



Report on the joint UNESCO/ICOMOS
Reactive Monitoring Mission to
Ngorongoro Conservation Area (United
Republic of Tanzania)
From 6 to 12 February 2011

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Executive Summary and list of Recommendations

The World Heritage Committee at its 3rd session (Cairo and Luxor, 1979) inscribed the Ngorongoro Conservation Area under criteria (vii) (viii) (ix) (x).

At its 34th session (Brasilia, 2010), the World Heritage Committee examined the re-nomination of the property to include cultural criteria, inscribed the property under criteria (iv) and adopted a Statement of Outstanding Universal value for the property.

During the 34th session, the Committee also requested the State Party to invite a joint UNESCO/ICOMOS reactive monitoring mission to address the issues raised during the nomination process in terms of the conservation and management of the cultural attributes, in particular the State Party was requested to:

- Explore alternative ways to improve the presentation of the Laetoli and Zinjanthropus sites and keep the World Heritage Committee informed about any proposals for construction at these two sites before any commitments are made, in accordance with Paragraph 172 of the *Operational Guidelines*;
- In order to set out a clear basis for the value of the cultural resource, and its conservation and management needs, the State Party provide to the World Heritage Centre:
 - a) Details on the specific area and location of the palaeo-anthropological resources, including specific boundaries for Laetoli, Lake Ndutu, Nasera, and the Ngorongoro Burial Mounds, and for their sensitive settings, to ensure their protection;
 - b) Details of sensitive archaeological landscapes throughout the property;
 - c) Details of the location of finds from all palaeo-anthropological sites;
 - d) Conservation plans for all palaeo-anthropological localities;
- Develop a revised management plan that gives a higher profile to the management of cultural resources, sets out how regulations will be enforced and includes a pastoralism strategy that respects both natural and cultural resources, involves the

Maasai and defines a sustainable approach to managing the grasslands within the property.

- To continue to deal with extreme caution concerning any decision taken to open the Laetoli footprints;

The Mission was also requested to:

- Develop a Desired State of Conservation,
- Make proposals for a revision of the Management System and Plan to ensure adequate protection, conservation and management of the cultural attributes,
- Address the conservation issues regarding the natural attributes addressed in document WHC-10/34.COM/7B;

The joint UNESCO/ICOMOS reactive monitoring mission was carried out from February 6 to 12, 2011. The mission assessed the state of conservation of the cultural attributes that sustain the Outstanding Universal value of the property, as well as the current status of management and legal arrangements for the property and other matters raised by the World Heritage Committee at its 34th session (Brasilia, 2010). Based on the issues identified during the mission, the following recommendations have been made:

1. Management

- Expedite the finalisation and operationalise the Memorandum of Understanding between the Antiquities Division and NCAA to pave the way for an integrated and efficient management of both nature and culture in the Ngorongoro Conservation Area and to unlock both financial and human resources to expedite this process.
- Prioritise and provide resources for the immediate implementation of a participatory and value-driven planning process for the review of the existing management plan so that it provides an overall framework for the conservation, protection and management of cultural and natural attributes at the property.

2. Conservation

- Prioritise and commit to addressing the state of conservation of Laetoli, Olduvai Gorge, Lake Ndutu, Nasera Rock Shelter and Ngorongoro burial mounds in order to maintain the cultural attributes that sustain the Outstanding Universal Value of the property. Of great concern is the absence of a well resourced conservation plan for all paleoanthropological sites in the Ngorongoro Conservation Area, which may threaten the future of the property. The State Party should also consider external technical support to expedite this process in light of the existing capacities.
- The mission recommends that the NCAA develop and adopt research guidelines for the collection, reporting, curation, and conservation of archaeological/ paleontological

remains that are in compliance with Antiquities Act and other applicable international standards. The mission also recommends that the information reported to the State Party by research teams be noted in a single database, to ensure that information gathered from all localities are centrally available.

- Develop a plan for either on or off site facility and/or partner with an existing museum in Tanzania to enhance facilities for the proper curation of archaeological/ paleontological collections.
- Implement and monitor the impact of alien/invasive species in the NCA.

2.1 Olduvai Gorge

- Stabilize the erosion at the FLK-Zinjanthropus excavation site, and more broadly, at all excavations conducted in Olduvai Gorge and elsewhere within the Ngorongoro Conservation Area before any development can be considered for any of the sites. To ensure that future research does not contribute to the problem, stabilization of excavations should be included in the research guidelines that have recommended.
- Mitigate and limit the impacts of livestock at the Olduvai Gorge through a renewed participatory approach in collaboration with the pastoral communities. This could include the construction of watering holes outside the gorge and/or the identification of “safe areas” within the Gorge that are less sensitive to the detrimental impacts of livestock. This requires working together with the Maasai Pastoralist Council and should be prioritised pending the full development of a holistic pastoralism strategy.
- Submit any potential plans for construction at Olduvai Gorge to the World Heritage Centre and Advisory Bodies for consideration and review before any commitment is made, in line with Operational Guidelines, paragraph 172.

2.2 Naseru Rock shelter

- Ensure the protection of the Naseru Rock shelter from livestock through installing a psychological barrier compatible with the site as well as engaging the pastoral communities on their use of site as a shelter through the existing forum.
- Regularly (and using acceptable techniques) mitigate or limit the impacts of vegetation (trees and shrubs) to the archaeological deposits.

2.3 Ngorongoro Crater Burial Mounds

- Collect published documentation concerning the number and location of the burial mounds. If sufficient information is not available, the NCAA should conduct a detailed mapping survey of the burial mounds as a management tool to ensure their effective management and protection in the future.

2.4 Laetoli footprint trackway

- The State Party should take all precautionary measures to ensure that the Laetoli footprint trackway is conserved in a manner that best ensures their protection and retains the elements that sustain the Outstanding Universal value of the property;
- The State Party needs to submit a comprehensive report on the partial excavation, including any preliminary reports to the World Heritage Centre and the Advisory Bodies, if possible in time for the 35th session of the Committee meeting in 2010, for evaluation and review;
- Any potential plans concerning their conservation, including the potential construction of facilities, should be submitted to the World Heritage Centre and the Advisory Bodies for consideration and review, before any commitment is made, as per paragraph 172 of the Operational Guidelines for the Implementation of the World Heritage Convention;
- NCAA should remove nearby Acacia trees to ensure that future root infiltration of the trackway is limited.

3. Mapping of paleoanthropological resources and the establishment of site boundaries

- Collect previously published information on the exact location of known paleo-anthropological resources (e.g. site maps) and prior excavations conducted at all major localities in the NCA to create a GIS database. Such a database can be expanded if necessary as ongoing research in the NCA continues and yields results. An up-to-date GIS database could be facilitated by demanding all research teams (in terms of proposed research guidelines) to report the results of their surveys and excavations to the NCAA and the Antiquities Division.
- The boundaries of sites that have already been gazetted, such as the Nasera Rock Shelter, Olduvai Gorge, etc. need to be clearly identified.
- Consider joining the satellite monitoring programme, as a management tool to immediately/rapidly detect any developments or negative impacts on the property.

4. Carrying capacity, land use and relocation programme

- Develop a Land Use plan, in consultation with the Maasai communities, to determine use zones including (1) areas where grazing should be limited or restricted, (2) areas where construction of tourism facilities or lodges can or cannot be constructed. The Land Use plan should support decision-making for the property regarding the protection of the natural and cultural attributes and provide a framework for sustainable use.
- Engage in a consultation process, with the Maasai Pastoralist Council and other stakeholders, to develop a holistic pastoralism strategy. This strategy should be designed to (1) mitigate and limit the impacts of livestock at all paleoanthropological

localities, including Olduvai Gorge, and (2) ensure the sustainable management and preservation of grasslands. The former could be addressed through accelerating the construction of watering holes outside of sensitive areas and/or the identification of areas that are less sensitive to the detrimental impacts of livestock. In this regard, it is critical that the carrying capacity study is updated and that the mapping of paleoanthropological resources and the establishment of site boundaries is completed.

- Continue with the plans for conducting a census of human populations and the revised carrying capacity study by December 2012. The demographic study of human populations in the NCA should be considered as a tool to predict future population trends to ensure that the problem of population pressure can be effectively managed in a proactive, rather than reactive, manner in the long term.
- Continue monitoring and enforcing the ban on agriculture within the Ngorongoro Conservation Area.
- Develop, in consultation with the Maasai, other diversified initiatives for instances creating cattle rearing centres outside the Ngorongoro Conservation Area with increased benefits for processed products and sourcing of markets for them.
- Continue with the efforts to encourage the voluntary relocation of staff and immigrant populations outside of NCA boundaries. The State Party should engage the affected through a public participatory process mediated by a mutually agreed facilitator.
- Accelerate the relocation process of NCAA and lodge staff in order to ensure that decongestion is attained within Ngorongoro Conservation Area.

5. Tourism management and infrastructure development

- Revise and finalise the Proactive Tourism Strategy draft noted in 2009 to include a comprehensive public use strategy for the property. The public use strategy should include the following: development of physical structures, code of conduct for drivers, services (tour guiding, educational programmes, access for physically challenged) and code of conduct for visitors, including the protection of the Maasai indigenous rights (See annex 6.4 Guidelines for the development of a Public Use Plan that were drafted during the mission to assist the State Party for the formulation of such plan).
- The mission also recommends that the Proactive Tourism Strategy establish the carrying capacity for each site on the tourism route. This carrying capacity must consider culturally sensitive areas in order to reduce impacts on the paleoanthropological sites, as well as develop a zoning system that can guide tourist routes. In addition, all the entry points responsible for monitoring tourists must be synchronised to ensure that the overall carrying capacity of the property is not exceeded at any given time.
- Consider synchronising the movement of vehicles between the crater entry and exit gates in order to ensure that at all times the crater has an acceptable number of

vehicles, and/or consider alternative booking systems for the crater that will ultimately ensure maximum number of vehicles is permitted for a specific period in order to reduce vehicular congestion on viewing routes inside the crater.

- Enhance their monitoring of vehicle speeds (e.g., using hidden camera traps) and enforce penalization of those who violate NCA speed limits, as this is an issue of concern for both safety and protection of humans and animals. This should also include disaster reduction strategies and reactive plan when need arise.
- Continue to monitor the full compliance of all lodge operators with national environmental auditing regulations and their adherence to best practice models.
- Submit a map showing location of approved shopping/major infrastructure to assist in detection of new developments as well as monitoring any mushrooming infrastructure in the future. Integrate these maps within the GIS system to facilitate future decision-making in regard to required infrastructure development.

6. Interpretation and awareness-raising

- Consider the design of a multi-purpose facility to interpret the property for the enjoyment and understanding of both the natural and cultural values of the property; with the relocation of the staff outside the property, part of the existing infrastructure at Ngorongoro Conservation Area could be converted to become this multi-purpose facility.
- Promote the adaptation of the World Heritage in Young Hands Kit as a way of raising awareness among school children and the general public about the Outstanding Universal value of the property.
- Improve the presentation of the World Heritage status of the property, including the appropriate use of the World Heritage emblem.

7. Other issues

7.1 Gravel pits

- Consider engaging the Forestry Commission or similar organisations to discuss possibilities of vegetation regeneration at these non-active gravel quarry sites. Expedite the feasibility studies on hardening roads to reduce the need and frequency of quarrying.

7.2 Risk management

- Develop a Risk management plan to address potential natural and cultural vulnerabilities and risks to the property and determine provisions for addressing them in timely manner, including required resources and timeframe to set risk preparedness measures in place.

1. Background to the mission

The property is briefly described as follows: «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 ».

1.1 Inscription history and criteria for inscription

The World Heritage Committee at its 3rd session (Cairo and Luxor, 1979) decided to inscribe the Ngorongoro Conservation Area under criteria (vii) (viii) (ix) (x).

At its 34th session (Brasilia, 2010), the World Heritage Committee examined the re-nomination of the property to include cultural criteria, inscribed the property under criteria (iv), and adopted the following Statement of Outstanding Universal value:

The Ngorongoro Conservation Area (809,440ha) spans vast expanses of highland plains, savanna, savanna woodlands and forests, from the plains of the Serengeti National Park in the north-west, to the eastern arm of the Great Rift Valley. The area was established in 1959 as a multiple land use area, with wildlife coexisting with semi-nomadic Maasai pastoralists practising traditional livestock grazing. It includes the spectacular Ngorongoro Crater, the world's largest caldera, and Olduvai Gorge, a 14km long deep ravine. The property has global importance for biodiversity conservation in view of the presence of globally threatened species such as the black Rhino, the density of wildlife inhabiting the Ngorongoro Crater and surrounding areas throughout the year, and the annual migration of wildebeest, zebra, Thompson's and Grant's gazelles and other ungulates into the northern plains.

