

AFRICA

**MOUNT KENYA – LEWA CONSERVANCY
(Extension of Mount Kenya National Park / Natural Forest)**

KENYA



WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

MOUNT KENYA-LEWA WILDLIFE CONSERVANCY (KENYA), PROPOSED EXTENSION OF MOUNT KENYA NATIONAL PARK / NATURAL FOREST (KENYA) – ID No. 800 bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve the extension under natural criteria.

Key paragraphs of Operational Guidelines:

77 Property meets natural criteria.

78 Property meets conditions of integrity and protection and management requirements.

Background note: The Mount Kenya National Park / Natural Forest World Heritage site was inscribed in 1997. The Committee inscribed this property under natural criteria (vii) and (ix) as one of the most impressive landscapes of Eastern Africa with its rugged glacier-clad summits, Afro-alpine moor lands and diverse forests, which illustrate outstanding ecological processes (21COM VIII.A, 1997). A number of subsequent UNESCO/IUCN monitoring missions recommendations and Committee decisions have recognized the importance of establishing extensions to the property to add areas and values in lowland ecosystems as well as enhance ecological connectivity to foster wildlife movement and buffer climate change (UNESCO/IUCN Missions, 2003 and 2008); (26COM 21.B14, 2002; 27COM 7B.4, 2003; 33COM 7.B3, 2009; and 35COM 7B.2, 2011).

1. DOCUMENTATION

a) Date nomination received by IUCN: 25 March 2012

b) Additional information officially requested from and provided by the State Party. Following the IUCN World Heritage Panel the State Party was requested to provide supplementary information to clarify the boundaries and protected areas included within the nomination and to update on the status of the overall joint management plan for the property. A reply was received before the deadline of 28th February 2013.

c) Additional literature consulted: **Conservation Action Plan 2013-2018 for the Greater Lewa Conservation Area.** Lewa Wildlife Conservancy, July 2012. Lewa Wildlife Conservancy: **Management Plan 2008-2010.** Lewa Wildlife Conservancy, March 2008. Lewa Wildlife Conservancy: **Strategic Plan 2008-2013.** Lewa Wildlife Conservancy, October 2007. Lewa Wildlife Conservancy: **Annual Report 2011.** **The Lewa Standard.** Lewa Wildlife Conservancy, February 2011. **Lewa Wildlife Conservancy – Code of Conduct. Deed between Bill Woodley Mount Kenya Trust and Lewa Wildlife Conservancy and Ngare Ndare Forest Trust and Marania Limited and Kisima Limited** relating to the establishment and maintenance of a fenced elephant corridor and buffer zone. Dated 30 November 2011. Greater Lewa Conservation Area: **Vision for Conservation Success.** The Nature Conservancy. Lewa News. **Newsletter No. 33** May 2012. **Lewa Standard** February 2011.

d) Consultations: 12 external reviewers. The mission met with representatives of the Kenyan Government, Lewa Wildlife Conservancy, and a range of International Agencies. Discussions were also held

with site managers and local community members. A meeting of interested and affected parties was also conducted.

e) Field Visit: Roger Porter, 22 - 26 October 2012

f) Date of IUCN approval of this report: April 2013

2. SUMMARY OF NATURAL VALUES

The proposed extension consists of the Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve (LWC-NNFR) located in northern Kenya in the Laikipia plains and northern foothills of Mount Kenya. The nominated property is surrounded by a complex of other protected lands that form a buffer zone. The field evaluation and subsequent State Party information has confirmed that the nominated core area comprises 19,834 ha (Lewa Wildlife Conservancy & Ngare Ndare Forest Reserve) with a buffer zone of 69,339 ha made up of nine protected lands. The proposed extension is connected to the Mount Kenya National Park / Natural Forest (Mount Kenya) via a narrow 9.8 km elephant corridor traversing farming land and located in the buffer zone.

The southern part of the nominated property comprises the foothills and steep valleys of the lower slopes of Mount Kenya (5,199 m asl) at an altitude greater than 2,300 m asl. This area is linked ecologically (i.e. biological corridors) by several steep valleys that extend southward traversing through a narrow belt of relatively flat agricultural land. These slopes become more gradual before giving way to a relatively vast volcanic Laikipia plain in the central area of the site. The plain extends to the hills in the north through which steep river valleys are found.

