ASIA / PACIFIC

WESTERN GHATS

INDIA

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

WESTERN GHATS (INDIA) – ID No. 1342 Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination of the property

Key paragraphs of Operational Guidelines:
78 Property does not meet conditions of integrity or protection and management requirements
114 Property does not meet management requirements for serial properties

Background note: As detailed in the IUCN evaluation report for 35COM, IUCN recommended a deferral of the original nomination. While maintaining the full set of technical IUCN recommendations, the Committee decided to refer the nomination. The Committee requested the State Party to address a range of issues concerning the scope and composition of the serial property; boundaries of the property's core area and its buffer zone; enhanced stakeholder consultation and engagement; and a range of protection, management and coordination measures. The State Party of India submitted a response to Decision 35COM 8B.9 in February 2012 which provides information in relation to each of the issues raised and providing revised maps of the nominated property. The evaluation below draws upon the previous assessment taking into account re-submitted material.

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1. DOCUMENTATION

a) Date nomination received by IUCN: Original nomination received on 15 March 2010. Revised version after 35COM referral decision received on 28 February 2012.

b) Additional information officially requested from and provided by the State Party: Supplementary information on the original nomination was requested from the State Party on 06 January 2011. India submitted the requested information on 24 February 2011. The submitted information was considered in IUCN's 2011 evaluation report and this 2012 Evaluation Report.

c) Additional literature consulted: Anand, M.O., J. Krishnaswamy, A. Kumar and A. Bali (2010). **Sustaining biodiversity conservation in human-modified landscapes in the Western Ghats: Remnant forests matter.** Biological Conservation 143: 2363-2374; S.D. Biju and F. Bossuyt (2003) **New frog family from India reveals an ancient biogeographical link with the Seychelles.** Nature London 425: 711-714; BirdLife International (2010) **Endemic Bird Area factsheet: Western Ghats.** http://www.birdlife.org; T.M. Brooks, R.A. Mittermeier, C.G. Mittermeier et al. (2002) **Habitat loss and extinction in the hotspots of biodiversity.** Conservation Biology 16: 909-923; CEPF (Critical Ecosystem Partnership Fund) (2007) **Ecosystem Profile: Western Ghats and Sri Lanka Biodiversity hotspot, Western Ghats Region.** Ashoka Trust for Research in Ecology and Environment, Bangalore; A. Das et al. (2006) **Prioritisation of conservation areas in the Western Ghats, India.** Biological Conservation 133: 16-31; A.N. Henry and R. Goplan (1995). **Agastyamalai Hills, India.** In: Centres of Plant Diversity. A Guide and Strategy for their Conservation Vol 2; IUCN Publications Unit, Cambridge, UK. IUCN (2004) **The World Heritage List: Future priorities for a credible and complete list of natural and mixed sites.** Submitted to the World Heritage Committee WHC-04/28.COM/INF.13B; C. Magin and S. Chape (2004) **Review of the World Heritage Network: Biogeography, Habitats and Biodiversity. A Contribution to the Global Strategy for World Heritage Natural Sites.** WCMC / IUCN; R.A. Mittermeier, J. Ratsimbazafy, A.B. Rylands et al. (2007) **Hotspots Revisited.** CEMEX Mexico City Mexico; N. Myers, R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca and J. Kent (2000) **Biodiversity hotspots for conservation priorities.** Nature 403: 853-857; N.C. Nair and P. Daniel (1986) **The floristic diversity of the Western Ghats and its conservation: a review.** Proc. Indian Acad Sci. (Animal Sci./Plant Sci.) Suppl:127-163; P.O. Nameer, S. Molur, and S. Walker (2001) **Mammals of Western Ghats: A Simplistic Overview.** Zoos' Print Journal 16(11): 629-639; E. Vajravelu (1995) **Nilgiri Hills, India.** In: Centres of Plant Diversity A Guide and Strategy for their Conservation Volume 2; Bossuyt, F., M. Meegaskumbura, N. Beenaerts et al. (2004) **Local endemism within the Western Ghats – Sri Lanka biodiversity hotspot.** Science 306: 479-481; Dahanukar, N, Raut, R. and Bhat, A. (2004) **Distribution, endemism and threat status of freshwater fishes in the Western Ghats of India.** Journal of Biogeography 31(1): 123-126; Gunawardene, N.R., A.E. Dulip Daniels, I.A.U.N. Gunatilleke et al. (2007) **A brief overview of the Western Ghats – Sri Lanka biodiversity hotspot.** Current Science 93: 1567-1572. 669-670; Helgen, K.M. and C.P. Groves (2005). **Biodiversity in Sri Lanka and the Western Ghats.** Science 308: 199