The area has been subject to extensive archaeological research for over 80 years and has yielded a long sequence of evidence of human evolution and human-environment dynamics, collectively extending over a span of almost four million years to the early modern era. This evidence includes fossilized footprints at Laetoli, associated with the development of human bipedalism, a sequence of diverse, evolving hominin species within Olduvai gorge, which range from Australopiths such as *Zinjanthropus boisei* to the *Homo* lineage that includes *Homo habilis*, *Homo erectus* and *Homo sapiens*; an early form of *Homo sapiens* at Lake Ndutu; and, in the Ngorongoro crater, remains that document the development of stone technology and the transition to the use of iron. The overall landscape of the area is seen to

have the potential to reveal much more evidence concerning the rise of anatomically modern humans, modern behaviour and human ecology.

Criterion (iv): Ngorongoro Conservation Area has yielded an exceptionally long sequence of crucial evidence related to human evolution and human-environment dynamics, collectively extending from four million years ago to the beginning of this era, including physical evidence of the most important benchmarks in human evolutionary development. Although the interpretation of many of the assemblages of Olduvai Gorge is still debatable, their extent and density are remarkable. Several of the type fossils in the hominin lineage come from this site. Furthermore, future research in the property is likely to reveal much more evidence concerning the rise of anatomically modern humans, modern behaviour and human ecology.

Criterion (vii): The stunning landscape of Ngorongoro Crater combined with its spectacular concentration of wildlife is one of the greatest natural wonders of the planet. Spectacular wildebeest numbers (well over 1 million animals) pass through the property as part of the annual migration of wildebeest across the Serengeti ecosystem and calve in the short grass plains which straddle the Ngorongoro Conservation Area/Serengeti National Park boundary. This constitutes a truly superb natural phenomenon.

Criterion (viii): Ngorongoro crater is the largest unbroken caldera in the world. The crater, together with the Olmoti and Empakaai craters are part of the eastern Rift Valley, whose volcanism dates back to the late Mesozoic / early Tertiary periods and is famous for its geology. The property also includes Laetoli and Olduvai Gorge, which contain an important palaeontological record related to human evolution.

Criterion (ix): The variations in climate, landforms and altitude have resulted in several overlapping ecosystems and distinct habitats, with short grass plains, highland catchment forests, savanna woodlands, montane long grass plains and high open moorlands. The property is part of the Serengeti ecosystem, one of the last intact ecosystems in the world which harbours large and spectacular animal migrations.

Criterion (x): Ngorongoro Conservation Area is home to a population of some 25,000 large animals, mostly ungulates, alongside the highest density of mammalian predators in Africa including the densest known population of lion (estimated 68 in 1987). The property harbours a range of endangered species, such as the Black Rhino, Wild hunting dog and Golden Cat and 500 species of birds. It also supports one of the largest animal migrations on

earth, including over 1 million wildebeest, 72,000 zebras and c.350,000 Thompson and Grant gazelles.

Integrity

The property was inscribed under natural criteria (vii), (viii), (ix) and (x) in 1979 and under cultural criterion (iv) in 2010. Thus, the statement of integrity reflects integrity for natural values at the date of inscription of 1979, and for the cultural value in 2010.

In relation to natural values, the grasslands and woodlands of the property support very large animal populations, largely undisturbed by cultivation at the time of inscription. The wide-ranging landscapes of the property were not impacted by development or permanent agriculture at the time of inscription. The integrity of the property is also enhanced by being part of Serengeti - Mara ecosystem. The property adjoins Serengeti National Park (1,476,300 ha), which is also included on the World Heritage List as a natural property. Connectivity within and between these properties and adjoining landscapes, through functioning wildlife corridors is essential to protect the integrity of animal migrations. No hunting is permitted in Ngorongoro Conservation Area (NCA), but poaching of wildlife is a continuing threat, requiring effective patrolling and enforcement capacity. Invasive species are a source of ongoing concern, requiring continued monitoring and effective action if detected. Tourism pressure is also of concern, including in relation to the potential impacts from increased visitation, new infrastructure, traffic, waste management, disturbance to wildlife and the potential for introduction of invasive species. The property provides grazing land for semi-nomadic Maasai pastoralists. At the time of inscription an estimated 20,000 Maasai were living in the property, with some 275,000 head of livestock, which was considered within the capacity of the reserve. No permanent agriculture is officially allowed in the property. Further growth of the Maasai population and the number of cattle should remain within the capacity of the property, and increasing sedentarisation, local overgrazing and agricultural encroachment are threats to both the natural and cultural values of the property. There were no inhabitants in Ngorongoro and Empaakai Craters or the forest at the time of inscription in 1979.

The property encompasses not only the known archaeological remains but also areas of high archaeo-anthropological potential where related finds might be made. However the integrity of specific paleo-archaeological attributes and the overall sensitive landscape are to an extent under threat and thus vulnerable due to the lack of enforcement of protection arrangements related to grazing regimes, and from proposed access and tourist related developments at Laetoli and Olduvai Gorge.

Authenticity

In general, the authenticity of the fossil localities is unquestionable; however given the nature of fossil sites, the context for the fossil deposits needs to remain undisturbed (except by natural geological processes). As the nomination dossier does not contain sufficient detailed information on most of the sites to delineate their extended areas or the areas of archaeological sensitivity, or sufficient guarantees in terms of management arrangements to ensure that the sites will remain undisturbed and not threatened by visitor access, construction or grazing cattle, their authenticity is vulnerable.

Protection and management requirements

The primary legislation protecting the property is the Ngorongoro Conservation Area Ordinance of 1959. The property is under the management of the Ngorongoro Conservation Area Authority (NCAA). The Division of Antiquities is responsible for the management and protection of the paleo-anthropological resources within the Ngorongoro Conservation Area. A memorandum of understanding should be established and maintained to formally establish the relations between the two entities.

Property management is guided by a General Management Plan. Currently, the primary management objectives are to conserve the natural resources of the property, protect the interests of the Maasai pastoralists, and to promote tourism. The management system and the Management Plan need to be widened to encompass an integrated cultural and natural approach, bringing together ecosystem needs with cultural objectives in order to achieve a sustainable approach to conserving the Outstanding Universal Value of the property, including the management of grasslands and the archaeological resource, and to promote environmental and cultural awareness. The Plan needs to extend the management of cultural attributes beyond social issues and the resolution of human-wildlife conflicts to the documentation, conservation and management of the cultural resources and the investigation of the potential of the wider landscape in archaeological terms.

It is particularly important that NCAA has the capacity and specialist skills to ensure the effectiveness of its multiple-use regime, including knowledge of management of pastoral use in partnership with the Maasai community and other relevant stakeholders. There is also a need for NCAA to ensure staff has skills in natural and cultural heritage to achieve well designed, integrated and effective conservation strategies, including effective planning of tourism, access and infrastructure.

A thorough understanding of the capacity of the property to accommodate human use and livestock grazing is required, based on the needs of the Maasai population and the assessment of the impact of the human populations on the ecosystems and archaeology of the property. An agreed joint strategy between the NCAA, Maasai community leaders as well as other stakeholders, is required to ensure human population levels, and levels of resource

use are in balance with the protection of its natural and cultural attributes, including in relation to grazing and grassland management, and the avoidance of human-wildlife conflict. The active participation of resident communities in decision-making processes is essential, including the development of benefit-sharing mechanisms to encourage a sense of ownership of, and responsibility for, the conservation and sustainable use of the property's natural and cultural resources.

An overall tourism strategy for the property is a long term requirement, to both guide the public use of the property and ways of presenting the property, and to prioritize the quality of the tourism experience, rather than the quantity of visitors and tourism facilities. Vehicle access to the crater and other popular areas of the property requires clear limits to protect the quality of experience of the property and to ensure natural and cultural attributes are not unduly disturbed. Developments and infrastructure for tourism or management of the property that impinge on its natural and cultural attributes should not be permitted.

Considering the important relationship, in natural terms of the property to adjoining reserves, it is important to establish effective and continuing collaboration between the property, Serengeti National Park, and other areas of the Serengeti-Mara ecosystem to assure connectivity for wildlife migrations, and harmonize management objectives regarding tourism use, landscape management and sustainable development.

1.2 Examination of the State of Conservation by the World Heritage Committee and its Bureau

The World Heritage Committee has examined the property in numerous occasions since the time of inscription, eight times since 2000: 25COM VIII.97 (2001), 26COM 21B.22 (2002), 28COM 15B.6 (2004), 29COM 7B.1 (2005), 30COM 7B.2 (2006), 31COM 7B.2 (2007), 33COM 7B.9 (2009) and 34COM 7B.4 and 34COM 8B.13 (2010)

In addition, the property was on the List of World Heritage in Danger from 1984 to 1989; previous reactive monitoring missions have occurred in April 1986 (IUCN mission), April-May 2007 (UNESCO/IUCN) and December 2008 (UNESCO/IUCN).

The following are the World Heritage Committee Decisions on the property from 2007, 2009 and 2010:

Decision- 31COM 7B.2 (2007) Ngorongoro Conservation Area

The World Heritage Committee,

1. Having examined Document WHC-07/31.COM/7B.Add;

*2. Recalling Decision **30 COM 7B.2**, adopted at its 30th session (Vilnius, 2006);*

3. Commends the State Party for measures already taken and requests the implementation of the following recommendations of the joint World Heritage Centre/IUCN monitoring mission undertaken in April-May 2007:

a) The process for encouraging voluntary relocation of the identified immigrant population to areas outside the property should be continued and completed by June 2008;

b) The census and study of carrying capacity within the conservation area be implemented as quickly as possible, and completed by no later than June 2008, and should be based on both the needs of the Maasai population and an assessment of the ecological impact of human populations on the ecology of the Ngorongoro Conservation Area;

c) The recommendations of the Environmental Impact Assessment (EIA) relating to traffic congestion within the crater should be implemented, as quickly as possible, and their effectiveness be carefully monitored and assessed with regard to the impact on the ecology of the crater and also the impact on visitor satisfaction, which should be assessed through appropriate visitor surveys;

d) All existing gravel pits used to source material for road maintenance within the conservation area, including the one within the Ngorongoro crater, be closed and rehabilitated as soon as possible and that gravel material be sourced from outside the property, under the supervision of NCA staff to avoid the spread of invasive species;

e) A freeze on any new lodge development within the conservation area, particularly on the crater rim. As recommended by the EIA report, the proposal for a new Kempinski Lodge on the rim of the crater should not be approved, in view of its adverse impact on the outstanding universal value and integrity of the property and the potential for the property to be included in the List of World Heritage in Danger;

f) All existing Lodges within the conservation area should provide exemplary models of best practice in relation to protection and appreciation of the environment, and they should undertake an environmental audit to ensure they are conforming to and exceeding international best practice in relation to environmental management, including strategies to reduce the consumption of water and electricity;

g) Continue the existing programmes for the control of invasive species and particular emphasis should now be placed on the eradication of *Azolla filiculoides* (red water fern) from all fresh-water bodies within the crater and the conservation area;

h) The program to relocate NCA and lodge staff outside the conservation area at the Kamyn Estate site should be implemented and completed as quickly as possible, and other major infrastructure (such as the shops) should also be progressively relocated outside the conservation area;

- i) A high level technical forum should be established involving staff from the NCAA, the Serengeti National Park (TANAPA), and the relevant Wildlife Management Areas (Wildlife Department) to ensure better cooperation in relation to the joint management of the Ngorongoro-Serengeti ecosystem;*
- 4. Requests the State Party to invite a joint World Heritage Centre/IUCN monitoring mission in April 2009 to assess the state of conservation of the property, with special reference to implementing the recommendations of the 2007 mission;*
- 5. Also requests the State Party to implement the above recommendations of the 2007 monitoring mission and to report on progress in their implementation by **1 February 2009**, for examination by the Committee at its 33rd session in 2009*

Decision - 33COM 7B.9 - Ngorongoro Conservation Area (United Republic of Tanzania) (N 39) (2009)

The World Heritage Committee,

- 1. Having examined Document WHC-09/33.COM/7B.Add,*
- 2. Recalling Decision **31 COM 7B.2**, adopted at its 31st session (Christchurch, 2007),*
- 3. Notes with concern that while progress was made on certain issues, many of the recommendations of the 2007 mission are not yet fully implemented and in some cases, decisions were made against the recommendations;*
- 4. Also expresses its concern that human pressure on the ecosystem, resulting from a growing resident population is leading to over grazing and increasing agricultural use of the land, and increasing tourism pressure is already affecting the integrity of the property and threatening its Outstanding Universal Value;*
- 5. Urges the State Party to implement all the recommendations of the 2007 reactive monitoring mission, and in particular to:*
 - a) Implement all the recommendations of the Environmental Impact Assessment relating to vehicle congestion within the crater, in particular putting a clear maximum limit of 100 vehicles allowed in the crater per day,*
 - b) Develop an overall tourism strategy for the property to guide the public use of the property, prioritizing the quality of the tourism experience, not the quantity of visitors and tourism facilities,*
 - c) Implement as quickly as possible a census and scientific study of the carrying capacity within the conservation area, based on the needs of the Maasai population and the assessment of the ecological impact of the human populations on the ecology of the property;*
- 6. Also urges the State Party to engage a dialogue between the Ngorongoro Crater Conservation Authority (NCAA), Maasai community leaders as well as other stakeholders, based on the results of the scientific study, to develop a joint strategy to address the issue of*

human population impact on the ecology of the property, including the issue of increasing agricultural use in the property;