Rivers and underground streams flow from the Mount Kenya – Kenyan Highlands northwards and form part of the Ewaso Nyiro River system. Three of these rivers are perennial and flow through the site; these are the Ngare Ndare, Ngare Sergoi, and western Marania rivers. The western Marania River originates as a spring on the site. However, there are some 20 major perennial springs that emerge and flow on the ground surface within the site and provide an important integral hydrological connection between Mount Kenya and the proposed extension of the site.

A marked climatic gradient exists between Mount Kenya with its glaciers and snow fields at high elevations in the south, and the northern area of the LWC-NNFR also extending further north to Samburu National Park. The southern area experiences the tropical climate of the Kenyan Highlands whereas the LWC-NNFR and northern areas have the semi-desert climate of Eastern Kenya.

Mount Kenya is characterized by several different vegetation belts or zones (closed forests types to about 3,400 m asl, a bamboo zone, heath land and Afro alpine moorlands at higher altitudes) occurring at different elevations from the top of the mountain with no vegetation, to the lower slopes of the buffer zone with its *Juniperus procera* – *Sitpa dregeana* Tall Forest. Transformation of the forest has occurred within a narrow area between the northern boundary of the nominated property's buffer zone and the buffer zone of the proposed LWC-NNFR extension. The entire Ngare Ndare Forest Reserve and the southern area of LWC have an extensive belt of *Juniperus procera* – *Sitpa dregeana* Tall Forest in excellent condition.

At lower elevations the trees and shrubs of the *Juniperus* forest community become more widely spaced and grade into the *Acacia drepanolobium* thicket and open woodland, and *Acacia tortilis* thicket communities as well as the extensive *Pennisetum stramineum* grasslands in the central areas of LWC. These vegetation types form part of the East Africa Savannah Grasslands of the Afro-Tropical realm. Thus of particular significance is that LWC-NNFR lies at the ecotone or ecological transition zone between the Afro Tropical Montane ecosystem and its associated biodiversity and that of the semi-arid East African Savannah Grasslands. That is, the area lies at the interface of the Afromontane and Somali biomes and within the Somali – Maasai Center of Endemism. There are 11 major vegetation types in the LWC. Generally, *Acacia sayal* and *A. drepanolobium* are the dominant woody plant species at elevations above 1650 m asl where as *Acacia mellifera*, *A. tortilis*, *A. nilotica* and *Commiphora spp* are dominant below the 1650 m contour. The vegetation changes along the river courses and wetland areas. *Acacia xanthophloea* is the dominant tree species whereas two extensive swamp areas contain a variety of wetland species e.g. *Typha domingensis*, *Echinochloa spp.* *Cyperus dives*. and *Pennisetum spp.*

With the application of protection and conservation measures since 1995 the native fauna has recovered

within the LWC including many threatened plant and animal species. There is now a full complement of viable populations of all the large mammal species. Of particular importance has been the recovery of the black rhinoceros (genetically diverse) with a current population of 74 animals and a recruitment rate above that of the national average. Capture and translocation of black rhinos from LWC has been used to re-stock other protected areas in Kenya. Grevy's zebra are listed as critically endangered species and LWC holds about 17 % (approximately 440 animals) of the world's population.

LWC lies within the traditional movement or migration route of the African elephant population of the Mount Kenya – Somali / Maasai ecosystem and has always been the traditional dry season feeding area for elephants. Generally animals move away from the mountain when climatic conditions are cold and wet to the lowland Laikipia plain area where higher temperatures and drier conditions prevail. They return to the highlands and mountain when conditions are too dry in the plains regions. Some of the elephants migrate from the northern rangelands through LWC-NNFR and finally into the Mount Kenya World Heritage Site.

