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

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

Western Ghats

SITE INFORMATION

Country:
India
Inscribed in: 2012
Criteria:
(ix) (x)

Site description:
Older than the Himalaya mountains, the mountain chain of the Western Ghats represents geomorphic features of immense importance with unique biophysical and ecological processes. The site's high montane forest ecosystems influence the Indian monsoon weather pattern. Moderating the tropical climate of the region, the site presents one of the best examples of the monsoon system on the planet. It also has an exceptionally high level of biological diversity and endemism and is recognized as one of the world's eight 'hottest hotspots' of biological diversity. The forests of the site include some of the best representatives of non-equatorial tropical evergreen forests anywhere and are home to at least 325 globally threatened flora, fauna, bird, amphibian, reptile and fish species. © UNESCO

SUMMARY

2017 Conservation Outlook

Significant concern

This property was inscribed in 2012 amid some controversy, given the difficulty to decide how best to represent the extraordinary biological richness of the Western Ghats. Finally, a network of 39 separately managed sites, grouped in 7 contiguous clusters, was inscribed and efforts are under way to draw these sites together into a cohesive whole (including corridors to ensure wildlife connectivity) that tells the story of the outstanding value of the Western Ghats. There are also proposals and good potential to further extend the property to better express its OUV.

Traditionally conserved by small populations of indigenous people leading sustainable lifestyles, the area is under increasing population and developmental pressure that requires intensive and targeted management efforts to ensure that not only are existing values conserved,
but that some past damage may be remediated.
The pressure from human populations in this region should not be underestimated: 50 million people are estimated to live in the Western Ghats Region, resulting in pressures which are orders of magnitude greater than many protected areas around the world. Evidence suggests that forest loss, encroachment and conversion continues to affect the property.
The challenges are many,
but the will by both government and non-governmental groups to ensure the conservation of the Western Ghats is high. However, until more data is accumulated (both on conservation trends and protection and management aspects), and given the number and level of threats that this property faces, its conservation outlook is still assessed as of Significant Concern.

Current state and trend of VALUES

Good
Trend: Data Deficient

While the state of World Heritage values in the property was considered as good at time of inscription and appears to remain so, the current state and trend of values is difficult to assess with certainty due to the lack of any systematic survey of taxa. It should be noted that the nomination was never clear as to which species occur within the property itself and which species occur in the Western Ghats region (an area far larger than the property inscribed as World Heritage). The nomination identified several indicator species for monitoring and provided some distribution maps, however, this was for a relatively small number of species. The capacity for monitoring within the property is high and priority should be given to gaining a more comprehensive understanding of the conservation status of key biodiversity, ecosystems and evolutionary processes in the property. Proposals to extend the property offer good potential to augment the values and ensure improved connectivity across this linear system.

Overall THREATS

High Threat

The fact that so much biodiversity remains in the Western Ghats, given the tremendous population pressure both within and surrounding the property, is extraordinary. A large number of threats which severely threaten the OUV of the property exist and require coordinated conservation responses at all levels including political, sociological and biological. Ongoing pressure for development will continue to place the property under high threat. Climate change will probably exacerbate a system already under pressure and has the potential to impact on the large scale monsoonal processes which the Western Ghats influence.

Overall PROTECTION and MANAGEMENT

Some Concern

It is very difficult to assess the overall protection and management of the property at this point in time. There has been no formal management

effectiveness assessment undertaken for the entire propery. Overall staffing and government budgets appear adequate but th eproperty sits within a highly populated region with many external pressures.
Each of the 39 component parts of the property has its own management system and protective measures that vary throughout this complex serial site that stretches over a distance of some 1,600 km from north to south. There is a priority need to articulate a clear overarching management framework that harmonizes policy and management practice across the various clusters and States. Functional corridors that assure wildlife movement and ecological connectivity between the clusters of component protected areas are also required.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Critical habitat for several globally threatened flagship species**
  Criterion:(x)

  A number of flagship mammals occur in the property, including parts of the single largest population of globally threatened ‘landscape’ species such as the Asian elephant, gaur and tiger. Endangered species such as the Lion-tailed Macaque, Nilgiri Tahr and Nilgiri Langur are unique to the area. The property is also key to the conservation of a number of threatened habitats, such as unique seasonally mass-flowering wildflower meadows, Shola forests and Myristica swamps. (SoOUV, 2013; IUCN Evaluation, 2012; Nomination, 2010).

