IUCN Conservation Outlook Assessment 2014 **(archived)**
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Please note: this is an archived Conservation Outlook Assessment for Ngorongoro Conservation Area. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Ngorongoro Conservation Area

SITE INFORMATION

Country:
Tanzania (United Republic of)
Inscribed in: 1979
Criteria:
(iv) (vii) (viii) (ix) (x)

Site description:
The Ngorongoro Conservation Area spans vast expanses of highland plains, savanna, savanna woodlands and forests. Established in 1959 as a multiple land use area, with wildlife coexisting with semi-nomadic Maasai pastoralists practicing traditional livestock grazing, it includes the spectacular Ngorongoro Crater, the world’s largest caldera. The property has global importance for biodiversity conservation due to the presence of globally threatened species, the density of wildlife inhabiting the area, and the annual migration of wildebeest, zebra, gazelles and other animals into the northern plains. Extensive archaeological research has also yielded a long sequence of evidence of human evolution and human-environment dynamics, including early hominid footprints dating back 3.6 million years. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

The world heritage values of Ngorongoro Conservation Area (NCA) are being well maintained as a result of appropriate management both of the property and of the adjacent protected areas (which sustain the migrating herds for much of the year beyond the boundaries of the NCA). The status of the area's two most endangered species (black rhino and wild dog) remains critical but there are signs of recovery in their populations. The large size of Ngorongoro Conservation Area and its location at the southern end of a trans-boundary complex of protected areas (which together cover most of the wider Serengeti ecosystem) should ensure the long-term protection of its values. Tourism brings substantial financial benefits which support management of the area and provide substantial benefits to its large resident pastoralist population. However, increasing tourist numbers might pose a threat if not regulated effectively. The main long-term concern is that the area's human population continues to increase, exerting unsustainable demands on natural resources and causing irreversible degradation.

Current state and trend of VALUES

Low Concern
Trend: Stable

The world heritage values of Ngorongoro Conservation Area are being well maintained as a result of appropriate management of the property and adjacent protected areas (which sustain the migrating herds for much of the year beyond the boundaries of Ngorongoro). However, some of the internal movement corridors used by wildlife species traditionally are being disintegrated and blocked. The status of the area's most endangered species, black rhino, remains critical, but there are signs of recovery in its populations.

Overall THREATS

Low Threat

The major threats to Ngorongoro Conservation Area arise from the increase in the resident pastoralist population and their livestock and the socio-cultural changes these people are experiencing as pressure builds to modernize their traditional lifestyles. Tourism is growing rapidly, creating intense pressure for supporting infrastructure – lodge accommodation, roads, picnic sites and the like. These threats to the property's Outstanding Universal Values are generally being addressed adequately and its overall ecological integrity is remarkably well maintained due to the traditional tolerance of the Maasai people for wildlife. However, the movement corridors in and out of the Crater itself are being disintegrated because of growth in human population, particularly from the Crater itself towards Serengeti, to and past Olbalbal and along the Olduvai Gorge. Threats from poaching, fire, disease transmission from domestic stock, spread of invasive alien plants and human-wildlife conflicts are under control. However, poaching of elephants, especially in the adjacent protected areas, is on the increase and additional efforts are required to control the spread of invasive species.

Overall PROTECTION and MANAGEMENT

Mostly Effective

NCA benefits from a strong policy and legislative environment which allows the management authority (NCAA) to raise and retain revenues from a rapidly growing number of visitors, whilst enabling the Maasai resident population to sustain a largely traditional pastoralist lifestyle that is favourable to wildlife. Funds generated by NCAA (US$ 31 million in 2007) have been used to strengthen protection and management of the area, and provide substantial benefits to the resident pastoralist population (around 80,000 people). Although there are still some shortcomings this is a well managed conservation area, maintaining a high degree of ecological integrity.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Large, ecologically dynamic self-sustaining ecosystem**
Criterion:(ix)

Ngorongoro Conservation Area (8,094 km2), lies at the southern end of the wider Serengeti ecosystem - one of the last intact ecosystems in the world (SoUV, 2010) - which includes a complex of protected areas covering a total area of 35,567 km2. Other components of the complex include Serengeti National Park (14,763 km2) Maswa Game Reserve (2,200 km2), Ikorongo-Grumeti Game Reserves (5,000 km2), Loliondo Game Controlled Area (4,000 km2) and Masai Mara National Reserve in Kenya (1,510 km2). The protected status of adjacent areas ensures that the entire ecosystem used by the migrating herds is maintained in an ecological viable state (UNEP-WCMC, 2012).