7. Requests the State Party to ensure the active participation of resident communities in decision-making processes and develop benefit-sharing mechanisms to encourage a sense of ownership of, and responsibility for, the conservation and sustainable use of the property's natural resources;

8. Also requests the State Party, in consultation with the World Heritage Centre and the Advisory Bodies, to develop a Statement of Outstanding Universal Value, for examination by the World Heritage Committee;

*9. Further requests the State Party to submit to the World Heritage Centre, by **1 February 2010**, a detailed report on the state of conservation of the property and on progress in the implementation of the recommendations of the 2007 and 2008 monitoring missions, for examination by the World Heritage Committee at its 34th session in 2010.*

Decision - 34COM 7B.4 - Ngorongoro Conservation Area (United Republic of Tanzania) (N 39) (2009)

The World Heritage Committee,

- 1. Having examined Document WHC-10/34.COM/7B,*
- 2. Recalling Decision **33 COM 7B.9**, adopted at its 33rd session (Seville, 2009),*
- 3. Expresses its utmost concern about increasing pressures on the Ngorongoro ecosystem, particularly from tourism and growing human use, and the limited progress in the implementation of the recommendations of the 2007 and 2008 reactive monitoring missions;*
- 4. Considers that if current degradation patterns are not stopped, the Outstanding Universal Value of the property could be jeopardized and inscription of the property on the List of World Heritage in Danger may be considered;*
- 5. Strongly urges the State Party to implement all recommendations of the 2007 and 2008 monitoring missions to address these threats;*
- 6. Reiterates the importance to change the current governance framework so as to facilitate more meaningful stakeholder involvement in land-use planning and the development of more transparent and effective benefit-sharing mechanisms and a realistic overall tourism strategy;*
- 7. Requests the State Party to invite the joint UNESCO/IUCN reactive monitoring mission which will be visiting Serengeti National Park, and update the mission on the implementation of the 2007 and 2008 mission recommendations;*
- 8. Also requests the State Party to submit to the World Heritage Centre, by **1 February 2011**, an updated report on the state of conservation of the property and the*

implementation of the 2007 and 2008 monitoring mission recommendations, for examination by the World Heritage Committee at its 35th session in 2011.

Decision- 34COM 8B.13 (2010) Cultural Properties-Ngorongoro Conservation Area (United Republic of Tanzania)

The World Heritage Committee,

1. Having examined Documents WHC-10/34.COM/8B.Add and WHC-10/34.COM/INF.8B1.Add,

2. Recalling that Ngorongoro Conservation Area, United Republic of Tanzania, is already inscribed on the World Heritage List under criteria (vii), (viii), (ix) and (x);

*3. Inscribes **Ngorongoro Conservation Area, United Republic of Tanzania**, on the World Heritage List under criterion (iv);*

4. Adopts the following Statement of Outstanding Universal Value:

(See above)

5. Recommends that the State Party explore alternative ways to improve the presentation of the Laetoli and Zinjanthropus sites and keep the World Heritage Committee informed about any proposals for construction at these two sites before any commitments are made, in accordance with Paragraph 172 of the Operational Guidelines;

6. Also recommends that, in order to set out a clear basis for the value of the cultural resource, and its conservation and management needs, the State Party provide to the World Heritage Centre:

a) Details on the specific area and location of the palaeo-anthropological resources, including specific boundaries for Laetoli, Lake Ndutu, Nasera, and the Ngorongoro Burial Mounds, and for their sensitive settings, to ensure their protection;

b) Details of sensitive archaeological landscapes throughout the property;

c) Details of the location of finds from all palaeo-anthropological sites;

d) Conservation plans for all palaeo-anthropological localities;

7. Further recommends the State Party to develop a revised management plan that gives a higher profile to the management of cultural resources, sets out how regulations will be enforced and includes a pastoralism strategy that respects both natural and cultural resources, involves the Maasai and defines a sustainable approach to managing the grasslands within the property.

8. Requests the State Party to continue to deal with extreme caution concerning any decision taken to open the Laetoli footprints;

9. Also requests the State Party to invite a joint World Heritage Centre/Advisory Body mission to the property to develop a Desired State of Conservation to make proposals for a revision of the Management System and Plan to ensure adequate protection, conservation

and management of the cultural attributes, as well as addressing the conservation issues regarding the natural attributes addressed in document WHC-10/34.COM/7B;

10. Recalls its request to the State Party, considered under item 7B of the present session, to provide to the World Heritage Centre, by 1 February 2011, a report on the State of Conservation of the property for consideration by the Committee at its 35th Session in 2011.

1.3 Justification of the mission

At its 34th session (Brasilia, 2010) the World Heritage Committee requested that the State Party invite a joint World Heritage Centre/Advisory Body mission to the property to develop a Desired State of Conservation, make proposals for a revision of the Management System and Plan to ensure adequate protection, conservation and management of cultural attributes, as well as addressing the conservation issues regarding the natural attributes. The Terms of Reference for the present mission were drafted according to the WHC decision with particular focus on the cultural component of the property.

2. National policy for the preservation and management of the World Heritage property

2.1 Protected area legislation

Ngorongoro Conservation Area was established under the Ngorongoro Conservation Area Ordinance no. 413 of 1959 as amended by the Game Parks Law (Miscellaneous Amendments) Act No. 14 of 1975. The cultural attributes of the property are protected under the Antiquities Act No. 10 of 1964 and its amendment Act No. 22 of 1979. The Antiquities Act, now under review by the State Party, provides the highest level of legal protection within the country for cultural resources. The Act has the following critical provisions: declaration of monuments and conservation area; issuance of permits for excavation, collections (etc), banning of illegal exchange of antiquities, establishment of a national fund for antiquities and protection of sites that might be discovered in the future.

The proposed National Policy by the State Party is expected to enhance the protection of paleoanthropological resources and should be finalised by 2012. The enforcement of the Antiquities Act is the responsibility of the Division of Antiquities, Ministry of Tourism.

In terms of the Act, the Division Antiquities by notice in a Gazette publishes a list of monuments and conservation areas that require protection and management as valuable national heritage. To this end the Act also provides for the establishment of a national fund for supporting research and preservation of monuments.

2.2 Institutional framework

The Ngorongoro Conservation Area and the World Heritage property are managed by the Ngorongoro Conservation Area Authority (NCAA), which is an autonomous body; a parastatal organisation with its own Board of Directors established under the Ngorongoro Conservation Area Ordinance. On the other hand, the cultural components of the property are under the management of the Division of Antiquities. However, both the NCAA and Department of Antiquities report to the Ministry of Natural Resources and Tourism and it is the Ministry that has the ultimate responsibility for this property.

The mission noted that the State Party is developing and moving towards finalisation of a Memorandum of Understanding (MoU) between the NCAA and the Antiquities Division in order to create an effective institutional framework for the management of the Property as a single integrated entity, which would include both the cultural and natural components of the property.

2.3 Management structure

The mission noted that, at present, and in the absence of the MoU, the Ngorongoro Conservation Area is under the management of NCAA. The primary objectives of NCAA are to conserve the wildlife and other natural resources in the area, safeguard the interests of the Maasai pastoralists and to promote tourism in the area. The Division of Antiquities is responsible for the management and protection of the paleoanthropological resources within the NCA. The NCAA Board of Directors includes the representatives of the Division of Antiquities, as well as the Maasai Pastoralist Council-MPC.

2.4 Response to the recognition of values under international treaties and programmes

The mission noted that the State Party has been consistently submitting state of conservation reports to the World Heritage Centre as requested by the World Heritage Committee. In addition, the State Party has established a World Heritage focal office within the Division of Antiquities to coordinate issues relating to World Heritage properties.

However, the mission also noted that the State Party has not been consistently implementing the recommendations of the WHC and where this has been done, progress is limited. In addition, the Mission, as noted by previous Missions (2007, 2008 and 2009), observed that State Party has still yet to revise the existing General Management Plan (GMP) in order to integrate both the natural and cultural components of the property.

3. Identification and assessment of issues

3.1 Management

The State Party reported to the mission team that a Memorandum of Understanding (MOU) is under development to formalize the relationship between the NCAA and the Antiquities Division. This was also reported in the 2009 ICOMOS/IUCN mission to NCA. The MoU being finalised by NCAA and Division of Antiquities will bring the management of the NCA and World Heritage property under one management entity with equal focus on both nature and culture.

The situation assessed by the 2009 Technical Evaluation Mission persists, that the current management is more geared toward the conservation of natural resources, tourism and land use issues with the Maasai people. Although there are large numbers of staff, they are still focused on the natural components of the property rather than on the cultural ones. It is expected that the MoU will address this imbalance by creating a specific department within the NCAA structure for the cultural components which will be adequately staffed.

As for the request on reviewing the Management Plans for the property, the mission and the State Party noted that the revision of General Management Plan (2006-10) has not progressed as anticipated. The revision is critical to the effective management of both natural and cultural components in Ngorongoro Conservation Area. While the Antiquities Division is developing the national heritage policy, this has not specifically been translated into a contribution to the revision of the existing plan. Successful integration of the natural and cultural attributes in a comprehensive management framework for the property poses a significant challenge. The management requirements for the components can be varied and even conflicting. However, there is a need to engage on a participatory and multiagency value-driven planning process to identify and balance conservation and protection priorities for the components of the World Heritage property. Formulating a joint management plan will provide an overarching policy for the property, in which sustaining the Outstanding Universal value of the property would be the driving force behind decision making. Engaging in a value-driven participatory process will also allow for the identification of common and complimentary management areas, addressing existing deficiencies in the management arrangements, and for the definition of location specific management strategies according to their specific values.

Recommendation: Prioritise and provide resources for the immediate implementation of a participatory and value-driven planning process for the review of the existing management plan so that it provides an overall framework for the conservation, protection and management of cultural and natural attributes at the property.

The MoU, yet to be finalised and signed by the NCA and Antiquities Division, is also critical to this revision process as this will unlock both financial and human resources to expedite this process.

3.2 Factors affecting the property

3.2.1 Development/land use pressures

In the 2009 nomination dossier, the State Party identified agriculture, livestock grazing in parts of the NCA and mining as the primary developmental pressures in the NCA. Due to declining livestock populations and food scarcity, many of the Maasai pastoralists had converted to an agro-pastoralist lifestyle. Agriculture is not permitted within the NCA; small-scale agriculture plots were observed in the 2009 IUCN/ICOMOS technical evaluation mission, although in 2011 the mission noted that these are no longer present. Damage to the paleoanthropological resources from agriculture is not presently an issue.

However, in 2011 the mission observed numerous herds of Maasai livestock in the Olduvai Gorge. The presence of livestock in Olduvai Gorge, and at any paleoanthropological locality, poses a threat to the archaeological and paleontological resources via (1) the trampling and mixing of surface fossils and artefacts and (2) accelerated erosion due to grazing pressure and trampling. It should be acknowledged that in many cases local communities are not necessarily aware of the existence or significance of archaeologically sensitive landscapes. Unless a symbolic connection exists with the landscape, the priority is to make a living in the area. Consequently, a broad consultation process is needed to bring a balance between the conservation needs of cultural areas and the social and economic needs of the Maasai communities. The updated study on carrying capacity and the mapping of archaeologically sensitive areas (see points below) are needed to allow for informed decision-making regarding a comprehensive pastoralism strategy. Active engagement of all stakeholders, particularly with the Maasai Pastoralist Council, will be essential so that the decision-making process to define provisions for the sustainable management of the grasslands adequately responds and balances to the pastoralist way of life and meets the needs of heritage conservation.

Recommendation: The mission recommends that the State Party engages in a consultation process, with the Maasai Pastoralist Council and other stakeholders, to develop a pastoralism strategy. This strategy should be designed to (1) mitigate and limit the impacts of livestock at all paleoanthropological localities, including Olduvai Gorge, and (2) ensure the sustainable management and preservation of grasslands. The former could be addressed through accelerating the construction of watering holes outside of sensitive areas and/or the identification of areas that are less sensitive to the detrimental impacts of livestock. In this

regard, it is critical that the carrying capacity study is updated and that the mapping of paleoanthropological resources and the establishment of site boundaries is completed.

Mining is prohibited within the NCA. However, gravel pits have been excavated within the NCA to provide materials for road construction/maintenance. The damage associated with the gravel pits has little influence on the cultural values of the site. If gravel pits were opened near archaeological localities, however, the damage would be severe. Many of the excavations have not been rehabilitated, which poses a threat to the natural value of the NCA and to the visual integrity of the landscape. Rehabilitative measures do not appear to be underway.