- **Exceptionally high levels of plant and animal diversity and endemism**
  Criterion:(x)

  The Western Ghats contain exceptional levels of plant and animal diversity and endemicity for a continental area and protect one of the best representatives of non-equatorial tropical forest. In particular, the level of endemicity for some of the 4-5,000 plant species recorded in the Ghats is very high: of the nearly 650 tree species found in the Western Ghats, 352 (54%) are endemic. Animal diversity is also exceptional, with amphibians (up to 179 species, 65% endemic), reptiles (157 species, 62% endemic), and fishes (219 species, 53% endemic). Invertebrate biodiversity, once better known, is likely also to be very high (for example some 80% of tiger beetles

endemic). (SoOUV, 2013; IUCN Evaluation, 2012; Nomination, 2010)

- **Exceptionally high levels of speciation and evolutionary radiation**
  Criterion:(ix)

  The Western Ghats region demonstrates speciation related to the breakup of the ancient landmass of Gondwanaland in the early Jurassic period and to the formation of India as an isolated landmass and the Indian landmass being pushed together with Eurasia. Favourable weather patterns coupled with the high gradients in the Ghats result in high levels of speciation. The Western Ghats is an “Evolutionary Ecotone” illustrating “Out of Africa” and “Out of Asia” hypotheses on species dispersal. A number of plant genera exhibit massive evolutionary radiation (SoOUV, 2013; IUCN Evaluation, 2012; Nomination, 2010).

- **Large scale biological and ecological processes constituting one of the best examples of a tropical monsoon system on the planet**
  Criterion:(ix)

  The mountains of the Western Ghats and their characteristic montane forest ecosystems influence the Indian monsoon weather patterns that mediate the warm tropical climate of the region, presenting one of the best examples of the tropical monsoon system on the planet. The Ghats act as a key barrier, intercepting the rain-laden monsoon winds that sweep in from the south-west during late summer and are thus responsible for large-scale biophysical and ecological processes (SoOUV, 2013; Nomination, 2010).

Assessment information

Threats

Current Threats

High Threat

The fact that so much biodiversity remains in the Western Ghats, given the

tremendous population pressure surrounding the property, is extraordinary. A large number of threats which severely threaten the OUV of the property exist and require coordinated conservation responses at all levels including political, sociological and biological.

► Livestock Farming / Grazing

High Threat
Inside site, extent of threat not known
Outside site

Grazing within the property is a threat. Some protected areas have been declared “grazing free” thanks to ecodevelopment projects, largely financed by the Government. However, in other areas grazing remains a visible impact (IUCN Evaluation, 2012).

► Crops

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

GIS analysis of six broad landuse classes (estates, forests, forest plantations, reservoirs, scrub and settlements) of the property suggest more than 93% of forest cover, however, there are areas of non-conservation landuses within the site (settlements; agricultural areas; artificial reservoirs; and plantations – potentially of coconut, rubber, teak, eucalypt, cardamom, tea, and/or coffee) (IUCN Evaluation 2012).
Agriculture and aquaculture impact 7% of odonates and 4% of plants (Molur et al., 2011).

► Forestry/ Wood production

High Threat
Inside site, extent of threat not known
Outside site

Unsustainable extraction of fuel wood, non-timber forest products and freshwater biodiversity will always remain a threat (IUCN, 2012; Molur et al., 2011). However, Gadgil et al. (2011) note that subsistence collection by local communities is not a threat and the issue is rather pressures created by organised industry.

► Tourism/ visitors/ recreation

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

Tourism is increasing disturbance to sensitive areas. Massive pilgrimage tourism within the property is of concern (Nomination, 2010; IUCN Evaluation, 2012). Tourism has been promoted beyond the carrying capacity of the settlements and has led to scarcity of water, increased sewage and solid waste and forest degradation (Equations, 2011; Kasturirangan, 2013).