▶ **Rare and endangered species**
Criterion:(x)

Rare and endangered species include cheetah (VU), elephant (VU), black rhino (CR), wild dog (EN) and hippo (VU), as well as 5 species of birds (UNEP-WCMC, 2012)

▶ **Diversity of other fauna and flora**
Criterion:(x)

The area’s flora and fauna have not been systematically surveyed, but species diversity is expected to be high for a wide range of taxa. Ngorongoro

lies within one of the world's Endemic Bird Areas, with over 500 bird species recorded (Birdlife IBA Factsheet, UNEP-WCMC Information Sheet, 2012)

► Complex and complete mammalian community
Criterion:(x)

NCA's mammalian community is part of the most diverse and complex savanna community on Earth, including 1.3 million wildebeest, 0.6 million zebra, 0.9 million Thomson's gazelle and large numbers of other species such as buffalo, eland, topi, giraffe, warthog, elephant, hippopotamus, and black rhino. The complex community of large grazing mammals is accompanied by an equally impressive diversity of large and small predators including as many as 7,500 hyenas, 3,000 lions, 1,000 leopards, 225 cheetahs and wild dogs.

► Dynamic complex of on-going evolutionary processes
Criterion:(ix)

The complex geology and altitudinal range (from around 1,000 metres on the shores of Lake Eyasi to 3,600 metres on the highland summits) combine to create an extraordinarily diverse ecology. On-going volcanic activity associated with the Great Rift Valley, high rainfall in the crater highlands and pressures associated with the high human and domestic livestock populations contribute to a dynamic and ever-changing environment.

► Outstanding geomorphic features and ongoing geological processes
Criterion:(viii)

Ngorongoro Crater is the largest unbroken caldera in the world, part of the volcanic highlands along the western flank of the Great Rift Valley. The area has been geologically active since the late Mesozoic/early Tertiary periods and includes a complex of unparalleled geomorphic and geological features including two other dormant volcanic craters (Olmoti and Empakaai), seasonal rivers whose erosive forces have exposed important paleaontological finds (in Olduvai and Laetoli gorges), and wind-blown 'shifting' sand-dunes. Periodic eruptions of a nearby volcano (Oldonyo Lengai) bring a dusting of volcanic ash, enhancing the fertility and productivity of the short-grass plains (SoOUV, 2010).

► Diversity of ecological communities

Criteria:(vii)(ix)

Ngorongoro Conservation Area contains a remarkable spatial complexity of abiotic factors (altitude, rainfall, temperature, soils, topography), resulting in a diverse array of savanna grassland, forest and woodland habitats. These include short-grass plains, Terminalia and Acacia woodlands, montane and gallery forests and communities associated with saline pans, other wetlands and rocky kopjes.

► Outstanding scenery

Criterion:(vii)

The Ngorongoro area, offers spectacular scenery including the magnificent volcanic craters of Ngorongoro, Empakai and Olmoti, as well as extensive short-grass plains punctuated by impressive outcrops of massive weathered granite ‘kopjes’, seasonal wetlands, river gorges, low hills and a diversity of forest and woodland types (SoOUV, 2010).

► Greatest mammal migration on Earth

Criteria:(vii)(x)

Ngorongoro Conservation Area is a key component of the wider Serengeti ecosystem which supports the greatest large mammal migration on Earth, involving approximately 2 million wildebeest, zebra and Thomson’s gazelle, accompanied by 7,500 hyenas, 3,000 lions and other predators. The annual migration follows a 1,000 km circuit between key dry-season water points and grazing lands along the Mara river (in Kenya’s Masai Mara Reserve) and short-grass pastures of the Serengeti National Park to the southern calving grounds in the Ngorongoro Conservation Area (SoOUV, 2010).

Assessment information

Threats

Current Threats

High Threat

The most significant current threats relate to the demands of a growing resident human population, and the need to regulate and manage tourism. The increase of the resident pastoralist population is partly due to immigration into the area, and the 80,000 Maasai people now living within NCA represents approximately four times the number present when the property was listed (1979). Although small-scale agriculture has now been banned, there are approximately 300,000 domestic livestock living alongside the wildlife. Tourism is growing rapidly, with demands for additional accommodation, roads and visitor facilities. Other significant threats to NCA include the spread of invasive alien plants, disease transmission between domestic and wild animals, the occurrence of uncontrolled fires. Commercial and subsistence poaching occur to a limited extent. However, there has been an increase in elephants poaching in the region recently.