This migration route became blocked as a result of agricultural land use and the construction of the main A2 road. Various measures to manage human-wildlife conflict were implemented with marginal success until an agreement struck between the owners of the Kisima and Mariana farms and LWC to construct an elephant movement corridor of 9.8 km long over these properties to link Mount Kenya to NNFR and LWC. This corridor follows a natural drainage valley with natural vegetation of forest and grassland area that provides both food and cover for the animals. The corridor has an electrified fence and passes under the busy A2 road through an underpass. The elephant corridor has been operational since December 2010 and a system of monitoring has confirmed that the corridor has proved highly successful given that more than 400 elephant movements have been recorded through the underpass since January 2011 and these animals have re-established their original movements that now extends northwards over some 250 km from Mount Kenya to Samburu National Park and the Matthew's Range. The corridor also facilitates the movement of other species.

Although the LWC-NNFR properties are enclosed by an electrified elephant-proof fence that ensures the security of the two species of rhinos and other animals, gaps in the fence on traditional elephant paths allow for elephants to move freely into and out of the LWC to and from the adjoining conservancies that comprise the buffer areas. Elephant are now able to move from Mount Kenya (population of some 2000) via LWC and disperse all the way north over land under integrated management of domestic stock and wildlife by the Northern Rangeland Trust, to Samburu National Park, Shaba National Reserve and Buffalo Springs, and even further north to the Matthew's Range.

LWC has a very rich biodiversity of different ecosystems (forest, grassland, woodland, thicket and wetland), plant species, animal species, and landscapes. The property contains 249 plant species including 20 endemics; 9 species of amphibians all of which have not been recorded in the existing Mount Kenya site; 28 species of reptiles of which 85.7% have not been recorded in the Mount Kenya site; 429 bird species including 14 Red Listed species, 22 Afro-tropical and 56 Palaeartic migrant species, and several East African endemics. 34 species of mammals have been recorded with 82% of these not found in the Mount Kenya site.

3. COMPARISONS WITH OTHER AREAS

The nomination dossier provides a comparative analysis which is based on the extended Mount Kenya World Heritage Site, in other words, including the LWC-NNFR addition. The analysis concludes that the Mount Kenya – LWC-NNFR property compares favorably to several African World Heritage Sites as well as a number of other sites which protect iconic threatened species such as Chitwan (Nepal) and Noel Kempff (Bolivia). There are six mountain systems in Africa currently on the World Heritage list. Four of these are mountain ranges including the Simien Mountains in Ethiopia - criteria (viii), Mount Nimba transboundary site between Guinea and Côte d'Ivoire - criteria (ix) and (x), Rwenzori Mountains in Uganda - criteria (vii) and (x), and the Ukhahlamba Drakensberg mixed site in South Africa - criteria (vii) and (x). Two mountains are stand-alone extinct volcanoes; Mount Kilimanjaro in Tanzania - criterion (vii) and Mount Kenya in Kenya - criteria (vii) and (ix). The Mount Kenya-LWC is most directly comparable to three other World Heritage Sites that are located in the East African region.

IUCN notes that as an extension to an existing property the most significant question is regarding the degree to which the proposed extension adds to the already recognized Outstanding Universal Value of Mount Kenya. In this regard the LWC-NNFR extension is scenically very different and also encompasses a more ecologically intact World Heritage site which adds ecotone areas and the additional ecosystems of the lower foothills and arid habitats of the Somali – Maasai Center of Endemism. The addition of LWC-NNFR brings an additional set of ecosystems and biodiversity that have, to date, not been part of the existing Mount Kenya site by incorporating the lower lying scenic arid habitats of high biological richness and diversity. These additional areas also add further to the values of Mount Kenya that contrast with properties already inscribed on the World Heritage List.

IUCN also notes that the extension follows past recommendations of the World Heritage Committee as noted in the Background Note above.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1 Protection

The Government of Kenya, through the Kenya Wildlife Service (KWS), has promoted the formation of wildlife conservancies amongst owners of large tracks of land especially amongst local communities as a long-term strategy to increase range for biodiversity conservation and management in the country. LWC is managed for the conservation of biological diversity and thus has met the national legal requirements for designation as a conservancy.