Gravel pit at the property



Livestock



Agricultural plots (2009)



Areas no longer under cultivation

3.2.2 Environmental pressures

The primary environmental threat to the paleoanthropological localities is erosion, resulting from natural/geological processes. For example, heavy rains can promote high levels of erosion to the fossil deposits. This is likely to continue to occur, and it has been happening throughout geologic history. This is not necessarily a problem, however, as these natural processes have been operating since the formation of the fossil deposits. Furthermore, erosion plays a critical role in the scientific value of the fossil localities as paleoanthropologists rely on natural erosion to expose fossil material and identify new sites.

Drought remains an ongoing threat to the Maasai inhabitants of the NCA. The 2009 IUCN/ICOMOS technical evaluation mission coincided with a severe drought that had devastating consequences for the Maasai throughout East Africa. Water shortages threaten livestock populations, which in turn threaten the livelihood of the Maasai people. Such droughts are likely to continue in the future, and long-term climatic forecasts suggest their frequency and severity will increase. Obviously, preventative measures cannot be taken, but it would be wise for the State Party to develop plans for delivering water to the Maasai people and their livestock in the future.

3.2.3 Tourism pressures

Tourism pressure remains a problem within the Ngorongoro crater and poses a threat to the natural resources of the NCA, although less so currently with respect to the cultural resources but this could change if the cultural aspects are promoted. The NCAA plans to alleviate tourism pressure on natural resources within the crater by diversifying tourism activities and promoting areas outside the crater, particularly the paleoanthropological resources. If these measures are successful, and the paleoanthropological sites are visited by increasing numbers of tourists, there is potential for damage to the cultural resources (e.g., vandalism, theft of archaeological materials) if the increased visitation is not adequately managed. Infrastructure developments for public use at these locations will need to be carefully monitored and evaluated prior to implementation so as to ensure the protection of cultural attributes and the visual integrity of the landscape.

Recommendation: The mission recommends that as part of the Proactive Tourism Strategy, the State Party include measures to limit the potential impacts of increased tourism pressure at the paleoanthropological sites. These sites should be monitored in a manner that parallels the monitoring of tourists in the crater. Potential measures could include (1) establishing a carrying capacity for each site on the tourist route in order to limit the number of tourists per paleoanthropological sites at any given moment (as is also the case in the crater), (2) introduction of trail patrols and on established tourist roads in order to monitor

the impact of visitors to the paleoanthropological sites, (3) developing and raising awareness on guidelines/rules for tourists among tour operators.



Entrance to one of the lodges at the NCA



Interpretation centre at Olduvai

3.2.4 Population pressures

Population pressure remains one of the largest threats to the traditional Maasai culture, and perhaps also to the natural resources of the NCA. The most recent census data place the Maasai population within the NCA at approximately 64,000 people, and the historic trend has been for the population to expand (at an increasing rate) in recent decades. Populations are increasingly largely because nearby Maasai people are moving into the NCA, where there is improved access to medical care, veterinary care, schools, etc. The traditional nomadic pastoralist lifestyle is unable to support the growing population. As a result, increasing numbers of Maasai are turning to agriculture and practicing a more sedentary, non-traditional lifestyle. The effects of increasing populations are particularly evident in the large number of non-traditional, permanent structures within the Maasai villages, which are beginning to resemble informal settlements. Preventative measures to curb population growth do not exist and this threat has not been satisfactorily addressed by the authorities.



3.2.5 Lack of formal guidelines for archaeological/paleontological research in the NCA

Archaeological/paleontological research in the NCA currently takes place in the absence of a formalized set of research guidelines covering (1) the reporting of research activities to the NCAA, (2) the curation of collected material, and (3) the conservation of paleo anthropological resources. In absence of an adopted regulatory framework for research at the property, the NCAA is unable to effectively manage, monitor, and ensure that ongoing research projects are conducted in a manner that best preserves the attributes that sustain the Outstanding Universal value of the property. Individual research teams are largely implementing their own practices when it comes protecting the cultural heritage of the NCA which in turn poses a concern to effectively maintain an acceptable state of conservation of the cultural components.

Recommendation: The mission recommends that the NCAA develop and adopt research guidelines for the collection, reporting, curation, and conservation of archaeological/paleontological remains that are in compliance with Antiquities Act and other applicable international standards. The mission also recommends that the information reported to the State Party by research teams be noted in a single database, to ensure that information gathered from all localities is centrally available.

3.2.6 Lack of facilities/infrastructure for curating archaeological resources

The NCAA lacks facilities to curate archaeological/paleontological finds collected by past or ongoing research projects, including those actively working in Olduvai Gorge and Laetoli. This poses a substantial problem when it comes to curating, conserving, and organizing cultural resources (e.g., artefacts, fossils) in a manner that retains the scientific integrity of the collections. In turn, this can lead to the loss of information (e.g., improper curation can lead to specimen destruction or loss of information associated with specimens, etc.) and potentially limits the capacity for future generations of scientists to study the collections. For example, many of the archaeological collections recovered by Mary Leakey from Olduvai Gorge in the 1950s are currently curated by the National Museums of Kenya in Nairobi because they cannot be properly cared for at the NCA. Furthermore, the mission team learned that storage rooms at Mary Leakey's former camp at Olduvai are now being used to house some of the collections recovered by research teams currently working in Olduvai Gorge; it is not clear where additional archaeological materials are conserved and curated. In the absence of curation facilities at the NCA (or formal curation guidelines), research collections are evidently being split up and stored at multiple facilities; this also poses a

problem when it comes to managing the collections in a manner that will allow future scientists to study the collections.

Recommendation: The mission recommends that the NCAA, in collaboration with the Antiquities Division, develop a plan for either on or off site facility and/or partner with an existing museum in Tanzania to enhance facilities for the proper curation of archaeological/paleontological collections.

3.3 Review of the progress in the implementation of the World Heritage Committee's Decision 34 COM 7B.81 adopted at its 34th Session.

As per the Terms of Reference for the mission, the status of implementation regarding previous World Heritage Committee decisions and prior monitoring mission recommendations was undertaken in order to have a holistic picture on the State Party's response and commitment to the dealing with these issues. The following section reviews the implementation of the recommendations made by the 2007 and 2008 reactive monitoring missions.

(R1) The mission team supports the process for encouraging voluntary relocation of the immigrant population and recommends that the process of voluntary relocation of the immigrant population to identified areas outside the property be completed by June 2008.

The mission noted the limited progress on the voluntary relocation of the Maasai communities who emigrated into the property recently due to various reasons among them: (i) National Policies allow people to stay wherever they want and NCA is no exception to these policies and (ii) the need to respect the human rights of the Maasai Communities in terms of both national legislations and international conventions.

The State Party informed the mission that, contrary to reports raised by Human Rights Organisation, the exercise has remained voluntary with continuous development and packaging of incentives (e.g. infrastructure development outside of NCA boundaries) to entice people to move out of the NCA. It was also informed that despite all these challenges the following had been achieved: (i) resettled families increased from 119 (2007) to 159 (2010), (ii) acquisition of about 480 hectares for relocation outside the NCA, (iii) development of infrastructure such as a primary school, health care centre, police station and a house for the teacher.

However, the mission expresses concern that the current rate of emigration from the NCA may not exceed the intrinsic rate of population growth. If so, human populations will continue to grow despite efforts to reduce human populations. This poses a potential threat not only to the natural resources of the NCA (e.g., more livestock, greater human impact on

the landscape, increased size and number of human settlements), but also to the visual integrity of the landscape – traditional Maasai bomas are being replaced by high-population density villages and settlements that include permanent structures and by increased grazing pressure on sites of archaeological importance.

In regard to the banning of cultivation practices within the NCA, the mission noted positive progress by the State Party; areas/plots previously farmed by the Maasai communities are no longer under active cultivation and are actually going through a natural rehabilitation process. Many agricultural plots observed during the 2009 ICOMOS/IUCN mission are no longer active. Therefore, farming has been deterred through enforcement, awareness programmes among the pastoral communities and the continuous monitoring being undertaken by the NCAA. The State Party informed the mission that in areas that are inaccessible to ground patrols, helicopters are used for surveillance purposes. The effective removal of agriculture from the NCA is particularly important in that it has potential to limit possible human population densities and encourages the expanding resident populations to move outside the conservation area boundaries.

Recommendations:

- Continue monitoring and enforcing the ban on agriculture within the NCA.
- Continue with the efforts to encourage the voluntary relocation of staff and immigrant populations outside of NCA boundaries but without violating human rights of the Maasai communities. The State Party should engage the affected through a public participatory process mediated by a mutually agreed facilitator.

(R2) The mission team notes the importance of clearly defining human use carrying capacity for the conservation area and recommends that the census and study of carrying capacity within the conservation area be implemented as quickly as possible, and completed by no later than June 2008. This carrying capacity should be based on both the needs of the Maasai population and an assessment of the ecological impact of human populations on the ecology of the Ngorongoro Conservation Area.

The mission noted limited progress on this issue since 2007, and in response the State Party informed the mission that the next census in 2012 will determine the current carrying capacity and further discussions through the participatory framework on the issue with all concerned.

The mission considers that any discussion on this issue has to be based on a scientific assessment of the carrying capacity of the NCA, and therefore reiterates the recommendation of the 2007, 2008 and 2009 missions to carry out the a scientific carrying capacity study for population and livestock based on the needs of the Maasai population and

an assessment of the ecological impacts of population. The mission noted that the means to engage in dialogue over these issues exist for the NCA through the Maasai Pastoral Council comprising representatives of the wards, councillors, women, youths, traditional leaders and development committee. The State Party informed the mission that such dialogue takes place twice every year.

Recommendations:

- Continue with the plans for conducting a census of human populations and the revised carrying capacity study by December 2012;
- The demographic study of human populations in the NCA should be considered as a tool to predict future population trends to ensure that the problem of population pressure can be effectively managed in a proactive, rather than reactive, manner in the long term.

(R3) The mission team supports the process for better management of traffic within the crater and specifically supports the measures identified in the EIA relating to traffic congestion. The mission team considers that the recommendations in this study should be implemented as quickly as possible and that the effectiveness of these recommendations be carefully monitored and assessed. Assessment should consider the impact on the ecology of the crater and also the impact on visitor satisfaction, which should be assessed through appropriate visitor surveys.

The State Party informed the mission that at least 75% of the recommendations regarding better management of traffic within the crater had been implemented, including but not limited to diversifying tourism packages within the NCA and improvement of other roads to de-congest the crater. The mission notes that IUCN is in a better position to comment comprehensively on this issue.

Recommendation:

Consider synchronising the movement of vehicles between the crater entry and exit gates in order to ensure that at all times the crater has an acceptable number of vehicles, and/or consider alternative booking systems for the crater that will ultimately ensure maximum number of vehicles is permitted for a specific period in order to reduce vehicular congestion on viewing routes inside the crater.

(R4) The mission team supports measures to rationalise and improve roads within the conservation area. However it is important to note that measures to upgrade roads within protected areas can have significant direct and indirect

impacts, particularly in relation to vehicle speed, and vehicle and visitor numbers, and recommends that the situation be kept under careful review.

The mission noted that the State Party has rationalised and improved roads within the Conservation area, for example the road to Laetoli. However, the mission also noted that vehicular speeds are generally high (well above the 50 km/hr speed limit) throughout the road networks of the NCA; the mission also observed one rolled vehicle. Given the nature of roads (gravel and meandering) there is potential for loss of life for people, livestock and game. This is worsened by the absence of risk reduction plan/disaster preparedness for the property. The mission was informed by the NCAA that park rangers are given the task of monitoring vehicle speeds in the crater and that local NCA police are responsible for monitoring vehicle speeds elsewhere.

Recommendation:

Enhance monitoring of vehicle speeds (e.g., using hidden camera traps) and enforce penalization of those who violate NCA speed limits, as this is an issue of concern for both safety and protection of humans and animals. This should also include disaster reduction strategies and reactive plan when need arise.

(R5) The mission team recommends that all existing gravel pits used to source material for road maintenance within the conservation area, including the one within the Ngorongoro crater, be closed and rehabilitated as soon as possible and that gravel material be sourced from outside the property. The transport of gravel material from outside the property should be carefully screened and monitored by NCA staff to avoid the spread of invasive species.

The mission noted that the rehabilitation of the gravel pits has not happening since 2007 as expected (with only one site rehabilitated to date). In response, the State Party outlined challenges; (i) sourcing gravel outside the NCA was costly and could introduce invasive species into the property (which will become a serious ecological issue), (ii) the increasing cost of maintaining the existing roads (which has caused the State Party to continue quarrying at one site within NCA to maintain the roads) and (iii) some of the non-active gravel pits cannot be rehabilitated without causing subsequent environmental problems due to their sheer sizes. The State Party informed the mission of its current explorations of alternative road maintenance strategies; one of them being a proposal to harden the roads to avoid the need of a constant resurfacing. This will reduce the quarrying for gravel within NCA.

Recommendation:

Consider engaging the Forestry Commission or similar organisations to discuss possibilities of vegetation regeneration at these non-active gravel quarry sites. Also the State Party should expedite the feasibility studies on hardening roads to reduce the need and frequency of quarrying.