► Identity/ Social Cohesion/ Changes in local population and community

Very High Threat
Inside site
Outside site

The resident pastoralist population of the area has increased progressively from around 8,700 in 1966 to 20,000 at the time of inscription on the world heritage list (1979), and now stands at around 76-79,000 (SOC Report, 2012). This is partly the result of Immigration into the due to relatively favourable living conditions, livestock and health services and job opportunities (EoH Assessment, 2011). These people and their livestock create demands for living space and environmental services which are in direct competition with wildlife and lead inevitably to environmental degradation.

► Housing/ Urban Areas, Commercial/ Industrial Areas

High Threat
Inside site

Traditional Maasai homesteads and livestock enclosures are constructed from poles and sticks, cattle dung, mud and hides. The demands of a growing

human population have led to unsustainable use of these materials from the local area and associated habitat degradation. Furthermore, as traditional building techniques give way to more modern construction methods, trading centres have developed and grown, with negative impacts on the aesthetic and landscape values of the property. However, Ngorongoro Conservation Area Authority (NCAA) are now enforcing eco-friendly building codes.

► Hyper-Abundant Species

Very High Threat
Inside site

The number of domestic livestock (cattle, sheep and goats) has remained fairly constant at around 300,000 Tropical Livestock Units for at least a couple of decades, with periodic reductions occasioned by drought (UNESCO/ICOMOS/IUCN Mission report, 2012). This level of stocking is thought to result in degradation of the grazing lands in favour of unpalatable species and the spread of ‘weeds’ (EoH Assessment, 2011)

► Other Ecosystem Modifications

Very Low Threat
Outside site

Until 2009 the resident population was becoming increasingly dependent on subsistence cultivation, but this has now been banned, and food aid is being provided to residents in compensation (UNESCO/ICOMOS/IUCN Mission Report, 2012).

► Roads/ Railroads

Low Threat
Inside site

The main murram road through the centre of the conservation area (from Lodoare to Naabi Hill gates) serves as a through-route for buses, trucks and other commercial traffic linking Arusha and other towns of northern Tanzania with Musoma and the fertile lands of the Lake Victoria Basin. A recent, highly controversial, proposal involved construction of a tarmac road through northern Serengeti from Musoma to Arusha via Tabora ‘B’ (park gate) and Klein’s Gate (Serengeti Mission Report, 2010), but this is said to have been abandoned (SP Report 2012). Conservation groups have urged the

development of a route which would pass to the south of the entire ecosystem, thus reducing traffic through NCA and SNP.

► Commercial hunting

Low Threat
Inside site

There has been a recent surge in commercial poaching for elephant ivory across Africa with 3 Ngorongoro elephants killed by poachers in 2011 (UNESCO/ICOMOS/IUCN Mission Report, 2012).

► Subsistence hunting

Low Threat
Inside site

Poaching is primarily for meat, taken at subsistence levels (EoH Assessment, 2011). Populations of most target species are stable or increasing and poaching is not thought to be affecting their overall viability (UNESCO/ICOMOS/IUCN Report, 2012).

► Logging/ Wood Harvesting

Low Threat
Inside site

There has been a recent spate of illegal logging for Sandalwood (Osiris lanceolata) but logging is not considered to be a major threat (UNESCO/ICOMOS/IUCN Mission Report, 2012).

► Tourism/ Recreation Areas

Low Threat
Inside site
Outside site

There are currently six lodges inside NCA, four of which are sited on the rim of Ngorongoro Crater (Serena, Sopa, Crater and Wildlife lodges), one set back from the crater rim (Rhino lodge) and one at Lake Ndutu. A recent proposal for an additional lodge (Kempinski) on the crater rim was not approved (SP Report 2012), and it is NCAA policy to distribute any future developments in other areas (Tourism Marketing Strategic Plan, 2011-15). All lodge developments are subject to EIA procedures and environmental audits are

currently being undertaken for existing lodges to ensure that they comply with international best practice in respect of environmental management. The road network used for game viewing is limited, and much of it is heavily used, especially the roads in and around Ngorongoro Crater itself.