d) Consultations: three external reviewers together with both IUCN representatives from the 2010 field visit.

e) Field visit: Wendy Strahm and Brian Furze evaluated the original nomination in October 2010.

f) Date of IUCN approval of this report: April 2012

2. SUMMARY OF NATURAL VALUES

The Western Ghats is a mountain chain 1,600 km long running almost parallel to India's western coast and spanning six Indian States: Gujarat, Maharashtra and Goa in the north down to Karnataka, Kerala and Tamil Nadu in the south. It is mostly comprised of tropical evergreen and moist deciduous forests with some tropical dry thorn forest on its leeward side, and stunted montane evergreen forests and grasslands at higher altitudes. The mountains form a continuous chain throughout the range apart from the 30 km Palghat Gap. With the highest peak at 2,695 m, the mountains form a considerable rainshadow with 80% of rainfall (between 2,000-6,000mm/year) falling between June-September, and most of the rest from October-November.

The Western Ghats covers an area of about 160,000 km^2 (CEPF, 2007) composed of mountains, large tracts of rainforest, rivers and waterfalls, seasonal mass-flowering wildflower meadows, and what is called the "shola-grassland ecosystem" which are patches of forests in valleys surrounded by grasslands. The overall composition of the resubmitted serial nomination has not changed from the nomination of 2010. The re-submitted nomination consists of seven different areas (the "sub-clusters") covering a total of 795,300 ha. 39 different component parts comprise these sub-clusters. Three sub-clusters are comprised of 5-6 contiguous components, and four sub-clusters are comprised of 4-7 at times contiguous components. The different components range in size from a minimum of 377 ha to a maximum of 89,500 ha. A list of the seven sub-clusters with their 39 components and their size is provided in Annex 1.

The components refer for the most part to administrative boundaries, which include Tiger Reserves, National Parks, Wildlife Sanctuaries, or Reserved Forest (in decreasing order of strict protection). Revised maps for each of the 39 components have been submitted by the State Party. A detailed GIS analysis of the revised maps undertaken by IUCN with the support of UNEP World Conservation Monitoring Centre (UNEP-WCMC) noted that a number of the 39 components now have different areas to that initially nominated. The GIS analysis shows the total area of the nominated property is now 816,538 ha, a net increase in area of 2.67% over the 2010 nomination. A number of Reserved Forests have been identified in revised maps as buffer zones and connectivity mechanisms for the property.

The property has been re-nominated under criteria (ix) and (x). The Western Ghats display high natural biodiversity values despite the high human population densities and development needs of this region. The 2010 nomination dossier noted that some "23% of the original extent of forest remains as natural habitat". However, many of the natural areas have been disturbed. Patches of native forest are interspersed with different types of cultivation, timber plantations, as well as human habitation. GIS analysis of six broad landuse classes (estates, forests, forest plantations, reservoirs, scrub and settlements) based on the re-submitted maps suggest that more than 93% of the re-nomination is forest, however, there are areas of non-conservation landuses still within the nomination (settlements; agricultural areas; artificial reservoirs; and plantations – potentially of coconut, rubber, teak, eucalypt, cardamom, tea, and/or coffee).

The 2010 nomination states that "the Western Ghats have the highest protected area coverage on the Indian mainland (15%), in the form of 20 national parks and 68 sanctuaries" and it is clear that this region enjoys a high level of formal protection. The State Party has given lengthy consideration to which components of areas already under protection ought to be included within the serial nomination. Hence the components include 21 protected areas. 40% of the nominated area is classed as Reserved Forest and so lies outside of formal protected areas. As a result, in total 5% of the area of the Western Ghats has been included in the nomination. The Western Ghats also include two Biosphere Reserves, the Nilgiris Biosphere Reserve (covering 11,040 km^2) and the Agasthyamalai Biosphere Reserve (covering 3,500 km^2).