(R6) The mission team recommends there be a freeze on any new lodge development within the conservation area, particularly on the crater rim, and that the general approach in future should be to encourage any new lodge development outside the property, or alternatively to renovate existing lodges, such as is the case with the Rhino Lodge.

The mission noted that the State Party has already frozen all developments on the rim of the Crater, although it is not explicitly frozen elsewhere on the property. A visit to the crater confirmed that there are no new developments.

(R7) The mission team recommends that a decision in relation to the proposal for a new Kempinski Lodge on the rim of the crater be made as soon as possible, based on the recommendations of the EIA report. It is the opinion of the mission team that this Lodge should not be approved and that there may be the potential for Danger Listing of this property should the lodge be developed on the rim of the crater.

As above.

(R8) The mission team recommends that all existing Lodges within the conservation area should provide exemplary models of best practice in relation to protection and appreciation of the environment and recommends that they undertake an environmental audit to ensure they are conforming to and exceeding international best practice in relation to environmental management. This should include strategies to reduce the consumption of water and electricity.

The State Party informed the mission that the move towards eco-friendly lodges has been progressing well, with the majority of the lodges having submitted environmental audits serve for two outstanding lodge operators. The State Party also informed the mission that all non-complying lodge operators will be recommended for sanction under the existing laws. On a positive note, the State Party informed the mission that it is negotiating for better concession fees with the lodge operators that will be channelled to the conservation of the property.

Recommendation:

Continue to monitor the full compliance of all lodge operators with national environmental auditing regulations and their adherence to best practice models.

(R9) The existing programmes for the control of invasive species should be continued and expanded, within existing resources. Particular emphasis should be placed on the eradication of *Azolla filiculoides* from all fresh-water bodies within the crater and the conservation area in general.

The State Party informed the mission that this is under control with the development of the Alien Invasive Species Control Plan. In addition, the State Party stated that local communities are being trained and incentivised in dealing with alien species in their localities.

Recommendation:

Continue to implement and monitor the impact of alien/invasive species in the NCA.

(R10) The program to relocate NCA and lodge staff outside the conservation area at the Kamyn Estate site should be commended and should be implemented as quickly as possible.

The State Party informed the mission about the limited progress on this issue due to budgetary constraints on building new residential places outside the NCA. The State Party stated that it is going to construct another 4 complexes of flats by December 2011, with the overall completion of this relocation exercise targeted for 2018. The State Party also informed the mission that the relocation will exclude skeletal management staff at the NCA headquarters, Olduvai and Laetoli sites; this does not include their families, who will be relocated with all the other staff outside the property.

Recommendation:

Accelerate the relocation process in order to ensure that decongestion is attained within NCA.

(R11) Other major infrastructure (such as the shops) within the conservation area should also be progressively relocated outside the conservation area.

The State Party informed the mission that only shops identified at central locations will be retained to allow access to basic commodities, while all mushrooming shops are being demolished.

Recommendation:

Submit a map showing location of approved shopping/major infrastructure to assist in detection of new developments as well as monitoring any mushrooming infrastructure in the future.

(R12) That a proactive tourism strategy be developed to guide future activities in relation to tourism within the conservation area.

The mission noted that State Party has not yet developed a proactive tourism strategy which is urgently required to address and guide all scattered tourism and developments within the NCA. The mission noted that the State Party has not frozen all developments within the NCA as recommended by WHC (31COM7B.2). The NCA stated that developments are not prohibited in the area as long as they are validated through an environmental auditing process to ensure protection of natural and cultural values.

Recommendation:

Revise and finalise the Proactive Tourism Strategy draft noted in 2009 to include a comprehensive public use strategy for the property. The public use strategy should include the following: development of physical structures, code of conduct for drivers, services (tour guiding, educational programmes, access for physically challenged) and code of conduct for visitors, including the protection of the Maasai indigenous rights (See annex 6.4 Guidelines for the development of a Public Use Plan that were drafted during the mission to assist the State Party for the formulation of such plan). The mission also recommends that the Proactive Tourism Strategy establish the carrying capacity for each site on the tourism route. This carrying capacity must consider culturally sensitive areas in order to reduce impacts on the paleoanthropological sites, as well as develop a zoning system that can guide tourist routes. In addition all the entry points responsible for booking tourist must be synchronised to ensure that the overall carrying capacity of the property is not exceeded.

(R13) The NCAA should continue to explore alternatives to limit or remove cattle grazing in the crater, in close consultation with the Maasai people and the Pastoral Council.

The mission noted the grazing of cattle in the crater has been stopped. The State Party continues to provide salt licks and artificial dams have been constructed in villages to ensure water availability throughout all the seasons for both the livestock and pastoral community. The mission also received additional information and notes that the NCAA has initiated a plan to improve the quality of the livestock within the NCA, in an effort to promote smaller yet more productive and economically beneficial herds with a reduced environmental impact.

This plan also includes the development of meat and dairy processing plants outside the NCA. For further details, see attached files in the appendix.

Recommendation:

Support the continued efforts by the State Party to develop, in consultation with the Maasai, other diversified initiatives for instances creating cattle rearing centres outside the NCA with increased benefits for processed products and sourcing of markets for them.

4. Assessment of the state of conservation of the site

4.1 Review whether the values on the basis of which the property was inscribed on the World Heritage List are being maintained

The mission noted that attributes which sustain the Outstanding Universal value for the cultural component of the property still exist. However, their state of conservation is of great concern, as has been noted in previous missions, including during evaluations to consider the nomination of cultural values. The mission notes that the State Party:

- (i) Has not implemented recommendations on identification and mapping paleo-anthropological sites of Laetoli, Lake Ndutu, Naseru Rock Shelter and Ngorongoro mounds;
- (ii) Does not have measures for research, conservation, and monitoring of paleoanthropological localities, which are progressively affected by a combination of natural and bio-factors;
- (iii) Has not revised the General Management Plan (GMP) to integrate nature and culture, as well as provide adequate financial and human resources for the management of cultural components, and
- (iv) There are threats posed by future developments at some of the sites.

Below are the specific details relating to the state of conservation for sites with attributes which sustain the OUV of the property that may be equally reflective of all other paleoanthropological sites in the property.

4.2 State of conservation of specific sites

Olduvai Gorge

The mission team visited FLK-Zinjanthropus, one of the most important archaeological sites at Olduvai Gorge and, more broadly, in the East African Rift System. There is a small concrete pillar at the centre of the site, commemorating the 50th anniversary of the discovery

of the Zinjanthropus cranium. This pillar has deteriorated substantially since the 2009 ICOMOS/UNESCO mission.

The 2009 ICOMOS/IUCN mission reported seeing architectural plans for a large podium to be constructed on top of the archaeological deposits at the FLK-Zinjanthropus locality. The State Party informed the 2011 mission team that the architectural plans are outdated and that there is no finalized plan for construction at FLK-Zinjanthropus. However, the mission team was informed of plans to construct a research station at Olduvai Gorge to house researchers and curate archaeological materials (funded by an external research team working at Olduvai Gorge). An environmental impact assessment has been conducted, although approval of the station is pending.

The 2011 mission received information to the effect that a Cultural Impact Assessment was conducted, however an overall and integrated Environmental Impact Assessment is still required to allow for a holistic process in informing the decision to approve or not approve the developments. The mission did not have access to the said Cultural Impact Assessment report to evaluate the adequacy of the EIA at Olduvai Gorge, particularly as it relates to protecting the paleoanthropological resources and sustaining OUV. Therefore a full and comprehensive EIA study is required to inform the impact on the OUV of the property.

The mission notes with concern the progressive deterioration of the fabric of the site due to natural factors. Since the original excavation of FLK-Zinjanthropus by Mary Leakey in 1959, there has been substantial erosion and slumping along the excavation walls. Artefacts and fossil are actively eroding out of the excavation walls and onto the ground. A recent excavation conducted in 2009 is beginning to show similar erosion problems. This erosion is occurring at an accelerated rate because there is no attempt to stabilize the excavation walls. Stabilisation options in the short term may include use of sand-bags, while long term options should look at geo-textile nets that are in tandem with the aesthetics of the site or other appropriate techniques. Accelerated erosion of archaeological deposits translates to a loss of scientific information and poses a threat to the value of this site. Although the mission team was not able to visit other archaeological sites in Olduvai Gorge, it is likely that similar problems are taking place at all localities where excavations have taken place given the nature of the soils.

As documented in the 2009 ICOMOS/IUCN mission to NCA, the 2011 mission also observed large herds of Maasai livestock in the Gorge, which are brought in to access water. The 2009 mission reported that livestock are prohibited from entering the site, although we received conflicting information during the 2011 mission. Whether this is officially allowed or not is irrelevant; large herds of livestock promote unnecessary erosion and trampling/destruction of fossils and artefacts on the surface of the fossil deposits. For example, a partial cranium of

Homo habilis (catalogued as OH-16) was trampled by cattle and largely destroyed just prior to its discovery in 1963.

Recommendations:

- Stabilize the erosion at the FLK-Zinjanthropus excavation site, and more broadly, at all excavations conducted in Olduvai Gorge and elsewhere within the NCA before any development can be considered for any of the sites. To ensure that future research does not contribute to the problem, stabilization of excavations should be included in the research guidelines that have recommended;
- Mitigate and limit the impacts of livestock at the Olduvai Gorge through a renewed participatory approach in collaboration with the pastoral communities. This could include the construction of watering holes outside the gorge and/or the identification of “safe areas” within the Gorge that are less sensitive to the detrimental impacts of livestock. This requires working together with the Maasai Pastoralist Council (*see also development of the pastoralism strategy*);
- Submit any potential plans for construction at Olduvai Gorge to the World Heritage Centre for consideration and review.



Nasera Rock shelter

The mission visited Nasera Rock shelter and observed evidence that it is still being used regularly as an enclosure for a herd of Maasai goats. This was also noted in the 2009 ICOMOS/IUCN mission. As a result of the dense concentration of livestock in the rock shelter, the archaeological deposits are undergoing trampling and mixing; many formerly buried bones and artefacts are now exposed. The rock shelter walls remain covered in graffiti, some of which overlays faded rock art. There are also numerous small trees and shrubs growing at the entrance of the rock shelter. The root action of these plants is almost certainly disturbing and mixing the archaeological deposits (bioturbation). The mission also evaluated published maps of excavations at the Nasera Rock shelter, which was excavated by M. Mehlman from 1975-1976 and by L.S.B. Leakey in 1932. Many of their excavation units took place in areas that now being encroached by trees and shrubs. This implies that the trees/shrubs at Nasera Rock shelter are a relatively recent phenomenon, since they could not have been present during the most recent excavations in 1975-1976. In addition, camping takes place right at the site with no control of activities visitors might undertake at the place. There is no interpretation at the site that informs about the significance of the area or regulations for visit.

Recommendation:

- Ensure the protection of the Nasera Rock shelter from livestock through installing a psychological barrier compatible with the site as well as engaging the pastoral communities on their use of site as a shelter through the existing forum;
- Regularly (and using acceptable techniques) mitigate or limit the impacts of vegetation (trees and shrubs) to the archaeological deposits.
- Provide interpretation at the site and control visitor use, regulate potential camping at the area.





Ngorongoro Crater Burial Mounds

The mission visited the Ngorongoro Crater Burial Mounds. The burial mounds are in excellent condition and there are no immediate threats to the site. However, the mission notes that the NCAA lacks information concerning the exact locations of these mounds. The lack of information concerning the site restricts the ability of the NCAA to effectively manage the site, should problems arise in the future. This lack of information parallels the broader need for adequate mapping of paleoanthropological sites and the establishment of site boundaries throughout the conservation area.

Recommendation: Collect published documentation concerning the number and location of the burial mounds. If sufficient information is not available, the team instead recommends that the NCAA conduct a detailed mapping survey of the burial mounds as a management tool to ensure their effective management and protection in the future. This work should be conducted in tandem with the mapping and establishment of site boundaries for all identified paleoanthropological localities in the conservation area.



Laetoli footprint trackway

The 2011 mission coincided with the re-excavation of a 3 x 4 meter section of the Laetoli hominin footprint trackway by the State Party. This partial reopening was conducted by Division of Antiquities of the Ministry of Natural Resources and Tourism, in collaboration with a team of national and international experts in archaeology, geology, photogrammetry, and conservation. The mission team notes that the re-excavated section of the trackway is in excellent condition, with the exception of some root infiltration of the trackway from nearby trees. These roots belong to *Acacia* trees located ~5-8 m from the trackway, that have evidently radiated outward to access sub-surface water between the footprint layer and overlying bio-barrier layers. Thus, although the bio-barriers apparently succeeded in limiting plant infiltration from above, they were unable to restrict lateral plant infiltration. In most portions of the re-excavation, the roots are found above the trackway. However, in one portion of the re-excavation, there is localized root penetration through the footprint trackway; this is associated with some cracking and erosion of the trackway tuff.