► Tourism/ visitors/ recreation

Low Threat
Inside site
Outside site

NCA received almost 600,000 visitors in 2011 (Mission Report, 2012) and is one of the most intensively visited conservation areas in Africa. Visitors tend to concentrate around the world famous Ngorongoro Crater, which covers less than 5% of the total area and could easily become congested. Measures are being taken to limit access to 50 vehicles inside the crater at any time by applying a high vehicle access fee (currently US$200) and limiting the duration of each visit to 6 hours (Mission Report, 2012)

► Fire/ Fire Suppression

Low Threat
Inside site

Although the Serengeti ecosystem is adapted to fire, hot burns (which occur at the end of the dry season) can cause extensive long-term damage to woody vegetation. Fire is used by resident pastoralists to improve grazing for domestic stock, minimize tick loads and help in the collection of wild honey – and is difficult to control (EoH assessment, 2011)

► Invasive Non-Native/ Alien Species

High Threat
Inside site

Several invasive alien weed species are already established in the NCA including the red water fern (Azolla filiculoide); Mexican Poppy (Argemone Mexicana), Mauritius Thorn (Datura stromium) and the highly aggressive and damaging weed Parthemium hysterophorus (Mission Report, 2012, GMP 2006-16). A strategic plan for the control of invasive plant species has been developed and good progress reported in the implementation of measures to control Azolla, Argemone and Datura (Mission Report, 2012, EoH Assessment,

2011)

▶ Other Ecosystem Modifications

High Threat
Inside site
Outside site

Human-wildlife conflict occurs when livestock is lost to wild predators and/or crops are damaged by wildlife inside the conservation area or along its boundaries. The Maasai people have a long history of living alongside wildlife, and have a high level of tolerance with regards to wildlife (EoH assessment, 2011).

Potential Threats

Low Threat

Additional threats arise from changes in land-use patterns in the buffer zones around the ecosystem, which are likely to exert increasing constraints on the geographical reach of the migration. Also in the wider Serengeti ecosystem, the availability of water – the key driver of the migration – is a crucial factor and there are emerging issues over the state of the Mara River, the ecosystem’s only permanent water. Climate change may be sufficient to effect significant ecological change on the ecosystem.

▶ Other

Data Deficient
Inside site

Disease transmission between domestic stock and wildlife can be catastrophic in an area of co-existence like Ngorongoro. The present population of 1.3 million wildebeest is the result of long-term recovery from a rinderpest outbreak, transmitted by cattle, which had decimated the population. NCAA assists with inoculation of domestic stock, provision of dipping tanks etc, and disease surveillance (EoH Assessment, 2011).

▶ Habitat Shifting/ Alteration, Droughts

Data Deficient

Inside site

The potential impact of climate change is unknown, but may affect critical aspects of ecosystem dynamics including water availability and the quality and quantity of grazing.

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

NCA represents a unique ‘experiment’ in the co-existence of a resident Maasai pastoralist community and wildlife. With almost 80,000 people and 300,000 cattle living alongside the area’s extraordinary wildlife there are inevitably areas of competition for resources and potential for conflict. The success of NCA in balancing the demands of the area’s people with the needs of its wildlife owes much to the Maasai’s traditional tolerance for wildlife. Resident communities participate in land-use planning and decision-making through a community-elected Pastoral Council whose Chairperson is a member of the NCAA Board (and two other members sit on one of the Board committees). In addition, the 17 villages have all participated in the preparation and review of the General Management Plan, and hold regular ‘good neighbourhood’ village-level meetings which focus on benefit sharing and cooperation. A direct financial contribution from the NCAA to local communities (equivalent to US$850,000 in 2011, SP Report, 2012) is made; and other benefit-sharing provisions include assistance with livestock development through free veterinary treatment, water troughs, dams etc; provision of food aid; free medical and veterinary services; and student sponsorship (approximately 700 students are currently sponsored).

