge for several globally significant and endangered species

Criterion:(x)

The endemic purple-faced langur of Sri Lanka (Semnopithecus vetulus) has evolved into several morphologically different forms recognizable today. The Sri Lankan leopard, the only representative of the genus Panthera on the island, diverged from other felids about 1.8 million years ago and is a unique sub-species (Panthera pardus kotiya). Long isolation and the concomitant evolutionary processes have also resulted in a Sri Lankan molluscan fauna that is the most distinct in the South Asian region (SoOUV, 2010).

► Important and significant natural habitats for in-situ conservation of threatened and endemic vertebrate species

Criterion:(x)

The three serial components that comprise the site contain the only habitats of many threatened species and are therefore of prime importance for their in-situ conservation. The site features exceptionally high numbers of threatened species, extraordinary levels of endemism, and high levels of species richness in a number of taxonomic groups. Of the 408 species of vertebrates 83% of indigenous fresh water fishes and 81% of the amphibians in Peak Wilderness Protected Area are endemic, 91% of the amphibians and 89% of the reptiles in HPNP are endemic, and 64% of the amphibians and 51% of the reptiles in the Knuckles Conservation Forest are endemic (SoOUV,

2010). Majority of land snails and freshwater crabs also exhibit very high endemism - 80% and 98% respectively are restricted to two components of the World Heritage property including their buffer zones and are in threatened categories of the IUCN Red List (National Red List of Sri Lanka 2012).

▶ **Ecological and biological processes which support the sub-montane and montane rainforests of Sri Lanka**
Criterion:(ix)

The site comprises three serial properties: The Peak Wilderness Protected Area (PWPA), the Horton Plains National Park (HPNP), and the Knuckles Conservation Forest (KCF) and includes the largest and least disturbed remaining areas of the sub-montane and montane rain forests of Sri Lanka, which are a global conservation priority. The property includes areas of Sri Lankan montane rain forests considered as a super-hotspot within the Western Ghats and Sri Lanka biodiversity hotspot. More than half of Sri Lanka’s endemic vertebrates, half of the country’s endemic flowering plants and more than 34% of its endemic trees, shrubs, and herbs are restricted to these diverse montane rain forests and adjoining grassland areas (SoOUV, 2010)

Assessment information

Threats

Current Threats
Low Threat

One of the key current threats to the site emanates from seasonal and localised heavy visitation. Garbage disposal, pollution and disturbance from vehicles have been the direct result of the high number of annual visitors to the site, particularly HPNP and PWPA. New visitor management plans are being prepared for each component, and an action plan is being prepared to prevent and mitigate the environmental impact of the pilgrimage season in PWPA. A

further key threat relates to a number of invasive plant and animal species have been identified in the property. Nine problematic species have been identified which could have a significant impact on its OUV. Since 2000 there has been no legal cardamom cultivation allowed and the current illegal cardamom cultivation is limited to the maintenance of abandoned crops thus posing a relatively low threat to the site. Forest dieback has been registered in HPNP and 22 plant species are reported to be affected. A number of factors have been identified as contributing to plant vulnerability to fungal attacks but ongoing research is still needed to find a solution to this problem.

► Invasive Non-Native/ Alien Species

Low Threat
Inside site, localised(<5%)

Invasive species adversely affecting the biodiversity of the site have been identified in KCF and HPNP. Among those identified in the Knuckles forest Lantana camara is the most dominant single species. The removal of Eucalypts in 30 hectares within KCF in the Pitawala Patana grassland is being carried out and Lantana camara in other areas. A programme to remove invasive species in 80 ha of KCF in 2012 was carried out with a commitment to continue the program until all identified areas are cleared from invasive species (IUCN SOC, 2012). In the HPNP the spread of Ulex europaeus has had a significant impact on the biodiversity of the HPNP (IUCN Evaluation, 2010). Ulex was introduced to the HPNP during the British rule. A programme to remove the weed has been completed in 22 hectares of the 30 hectares identified for clearing (SP Report, 2012). Soil seed bank studies on three forest communities along elevational and climatic gradients in the Knuckle forest reserve has shown that seeds of invasive species were represented comparatively less in all three forest communities indicating no significant threat from invasive species to them (Madawala et al. 2016).