Estimates derived from different scientific sources of the number of species of native plants in the Western Ghats vary between 4,000 to 5,000 plant species (Nair et al. 1986) estimate that there are 4,000 species with 1,500 endemic (almost 38%), whereas the "Critical Ecosystems Partnership Fund (CEPF) Western Ghats hotspot" website (2007) says that there are 5,000 species, with 1,700 endemics (34%). These figures point to an area with extremely high plant diversity and endemicity for a continental area. CEPF (2007), note that of the nearly 650 tree species found in the Western Ghats, 352 (54%) are endemic, which is at record levels. A number of plant genera such as *Impatiens* (with 76 of 86 species endemic), *Dipterocarpus* with 12 of 13 species endemic, and *Calamus* with 23 of 25 species endemic exhibit massive evolutionary radiation.

The Western Ghats have been identified as an Endemic Bird Area (Birdlife, 2010) with 16 endemic breeding species. Currently just two of these 16 species are listed as Vulnerable (VU) on the IUCN Red List. 66 Important Bird Areas (IBAs) are also listed in the Western Ghats, most of which coincide with the nominated components (apart from 12 Reserved Forests). A few IBAs such as Mudumalai, Nagarhole, Bandipur and Waynad National Parks were not included in the 2010 nomination and a

case could be made for including these National Parks in the serial site based on the value of some flagship species.

The 2010 nomination notes 139 mammal species with 17 endemic species. Nameer et al. (2001) note 135 species and 16 endemic species, with all but 2 species threatened and one data deficient. The Western Ghats is also known for a high diversity of bat species, with nearly 50 species and one endemic genus, represented by the Critically Endangered (CR) bat *Latidens salimalii*, which is endemic to the High Wavy Mountains in the Western Ghats (not included in the nomination). A number of flagship mammals have been repeatedly identified throughout the nomination including the Endangered (EN) endemic lion-tailed Macaque, Nilgiri Tahr (EN) and Nilgiri Langur (VU). These have been identified as key indicator species for monitoring purposes. The nomination also includes areas that protect the Malabar civet (CR and one of the most threatened Indian mammals) occurring in Talacauvery Wildlife Sanctuary, Kudremukh National Park and as "possibly extinct" in the Sahyadri sub-cluster.

In addition, Asian Elephant (EN) and Tiger (EN) are highlighted throughout the 2010 nomination with claims that "The Western Ghats are also home to the world's largest population of the endangered Asian Elephant, with about 11,000 animals." The 2010 mission, however, noted that very few animals actually occur inside the proposed property, cause for some concern given that both Asian Elephant and Tiger have been chosen as indicator species to monitor the state of conservation of the proposed property and are highlighted as central to its outstanding universal value. Elsewhere the 2010 nomination notes "The Nilgiri Sub-cluster is recognized as one of the most significant landscapes for conservation of a whole range of plant and animal taxa, as well as vegetation and ecosystem types. Together with the adjoining protected areas in the States of Karnataka (Bandipur and Nagarahole), Kerala (Wayanad) and Tamil Nadu (Mudumalai), this landscape has vast expanses of grasslands, scrub, deciduous and evergreen forests that possibly contain the single largest population of globally endangered 'landscape' species such as the Asian Elephant, Gaur and Tiger."

In terms of species richness, the 2010 nomination also provided figures for amphibians (179 species, of which 65% are endemic, not referenced). CEPF (2007) noted that amphibians had the greatest degree of endemicity, with 126 species of which 78% are endemic. Whatever the correct figures are, amphibian diversity and endemism is extremely high. The 2010 nomination mentioned a newly described species of purple frog belonging to an endemic family (Biju et al. 2003) that has been classified as EN (Biju 2004), just one example of the importance of amphibians in the Western Ghats. The 2010 nomination also highlights high species richness in reptiles (157 species, 62% endemic and fish (219 species, 53% endemic) as well as noting that invertebrate biodiversity, once better known, is likely also to be very high (with some 80% of tiger beetles endemic).