The National Land Policy of the Ministry of Lands (Session Paper No.3 of 2009) recognizes the establishment of wildlife corridors for the purpose of biodiversity conservation and to support critical wildlife migration and dispersal areas. The policy embodies principles of consultation and co-management with local communities and individual land owners in the establishment of such corridors. This policy aspires to achieve an integrated and comprehensive approach to the management of natural resources through participatory environmental action plans by communities and individuals living near environmentally sensitive areas in order to take into account cultural and socio economic issues; identification, mapping and gazetting of critical wildlife migration, dispersal areas, and corridors; and through supporting the development of wildlife sanctuaries and conservancies in partnership with local communities and individuals living contiguous to the parks. The above policy led to the decision to establish a corridor and underpass on the Nanyuki Meru A2 road, in order to secure a safe movement of elephants between LWC and Mount Kenya.

IUCN considers the legal protection status of the nominated property meets the requirements set out in the Operational Guidelines.

4.2 Boundaries

The boundary of LWC-NNFR is fenced by an electrified elephant proof fence. Buffer areas have been established with the Leparua Conservancy in the north, Borana Conservancy and Il Ngwesi Group Ranch in the west. A 200 m wide buffer zone runs along the inside of the fence on the southern boundary of the Ngare Ndare Forest Reserve and includes the Elephant Corridor that links the area to Mount Kenya. The eastern boundary also has a 200 m wide buffer zone that lies inside the fence and provides an added layer of protection between LWC and the neighbouring Ntumburi community area. The ecological contiguity of the overall Mt Kenya-LWC-NNFR property is therefore contingent on the maintenance of the narrow elephant corridor. IUCN recalls past monitoring mission recommendations and Committee decisions calling for broader extensions to the property which would go beyond this LWC-NNFR extension, and thus further extensions to the property are desirable in addition to the present proposal.

IUCN notes the critical importance of maintaining a viable elephant corridor within the buffer zone, however considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines.

4.3 Management

LWC is managed by a Board of Trustees consisting of seven members. The day to day administration and protection is undertaken by a Chief Executive Officer (CEO) who is in charge of a 306 strong staff complement that undertakes various duties ranging from wildlife security, research, community outreach, conservation marketing and enterprise. The full-time staff consists of field rangers, radio operators, an anti poaching unit, workshop and works staff, and accountants. There is a fully established research station in LWC manned by 4 full time staff members headed by a Senior Scientist. There are 20 professional and 115 technical staff with impressive levels of qualifications supported by 171 maintenance employees that together make up a well-trained and skilled management team at LWC.

Staff and visitors to LWC are bound by a 'Code of Conduct' that specifies the rules regarding the various activities that may be undertaken within the area such as camping, walking, game viewing, as well as covering safety aspects. The 'Lewa Standard' aims at ensuring that LWC continues as a model for conservation, provides a high quality tourism experience, and attracts dedicated philanthropic support.

LWC is a commercial venture which generates its income for its conservation operations through donations and internally generated revenue, conservation fees and other diversified tourism related ventures to meet an annual budget requirement of USD 3.2 million. Long term financial provision has also been made with the establishment of an endowment fund that currently has USD 5 million which will grow to over USD 20 million in the next few years. Returns from the endowment fund will be used to 'top-up' annual budgets into the future as and when required.

Both the LWC and the Ngare Ndare Forest Reserve have individual management plans, although these are based on different timeframes. The Lewa Wildlife Conservancy Management Plan 2008-2010 aims to ensure that LWC's core conservation and community operations are maintained and sustained. These are mainly to ensure that LWC becomes more self-sustainable; improves, cares for, and maintains the wildlife and habitats (with special emphasis on endangered species); incorporates and improves internal systems and efficiencies. The Ngare Ndare Forest Reserve Plan 2007-2012 has a goal to foster and ensure conservation of the biological, ecological, environmental and socio cultural values of Ngare Ndare Forest in perpetuity, in order to protect the natural forest and water catchment areas, and to improve the living standards of the surrounding communities through sustainable agro forestry.

The two management plans for LWC and Ngare Ndare Forest Reserve are specific to their respective areas of jurisdiction. However, three institutions require close coordination to manage the serial property. These include KWS and KFS as well as the LWC managed through a Board of Trustees. KWS and KFS are signatories to the Mount Kenya Ecosystem Management Plan which provides an overarching management planning framework. It is essential that the separate management plans applying to the components of the property are harmonised in terms of management approaches and timeframes.