► Mining/ Quarrying

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

Illegal gemming has been a problem in the past. Strict enforcement measures adopted by the Forest Department and Department of Wildlife Conservation have effectively controlled these activities taking place within

the PWPA (SP Report, 2012).

► Crops

Low Threat
Inside site, localised(<5%)

The legal practice of growing cardamom in KCF was started in the 1960s and continued until the KCF was declared a Conservation Forest in 2000. From that time those involved were removed from the KCF and the area was left to regenerate. Several incidences of illegal harvesting of abandoned cardamom crops have been reported with 400ha of KCF affected by cultivation under the canopy. Most cardamom cultivation is limited to the maintenance of abandoned crops. The Forest Department has taken legal action against the perpetrators and law enforcement officers are permanently stationed in the area. Recent surveys on the impact of banning Cadamom cultivation in the Knuckles have shown that majority of people dependent on cardamom cultivation have moved in to other agricultural pursuits (Jayasinghe & Rambodagedera 2014 -Draft Report - R 460). The north-eastern slopes of the Knuckles reserve have been identified as a major watershed area for the Moragahakanda-Kaluganga hydropower and irrigation reservoir and a greater protection is offered (Moragahakanda-Kaluganga EIA report).

► Tourism/ visitors/ recreation

Low Threat
Inside site, scattered(5-15%)

There are a high number of annual visitors to the site but these are mainly to Horton Plains National Park (HPNP) and Peak Wilderness Protected Area (PWPA). Most visitor impact relates to the annual pilgrimage of 2million visitors who trek to Adam’s Peak within PWPA. These impacts are localised and temporal in that a closed season of 6 months allows for ecological recovery (IUCN Evaluation, 2010). Knuckles Conservation Forest (KCF) with 10,000-15,000 visitors annually, has no significant impact from visitors. The main environmental problems caused by visitor numbers in these component parts of the site include garbage disposal, pollution and disturbance from vehicles (IUCN SOC, 2012).

► Natural System Modifications

High Threat

Inside site, scattered(5-15%)

Forest die-back was first observed in 1946 on some mountain slopes of HPNP and subsequent studies have revealed some 22 plant species have been affected, most probably caused by fungal attack, with other environmental factors contributing to make the trees vulnerable (SP Report, 2012). Forest dieback has now been recorded in all three components of the property, and represents a serious problem to ecosystem health. Although some preliminary research has been undertaken on the forest dieback phenomenon in HPNP, studies are yet to be carried out in the other two components (IUCN Consultation, 2014). Forest canopy die-back in Horton Plains assessed using multispectral satellite data have shown that while 27% (area of 9.5 km2) of the total forest reserve is affected by forest die back, environmental variables examined viz. slope, aspect and Topographic Wetness Index have a significant positive influence on die back (Rupasinghe et al. 2017). Recent research has indicated that the pH of the mist reaching values as low as 3.9 during April-May period may cause chemical stress in trees exposed to this acid mist affecting their physiological and biochemical stability (Pethiyagoda, 2012 pages 133 -136 and the references therein).

Potential Threats

Low Threat

Boundaries are well defined for HPNP and KCF, but inadequate boundary demarcation of PWPA is hampering protection and conservation. Law enforcement is still not fully effective in stopping illegal activities within the buffer zones. These include poaching, small scale illegal logging, and land clearing encroachment from human settlement with new land-clearing continuing. At present this threat is considered to be relatively low, however, on-going action is required to ensure indirect effects do not become significant.

► Other

Low Threat
Inside site, extent of threat not known

Boundaries are well defined for HPNP and KCF, but not for PWPA which is hampering protection and conservation. Clear boundary demarcation is needed to identify the private lands that fall within the boundaries. Without

this, illegal expansion of these lands and new land clearing could increase (IUCN SOC, 2012). Buffer zone management practices vary among the three components. Effectively functioning buffer zones exist in Horton Plains National Park and Peak Wilderness Protected Area ensuring protection from threats arising from outside the boundaries of the site. The revised and updated management plans for these two components are included in the ESCAMP project for implementation from 2017 onwards (IUCN Consultation, 2017).