Though the formal excavation protocol was not made available to the mission team before its departure from Tanzania, a notice on the partial excavation was posted on the AFRICOM L platform (See Annex 6.6 Notice about partial re-opening of the Laetoli footprint). In addition, the State Party provided a short information brochure that has been broadly distributed which outlines the process.

The mission was informed by the State Party that the results of this re-opening will be used to make an informed decision concerning the best technique to conserve the footprint trackway. Potential options include, but are not limited to (1) reburial, (2) physically removing the trackway tuff and transporting it to a secure location, and (3) permanently opening the trackway. Option 3 would likely also include the construction of an exhibition centre to be built on top of the footprint site so that it would be conserved and presented to the public. The mission notes that an existing site museum near the Laetoli site includes an architectural concept design for such an exhibition centre.

Additionally, the mission team received conflicting information concerning the possible construction of the exhibition centre at the Laetoli site. We received accounts suggesting that potential plans are on hold until the results of the current footprint re-excavation are assessed. However, the mission team also received information implying that construction of the exhibition centre, under which the footprint trackway would be exposed, is an inevitable certainty although subject to modifications as recommended by environmental auditing process and recommendations of reopening process during a meeting with the Antiquities Division on the 7th of February 2011.

The mission expresses its concerns toward permanently opening the trackway without in-depth study and evaluation of the technique to be used given that the site is key to sustaining the Outstanding Universal value of the property. The decision to be made needs

to take into account not only the feasibility of constructing an exhibition building that would guarantee the conservation of the footprint trackway, but also the short, medium and long-term financial and human requirements for its effective maintenance and operation. Additionally, the integrity of the landscape needs to be taken into account for any major infrastructure development at this unique location.

Recent history provides abundant examples of the devastating effects of improper maintenance of fossil footprint trackways elsewhere. For example, Bates and colleagues (2008, *Journal of the Geological Society*, v. 165, p. 115-127, High-resolution LiDAR and photogrammetric survey of the Fumanya dinosaur track sites (Catalonia): implications for the conservation and interpretation of geological heritage sites) recently documented the near complete loss of a dinosaur trackway in Spain, which was left exposed to weathering over a 6 year period. In the absence of the highest possible protection against natural processes (e.g., weathering, erosion), there is abundant potential for fossil trackways to disappear in relatively short periods of time.

The Laetoli footprint trackway is not immune to the potential damage caused by erosion and weathering. The footprints are preserved in a cemented volcanic ash, referred to as a tuff, which is quite friable (readily broken down into smaller pieces) and prone to weathering and cracking during wet/dry cycles, such as those that would occur during and after rainfall. Thus, long-term exposure to the elements could contribute to rapid loss of the footprint trackway. It follows that if exposed, their preservation would require a state-of-the-art environmentally controlled facility (e.g., kept at constant humidity and temperature).

Recommendations:

- The State Party should take all precautionary measures to ensure that the Laetoli footprint trackway is conserved in a manner that best ensures their protection and retains the elements that sustain the Outstanding Universal value of the property;
- The State Party needs to submit a comprehensive report on the partial excavation, including any preliminary reports to the World Heritage Centre and the Advisory Bodies, if possible in time for the next Committee meeting, for evaluation and review;
- Any potential plans concerning their conservation, including the potential construction of facilities, should be submitted to the World Heritage Centre and the Advisory Bodies for consideration and review as per paragraph 172 of the Operational Guidelines for the Implementation of the World Heritage Convention; before any commitment is made.
- NCAA should remove nearby Acacia trees to ensure that future root infiltration of the trackway is limited.



New site museum at Laetoli



Project design for exhibition centre



Root infiltration



Excavated section of the footprints

Details on the specific area and location of the paleoanthropological resources, including specific boundaries for Laetoli, Lake Ndutu, Nasera and the Ngorongoro Burial Grounds, and for their sensitive settings, to ensure their protection;

The mission was informed by the State Party that no progress has been registered toward the mapping of the paleoanthropological resources or the establishment of site boundaries in the NCA. However, both the mission team and the State Party recognize that establishing definitive site boundaries is a difficult issue, since future research and surveys can potentially expand the site boundaries; formal boundaries can only be based on present knowledge, which is subject to revision in the future. However, boundaries for sites that have already been gazetted (Olduvai Gorge, Nasera rock shelter, etc.) can already be established so as to limit potential development and enhance protection. The mission, in collaboration with the State Party, has included in the Desired State of Conservation, plans for the development of a mapping system to support decision-making and conservation of the cultural resources at the property. The mission also noted the willingness of the University of Colorado Denver, USA to partner with the Division of Antiquities to produce GIS based maps based on existing information to create a management tool before the end of 2011. Upon completion of the

mapping of paleoanthropological sites and their setting, understood as the socio-environmental elements that give context to these sites, areas within the boundaries of established paleoanthropological resources should be regarded as sensitive landscapes and be the basis for the development of a Land Use plan.

Recommendation:

- Collect previously published information on the exact location of known paleo-anthropological resources (e.g. site maps) and prior excavations conducted at all major localities in the NCA to create a GIS database. Such a database can be expanded if necessary as ongoing research in the NCA continues and yields results. An up-to-date GIS database could be facilitated by demanding all research teams (in terms of proposed research guidelines) to report the results of their surveys and excavations to the NCAA and the Antiquities Division.
- The boundaries of sites that have already been gazetted, such as the Nasera Rock Shelter, Olduvai Gorge, etc. need to be clearly identified.
- Develop a Land Use plan, in consultation with the Maasai communities, to determine use zones including (1) areas where grazing should be limited or restricted, (2) areas where construction of tourism facilities or lodges can or cannot be constructed. The Land Use plan should support decision-making for the property regarding the protection of the natural and cultural attributes and provide a framework for sustainable use.
- Consider joining the satellite monitoring programme, as a management tool to immediately/rapidly detect any developments or negative impacts on the property.

Overall recommendation on state of conservation for paleoanthropological sites;

The mission recommends that the State Party should prioritise and commit to addressing the state of conservation of Laetoli, Lake Ndutu, Nasera Rock Shelter and Ngorongoro burial mounds in order to maintain the attributes and values illustrating the OUV of the cultural component of the property. Of great concern is the absence of a well resourced conservation plan for all paleoanthropological sites in the NCA, which may threaten the future of the property. The State Party should also consider external technical support to expedite this process given the apparent lack of capacity and skills within the current establishment at the site.

4.3 Other issues

4.3.1 Interpretation

The mission noted that the interpretation of the property for the benefit of the public is not adequately addressed, including the display of the World Heritage Emblem and absence of public friendly publications. This also includes the lack of world heritage tailor-made heritage education programmes (e.g. World Heritage in Young Hands), and appropriate facility that could possibly give a visitor to the property a proper orientation into the significance of the property, conservation issues and general information.

Recommendations:

- Consider the design of a multi-purpose facility to interpret the property for the enjoyment and understanding of the values of the heritage place; with the relocation of the staff outside the property, part of the existing infrastructure at Ngorongoro Conservation Area could be converted to become this multi-purpose facility.
- Promote the adaptation of the World Heritage in Young Hands Kit as a way of raising awareness among school children and the general public about the Outstanding Universal value of the property.
- Improve the presentation of the World Heritage status of the property, including the appropriate use of the World Heritage emblem.

4.3.2 Risk management

The mission noted that the Property does not have a functional Risk Management Plan or Disaster Risk Management (DRM) yet the property is (i) is located in an area prone to natural risks such as fire, (ii) the major road traversing the property is a feeder and connecting route for transiting local residents, (iii) vulnerability to poaching given the abundance of wildlife resources and (iv) landscape with contestations regarding who should stay inside the property. However the list is not limited only to these identified risks, the State Party should identify more aspects and produce a plan to mitigate them.

Recommendation:

Develop a Risk management plan to address potential natural and cultural vulnerabilities and risks to the property and determine provisions for addressing them in timely manner, including required resources and timeframe to set risk preparedness measures in place.

5. Conclusions and Recommendations

The Mission has the following recommendations, based on the issues identified in the preceding sections:

5.1 Management

- Expedite the finalisation and operationalise the Memorandum of Understanding between the Antiquities Division and NCAA to pave the way for an integrated and efficient management of both nature and culture in the Ngorongoro Conservation Area and to unlock both financial and human resources to expedite this process.
- Prioritise and provide resources for the immediate implementation of a participatory and value-driven planning process for the review of the existing management plan so that it provides an overall framework for the conservation, protection and management of cultural and natural attributes at the property.

5.2 Conservation

- Prioritise and commit to addressing the state of conservation of Laetoli, Olduvai Gorge, Lake Ndutu, Nasera Rock Shelter and Ngorongoro burial mounds in order to maintain the cultural attributes that sustain the Outstanding Universal Value of the property. Of great concern is the absence of a well resourced conservation plan for all paleoanthropological sites in the Ngorongoro Conservation Area, which may threaten the future of the property. The State Party should also consider external technical support to expedite this process in light of the existing capacities.
- The mission recommends that the NCAA develop and adopt research guidelines for the collection, reporting, curation, and conservation of archaeological/ paleontological remains that are in compliance with Antiquities Act and other applicable international standards. The mission also recommends that the information reported to the State Party by research teams be noted in a single database, to ensure that information gathered from all localities are centrally available.
- Develop a plan for either on or off site facility and/or partner with an existing museum in Tanzania to enhance facilities for the proper curation of archaeological/ paleontological collections.
- Implement and monitor the impact of alien/invasive species in the NCA.

5.2.1 Olduvai Gorge

- Stabilize the erosion at the FLK-Zinjanthropus excavation site, and more broadly, at all excavations conducted in Olduvai Gorge and elsewhere within the Ngorongoro Conservation Area before any development can be considered for any of the sites. To

- ensure that future research does not contribute to the problem, stabilization of excavations should be included in the research guidelines that have recommended.
- Mitigate and limit the impacts of livestock at the Olduvai Gorge through a renewed participatory approach in collaboration with the pastoral communities. This could include the construction of watering holes outside the gorge and/or the identification of “safe areas” within the Gorge that are less sensitive to the detrimental impacts of livestock. This requires working together with the Maasai Pastoralist Council and should be prioritised pending the full development of a holistic pastoralism strategy.
- Submit any potential plans for construction at Olduvai Gorge to the World Heritage Centre and Advisory Bodies for consideration and review before any commitment is made, in line with Operational Guidelines, paragraph 172.

5.2.2 Nasera Rock shelter

- Ensure the protection of the Nasera Rock shelter from livestock through installing a psychological barrier compatible with the site as well as engaging the pastoral communities on their use of site as a shelter through the existing forum.
- Regularly (and using acceptable techniques) mitigate or limit the impacts of vegetation (trees and shrubs) to the archaeological deposits.

5.2.3 Ngorongoro Crater Burial Mounds

- Collect published documentation concerning the number and location of the burial mounds. If sufficient information is not available, the NCAA should conduct a detailed mapping survey of the burial mounds as a management tool to ensure their effective management and protection in the future.

5.2.4 Laetoli footprint trackway

- The State Party should take all precautionary measures to ensure that the Laetoli footprint trackway is conserved in a manner that best ensures their protection and retains the elements that sustain the Outstanding Universal value of the property;
- The State Party needs to submit a comprehensive report on the partial excavation, including any preliminary reports to the World Heritage Centre and the Advisory Bodies, if possible in time for the 35th session of the Committee meeting in 2010, for evaluation and review;
- Any potential plans concerning their conservation, including the potential construction of facilities, should be submitted to the World Heritage Centre and the Advisory Bodies for consideration and review, before any commitment is made, as per paragraph 172 of the Operational Guidelines for the Implementation of the World Heritage Convention.

- NCAA should remove nearby Acacia trees to ensure that future root infiltration of the trackway is limited.

5.3 Mapping of paleoanthropological resources and the establishment of site boundaries

- Collect previously published information on the exact location of known paleo-anthropological resources (e.g. site maps) and prior excavations conducted at all major localities in the NCA to create a GIS database. Such a database can be expanded if necessary as ongoing research in the NCA continues and yields results. An up-to-date GIS database could be facilitated by demanding all research teams (in terms of proposed research guidelines) to report the results of their surveys and excavations to the NCAA and the Antiquities Division.
- The boundaries of sites that have already been gazetted, such as the Nasera Rock Shelter, Olduvai Gorge, etc. need to be clearly identified.
- Consider joining the satellite monitoring programme, as a management tool to immediately/rapidly detect any developments or negative impacts on the property.

5.4 Carrying capacity, land use and relocation programme

- Develop a Land Use plan, in consultation with the Maasai communities, to determine use zones including (1) areas where grazing should be limited or restricted, (2) areas where construction of tourism facilities or lodges can or cannot be constructed. The Land Use plan should support decision-making for the property regarding the protection of the natural and cultural attributes and provide a framework for sustainable use.
- Engage in a consultation process, with the Maasai Pastoralist Council and other stakeholders, to develop a holistic pastoralism strategy. This strategy should be designed to (1) mitigate and limit the impacts of livestock at all paleoanthropological localities, including Olduvai Gorge, and (2) ensure the sustainable management and preservation of grasslands. The former could be addressed through accelerating the construction of watering holes outside of sensitive areas and/or the identification of areas that are less sensitive to the detrimental impacts of livestock. In this regard, it is critical that the carrying capacity study is updated and that the mapping of paleoanthropological resources and the establishment of site boundaries is completed.
- Continue with the plans for conducting a census of human populations and the revised carrying capacity study by December 2012. The demographic study of human populations in the NCA should be considered as a tool to predict future population trends to ensure that the problem of population pressure can be effectively managed in a proactive, rather than reactive, manner in the long term.