► Renewable Energy

High Threat
Inside site, localised(<5%)
Outside site

Fast running rivers and steep slopes have provided sites for about fifty major hydropower plants in the Ghats (Kasturirangan, 2013), some which are situated in or just outside the property boundaries with the potential for expansion in response to increased irrigation and hydro-electric demand. Similar pressures may arise for wind power generation, with the construction of a number of new windmills (possibly inside the property, or on its boundaries).Since all infrastructure development is subject to environmental impact assessment, the pressure that this infrastructure will have on the OUV of the property is contested (IUCN Evaluation, 2012).

► Fire/ Fire Suppression

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

Occasional wildfires occur in the property (Nomination, 2010).

► Hunting (commercial/subsistence)

High Threat
Inside site, scattered(5-15%)
Outside site

Remaining forest patches are subject to intense hunting pressure, and the growth of populations around protected areas and other forests has led to

increasing human-wildlife conflict. Raiding elephants cause crop loss, and leopards kill livestock. Compensation for farmers is generally inadequate, and wild animals are often killed or injured in an attempt to reduce further damage (CEPF, 2013).
Lion-tailed Macaque, a Western Ghats endemic primate, has suffered from illegal hunting and poaching pressure in protected areas such as Kudremukh National Park (Kumara and Sinha 2009).

► Water Pollution

High Threat
Inside site, extent of threat not known
Outside site

The main threat impacting freshwater biodiversity is pollution (Molur et al., 2011).
Report of the Western Ghats High Level Working Group (HLWG) recommends a ‘non-tolerance policy’ with respect to highly interventionist and environmentally damaging activities like mining or polluting industries. (Kasturirangan, K. et al. 2013).

► Avalanches/ Landslides, Storms/Flooding

High Threat
Inside site, throughout(>50%)
Outside site

Changes in land use and tree cutting have led to big variations in the duration and intensity of rainfall. Climate change has caused severe floods, landslides, erosion and fallen trees in many regions, a recent event in November 2009 in the Nilgiri Mountains (SWGM, 2010, Kasturirangan, 2013).

► Invasive Non-Native/ Alien Species, Hyper-Abundant Species

High Threat
Inside site, extent of threat not known
Outside site

Invasive alien species (IAS) are considered as the second major threat to native flora only after habitat destruction, and Lantana camara is a major invasive (Rao, 2012). IAS impact 22% of fishes (Molur et al., 2011).
Selective logging and encroachment in the past, along with recurrent fires, have led to the proliferation of Ochlandra reed brakes in the gaps, preventing

the regeneration of trees (Giriraj et al. 2008).

► Commercial/ Industrial Areas, Tourism/ Recreation Areas

High Threat
Inside site, extent of threat not known
Outside site

High population pressure within and surrounding the property and risk of encroachment (IUCN Evaluation, 2012). To appreciate the scale of human pressure in the Western Ghats there are an estimated 50 million people living in this region (Kasturirangan et al., 2013)
The growth of populations around protected areas and other forests has led to increasing human-wildlife conflict. Pressures on the region's natural ecosystems are intensifying, driven by economic development, population growth and rising demand for power, agricultural commodities and minerals (CEPF, 2013; Gadgil et al., 2011; Kasturirangan et al., 2013; Bharucha et al., 2010). Residential and commercial development is one of the highest threats to freshwater biodiversity (Molur et al., 2011).
Land use change continues to affect the property and is attributed to human development pressure stemming from changing economic opportunities. A 2016 study of land use cover change in Neyyar WS in the furthest south Agasthyamalai cluster shows evergreen forest loss of 10% (likely converted to scrubland due to disturbance) in the period 2001-2015. Similar forest degradation trends have already been reported earlier in specific areas of Western Ghats. (Vijayasoorya et al. 2016).

► Mining/ Quarrying

Low Threat
Inside site, not applicable
Outside site

Although most mines have been excluded from the property, there remain mining concerns in Sindhudurg in Maharashtra. Similarly, Kudremukh National Park has a large iron-ore mine in the centre which, although the State Party has re-confirmed that "no mining occurs at present", holds the potential to be reactivated. An additional concern is the liability of mine rehabilitation, which in this case was reported to be the responsibility of the park on land which has been returned to the park (an area of 5,000 ha). All mines within the property require rehabilitation (IUCN Evaluation, 2012). A

newspaper article reports “In the past few years quarrying and sand mining have also encroached into parts of the Ghats” (Rao, 2014) although not clear if this occurs within the property or elsewhere in the Ghats. Mining is cited as a major threat, especially as negative externalities are not sufficiently addressed (Gadgil et al. 2011). Energy production and mining impact 6% of fishes, 5% of molluscs and 4% of freshwater plants overall (Molur et al., 2011). As noted above the report of the HLWG recommends a ‘non-tolerance policy’ with activities like mining or polluting industries. (Kasturirangan, K. et al. 2013).