LWC employs a well trained and equipped field ranger force housed in pickets strategically located near the perimeter of the protected area. Five law enforcement patrol areas are designated and ground patrols are undertaken daily. A light aircraft is also regularly used in aerial surveillance. In addition the 140 km perimeter electric fence is checked by a team of fencers. A rapid reaction team is on stand-by and is mobilized in cases of emergency. Two trained tracker dogs are used to follow up on poaching incidents and have been successful in locating the criminals thus leading to their eventual convictions. LWC has also established close cooperation with KWS, Kenyan Police, the Anti-stock Theft Unit and work with local County Councils and community leaders.

Fire is used as a management of vegetation in LWC and unplanned fires are treated as disasters. Measures have been put in place to control these, including firebreaks and signage to caution visitors against starting fires. Fire is a constant major threat in the high altitude moorlands of Mount Kenya as well as to the lower lying forest areas in the west and north of the mountain. The capacity to control fires by KFS and KWS staff has been enhanced through additional fire equipment and training.

Systematic and regular animal census (monitoring of numbers and breeding performance, etc) of populations of key species is undertaken and include two rhino species, elephant, Grevy's zebra and all large predators. Elephant moving into or out of LWC are monitored and reports of elephant outside LWC in rural settlements are followed up immediately and the animals herded back. Movements of elephants through the corridor underpass are recorded using a variety of techniques.

IUCN considers the management of the nominated property meets the requirements set out in the Operational Guidelines.

4.4 Community

Various cooperative programmes exist between LWC and the neighbouring communities including support to several local schools; provision of job opportunities and employment; provision of health care; support of potable and irrigation water; forestry and women micro-credit schemes; controlled dry season livestock grazing inside LWC by local communities; and community based ecotourism. These programmes have been successful in building support by local

communities for LWC and their outreach programmes. The evaluation mission noted good levels of trust and a harmonious relationship that has been credited to the successful solving of the elephant – human conflict that had plagued the people of this region for many years.

LWC also runs a conservation education programme that targets 17 local schools. LWC also supports school groups from the entire northern Kenya area and from other regions of the country so that these children may learn about conservation and community development activities undertaken by LWC.

4.5 Threats

The threat to biodiversity and potential impact of climate change on natural systems is still largely unknown, however, recent droughts and high temperatures are a threat to the survival of both flora and fauna found in the region. The rate of desertification, degradation of water sources including the shrinkage of glaciers on Mount Kenya is accelerating. This may be compounded by invasions of pastoralists in their endeavours to subsist and maintain their livestock by gaining access to grazing and water. The LWC-NNFR by establishing the corridor and regional linkages via several conservancies to link with Samburu National Park, Shaba National Reserve and Buffalo Springs to the north and beyond to the Matthew's Range is a significant proactive intervention to mitigate climate change impacts on the biodiversity of this region of East Africa providing mobility for biodiversity to adapt to changing temperature and rainfall regimes.

Mount Kenya-LWC-NNFR is located in an area of high population growth resulting in challenges including conflict that needs to be resolved or managed. LWC has developed an amicable relationship with neighbouring communities and ensures that they receive benefits from the protected area. One of the threats is overgrazing and over extraction of forest and non-forest products. This matter is addressed through Community Forest Associations that determine harvest limits according to Participatory Forest Management Plans (PFMP) and as required by the Forest Act of 2005.

No new development project proposals are known at present. Should a development proposal arise it would be subject to the undertaking of an Environmental Impact Assessment. All developments prior to 2000 are subject to an Environmental Audit in terms of the requirements of the Environment Management and Coordination Act of 1999. This law has ensured compliance with the rules and regulations and has ensured environmental sustainability.

In summary, IUCN considers that the nominated property meets the conditions of integrity as outlined in the Operational Guidelines.

5. ADDITIONAL COMMENTS

5.1 Serial nomination

IUCN notes that the subsequent information provided by the State Party confirms that the elephant corridor has the status of a buffer zone to the property which means from a technical perspective this qualifies as a serial extension to the property. Given the close proximity of the two components and the linkage via the elephant corridor IUCN has not evaluated this property via its normal three questions for serial properties, but notes that the inscription should explicitly note that the connectivity provided by the elephant corridor is essential to the property, as extended. Ideally the elephant corridor should be included and recognized in the inscribed property.