► Legal framework and enforcement

Mostly Effective

The legal framework is fairly strong, with the Ngorongoro Conservation Act providing for the establishment of a semi-autonomous agency, Ngorongoro Conservation Area Authority (NCAA) with its own Board of Trustees and

ability to retain all revenues. NCAA operates within a comprehensive National Wildlife Policy, Village Land Act and various other legislation and policy frameworks (11 of which are listed in the EoH Assessment, 2011). Infrastructural developments throughout Tanzania are subject to Environmental Impact Assessment (EIA) under the Environmental Management Act (2004) and 2005 EIA Regulations. A notable gap in the Ngorongoro Conservation Act is the lack of provisions for building regulation relating to the construction of modern housing and related social infrastructure.
The effectiveness of law enforcement operations, particularly those relating to poaching has been slowly improving, but there are still shortcomings. There has been a recent spate of illegal logging of sandalwood, and 3 elephants killed, but the level of poaching is not currently considered a significant threat to the site's OUV (SOC, 2012)

► Integration into regional and national planning systems

Mostly Effective

The Serengeti Ecosystem Forum is a 26-member consortium involving the NCAA, Tanzania National Parks Authority (TANAPA), Wildlife Division, local communities and other key ecosystem stakeholders that ensures coordination and collaboration in addressing common interests. Coordination at a trans-boundary level, particularly over sustainable management of the Mara River, is facilitated by the Lake Victoria Basin Commission (Serengeti SP Report, 2012).

► Management system

Highly Effective

NCA operates under a General Management Plan (2006-16), with five main management programmes aligned to the park's operational departments (natural resources, cultural resources, community development, tourism, and operations). Tourism and community development are managed through a system of zonation with a development zone, crater zone and catchment forest zone, as well as an 'external use zone' (buffer) outside NCA.

► Management effectiveness

Mostly Effective

Management is generally effective, with implementation of 76% of ‘management processes’ considered to be ‘good’, 10% ‘very good’ and 14% ‘fair’ (EoH assessment, 2011). Planning procedures, reporting and compliance with World Heritage values are particularly strong, while monitoring, research, cultural resource management and tourism operations are relatively weak (EoH Assessment, 2011). There are few budgetary constraints with insufficient funds to fully undertake major activities such as (1) the relocation of staff to a new complex outside the conservation area, (2) voluntary resettlement of some residents (especially recent immigrants into the NCA) and (3) maintenance and development of the road network.

► Implementation of Committee decisions and recommendations

Mostly Effective

Many committee decisions are implemented in a timely manner, or further explanation on actions pending is provided. Committee decisions concerning tourism regulation and infrastructure development have been respected, community relations have been strengthened, necessary planning activities undertaken and efforts directed at improving livestock husbandry (SP Report, 2012). However, the core challenges for NCA relate to growth in the number of residents, the human pressure on natural resources, and the management of changing requirements (e.g. for modern housing) for a society in transition. Although a 5,300 ha site has been acquired outside NCA (at Oldonyo Sambu) for voluntary resettlement, only 553 people have so far been resettled over a period of six years – far less than the estimated increase in the population of NCA (in the region of 15,000) over the same period (Mission Report, 2012). NCA spent the equivalent of US$ 1,300 per person to build necessary infrastructure and facilitate this voluntary resettlement, at which rate it would cost US$19.5 million to resettle the 15,000 people who are thought to have been added to the NCA resident population over the past six years (based on figures in the Mission Report, 2012).

► Boundaries

Mostly Effective

NCA is at the southern end of the wider Serengeti ecosystem with about three quarters of the ecosystem (as naturally defined by the migration route)

lying to the north. The ecological integrity of the NCA is therefore dependent on effective management and protection of areas beyond its boundary (and vice versa), which seems assured (given that most of the area is formally protected within the Serengeti National Park, Masai Mara Game Reserve (Kenya) and other areas. The state of physical demarcation of the boundary (with cairns or other markers) is unknown.

► Sustainable finance

Mostly Effective

NCA is one of the most revenue-generative protected areas in Africa, with revenues equivalent to US$ 31 million, 60% of which comes from visitor entrance fees (2007 figures, UNEP-WCMC, 2012). Revenue is retained and used by NCAA for management (including benefit-sharing contributions to resident communities). There is concern that NCA is over-dependent on tourism revenues, and would be extremely vulnerable in the event of a sudden down-turn in visitor numbers (e.g. as a result of a terrorist attack etc) (EoH Assessment, 2011)

► Staff training and development

Mostly Effective

A total staff of 369 is required, somewhat short of the number employed at the time of GMP preparation (GMP, 2006-16). The level of staff training is considered to be good (EoH Assessment, 2011)

► Sustainable use

Data Deficient

Grazing pressure from domestic livestock is intense across most of the NCA (except for the Crater and Catchment Forest Zones where it is strictly regulated), as is demand for firewood, poles, water and other renewable resources. There is no regular monitoring of key resources, and a particular need has been identified to monitor closely the status of all grasslands in terms of the nature and extent of overgrazing (Mission Report, 2012).