Potential Threats

High Threat

Ongoing pressure for development will continue to place the property under high threat. Reports of proposed expansion and upgrades of industrial developments in areas surrounding the property have the potential to impact on the property given its context within a region of 50 million people. Climate change will probably exacerbate a system already under pressure.

► Mining/ Quarrying

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

While in theory these should not impact the property itself as new mines and hydroelectric installations would not be allowed in the property itself, there still remains the possibility that they could be developed around the property. There are reports of proposals to expand coal-fired and hydro power stations as well as industrial operations (petrochemical and fertilisers) which may impact the property. Reports centre on the large State of Karnataka and include planned upgrades of the Udupi Power Station (Udupi) and Mangalore Refinery (Kudremukh Region) as well as plans to reconsider hydro power development at Gundiya on the Nethravathi River that originates in the Western Ghats. (Stakeholder Consultation, 2016)
With respect to the Updi Power Plant expansion, an application has been lodged with the Ministry of Environment, Forest and Climate Change and EIA conditions specified to the proponent (Adani Power Ltd, 2015); MoEFCC,

2015).

▶ Tourism/ Recreation Areas

Data Deficient
Inside site, extent of threat not known
Outside site

Reports of proposals to handover Jog Falls in the Sharavathi River Valley (Karnataka) to private interests. Reports of pumping water to ensure year-round waterfall flows for tourists (Stakeholder Consultation, 2016).

Protection and management

Assessing Protection and Management

▶ Relationships with local people

Serious Concern

While it is clear that there is much support from many local populations including academics and committed conservationists belonging to a variety of NGOs, there is also conflict with local people, particularly in some places in Kodagu and Karnataka. There are some 40 different Adivasi/indigenous peoples in several states of the Western Ghats region and significant concerns with rights issues. Participatory mechanisms through Village Ecodevelopment Committees (VEDCs) are in place, although there are still concerns that these do not respect existing indigenous institutions for decision-making consistent with the UN Declaration on the Rights of Indigenous Peoples (IUCN Evaluation, 2012).

▶ Legal framework

Some Concern

The 39 component parts of this serial property fall under a number of protection regimes, ranging from Tiger Reserves, National Parks, Wildlife Sanctuaries, and Reserved Forests. All components are owned by the State and are subject to stringent protection under laws including the Wildlife (Protection) Act of 1972, the Indian Forest Act of 1927, and the Forest Conservation Act (1980). Through these laws the components are under the

control of the Forestry Department and the Chief Wildlife Warden, thus the legal status is considered adequate. 40% of the property lies outside of the formal protected area system, mostly in Reserved Forests, which are legally protected and effectively managed. The Forest Conservation Act (1980) provides adequate regulatory framework to protect them from infrastructure development. The Reserved Forests are extremely important to protect the property's values and for connectivity. For example, 2014 research into the population status of the endangered Lion-tailed Macaque in Kalakad-Mundanthurai Tiger Reserve noted the critical importance of Reserved Forests in facilitating the movement of these primates within the protected area network (Sushma et al., 2014). However, whether these Reserved Forests will successfully protect the values of such a large proportion (40%) of the property from various pressures including access and infrastructure development remains unclear (IUCN Evaluation, 2012).

► Enforcement

Data Deficient

The property is adequately staffed with well qualified personnel and some details of enforcement activities such as patrolling are given, however, there is limited evidence of the effectiveness of enforcement. The challenges of effective enforcement remain high due to the high population pressure on the property and its fragmented configuration.

► Integration into regional and national planning systems

Data Deficient

It is not clear how the property relates to, or is influenced by, the surrounding planning systems at national, state and local levels. The nomination dossier argued that all components were managed under the prescriptions of the site-specific management and working plans of the State forest departments and there is little scope for the provisions of any other plan (Nomination, 2010).