► Other Activities

Low Threat
Outside site

Knuckles Conservation Forest has the highest number of human settlements on its periphery with around 86 villages in the buffer zone. This proximity of settlements poses the biggest threat to the site however the legal framework and community cooperation initiatives that are in place should ensure adequate protection of the site. Actions have been initiated to identify new opportunities to work with buffer zone communities and to strengthen the law enforcement activities in the periphery of the property. (SP Report, 2012). Several peripheral villages of the NE Knuckles component of the property were evacuated during the construction of the Moragahakanda and Kaluganga reservoirs and these reservoir reservation lands are to be transferred to the Forest Department for conservation management (IUCN Consultation, 2017).

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

An overall management plan for this serial property and three different management plans for its components were prepared in collaboration with key stakeholders. That State Party furthermore outlines community engagement with 32 Community Based Organisations in the buffer zone of

KCF as well as implementation of community forestry programmes (IUCN SOC, 2012).

► Legal framework

Mostly Effective

All three areas that make up the site are state-owned and under governmental protection. Legal frameworks are in place to ensure maintenance of the OUV. However, enforcement of protective legislation is considered inadequate in the buffer zones and surrounding areas. (UNESCO Periodic Report, 2011). This deficiency is to be addressed during the implementation of the (ESCAMP and NRIFAP projects 2018 onwards (IUCN Consultation, 2017).

► Enforcement

Mostly Effective

Enforcement of the relevant laws and regulations is overall effective.

► Integration into regional and national planning systems

Highly Effective

There are provisions in place for coordination of management between the two government institutions that manage the property (the Forest Department and the Department of Wildlife Conservation), as well as for stakeholder involvement. (IUCN SOC, 2012. The National REDD+ Investment Framework and Action Plan (NRIFAP) has identified policies and measures (PAMs) for i) Improving forest law enforcement and monitoring ii) scaling-up of forest boundary survey, demarcation and declaration among a host of other PAMs to improve the forest cover under both institutions and there will be priority attention for the World Heritage property (REDD+ SL 2017).

► Management system

Each of the components of the serial site has management plans in place and an overall management framework has been developed. (SP Report, 2012). In 2011 the SP reported that plans are only partially implemented (UNESCO Periodic Report, 2011) and this is still the case. Inadequate staff capacity and funding are limiting the effective implementation of the new management

plans. (IUCN SOC, 2012). The components of the site -Peak Wilderness Protected Area (PWPA), Horton Plains National Park (HPNP) and Knuckles Conservation Forest (KCF) - all fall under different management categories receiving different kind of protection. These areas are also managed by two state agencies. PWPA is a sanctuary managed by the Department of Wildlife Conservation (DWC), in which certain human activities are allowed (e.g. collection of NTFP). Entry in the PA is not restricted or regulated. HPNP is a National Park managed by the DWC , but under a much higher degree of protection than the PWPA. Entry without a ticket (fee payment) is illegal and no human activities are allowed (other than visiting and site seeing). KCF is managed by the Forest Department under a protection regime similar to PWPA. All management plans are being revised and funding has been pledged by the World Bak ESCAMP project for 5 years (IUCN Consultation, 2017).

► Management effectiveness

Some Concern

The site has an overarching management framework as well as individual management plans for each component of the serial site (SP Report, 2012). However, management effectiveness relates to how well the plans are able to be implemented. In this regard concerns arise regarding the adequacy of staffing and funding as well as the effectiveness with which tourism is being managed. (IUCN SOC, 2012). The State Party has been encouraged to include as part of the planned regular monitoring of threats, the regular evaluation of the effectiveness of management provisions, in order to ensure that existing and new threats are effectively controlled (WHC 36COM Decision, 2012).

► Implementation of Committee decisions and recommendations

Mostly Effective

In general the State Party have been responsive to Committee concerns and decisions. The SP has been actively addressing issues and the management planning system to support the site has been recently completed (SP Report, 2012). Other recommendations to expedite the development of an effective management and monitoring framework for tourism and a commitment to ensure adequate staffing and funding are still outstanding. (IUCN SOC, 2012).