- Continue monitoring and enforcing the ban on agriculture within the Ngorongoro Conservation Area.
- Develop, in consultation with the Maasai, other diversified initiatives for instances creating cattle rearing centres outside the Ngorongoro Conservation Area with increased benefits for processed products and sourcing of markets for them.
- Continue with the efforts to encourage the voluntary relocation of staff and immigrant populations outside of NCA boundaries. The State Party should engage the affected through a public participatory process mediated by a mutually agreed facilitator.
- Accelerate the relocation process of NCAA and lodge staff in order to ensure that decongestion is attained within Ngorongoro Conservation Area.

5.5 Tourism management and infrastructure development

- Revise and finalise the Proactive Tourism Strategy draft noted in 2009 to include a comprehensive public use strategy for the property. The public use strategy should include the following: development of physical structures, code of conduct for drivers, services (tour guiding, educational programmes, access for physically challenged) and code of conduct for visitors, including the protection of the Maasai indigenous rights (*See annex 6.4 Guidelines for the development of a Public Use Plan that were drafted during the mission to assist the State Party for the formulation of such plan*).
- The mission also recommends that the Proactive Tourism Strategy establish the carrying capacity for each site on the tourism route. This carrying capacity must consider culturally sensitive areas in order to reduce impacts on the paleoanthropological sites, as well as develop a zoning system that can guide tourist routes. In addition, all the entry points responsible for monitoring tourists must be synchronised to ensure that the overall carrying capacity of the property is not exceeded at any given time.
- Consider synchronising the movement of vehicles between the crater entry and exit gates in order to ensure that at all times the crater has an acceptable number of vehicles, and/or consider alternative booking systems for the crater that will ultimately ensure maximum number of vehicles is permitted for a specific period in order to reduce vehicular congestion on viewing routes inside the crater.
- Enhance their monitoring of vehicle speeds (e.g., using hidden camera traps) and enforce penalization of those who violate NCA speed limits, as this is an issue of concern for both safety and protection of humans and animals. This should also include disaster reduction strategies and reactive plan when need arise.
- Continue to monitor the full compliance of all lodge operators with national environmental auditing regulations and their adherence to best practice models.
- Submit a map showing location of approved shopping/major infrastructure to assist in detection of new developments as well as monitoring any mushrooming infrastructure in

the future. Integrate these maps within the GIS system to facilitate future decision-making in regard to required infrastructure development.

5.6 Interpretation and awareness-raising

- Consider the design of a multi-purpose facility to interpret the property for the enjoyment and understanding of both the natural and cultural values of the property; with the relocation of the staff outside the property, part of the existing infrastructure at Ngorongoro Conservation Area could be converted to become this multi-purpose facility.
- Promote the adaptation of the World Heritage in Young Hands Kit as a way of raising awareness among school children and the general public about the Outstanding Universal value of the property.
- Improve the presentation of the World Heritage status of the property, including the appropriate use of the World Heritage emblem.

5.7 Other issues

5.7.1 Gravel pits

- Consider engaging the Forestry Commission or similar organisations to discuss possibilities of vegetation regeneration at these non-active gravel quarry sites. Expedite the feasibility studies on hardening roads to reduce the need and frequency of quarrying.

5.7.2 Risk management

- Develop a Risk management plan to address potential natural and cultural vulnerabilities and risks to the property and determine provisions for addressing them in timely manner, including required resources and timeframe to set risk preparedness measures in place.

5.8 Proposal for Desired State of Conservation

The following proposal for the Desired State of Conservation was drafted during the reactive monitoring mission to the property and agreed upon by the two main agencies in charge of the conservation and management of the property, the Ngorongoro Conservation Area Authority and the Antiquities Division, Ministry of Natural Resources and Tourism.

It should be highlighted that during discussions and drafting the mission team emphasised the preliminary draft focused more on the cultural components of the property and that further modifications should be anticipated to address issues pertaining to natural attributes.

Ngorongoro Conservation Area (United Republic of Tanzania)

Desired State of Conservation

- a) The main cultural attributes (Olduvai Gorge, Laetoli, Naseri Rock Shelter and Ngorongoro Burial Mounds) that sustain the Outstanding Universal value of the property are mapped, conserved, protected and presented and their boundaries established
- b) Functional management system in place: regulatory frameworks, institutional arrangements, human and financial resources and updated planning tools that apply to both cultural and natural attributes.
- c) Approval and implementation of comprehensive public use strategies: regulated visitor access, controlled vehicular traffic, adequate interpretation and facilities.
- d) Sensitive archaeological landscapes identified
- e) Land use regimes reinforced: pastoralism strategy in place, development of infrastructure planned for and relocation programmes implemented, both related to paleo-anthropological and nature conservation resources.

Corrective measures and time frame for implementation

a. Measures to be implemented within one to two years

Conservation, protection and presentation

- Mapping of paleoanthropological resources and the establishment of site boundaries
- Development of a conservation strategy for all paleoanthropological sites at the property.
- Formulation and adoption of research, curation and conservation guidelines.
- Stabilization of erosion and formulation of a presentation strategy for the FLK Zinjanthropus site.
- Definition of a conservation strategy for the Laetoli footprint site as informed by the results from the partial reexcavation¹.
- Full protection for the Naseri Rock Shelter.

¹ Representatives from the State Party indicated that the first 4 measures identified under this heading would require international assistance for their implementation given the limited capacities in country for that effect.

Management system

- Review and updating of the management plan to include all cultural components.
- Development of a mapping system (GIS) to support decision-making at the property.
- Finalise and make operational the Memorandum of Understanding between the NCAA and the Direction of Antiquities.

Public Use

- Formulate the Public Use plan according to the agreed upon contents and in coherence with the Management Plan for the property².

Land use

- Finalise the population census.
- Revise the carrying capacity study.
- Formulate land use strategies in response to results from the carrying capacity study, including the development of a holistic pastoralism strategy.
- Continue the established relocation programme.

b. Measures to be implemented within two to five years

Conservation, protection and presentation

- Implement the presentation strategy for the FLK-Zinjanthropus site.
- Implement the comprehensive conservation strategy for all cultural components at the property according to established priorities in the revised management plan.
- Develop and implement a comprehensive policy for livestock access at Olduvai Gorge to limit long term impacts on the remains.
- Continue the updating of the mapping system as further surveys of significant cultural landscapes and paleoanthropological sites are carried out.
- Develop a research strategy

Management system

- Formulate additional measures for protection as significant cultural landscapes and paleoanthropological sites are identified.
- Develop a risk management plan for all components of the property³.

Public Use

- Have an effective reservation system to control visitor access to the Crater.
- Control vehicular traffic and enforce regulations and number of vehicles at the Crater.

² This corrective measure will require technical assistance for implementation.

³ This corrective measure will require technical assistance for implementation.

- Continue with the implementation of projects geared toward the diversification of tourism activities, including the development of interpretation centres.

Land use

- Continue the relocation programme.
- Continue the relocation of staff and facilities.
- Continue with the implementation of measures to reduce the number of livestock coming into the crater.
- Formulation and implementation of additional land use strategies as informed by the results of the updated census, carrying capacity study and the pastoralism strategy

c. Measures to be implemented within five to ten years

Conservation, protection and presentation

- Continue with the maintenance and conservation of paleoanthropological sites, with particular focus on the attributes that sustain the Outstanding Universal value of the property and other vulnerable cultural areas.
- Have a monitoring program fully in place to evaluate the efficacy and results of implemented strategies and to revise them if needed.
- Implement risk management strategies in accordance to provisions identified in the risk management plan.

Management system

- Full and systematic implementation of the management plan
- Operational institutional arrangements with adequate resources and budgets secured for the management of the property.

Public Use

- Implementation of strategies for public use at the property, particularly in regard to interpretation facilities, controlled visitation and vehicular traffic, and in accordance to the established public use plan.

Land use

- Complete the relocation programme according to the results from the carrying capacity study.
- Complete the relocation of staff and facilities.

6. Annexes

6.1 Terms of reference

Joint UNESCO World Heritage Centre – ICOMOS reactive monitoring mission

Ngorongoro Conservation Area, Tanzania

7- 12 February 2010

In accordance to **Decision 34 COM 8B.13** made by the World Heritage Committee at its 34th session (Brasilia, 2010), the reactive monitoring mission will:

1. Evaluate the state of conservation of the property and the potential conditions that might pose a threat to the cultural attributes that sustain its Outstanding Universal Value, integrity and authenticity. The mission shall:

- a. Assess progress made in the identification and mapping of paleoanthropological resources and establishment of boundaries for the sites of Laetoli, Lake Ndutu, Nasera Rock Shelter and Ngorongoro Burial Mounds. Evaluate the efficacy and adequacy of the provisions made to ensure the protection of these sites and their settings and the current state of conservation of these locations;
- b. Evaluate progress made in respect to the survey and identification of other significant archaeological landscapes and paleoanthropological sites and measures implemented to ensure their protection;
- c. Assess the measures implemented for research and conservation monitoring for paleoanthropological localities;
- d. Status of existing and/or planned projects for the presentation and public use of the Laetoli and Zinjathropus sites.

2. Asses the current management system, including regulatory frameworks, institutional arrangements, as well as resources and existing planning tools for the property.

3. Evaluate the status of the review of the management plan and provide recommendations for the conservation and public use plans for the paleoanthropological localities, for potential development and for a participatory pastoralism strategy for the sustainable management of grasslands within the property.

4. Prepare, in consultation with the State Party, a draft desired state of conservation, including a set of corrective measures as well as a timeframe for their implementation, for examination by the World Heritage Committee at its 35th session (Bahrain, 2011);

5. Review the progress in the implementation of the World Heritage Committee's Decision 34 COM 7B.81 adopted at its 34th session;

6. Prepare a detailed joint report for review by the World Heritage Committee at its 35th session (Bahrain, 2011).

6.2 Itinerary and programme

Joint UNESCO – ICOMOS reactive monitoring mission

Ngorongoro Conservation Area, Tanzania

7 - 12 February 2011

- Sunday, 6 Feb: Arrival of mission team members in Dar es Salaam
- Monday, 7 Feb: Visit to the Ministry of Natural Resources and Tourism
Discussion of mission objectives and work plan
Attendees:
Mrs. Digna F. Tillya, Assistant Director, Cultural Heritage and Development, Ministry of Natural Resources and Tourism
Ms. Eliwasa E. Maro, Principal Conservator of Antiquities, Antiquities Unit, Ministry of Natural Resources and Tourism
Afternoon flight to Arusha and drive to Karatu
- Tuesday, 8 Feb: Meeting with NCAA staff
Discussion of mission objectives and work plan
Discussion on management arrangements and existing proposals for the property
Attendees:
Mr. Amiyo Amiyo, Conservation Services Manager, Ngorongoro Conservation Area Authority
Mr. John Paresso, Head of Station Oldupai Gorge, Antiquities Division, Ministry of Natural Resources and Tourism
Mr. John W.S. Kimaro, Assistant Director, Conservation and Technology, Antiquities Division, Ministry of Natural Resources and Tourism
Afternoon site visits to Olduvai Gorge, site museum, Nasera Rock Shelter, Shifting Sand area and Zinjathropus site
- Wednesday, 9 Feb: Meeting with NCAA staff
Review of current issues and state of conservation
Review of progress made in implementation of prior WHC decisions and mission recommendations
Attendees:
Mr. Amiyo Amiyo, Conservation Services Manager, Ngorongoro Conservation Area Authority
Mr. John Paresso, Head of Station Oldupai Gorge, Antiquities Division, Ministry of Natural Resources and Tourism

Afternoon site visits to Ngorongoro Crater and Ngorongoro Burial Mounds
Team working session: preparation of Desired State of Conservation
- Thursday, 10 Feb: Laetoli site visit
Visit to site museum, assessment of re-excavation process and general site visit
Interviews with experts participating in the partial re-excavation
Review of mission objectives and expected outcomes

Discussions on mapping systems

Attendees:

Mr. Donatius Kamamba, Director of Antiquities Division, Ministry of Natural Resources and Tourism

Mr. Amiyo Amiyo, Conservation Services Manager, Ngorongoro Conservation Area Authority

Mr. John Paresso, Head of Station Oldupai Gorge, Antiquities Division, Ministry of Natural Resources and Tourism

Experts met:

Martha Demas, Getty Conservation Institute

Neville Agnew, Getty Conservation Institute

Jeong Yul Kim, Korea National University of Education

Charles M. Musiba, University of Colorado Denver

Stefan Simon, Staatliche Museen zu Berlin

Manuel Dominguez-Rodrigo, Complutense University

Heinz R  ther, University of Cape Town

Friday, 11 Feb:

Drive to Laetoli

Site evaluation of finalised partial re-excavation process

Discussion of Desired State of Conservation

Attendees:

Mr. Donatius Kamamba, Director of Antiquities Division, Ministry of Natural Resources and Tourism

Mr. Amiyo Amiyo, Conservation Services Manager, Ngorongoro Conservation Area Authority

Mr. John Paresso, Head of Station Oldupai Gorge, Antiquities Division, Ministry of Natural Resources and Tourism

Drive to Arusha

Saturday, 12 Feb:

Departure to Dar Es Salaam

Debriefing at the Ministry of Natural Resources and Tourism

Attendees:

Mrs. Digna F. Tillya, Assistant Director, Cultural Heritage and Development, Ministry of Natural Resources and Tourism

Ms. Eliwasa E. Maro, Principal Conservator of Antiquities, Antiquities Unit, Ministry of Natural Resources and Tourism

Mrs. Adele Nibona, Programme Specialist (Culture), UNESCO Dar es Salaam Office

6.3 Composition of mission team

Carolina Castellanos (UNESCO)

Tyler Faith (ICOMOS)

Pascall Taruvinga (ICOMOS)

6.4 Guidelines for the development of a Public Use strategy

The mission encourages the State Party to consider developing a **Public Use strategy** for the NCA World Heritage Site in order to provide a conservation “sensitive” framework for dealing with the interpretation and presentation of attributes of the property, as well as avoiding scattered and uncoordinated small developments that may eventually affect the integrity and authenticity of the property. The mission recommends the consideration of the following aspects in developing this strategy;

1. Development of physical structures within the property.
 - a. *Conservation sensitive developments*
 - b. *Environmental auditing compliance*
 - c. *Location, nature and compatibility of proposed developments*
 - d. *Development approval process and monitoring*
2. Traffic de-congestion and speed control within the NCA:
 - a. *Tourist vehicular*
 - b. *Transiting vehicular*
 - c. *NCA vehicular*
3. Visitor management;
 - a. *Tour guiding services*
 - b. *Code of conduct for visitors*
 - c. *Code of conduct for tour operators*
 - d. *Access for physically challenged visitors*
 - e. *Heritage education programming*
 - f. *Interpretation materials for visitors (brochures, leaflets etc)*
 - g. *Souvenirs/mementoes for visitors*
 - h. *Public relations*
4. Code of conduct for lodge owners within the NCA.
 - a. *Dos' and don'ts'*
5. Management of cultural bomas within the NCA and/community participation.
 - a. *Protection of indigenous rights of the Maasai Communities.*
 - b. *Community participation principles*
6. Corporate branding within the NCA.
 - a. *Signage within the property*
 - b. *Branding of all presentation materials*

- c. *Branding of souvenirs'/mementoes*
 - d. *World heritage emblem*
- 7. Risk preparedness.
 - a. *Responding and managing visitor related emergencies*
 - b. *Responding and managing natural disasters*
 - c. *Disaster/emergency management process*
- 8. Access to paleoanthropological sites and/route management.
- 9. Site based monitoring of visitor impact:
 - a. *Adherence to established carrying capacities for sites open to the public*
 - b. *Continuous assessment of visitors impact on sites open to the public*

6.5 Guidelines for the development of a Mapping system

The mission has the following recommendations for mapping of paleoanthropological resources:

Develop a GIS database that integrates the following:

1. Olduvai Gorge: location of known archaeological/paleontological sites, major drainages, past excavations
2. Laetoli: location of known archaeological/paleontological sites, major drainages, past excavations
3. Lake Ndutu: location of known archaeological/paleontological sites, past excavations (if any)
4. Ngorongoro Burial Mounds: number and location of individual burial mounds and approximate boundaries/limits of the mounds, past excavations
5. Nasera Rock Shelter: location of previous excavation units/trenches from Mehlman (75 m² excavated) and Leakey (10 trenches, ~ 100 m² excavated) excavations in and around the Rock Shelter
6. Geological map of the Ngorongoro Conservation Area: to assess potentially sensitive cultural areas (e.g., Pleistocene deposits at Lake Ndutu are sensitive)

6.6 Notice about partial re-opening of the Laetoli footprint

----Forwarded Message----

From: pastar143@yahoo.com

To: africom-l@list.africom.museum

Sent: Tue Feb 8th, 2011 8:55 AM EET

Subject: [AFRICOM-L] PARTIAL REOPENING OF LAETOLI FOOTPRINT

1. INTRODUCTION

The Pliocene site of Laetoli, which preserves hominid and fauna tracks as hominid, animal and plant fossils, has immense scientific value, particularly for understanding human evolution. The trackway at site G, for fortuitously preserved within layers of aeolian and air fall volcanic tuff, not only records the diversity of life in Pliocene and savannas of East Africa, but more significantly, offers unique evidence of bipedalism in hominids from 3.6 million years ago.

The 1992 1998 field campaigns and activities completed the final phases of the joint Getty Conservation Institute (GCI) and Government of Tanzania project to conserve the hominid footprint and trails at Laetoli. Activities completed during this period included the conservation, documentation and reburial of the trackway, development of a long way term monitoring and maintenance plan for the site, evaluation of part of the reburial and monitoring trench, design and installation of an exhibition at Oldupai (Olduvai) museum.

This was done in consideration that the volcanic tuff is fragile and prone to weather rapidly on wetting and drying cycles. From the central section through to the very northern end of the 27 meter long trackway, the volcanic tuff is extremely weathered and in parts is little more than dried mud, poorly preserving the footprint.

2. OBJECTIVES OF RE-OPENING THE FOOTPRINT

- * To evaluate the state of conservation of the buried Laetoli footprint trail;
- * To allow scientists to get various samples for scientific studies and analyses;
- * To allow communities and government leaders, journalists and other stakeholders to see the footprint in their authentic form; and,
- * To allow scientists to document and record the current preservation condition.

3. DATE OF RE-OPENING

The partial reopening of footprint will take place from 7th to 14th of February, 2011 whereby onthe public will be allowed to see the trackway.

4. METHODOLOGY

An area of 3 meter long will be reopened. The methodology to be used includes:

- * Site reconnaissance, planning and logistics,
- * Remove of boulders, soil and sand layers (2-5m) and geosynthetic over southern 3 meter of boulders down to layer I and geotextile and sand in i layer I covering the trackway.
- * Re-excavation of layer I;
- * Documentation and Assessment; and,
- * Reburial of the trackway.

5. PARTICIPANTS

The Team experts will be mobilized from:

- * Getty Conservation Institute (USA),
- * The Ministry of Natural Resources and Tourism, Division of Antiquities,
- * University of Dar es Salaam Geology and Archaeology Units,
- * International Centre for the Preservation and Restoration of Cultural Property (ICCROM), Rome, Italy.

6. EXPECTED OUTPUT

- * A report on the conservation status of the footprint; and,
- * Awareness to communities and leaders on the existence of the hominid footprint.

Regards,

Mwita Sebastian William,
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Ministry of Natural Resources and Tourism,
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Fax: +255 22 2864259
Website: <http://www.mnrt.go.tz/>

6.7 Maps



Figure 3: Map showing significant cultural heritage sites within NCA

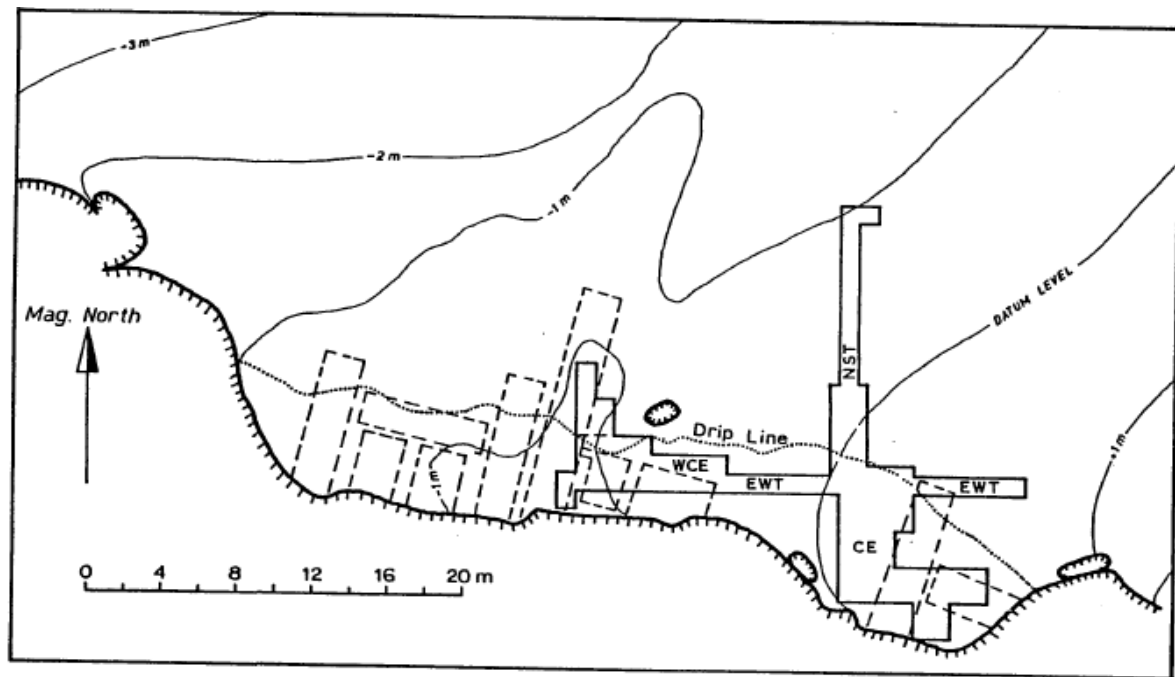
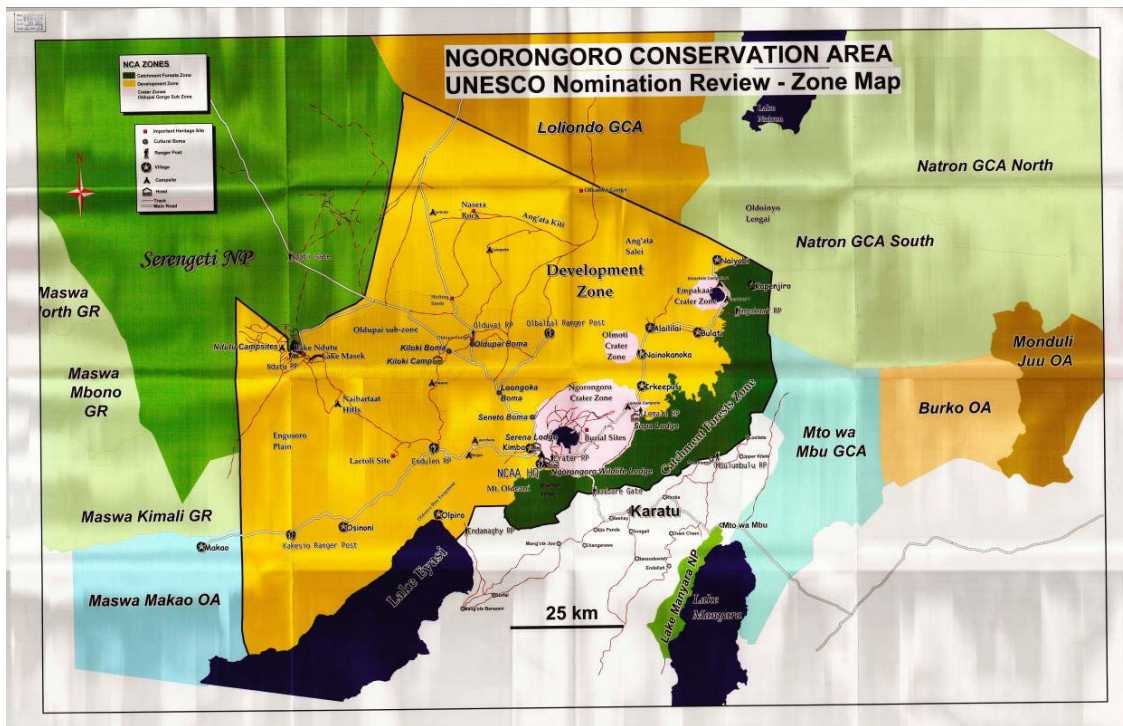


Figure 2.2. Plan of Nasera rockshelter

From Mehlman 1989, Late Quaternary archaeological sequences in northern Tanzania. Ph.D. Thesis, University of Illinois at Urbana-Champaign

6.8 Photographs



CC Ngorongoro 2011 (1)



CC Ngorongoro 2011 (2)



CC Ngorongoro 2011 (3)



CC Ngorongoro 2011 (4)



CC Ngorongoro 2011 (5)



CC Ngorongoro 2011 (6)



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