5.2 Name of the Property

IUCN recommend that the name of the property should remain as the Mount Kenya National Park/Natural Forest to accommodate future extensions within the lower natural forests, in order to achieve broader ecological connectivity and coherence.

6. APPLICATION OF CRITERIA

The Mount Kenya – Lewa Wildlife Conservancy nominated property has been nominated under criteria (vii) and (ix), as an extension of the Mount Kenya National Park/Natural Forest.

Criterion (vii): Superlative natural phenomena or natural beauty and aesthetic importance

The outstanding natural beauty in the visual contrast and diversity of landscapes between the Kenyan Highlands with Mount Kenya looming over the flat, arid, grassland and sparse wooded plains of LWC-NNFR is of outstanding aesthetic importance. The proposed extension secures outstanding middle and long distance views of Mount Kenya itself.

IUCN considers that the nominated property, including the proposed extension, meets this criterion.

Criterion (ix): Ecosystems / communities and ecological / biological processes

The LWC-NNFR extension brings an additional set of ecosystem processes and biodiversity that are currently not part of the Mount Kenya World Heritage Site by incorporating the lower lying, scenic foothills and arid habitats of high biological richness and diversity. Of particular significance and value is that LWC-NNFR lies at the ecotone or ecological transition zone between the Afro Tropical Montane ecosystem and its associated biodiversity and that of the semi-arid East African Savannah Grasslands. It thus provides for a more ecologically intact World Heritage site especially in its incorporation of the complete and diverse range of outstanding ecological processes. LWC-NNFR also lie within the traditional migration route of the African elephant population of the Mount Kenya – Somali/Maasai ecosystem and has always

been the traditional dry season feeding area for elephants.

IUCN considers that the nominated property, including the proposed extension, meets this criterion.

IUCN notes that there remains significant potential for further extensions to the property.

IUCN further notes that the current property of Mount Kenya National Park/Natural Forest does not have a Statement of Outstanding Universal Value (SoOUV), as the preparation of a retrospective SoOUV was postponed given the discussion of the possible extension. Thus IUCN has prepared a proposed SoOUV for the whole property as extended in the recommended draft decision below. The State Party may wish to further discuss this ahead of the consideration of this nomination by the World Heritage Committee.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following decision.

The World Heritage Committee,

1. Having examined Documents WHC-13/37.COM/8B and WHC-13/37.COM/INF.8B2;

2. Approves the extension of **Mount Kenya National Park/Natural Forest, Kenya**, through the addition of the Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve, under natural criteria (vii) and (ix);

3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

Mount Kenya straddles the equator about 193 km north-east of Nairobi and about 480 km from the Kenyan coast. At 5,199 m, Mount Kenya is the second highest peak in Africa and is an ancient extinct volcano. There are 12 remnant glaciers on the mountain, all receding rapidly, and four secondary peaks that sit at the head of the U-shaped glacial valleys. With its rugged glacier-clad summits and forested middle slopes, Mount Kenya is one of the most impressive landscapes in East Africa. The evolution and ecology of its afro-alpine flora also provide an outstanding example of ecological processes.

The property includes the Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve (LWC-NNFR) to the north. The two component parts of the property are connected via a wildlife corridor which is part of the buffer zone for the property, and which provides vital connectivity for elephants moving between Mount Kenya and the larger conservation complex of the Somali/Maasai ecosystem. The LWC-NNFR extension incorporates the forested foothills and steep valleys of the lower slopes of Mount Kenya and extends northwards onto the relatively flat, arid, volcanic soils

supporting grassland and open woodland communities on the Laikipia plain.

Criteria

Criterion (vii)

At 5,199 m, Mount Kenya is the second-highest peak in Africa. It is an ancient extinct volcano, which during its period of activity (3.1-2.6 million years ago) is thought to have risen to 6,500 m. The entire mountain is deeply dissected by valleys radiating from the peaks, which are largely attributed to glacial erosion. There are about 20 glacial tarns (small lakes) of varying sizes and numerous glacial moraine features between 3,950 m and 4,800 m asl. The highest peaks are Batian (5,199 m) and Nelion (5,188 m). There are 12 remnant glaciers on the mountain, all receding rapidly, and four secondary peaks that sit at the head of the U-shaped glacial valleys.