▶ Boundaries

Some Concern

Boundaries are well defined for HPNP and KCF, but not for PWPA which is hampering protection and conservation. Buffer zones are established for all three components of the property however law enforcement is not fully effective in stopping illegal activities within the buffer zones, including poaching, small scale illegal logging, and land clearing. (IUCN SOC, 2012). Boundary demarcation of PWPA is included in the ESCAMP project plan (IUCN Consultation, 2017).

▶ Sustainable finance

Mostly Effective

Funding is split approximately 1/3 from outside sources and 2/3 from governmental sources. According to the State Party funding is inadequate and not secure. (UNESCO Periodic Report, 2011). The internationally funded ESCAMP project and NRIFAP project due to start next year will provide extra funding to execute the revised and updated management plans prepared with broad stakeholder participation (IUCN Consultation, 2017).

▶ Staff training and development

Mostly Effective

All staff at the site are fulltime and permanent however their number is inadequate to fully manage the site. (UNESCO Periodic Report, 2011). The Forest Department Staff training at field level (Range Forest officers and Beat Forest Officers, both new recruits and in service trainees) is currently being conducted at SL Forestry College in batches of 40 persons. Similarly, the Department of Wildlife has recruited about 50 field officers and they have been given training at HPNP Giritale Wildlife Training Center and in several other strategic locations (IUCN Consultation, 2017).

▶ Sustainable use

Mostly Effective

Subsistence wild plant collection occurs within the site however other uses such as livestock grazing and crop production occurs outside. (UNESCO

Periodic Report, 2011). During the past few years illegal and unsustainable removal of Sri Lankan Agar Wood (Gyrinops walla) trees had been taking place in all protected areas including the Central Highlands WHS (Gunatilleke et al. 2014).

► Education and interpretation programs

Mostly Effective

There are several awareness programs aired through national television network. The present day programs - Wild Asia and Sobadhara are professionally done with advice from experts and experienced wildlife professionals. Annual Wildlife conference held in 2015-2017 also were very successful and Wildlife Department personnel, University researchers and NGOs all have been actively participating in these annual events. The journals Wild Lanka published by the DWLC and Loris and Warana published by the Wildlife and Nature Protection Society of Sri Lanka are popular among wildlife enthusiasts and school children. Number of books on birds, butterflies, reptiles, lizards and amphibians of Sri Lanka have been published in recent times (see the reference list) . Although these are not specific to the World Heritage properties, the information in them is still useful to the visitors. An authoritative book on Horton Plains NP was edited by Pethiyagoda in 2012.

► Tourism and visitation management

Mostly Effective

There is a general lack of education programmes, information and awareness building throughout the visitor destinations of the site. Fees collected make some contribution to the management of the site. (UNESCO Periodic Report, 2011). A number of educational programmes and activities have been developed recently (IUCn Consultation, 2017).

► Monitoring

Mostly Effective

There is an adequate comprehensive, integrated programme of monitoring, which addresses management needs and contributes to improving the understanding of the site’s OUV. (UNESCO Periodic Report, 2011). Monitoring

of tourism impacts is however lacking (IUCN SOC, 2012)

▶ Research

Mostly Effective

There is considerable research being done at the site but it is not directed towards management needs in ensuring the maintenance of the OUV. (UNESCO Periodic Report, 2011). However, Several publications of management relevance have been published recently and are included in the references list of this assessment.

Overall assessment of protection and management

Mostly Effective

The site enjoys adequate legal protection under Sri Lankan law and it is clear that management efforts continue to be directed at threatening processes. An overall management framework has been developed for the serial site, as well as management plans for each of the component parts of the property. A need for the development of an effective management and monitoring framework for tourism has been identified and this is underway. In order to implement these planning strategies adequate staffing and funding need to be made available for the effective implementation of the new management plans. A number of new internationally funded projects for protected areas management have been developed recently in Sri Lanka and will also contribute to addressing some of the issues faced by the components of the property.