Human impacts are still evident across this landscape notwithstanding careful delineation of boundaries to exclude these wherever possible from the nominated property itself. Revised maps show that 11 of the 39 (28.2%) components have had adjustments made to their boundaries to excise a number of disturbed areas principally human settlements and parts of reservoirs. However, as the GIS analysis suggests many disturbed areas remain within the re-nominated property. In addition component parts of the re-nomination continue to have villages and other developments in close proximity with the inevitable issues such as encroachment, livestock grazing, fodder and fuel wood collection, illegal hunting and increasing interest in tourism-related activity among others.

3. COMPARISONS WITH OTHER AREAS

The Western Ghats have been repeatedly identified, including based on their species and habitat values, as an important gap on the World Heritage List. They have been identified as a potential forest World Heritage site (Thorsell et al. 1997), a potential mountain World Heritage site (Thorsell et al. 2002), a high priority Endemic Bird Area not yet on the World Heritage List (Smith et al. 2000), and an IUCN/SSC global habitat type in Asia that could be considered for inscription to the World Heritage List (Magin et al. 2004).

The nominated areas are all part of the Western Ghats and Sri Lanka biodiversity hotspot, a distinction they share with the Sinharaja Forest Reserve in Sri Lanka and the Central Highlands of Sri Lanka. This hotspot is home to at least 4,780 vascular plant species, of which 2,180 are endemic (representing 0.7% of the world's plant species), and 1,073 vertebrate species, of which 355 are endemic to this hotspot (these represent 1.3% of the world's vertebrate species) (Myers et al. 2000). At the time of the original hotspot analysis, which identified 25 hotspots, the Western Ghats and Sri Lanka were the 4th "hottest" hotspot in terms of endemic vertebrate species per area unit, and the 7th "hottest" hotspot in terms of endemic vascular plant species per area unit. They were also among the 8 "hottest hotspots" when considering various measures of endemism and remaining primary vegetation in relation to original extent. Less than 7% of original primary vegetation remains in the Western Ghats and Sri Lanka (Myers et al. 2000). Considering past and predicted habitat and species losses, the Western Ghats and Sri Lanka are also among the 11 hotspots that were identified as "hyperhot" priorities for conservation investment by Brooks et al. (2002).

The nominated areas include parts of the Agastyamalai Hills and Nilgiri Hills Centres of Plant Diversity and the Western Ghats Endemic Bird Area, all not yet covered on the World Heritage List. The nominated areas fully or

partly include up to 14 Important Bird Areas and 3 Alliance for Zero Extinction sites. The nominated areas also include a number – but not all – of the forest reserve areas of high conservation value that were identified by Das et al. (2006) using a systematic conservation planning approach.

In terms of species diversity the 2010 Western Ghats nomination provided somewhat inconsistent information on the exact number of species and endemic species. Based on the information available it is however clear that the species richness and endemism of the Western Ghats is exceptional: the whole region includes some 5,000 vascular plant species (1,700 endemics), 288 freshwater fish species (118), 179 amphibian species (117) and 157 reptile species (97), 508 bird species (17) and 139 mammal species (17). Even if the nominated areas were to include only half of these species, their species richness and endemism would exceed that of most existing natural World Heritage properties in the region. Only the Central Highlands of Sri Lanka – less than a tenth the size of the nominated area – achieve similarly exceptional levels of endemism in freshwater fish, amphibians and reptiles, but there are far fewer species present overall. However, the faunas of Sri Lanka and the Western Ghats are quite distinct, with large numbers of endemic species including mammals, birds, reptiles, amphibians and freshwater fish not occurring in both areas (Bossuyt et al. 2004, Gunawardene et al. 2007, Helgen et al. 2005).

The Western Ghats include a large number of globally threatened species. It has been estimated, for example, that at least 41% of the freshwater fish species are globally threatened (Dahanukar et al. 2004). In addition the full biodiversity values of the Western Ghats are not yet known with additional large numbers of species still being discovered. A recent study suggests that further research will increase the number of known freshwater fish species from 288 to 345 for example (Dahanukar et al. 2004).