► Education and interpretation programs

Data Deficient

The focus of NCAA education and interpretation activities is in supporting the resident pastoralist population through regular village level meetings (SP Report, 2012).

► Tourism and interpretation

Mostly Effective

The number of visitors has increased strongly over the past ten years, and currently totals around 600,000 per annum (both resident and non-resident; Mission Report, 2012). Visitor use is heavily focused on Ngorongoro Crater (which covers less than 5% of the total area) and measures are being taken to reduce vehicle congestion and environmental impacts by applying a high ‘crater access fee’ to each vehicle, and developing alternative attractions to draw visitors away from the crater. There are six existing tourist lodges and a policy to develop low-impact high-value facilities, focused on additional tented camps. Environmental audits are being undertaken to ensure world-class environmental management standards at all lodges (SP Report, 2012). A tourism marketing strategic plan 2011-15 has been developed.

► Monitoring

Some Concern

There is some ad hoc monitoring and evaluation of ecological indicators and management activities, but no overall strategy and/or no regular collection of results (EoH Assessment, 2011). A rudimentary framework for monitoring and evaluation is provided in the GMP, but there is little indication that significant progress has been made in implementing it. There is a particular need to monitor the condition of the grasslands in relation to over-grazing (Mission Report, 2012)

► Research

Some Concern

There is no management-orientated research programme, and research priorities are established by the Tanzania Wildlife Research Institute (TAWIRI). There is insufficient linkage between research and management.

Overall assessment of protection and management

Mostly Effective

NCA benefits from a strong policy and legislative environment which allows the management authority (NCAA) to raise and retain revenues from a rapidly growing number of visitors, whilst enabling the Maasai resident population to sustain a largely traditional pastoralist lifestyle that is favourable to wildlife. Funds generated by NCAA (US$ 31 million in 2007) have been used to strengthen protection and management of the area, and provide substantial benefits to the resident pastoralist population (around 80,000 people). Although there are still some shortcomings this is a well managed conservation area, maintaining a high degree of ecological integrity.

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

Mostly Effective

The northern boundaries adjoin other protected areas (Serengeti National Park, Maswa Game Reserve and Loliondo Game Controlled Area), and although these are subject to some degree of resource use from trophy hunting (Maswa Game Reserve and Loliondo Game Controlled Area), pastoralism and other activities they serve as an effective buffer zone maintaining the ecological integrity of the migration route. The southern boundaries follow the rift escarpment, with some bordering land under intense cultivation. However, the threat of encroachment from the south is currently effectively managed. To the east, the Kitete corridor has historically tied the NCA to the area that is now Lake Manyara National Park and to the south another route passing near Endamaghay and known as Laja connects the NCA with Mang’ola Forest. This corridor extends to Lake Manyara National Park through Marang Forest. The continued viability of these corridors is unclear (GMP, 2006).

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Large, ecologically dynamic self-sustaining ecosystem

Low Concern
Trend:Stable

Ngorongoro Conservation Area (NCA) and the adjacent complex of protected areas have been well maintained, ensuring the ecological integrity of the entire ecosystem. There is some concern that the composition and quality of the grasslands in the NCA may be changing as a result of heavy grazing pressure from domestic stock (Mission Report, 2012, EoH Assessment Report, 2011).

▶ Rare and endangered species

Low Concern
Trend:Improving

The status of some notable species appears to be improving. Black rhino (remnants of a population that was heavily poached during the 1980s) have increased to 32 individuals and constitute the most viable remaining population in Tanzania (EoH Report, 2011); and several small populations of wild dog have established themselves in adjoining areas of the ecosystem, and may soon be able to re-establish themselves in the two World Heritage properties (Serengeti Mission Report, 2010)

▶ Diversity of other fauna and flora

Data Deficient
Trend:Data Deficient

No data available, but probably stable

▶ Complex and complete mammalian community

Good
Trend:Stable

This is one of the few African protected areas to have maintained a complete

mammalian fauna. Five wildlife censuses of major species for the Serengeti ecosystem as a whole conducted between 1996 and 2010 indicate stable populations of 13 species, increasing populations of 5 species and decreasing populations of 1 species (Serengeti SP Report, 2011)

► Dynamic complex of on-going evolutionary processes

Data Deficient
Trend:Data Deficient

Although there is no systematic monitoring of ecological indicators, it is likely that change is being significantly influenced by anthropogenic factors including heavy grazing pressure, the occurrence of invasive exotic plants, and climate change.