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

Mostly Effective

The state of the buffer zones in terms of land use and current management practices varies across the three components. The buffer zones are legally protected under a range of laws, however, boundary ambiguities, inadequate staffing and poor enforcement are failing to address a range of illegal buffer zone activities such as poaching, small scale illegal logging and land clearing. (IUCN SOC, 2012). Nevertheless external threats to the site are considered at present to be relatively low, notwithstanding the need for continued vigilance

in addressing these.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **A critical habitat refuge for several globally significant and endangered species**

Low Concern
Trend:Stable

As noted above threats such as invasive species, impacts of increased tourism and other ecosystem modifications such as forest die-back are all being addressed. Despite these threats, the values remain preserved overall (IUCN Consultation, 2017).

▶ **Important and significant natural habitats for in-situ conservation of threatened and endemic vertebrate species**

Low Concern
Trend:Stable

Several invasive species, both flora and fauna, have been identified in the property that could have a significant impact on the habitat value of the site. Eradication programs are addressing the problems of alien invasives. (SP Report, 2012). Forest die-back occurs on the slopes of HPNP and is believed to be due to a fungal pathogen. On-going research is yet to find a solution to the problem. (SP Report, 2012). In conclusion the habitat values of the site remain intact despite the presence of threatening processes which will need on-going management effort and adequate staffing and funding.

▶ **Ecological and biological processes which support the sub-montane and montane rainforests of Sri Lanka**

Low Concern
Trend:Stable

The formulation of both an overall management framework for the site and

individual management plans for each of the three component parts has assisted in addressing threats to the OUV of the site in a coordinated and planned way (SP Report, 2012). The impacts of tourism which are of particular concern in PWPA are covered in an action plan that is formulated prior to the pilgrim season in December each year. This plan concentrates on garbage removal, providing toilet facilities and visitor awareness programs. Nevertheless there remains a need to monitor the impacts of tourists on the ecological values of the site and to adapt management accordingly (IUCN SOC, 2012).

Summary of the Values

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

Low Concern

Trend: Stable

The values of the site remain intact despite the presence of threatening processes, such as presence of invasive species, impacts of increasing tourism and other ecosystem modifications which will need on-going management effort and adequate staffing and funding. There remains a need to fully develop a management and monitoring framework for ecotourism. This is essential as the high number of visitors, including pilgrims, has an environmental impact on the site. There remains a need for clearer demarcation of the property boundaries. Illegal activities are still being undertaken in the property’s buffer zones, including poaching, small scale illegal logging and land clearing and more effective law enforcement could address this.

Additional information

Benefits

Understanding Benefits

► **Cultural and spiritual values, History and tradition, Sacred natural sites or landscapes**

Adam’s Peak in PWPA has deep religious significance as it is believed to have the imprint of the footprint of the Lord Buddha. This phenomenon brings huge numbers of tourists and pilgrims each year.

► **Health and recreation, Outdoor recreation and tourism**

The increase in the annual number of tourists to the site brings an increase in opportunities for employment for locals including tour guides, as well as the employment that goes with providing services for tourists and maintaining the areas that are heavily visited. It is not clear the extent to which benefits from tourism are being maximised.

► **Environmental services, Water provision (importance for water quantity and quality)**

The protection of the forests as a catchment area provides water resources for the many communities downstream and on the periphery of the site.

Summary of benefits

The protection of biodiversity and water resources underpins Sri Lanka’s sustainable development and landscape productivity, for example its extensive tea plantations. More specific to this site is its importance in the development of an eco-tourism industry to capitalise on the already huge numbers of tourists and pilgrims who flock to the site.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects

1	Forest Department/ Community Groups	Approximately 600 Community Based Organizations (CBOs) are operating in the buffer zone villages. These community organizations have been formed to implement various community development programs. The Forest Department has been working with 32 such organizations established exclusively for the protection of Knuckles under the name “Dumbara Surakinno” (Protectors of Knuckles). These works include implementing the department’s regular community forestry programs.
2	Forest Department/ Department of Wildlife Conservation	Management of catchment area within KCF by removal of invasive species, fire protection and removal of cardamom cultivation. Funding for this has been made through the Moragahakanda irrigation project. The program to remove invasive eucalypts found mainly in Pitawala Patana grassland, and Lantana in other areas, will continue until all identified areas are cleared of invasive species.
3	Friends of Horton’s Plains	A consortium of private sector estates and other partners working with HPNP to enhance conservation and connectivity.

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