The comparison demonstrates that for just about all groups of taxa, the Western Ghats comes out as being outstandingly rich with among the highest levels of endemicity for any continental tropical area.

Criterion (ix) was not included in the original 2010 nomination from the State Party; however the re-submitted nomination provides additional analysis of the values of the nominated property in accordance with criterion (ix). Notwithstanding the evidence provided the re-submitted material provides no global comparative analysis nor is it clear if the originally nominated component parts are the most suitable for conserving the ecosystem function values of the Western Ghats.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The 39 component parts of this serial nomination fall under a number of protection regimes, ranging from Tiger Reserves, National Parks, Wildlife Sanctuaries, and Reserved Forests. All components are reportedly owned by the State and are subject to stringent protection under laws including the Wildlife (Protection) Act of 1972, the National Wildlife Action Plan of 1983, and the Forest Conservation Act (1980). Through these laws the nominated components are under the control of the Forestry Department and the Chief Wildlife Warden, thus the legal status is considered adequate.

The State Party has reaffirmed in re-submitted material that 40% of the nominated property lies outside of the formal protected area system, mostly in Reserved Forests. The addition of these areas to the nominated property was undertaken as a way of increasing the opportunities to conserve a larger are of the Western Ghats within a World Heritage property and it is argued that they are legally protected and effectively managed. However, IUCN recalls earlier State Party advice that these Reserved Forests 'do not provide strict conservation and management of wild faunal species' and remains unconvinced that this level of protection will successfully protect the values of such a large proportion of the property from various pressures including access and infrastructure development.

Despite the re-submitted maps showing a number of disturbed lands have been excised from the nomination there remain areas within the nominated property which are inappropriate for the core area of a natural World Heritage area. The revised maps indicate a number of settlements, artificial reservoirs, plantations and agricultural areas within the nominated property which has been confirmed by the GIS analysis.

IUCN considers that the protection status of at least parts of the renominated property does not meet the requirements set out in the Operational Guidelines, principally due to concerns about land tenure and the strength of legal controls over development.

4.2 Boundaries

This re-submitted nomination continues to propose 39 mapped components and stresses the importance of the "contiguous site elements" or components in all 7 sub-clusters. Whilst some component parts have adjoining boundaries, there remain concerns as to how ecological processes and conservation connectivity across the nominated property as a whole will function.

The re-submitted maps indicate boundary adjustments to 11 of the 39 component parts. Some human settlements have been excluded from the re-nominated property; however, it appears settlements remain in the

nominated property along with a number of dams, plantations and agricultural areas.

The State Party in its re-submitted material state that 'the matter of determining the inclusion/ exclusion of sites in the serial nomination has not been dealt by the Western Ghats Ecology Expert Panel (WGEEP) and accordingly there are no recommendations on this.' IUCN notes, however, that WGEEP report which was tabled in August 2011 and after submission of the original nomination, makes a number of recommendations on Ecologically Sensitive Zones as areas of high conservation value within the Western Ghats system. IUCN believes it is appropriate to consider the findings of the WGEEP report noting it was specifically commissioned by the Government of India and tasked with comprehensive data compilation and identifying ecologically sensitive areas through GIS and an extensive consultation processes. IUCN is also concerned that the re-submission of essentially the same site composition may not cover those components needed to comprehensively encompass the ecological processes that could be considered under criterion (ix). Furthermore concerns persist that the proposed boundaries may not correspond with those areas essential for the conservation of the key species noted in the nomination.

IUCN remains concerned that the use of Reserved Forests as buffer zones may not offer adequate protection. It is recalled that Reserved Forests are not in place around all components and hence do not provide for a comprehensive buffer zone in all instances.

IUCN considers that the boundaries of the renominated property do not meet the requirements set out in the Operational Guidelines primarily due to ongoing concerns regarding site selection, inclusion of inappropriate land uses and buffer zone effectiveness.