With its rugged glacier-clad summits and forested middle slopes, Mount Kenya is one of the most impressive landscapes in East Africa. This setting is enhanced by the visual contrast and diversity of landscapes created between the Kenyan Highlands and Mount Kenya looming over the flat, arid, grassland and sparse wooded plains of the Lewa Wildlife Conservancy extension to the north.

Mount Kenya is also regarded as a holy mountain by all the communities (Kikuyu and Meru) living adjacent to it. They use the mountain for traditional rituals based on the belief that their traditional God Ngai and his wife Mumbi live on the peak of the mountain.

Criterion (ix)

The evolution and ecology of the afro-alpine flora of Mount Kenya provides an outstanding example of ecological processes in this type of environment. Vegetation varies with altitude and rainfall and the property supports a rich alpine and subalpine flora. Juniperus procera and Podocarpus species are predominant in the drier parts of the lower zone (below 2,500 m asl). Cassipourea malosana predominates in wetter areas to the south-west and north-east. Higher altitudes (2,500-3,000 m) are dominated by bamboo and Podocarpus milanjianus. Above 3,000 m, the alpine zone offers a diversity of ecosystems including grassy glades, moorlands, tussock grasslands and sedges. Continuous vegetation stops at about 4,500 m although isolated vascular plants have been found at over 5,000m.

In the lower forest and bamboo zone mammals include giant forest hog, tree hyrax, white-tailed mongoose, elephant, black rhinoceros, suni, black-fronted duiker and leopard. Moorland mammals include the localized Mount Kenya mouse shrew, hyrax and common duiker. The endemic mole-rat is common throughout the northern slopes and the Hinder Valley at elevations up to 4,000 m. Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve enhance the species diversity within the property including being home to the largest resident population of Grevys' Zebra in the world. An impressive array of birdlife includes green ibis (local Mount Kenya race); Ayres hawk eagle; Abyssinian long-eared owl; scaly francolin; Rüppell's robin-chat;

numerous sunbirds (Nectariniidae); the locally threatened scarce swift; and near endemic alpine swift.

The Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve component of the property incorporates lower lying, scenic foothills and arid habitats of high biological richness and diversity. The component lies at the ecological transition zone between the Afro Tropical Mountain ecosystem and the semi-arid East African Savannah Grasslands. Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve also lie within the traditional migration route of the African elephant population of the Mount Kenya – Somali/Maasai ecosystem and has always been the traditional dry season feeding area for elephants.

Integrity

The serial property comprises Mount Kenya National Park managed by the Kenya Wildlife Service (KWS) and parts of the Mount Kenya Forest Reserve managed by the Kenya Forest Service (KFS). Both these protected areas are designed to protect the main natural values and the watershed of the mountain above the 2,000 - 2,500m elevations. To the north the property is connected via a 9.8 km elephant corridor to the Lewa Wildlife Conservancy and Ngare Ndare Forest Reserve (LWC-NNFR) which adds lowland drier ecosystems and habitats and a suite of additional species to the property. The corridor is within the buffer zone but critical to maintain ecological connectivity between the two components of the property. Despite a number of threats to the property, wildlife populations, though reduced from the years prior to the first inscription of the property on the World Heritage List, are still considered healthy.

The boundaries of the property on the main area of Mount Kenya are limited to the upper reaches of the mountain above the montane forest zone and most of the forest destruction, illegal grazing, poaching and other human activities which impact the broader ecosystem are occurring outside the property, in the area of forest/national reserve that serves as a 'buffer zone'. Understanding and mitigating these threats to the broader ecosystem is important because they impact the long-term viability of the property.