Given the lack of an overarching management framework and the complexity of the serial configuration over 4 different stateds, further examination is needed to understand how the property is integrated into wider planning systems.

► Management system

Serious Concern

All the National Parks and Wildlife Sanctuaries are managed as per the prescriptions of their individual approved management plans and Reserved Forests are managed in accordance with their individual approved working plans (Nomination, 2010). However, these plans are very complex and vary from site to site so it is not clear how each component part is managed, nor how they contribute to an overall management strategy for the property (IUCN Evaluation, 2012). The overarching management system of the multi-stakeholder Western Ghats Natural Heritage Management Committee is supposed to guide the management of the property as a whole (SP, 2012). Effective coordination of management across the multiple components of a 1,600 km serial site remains a significant challenge. For example, the challenge for the conservation of the Lion-tailed Macaque in Kalakad-Mundanthurai Tiger Reserve (the largest protected area in the serial property) is to identify, monitor and restore connectivity between this protected area and the surrounding forest reserves and to develop more cohesive inter-State conservation plans for key species such as these (Sushma et al., 2014).

► Management effectiveness

Data Deficient

No studies on the management effectiveness of the property have been seen.

► Implementation of Committee decisions and recommendations

Data Deficient

Recommendations at time of inscription (2012) to take into account the outcomes of scientific studies of institutes specialized in the field, and their recommendations; to ensure proactive tourism management in anticipation of increased future visitation, and to ensure that visitation remains within the capacity of the property; to ensure any proposed infrastructure developments are subject to rigorous prior impact assessments, to determine if they are appropriate; and to establish improved coordination and integration between the components, particularly through the preparation and implementation of an overarching management plan or framework for

the serial property as a whole (Decision 36COM 8B.10). At the time of this 2017 assessment no State of Conservation reports have been undertaken for the property. A State Party report is required to establish if these recommendations have been implemented.

► Boundaries

Some Concern

The property includes a number of disturbed areas including settlements, dams, artificial reservoirs, plantations and agricultural areas which are innappropiate for the core area of a natural World Heritage area (IUCN Evaluation, 2012).

The State Party modified the boundaries between the original nomination in 2011 and the inscription in 2012 (11 of the 39 components were modified). This removed some areas of disturbance but GIS analysis shows a number of disturbed areas remain within the inscribed area (IUCN Evaluation 2012). Concerns were also raised by IUCN on the ecological basis of component selections as these had not at the time of inscription taken into account the recommendations of the Western Ghats Ecology Expert Panel (WGEEP) (IUCN Evaluation, 2012). A subsequent report by the HLWG appears to be designed to integrate the science based findings of the WGEEP with stakeholder views (Kasturirangan, K. et al., 2013).

This may, in time, result in future modification and/or extension of the property’s boundaries and configuration. It is also noted that the State Party proposed to add an additional 5 components in the State of Goa totalling 74,518 ha as a minor boundary modification before the 41st meeting of the WH Committee;

however, the WH Committee did not approve this proposal and invited the State Party to submit the proposal as a new nomination for a significant boundary modification (UNESCO, 2017).

► Sustainable finance

Mostly Effective

Funds are made available from budget allocations in Central and State budgets and other centrally sponsored schemes for all site elements of each Sub-cluster (Nomination, 2010). Government funding mechanisms provide a more reliable source of funding to sustain and scale up community-based conservation actions than grant funding or philanthropic donations. Government has significantly increased funding for research, while CEPF has significantly increased the availability of funding for conservation action by civil society. However, non-CEPF donor funding for biodiversity conservation has diminished significantly over the last five years (CEPF, 2013).