4.3 Management

Integrating the management of 39 sites across 4 States will be a challenge. It is noted that the Western Ghats Natural Heritage Management Committee has been formed under the auspices of the MoEF to deal with coordination and integration issues. This Committee will be chaired by the Director-General of Forests and includes appropriate representation from national level; State level through the Chief Wildlife Wardens of Kerala, TN, Maharashtra, Karnataka, Gujarat and Goa; as well as representatives from Wildlife Institute of India (WII), ATREE, Nature Conservation Foundation (NCF), and the Western Ghats Ecology Expert Panel. The State Party, in re-submitted material, has re-stressed the existing measures for coordination of management, noting that inscription onto the World Heritage List will strengthen a common identify for the 39 component parts. The State Party argues that inscription will result in enhanced coordination and catalyse increased benefits to local livelihoods, tourism development and research and monitoring activities.

Furthermore the re-submitted information notes a three level management structure is being established at national, state and site levels.

The State Party has previously confirmed that "all 39 site elements (components) in the 7 sub-clusters are managed under specific management / working plans." Whilst the three tier management structure is welcomed, IUCN remains concerned that individual management plans are complex and not set within the context of an overarching management plan which clearly articulates how the management of the 39 component parts is to be consistent and harmonized. This is highly desirable to bring a degree of cohesion to such a large serial site with differing types of protected areas. It is also important to spell out overall management goals and a common set of principles which will maintain and enhance the values of the Western Ghats.

The 2010 mission noted support for the World Heritage nomination was evident from many quarters including Government agencies, local populations, academics and committed conservationists including a variety of NGOs and individuals. However, the mission also witnessed strident opposition to NGOs, Government and the nomination in some places such as Kodagu and Karnataka. The State Party in its resubmitted material re-emphasized that all 39 components have participatory mechanisms in place through Village Ecodevelopment Committees (VEDCs). It further restated its commitment to support participatory governance schemes. IUCN notes that there are some 40 different Adivasi/indigenous peoples in several states of the Western Ghats region. IUCN have also been made aware of continued significant concerns about the nomination and rights issues from sections of the indigenous local community. Whilst the VEDCs offer a mechanism for consultation it is important that governance mechanisms not be externally imposed but respect existing indigenous institutions for decision-making consistent with the UN Declaration on the Rights of Indigenous Peoples.

Given the points discussed above, IUCN considers the management of the renominated property does not meet the requirements set out in the Operational Guidelines.

4.4 Threats

Mining

Mining has been identified as a major threat and the nomination was careful to exclude any areas under mines. For example, and although not part of the nomination, there are 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).

Hydroelectricity, irrigation and wind farms
As previously noted, many of the components still contain sizable reservoirs within them with the potential for expansion in response to increased irrigation and hydro-electric demand. Similar pressures may arise for wind power generation, noting a number of new windmills within the mountains. The State Party has re-stated that any infrastructure development is subject to environmental impact assessment. Further that dams do not affect outstanding universal value; however, the evidential basis of this conclusion has not been made clear.

Population pressure, grazing, unsustainable non timber forest products (NTPF) and fuel wood extraction
The re-submitted maps exclude a number of human settlement areas, however, it is recognised that high population pressures and encroachment, grazing and unsustainable NTFP and fuel wood extraction will always remain a threat. Measures are in place to control this and 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. Human-wildlife conflict is also a major issue in a number of components.

In summary, IUCN considers the renominated property does not meet the conditions of integrity as outlined in the Operational Guidelines.

5. ADDITIONAL COMMENTS

5.1 Justification for Serial Approach

The proposed property is made up of 39 component parts grouped into 7 sub-clusters.

a) What is the justification for the serial approach?
The serial approach is justified in principle from a biodiversity perspective because all 39 components belong to the same biogeographic province, and remain as isolated remnants of previous continuous forest. The justification for developing a serial approach rather than just identifying one large protected area to represent the biodiversity of the Western Ghats is due to the high degree of endemism, meaning that species composition from the very north of the mountains to 1,600km south varies greatly, and no one site could tell the story of the richness of these mountains. However there remain a number of issues regarding site selection and management which have been highlighted above.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?
The formulation of this complex serial nomination has evolved through a consultative process drawing on scientific analysis from various sources. However, IUCN considers that although the component parts have been chosen on a scientific basis in order to conserve the most irreplaceable species and habitats of the Western Ghats, the nomination still does not adequately encompass the full values of the Western Ghats. In addition, given that each State focuses on its own biodiversity and conservation activities, this means that the overall continuity in interpreting the full values of the Western Ghats as a whole remains very weak.