Climate change is probably one of the most serious long-term threats to the site. Glaciers are melting fast and appear destined to disappear altogether within a few decades. As the climate warms the vegetation zones can be expected to shift higher up the mountain. For example, the lower parts of the bamboo zone (which occur at the lower limit of the property) will likely gradually be replaced with mixed montane forest. It is essential that the threat of climate change is buffered through enhanced connectivity and ensuring that natural habitats covering the full range of altitude are maintained as a continuum, thus providing ecosystem resilience and allowing for adaptation to the inevitable change. The LWC-NNFR by establishing the corridor and regional linkages via several conservancies to link with Samburu National Park, Shaba National Reserve and Buffalo Springs to the north and beyond to the Matthew's Range is a significant proactive intervention to mitigate climate change impacts on the biodiversity

of this region of East Africa providing mobility for biodiversity to adapt to changing temperature and rainfall regimes.

Protection and management requirements

The property's legislative framework is generally sound and provides for adequate protection of the site. The most relevant legislation is provided by the Wildlife Act, the Environment Management and Coordination Act (1999), the Water Act (2002), and the Forest Act (2005). The Government of Kenya, through KWS has promoted the formation of wildlife conservancies amongst owners of large tracks of land especially amongst local communities as a long-term strategy to increase range for biodiversity conservation and management in the country. LWC is managed for the conservation of biological diversity and thus has met the national legal requirements for designation as a conservancy. In addition the National Land Policy of the Ministry of Lands supports the establishment of corridors for biodiversity conservation.

Three institutions require close coordination to manage the serial property. These include KWS and KFS as well as the Lewa Wildlife Conservancy managed through a Board of Trustees. KWS and KFS are signatories to the Mount Kenya Ecosystem Management Plan which provides an overarching management planning framework. It is essential that the separate management plans applying to the components of the property are harmonised in terms of management approaches and timeframes.

More sustainable management of various sections of the forest has been supported through the establishment of Community Forestry Associations (CFAs) and the production of operational forest management plans and related agreements signed between KFS and the CFAs.

There is a major problem with crop damage caused by elephant, buffalo and other large mammals moving into fields along the lower boundary of the Mount Kenya National/Forest Reserve. Various attempts have been made to mitigate this human-wildlife conflict problem by fencing and construction of other barriers to stop animals moving out of the reserve. These have had mixed results, nevertheless, as experience has shown elsewhere, effective and well considered fencing is likely to be the best option for mitigating human/wildlife conflict in such a densely populated landscape.

Past threats from commercial tree plantation development and associated cultivation/habitat destruction have been alleviated through long term efforts. Government policy not to convert any more natural forest for plantation development has significantly reduced the threat to the property from plantation development and associated cultivation in the adjacent buffer zone. Nevertheless, the ecological consequences of the failed plantation development activities of past decades remain. Areas which were cleared for plantations, but never planted, have been colonised by grasses and are being maintained as

open grazing lands, rather than being allowed to revert to natural forest.

Threats from illegal logging, grazing, poaching and tourism are being managed and appear to be stable notwithstanding on-going issues. Continued monitoring and effective management of these issues will be needed. Fire is a major threat, especially in the high altitude moorlands of the World Heritage property. The threat is exacerbated by the increasing number of people living around the periphery of the forest, and making daily incursions up the mountain to graze livestock and collect non-timber forest products. Stakeholders have jointly developed a Mount Kenya Hotspot Strategic Fire Plan to guide future fire preparedness within the ecosystem.

The maintenance of the 9.8km elephant corridor connecting Mount Kenya to the lowland areas of the LWC-NNFR is critical to provide a contiguous link between the two components of the property, thereby supporting wildlife movements and buffering against climate change impacts. It is also critical to explore other opportunities to create connectivity within the larger ecosystem complex to enhance the ecological viability of the property.

4. Emphasizes the critical importance of maintaining the wildlife and elephant corridor between the Lewa Wildlife Conservancy - Ngare Ndare Forest Reserve and the Mount Kenya National Park/Natural Forest World Heritage Site as vital to conservation connectivity and the viability of the property's Outstanding Universal Value;

5. Commends the State Party of Kenya for enhancing the ecological connectivity and habitat diversity of the Mount Kenya National Park/Natural Forest through this serial extension;

6. Encourages the State Party to consider further extension of the boundary of Mount Kenya National Park/Natural Forest World Heritage Site, so as to include the lower natural forests and to achieve broader ecological connectivity and coherence.

7. Recommends that the name of the property remain Mount Kenya National Park/Natural Forest to accommodate future extensions.

Map 1: Proposed extension and buffer zone