► Staff training and development

Highly Effective

Staffing at professional, technical and maintenance levels for the entire property includes Divisional Forest Officer/ Assistant Conservator of Forest (28); Ranger Officer (58); Deputy Ranger (35); Forester (238); Guards (757) and Watchers (125) for a total of 1,241 staff for the entire property (Nomination, 2010).
The field staff are adequately trained in conservation and management techniques. The Indira Gandhi National Forest Academy (IGNFA), Dehradun, imparts the basic training on forestry and management techniques. This training is supplemented by periodic orientation courses by IGNFA offered to officers holding various levels of responsibility. Additional training on wildlife management techniques is offered by the Wildlife Institute of India (WII), Dehradun. For subordinate-level officers and staff, the institutions providing training include the Southern Forest Rangers College, Coimbatore, Tamil Nadu; Forestry College, Vaigai Dam, Tamil Nadu; Periyar Foundation, Thekkady, Kerala; Institute of Management in Government, Kerala; Kerala Forest Research Institute, Thrissur, Kerala; Kerala Forest School, Arippa and Walayar, Kerala (Nomination, 2010).

► Sustainable use

Serious Concern

Joint forest management includes focused action on organizing the communities, empowering them and providing support for sustainable alternate livelihoods and enhanced income generation activities. Capacity building efforts to make local communities practice ecologically sustainable

and improved land use for enhanced productivity remains a prime concern (Nomination, 2010). There are nonetheless ongoing concerns about forest loss through conversion and degradation as well as continued development pressure from industry in areas adjoining the property (Vijayasoorya et al. 2016; Stakeholder Consultation, 2016). There also appears to be weak integration with national, state and local development planning (Nomination, 2010).

► Education and interpretation programs

Mostly Effective

Interpretation centres and nature education and awareness camps have been designed to sensitize visitors towards nature and to appreciate conservation initiatives. These facilities vary depending on the extent of tourist flow in each of the site elements (Nomination, 2010).

► Tourism and visitation management

Some Concern

Visitor facilities include accommodation in inspection bungalows and dormitories (Nomination, 2010). There are some concerns about tourism development in areas surrounding the property (Stakeholder Consultation, 2016).

► Monitoring

Data Deficient

The agency responsible for monitoring is the office of the Chief Wildlife Warden in each State, and it was proposed to monitor key indicators which included 5 high-profile mammals (Asian Elephant, Lion-tailed Macaque, Nilgiri Langur, Nilgiri Tahr, Tiger), 1 habitat (Myristica swamp) and 1 keystone tree species (Nomination, 2010). This might however be insufficient in order to identify trends in the property as a whole.

► Research

Mostly Effective

A large amount of scientific research has and continues to be is undertaken in the property. For example, recent research into Lion-tailed Macaque

(Macaca silenus) in Kalakad-Mundanthurai Tiger Reserve has shown a larger population size than previous surveys (Sushma et al., 2014). Several centres of scientific research in India support the property such as WII, IGNFA and the National Tiger Conservation Authority (NTCA) (Nomination, 2010).

Overall assessment of protection and management

Some Concern

It is very difficult to assess the overall protection and management of the property at this point in time. There has been no formal management effectiveness assessment undertaken for the entire propery. Overall staffing and government budgets appear adequate but th eproperty sits within a highly populated region with many external pressures.
Each of the 39 component parts of the property has its own management system and protective measures that vary throughout this complex serial site that stretches over a distance of some 1,600 km from north to south. There is a priority need to articulate a clear overarching management framework that harmonizes policy and management practice across the various clusters and States. Functional corridors that assure wildlife movement and ecological connectivity between the clusters of component protected areas are also required.

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

Serious Concern

Politically the entire Western Ghats is extremely difficult to protect and manage given the large number of different stakeholders operating in the area, the complexity of governance arrangements and the fact that 40% of the original forested system has already been destroyed. Functional corridors that assure wildlife movement between protected areas are required. The protection and management challenges are compounded by high population pressure and the appetite for development as well as the apparent weak integration of the site’s management with broader national, state and local development planning.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Critical habitat for several globally threatened flagship species**
Good
Trend:Data Deficient

The IUCN evaluation raised concerns about the conservation status of many of the flagship species within the property and whether they exist inside or outside the inscribed areas. Globally endangered species such as the Asian elephant, gaur and tiger are likely dependent on the larger landscapes of the Western Ghats (IUCN Evaluation, 2010) and hence dependent on good connectivity. The 2014 survey of Lion-tailed Macaques in the south of the property showed that the population was larger than previously believed, a positive given the area had not been surveyed for more than 20 years (Sushma et al., 2014). However, more systematic survey of these flagship species does not appear to have been undertaken recently.