As noted above there remain some questions on the degree of connectivity between the component parts and sub clusters which impacts on the functional linkages across this large area.

c) Is there an effective overall management framework for all the component parts of the nominated property?
Despite the three tier coordination mechanisms proposed by the State Party there remains no overarching management plan for the nominated property. Individual site management plans are in place, however they are complex and it is not clear how they contribute to an overall management strategy for the proposed World Heritage Site as a whole.

5.2 Deferral, referral and the Upstream Process of support to nominations

IUCN considers that the present nomination has not been well served by the application of the referral mechanism, since this does not allow for the appropriate level of further dialogue and discussion regarding the levels of revision of the nomination that have been requested by the World Heritage Committee. It also does not enable any on-site interactions with the State Party to take place in support of consideration by the World Heritage Committee, and no advisory mission was requested to enable support to be provided. IUCN notes that whilst there is clear potential for a World Heritage Site to be successfully nominated in the Western Ghats Region, the present nomination does not conform to the requirements established in the Operational Guidelines. IUCN considers that this presents a clear opportunity to practically implement an "Upstream Process" to provide better support to States Parties in a collaborative and constructive manner. Specifically IUCN considers that the most appropriate way forward would be for the Committee to adopt a deferral mechanism as a positive measure to provide the necessary support and guidance to the State Party to reconsider the nomination and develop a revised proposal that would meet the Operational Guidelines. IUCN would be pleased to provide further support to the State Party, through an advisory mission or otherwise in support of the revision of the nomination prior to its resubmission. Conversely, IUCN considers perpetuating a referral in this case will be a barrier rather than facilitating a process leading to a successful inscription.

6. APPLICATION OF CRITERIA

The **Western Ghats** of India has been proposed under criteria (ix) and (x).

Criterion (ix): Ecological processes
The re-submitted nomination provides additional analysis of the values of the nominated property in accordance with criterion (ix) in relation to three significant global speciation events. The Western Ghats region demonstrates speciation related to the breakup of the ancient landmass of Gondwanaland in the early Jurassic period; secondly to the formation of India into an isolated landmass and the thirdly to the Indian landmass being pushed together with Eurasia. Together with favourable weather patterns and a high gradient being present in the Ghats, high speciation has resulted. The Western Ghats is an "Evolutionary Ecotone" illustrating "Out of Africa" and "Out of Asia" hypotheses on species dispersal and vicariance. However additional global comparison is required to confirm the potential of a revised nominated property to meet criterion (ix), including the type of configuration of serial property required to respond to this criterion, and to articulate a proposed statement of outstanding universal value that would appropriately reflect these values.

IUCN considers that a revised nomination has the potential to meet this criterion, if integrity, protection and management issues are addressed to meet the requirements of the Operational Guidelines.

Criterion (x): Biodiversity and threatened species
The Western Ghats contain exceptional levels of plant and animal diversity and endemicity for a continental area. 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 (with some 80% of tiger beetles endemic). 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.

IUCN considers that the property revised nomination has the potential to meet this criterion, if integrity, protection and management issues are addressed to meet the requirements of the Operational Guidelines.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-12/36.COM/8B and WHC-12/36.COM/INF.8B2;