► Outstanding geomorphic features and ongoing geological processes

Good
Trend:Stable

The geomorphic and geological values of the property are being maintained

► Diversity of ecological communities

Data Deficient
Trend:Data Deficient

No data available, but thought to be stable

► Outstanding scenery

Low Concern
Trend:Deteriorating

The scenic values of the site are being maintained, although housing and other infrastructure associated with the growing pastoralist population is widely distributed through the landscape and some is conspicuous. Traditional building materials and techniques (based on locally available natural materials) are gradually giving way to use of imported materials (e.g. cement and corrugated iron), so NCAA has introduced a set of ‘building codes’ to guide such developments (SP Report, 2012). Lodge and tented camp developments are generally well positioned, concealed, and appropriately designed. Dust plumes from moving vehicles create a short-

lived impact on scenic values, but these are not serious.

▶ **Greatest mammal migration on Earth**

Good

Trend:Stable

The great wildebeest migration is essentially intact with all major parts of the route used by the migrating herds included within protected areas. However, some of the internal movement corridors used by wildlife species traditionally are being disintegrated and blocked. Small areas of the migration route in the north-west of the ecosystem are unprotected and some poaching occurs there, but populations of the major species appear able to withstand current levels of off-take.

Summary of the Values

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

Low Concern

Trend: Stable

The world heritage values of Ngorongoro Conservation Area are being well maintained as a result of appropriate management of the property and adjacent protected areas (which sustain the migrating herds for much of the year beyond the boundaries of Ngorongoro). However, some of the internal movement corridors used by wildlife species traditionally are being disintegrated and blocked. The status of the area’s most endangered species, black rhino, remains critical, but there are signs of recovery in its populations.

Additional information

Key conservation issues

▶ **Reduce land-use conflicts within the wider Serengeti ecosystem**

National

Continue to promote sustainable land-use systems in communal areas outside the protected area complex, encouraging land-use practices that are compatible with wildlife conservation

▶ **Sustainable management of the Mara River**
Regional

Strengthen efforts to ensure sustainable management of the Mara River and its catchment on both sides of the international border

▶ **Restore populations of highly endangered species**
Local

Continue efforts to protect rhinos and wild dogs and mitigate threats to the restitution and recovery of their populations

▶ **Improve research and monitoring systems to enhance management effectiveness**
Local

Ensure that an appropriate system of monitoring is implemented to evaluate the success of management inputs in achieving conservation area objectives, so that necessary adjustments can be made in a timely manner

▶ **Maintain an appropriate balance between tourism development and protection of wilderness values**
Local

Improve the distribution of tourist activities through strategic development of alternative points of interest, additional game viewing trails and low-impact accommodation facilities

▶ **Finalise and implement agreed building codes**
Local

Conclude ongoing discussions, finalise building codes and ensure that new housing and other buildings constructed within NCA by area residents use materials and design standards that are in keeping with world heritage site values

▶ Improve animal husbandry

Local

Continue and strengthen efforts to improve the quality of livestock and reduce the impact of over-grazing

▶ Reduce the impact of the resident pastoralist population

Local

Reduce the dependence of the resident human population on the area's natural resources by accelerating the programme of voluntary resettlement, improving employment opportunities, and encouraging use of suitable alternatives (e.g. solar energy in place of firewood). Restore areas formerly under cultivation.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Frankfurt Zoological Society		Support for ecological monitoring, resource protection and tourism activities
2	Tanzania Wildlife Research Institute		Implementation of regular aerial censuses, wildlife research
3	African Wildlife Foundation		Studies of landscape scale/connectivity issues
4	Tanzania Natural Resource Forum		Not known
5	Danish Aid		Not known

REFERENCES

№	References
1	Birdlife IBA Factsheet, 2012
2	Enhancing our Heritage Assessment Report, 2011
3	Mission Report 2012.
4	Ngorongoro Conservation Area Authority Tourism Marketing Strategic Plan, 2011-15
5	Ngorongoro Conservation Area General Management Plan 2006-16 (revised 2010)
6	SOC Report, 2012
7	Serengeti Mission Report 2010. Guy Debonnet and Leo Niskanen (29th November to 8th December)
8	Serengeti National Park State Party Report to WHC, 2012
9	State Party Report 2012
10	UNEP-WCMC Information Sheet, 2012