▶ **Exceptionally high levels of plant and animal diversity and endemism**
Good
Trend:Data Deficient

The property contains exceptionally rich numbers of species and very high levels endemism across many taxa. Some surveys have been undertaken but trends are not clear or evident across all taxa. As has been noted the persistence of these levels of biodiversity is remarkable given the high population pressure of the region. As above, limited data and systematic survey make it difficult to assess trends but for the moment the values remain intact.

▶ **Exceptionally high levels of speciation and evolutionary radiation**
Good
Trend:Data Deficient

The property has large biogeographic scale significance related to the breakup of continents and high levels of speciation and evolutionary radiation among several taxa. Data is lacking making it difficult to assess trends but it appears that these values remain the same as when the property was inscribed.

▶ **Large scale biological and ecological processes constituting one of the best examples of a tropical monsoon system on the planet**

Good

Trend:Data Deficient

This value pertains to the influences of the Western Ghats on the entire Indian sub-continent. With climate change this value could deteriorate, but it will take a very long time to ascertain a trend rather than annual fluctuations. For now, the current state is the same as when the property was inscribed.

Summary of the Values

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

Good

Trend: Data Deficient

While the state of World Heritage values in the property was considered as good at time of inscription and appears to remain so, the current state and trend of values is difficult to assess with certainty due to the lack of any systematic survey of taxa. It should be noted that the nomination was never clear as to which species occur within the property itself and which species occur in the Western Ghats region (an area far larger than the property inscribed as World Heritage). The nomination identified several indicator species for monitoring and provided some distribution maps, however, this was for a relatively small number of species. The capacity for monitoring within the property is high and priority should be given to gaining a more comprehensive understanding of the conservation status of key biodiversity, ecosystems and evolutionary processes in the property. Proposals to extend the property offer good potential to augment the values and ensure

improved connectivity across this linear system.

Additional information

Benefits

Understanding Benefits

▶ **Pollination**

Honey is produced within the protected areas and the property is an important reserve for other pollinators.

▶ **Soil stabilisation**

The steep and other forested slopes provide protection from erosion, soil stabilisation and ground-water renewal.

▶ **Carbon sequestration**

Large size of forested area provides significant carbon sequestration and improves local impact.

▶ **Contribution to education**

Many of the components have educational centres or even schools inside the property for the local population.

▶ **Outdoor recreation and tourism**

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

▶ **Collection of medicinal resources for local use**

Local people are allowed to collect medicinal plants in the property.

▶ **Wilderness and iconic features**

Some of the component parts include sacred groves, waterfalls and/or mountains

▶ **Sacred natural sites or landscapes**

Recent research has demonstrated the importance sacred groves in the northern W Ghats (Blicharska et al. 2013)

▶ **Commercial wells**

A number of hydro-electric plants use dammed rivers located within site.

▶ **Access to drinking water**

Local communities living within the property use water provided by the site.

▶ **Livestock grazing areas**

Some livestock grazing and fodder collection is allowed for local populations within the property.

▶ **Collection of wild plants and mushrooms**

local people are allowed to collect wild food plants, mushrooms and medicinal plants in the property.

Summary of benefits

The greatest benefit of the property is the safeguard of an enormous number of endemic species found nowhere else in the world, many of which would disappear if they did not occur in a protected area. The property also provides important ecosystem services, ensuring water quality and soil stabilisation. With the sacred sites situated within the property as well as a wealth of wildlife and spectacular scenery the property provides important spiritual as well as tourism benefits. The component parks generate employment through park

jobs as well as tourism and local enterprises such as the collection of medicinal plants and fruit, and honey production.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	CEPF		See CEPF portfolio of projects
2	ATREE		Ashoka Trust for Research in Ecology and the Environment, Bangalore. Administers CEPF grants but also has its own projects.
3	Wildlife Conservation Society		Tiger and habitat conservation
4	Agumbe Rainforest Research Station		Rainforest research/King cobras
5	Wildlife Trust of India		Work on elephant corridor, studying linear infrastructure and its impacts on the Ghats, community initiatives, anti-poaching training, veterinary services as well as anti-snare work.

REFERENCES

№	References
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