2. Defers the examination of the nomination of the **Western Ghats (India)** to the World Heritage List, noting the potential for a revised nomination in the region to meet criteria (ix) and (x), in order to allow the State Party to address the following important issues:

a) review and refine the scope and composition of the current serial nomination to take into account the recommendations of the "Western Ghats Ecology Expert Panel" noting the Panel was tasked to compile scientific data and define ecologically sensitive areas through consultation;

b) following the above revision, to further refine the boundaries of the components nominated to ensure the exclusion of disturbed areas such as artificial reservoirs, plantations, settlements, industry and agricultural lands; and to enhance the contiguity and buffer zones of the nomination taking into account the recommendations of the "Western Ghats Ecology Expert Panel" on landuse and controls on development;

c) establish improved coordination and integration between component sites, particularly through the preparation and implementation of an overarching management plan or framework for the serial property as a whole and through the establishment of the proposed "Western Ghats Natural Heritage Conservation Authority";

d) undertake a further consultation to facilitate increased engagement to ensure the views of all stakeholders, including local indigenous groups are considered, in order to ensure and demonstrate broad-based support for the nomination; and

e) provide an improved revised global comparative analysis and succinct statement of outstanding universal value, to the standards established in the Operational Guidelines.

3. Recommends the State Party to invite an IUCN advisory mission, in the context of the "Upstream Process" to collaboratively review the issues outlined above, thereby ensuring a comprehensive approach to conserving the globally recognised high biodiversity values of the Western Ghats region.

Annex 1: Site Elements (Components) and Sub-clusters – 2010 Western Ghats Serial Nomination

Sub-cluster	No.	Component	Area (ha) (2010 data)	State
(1) Agasthyamalai (furthest south)	1	Kalakad-Mundanthurai Tiger Reserve	89,500	Tamil Nadu
	2	Shendurney Wildlife Sanctuary	17,100	Kerala
	3	Neyyar Wildlife Sanctuary	12,800	Kerala
	4	Peppara Wildlife Sanctuary	5,300	Kerala
	5	Kulathupuzha Range	20,000	Kerala
	6	Palode Range	16,500	Kerala
(2) Periyar	7	Periyar Tiger Reserve	77,700	Kerala
	8	Ranni Forest Division	82,853	Kerala
	9	Konni Forest Division	26,143	Kerala
	10	Achankovil Forest Division	21,990	Kerala
	11	Srivilliputtur Wildlife Sanctuary	48,500	Tamil Nadu
	12	Tirunelveli (North) Forest Division (part)	23,467	Tamil Nadu
(3) Anamalai	13	Eravikulam National Park (and proposed extension)	12,700	Kerala
	14	Grass Hills National Park	3,123	Tamil Nadu
	15	Karian Shola National Park	503	Tamil Nadu
	16	Karian Shola (part of Parambikulam Wildlife Sanctuary)	377	Kerala
	17	Mankulam Range	5,284	Kerala
	18	Chinnar Wildlife Sanctuary	9,044	Kerala
	19	Mannavan Shola	1,126	Kerala
(4) Nilgiri	20	Silent Valley National Park	8,952	Kerala
	21	New Amarambalam Reserved Forest	24,697	Kerala
	22	Mukurti National Park	7,850	Tamil Nadu
	23	Kalikavu Range	11,705	Kerala
	24	Attapadi Reserved Forest	6,575	Kerala
(5) Talacauvery	25	Pushpagiri Wildlife Sanctuary	10,259	Karnataka
	26	Brahmagiri Wildlife Sanctuary	18,129	Karnataka
	27	Talacauvery Wildlife Sanctuary	10,500	Karnataka
	28	Padinalknad Reserved Forest	18,476	Karnataka
	29	Kerti Reserved Forest	7,904	Karnataka
	30	Aralam Wildlife Sanctuary	5,500	Kerala
(6) Kudremukh	31	Kudremukh National Park	60,032	Karnataka
	32	Someshwara Wildlife Sanctuary	8,840	Karnataka
	33	Someshwara Reserved Forest	11,292	Karnataka
	34	Agumbe Reserved Forest	5,709	Karnataka
	35	Balahalli Reserved Forest	2,263	Karnataka
(7) Sahyadri	36	Kas Plateau	1,142	Maharashtra
	37	Koyna Wildlife Sanctuary	42,355	Maharashtra
	38	Chandoli National Park	30,890	Maharashtra
	39	Radhanagari Wildlife Sanctuary	28,235	Maharashtra
		TOTAL	**795,315**	

Map 1: Nominated property