Human Origins at Olduvai Gorge

Professor Fidelis Masao
University of Dar es Salaam

Chediel Msuya
Department of Antiquities, Tanzania

Dr. Jackson Njau
National Museums of Tanzania
Our Mission

Earthwatch Institute engages people worldwide in scientific field research and education to promote the understanding and action necessary for a sustainable environment.

We believe that achieving a sustainable future requires objective scientific data from the field—and that the scientific process must engage the general public if it is to change the world. To that end, we involve people from all walks of life directly in global field research.

We invite you to join us.

Offices:

Earthwatch Institute
3 Clock Tower Place
Suite 100
P.O. Box 75
Maynard, MA 01754 U.S.A.
info@earthwatch.org
www.earthwatch.org
Toll-free: +1 (800) 776-0188
Phone: +1 (978) 461-0081
Fax: +1 (978) 461-2332

Earthwatch (Europe)
267 Banbury Road
Oxford
OX2 7HT
UNITED KINGDOM
info@earthwatch.org.uk
www.earthwatch.org/europe
Phone: +44 (0) 1865-318-838
Fax: +44 (0) 1865-311-383

Earthwatch (Australia)
126 Bank Street
South Melbourne
VIC 3205
AUSTRALIA
earth@earthwatch.org
www.earthwatch.org/australia
Phone: +61 (0) 3-9682-6828
Fax: +61 (0) 3-9686-3652

Earthwatch (Japan)
Sanbancho TY Plaza 5F
Sanbancho 24-25,
Chiyoda-ku,
Tokyo 102-0075 JAPAN
info@earthwatch.jp
www.earthwatch.jp
Phone: +81-(0)3-3511-3360
Fax: +81-(0)3-3511-3364

www.earthwatch.org

-- An international nonprofit organization founded in Boston, Massachusetts in 1971--
Welcome to Earthwatch Institute!

You are just one step away from an experience that may change your life. You may travel to a land you’ve never seen, live with a culture you know little about, learn skills you’ve only imagined. All in the name of field research that leads to furthering our understanding of our natural and cultural resources.

The Expedition Briefing in your hands is your initiation to the project from the scientist’s own perspective. You will learn about the inspiration that led the scientist(s) to launch the research, the objectives, goals, and even achievements of the project to date. You will get a very real sense of how your participation contributes to solving a global research question.

Your assignment is to apply your own skills and talents to the research question. Your support helps to make the project – and over 130 like it – possible. Thank you for contributing your time and money to support scientific research, providing experiential learning, and inspiring environmental responsibility and global citizenship.

Now, find a comfortable chair and prepare for a fascinating journey.

~ Earthwatch Institute Staff~
Dear Earthwatch Volunteers,

On behalf of the Government of Tanzania through the Department of Antiquities, the Ngorongoro Conservation Area Authority, the Olduvai Camp employees, the local field team, my Co-Principal Investigators and myself, I wish to warmly welcome you to Tanzania and to Olduvai Gorge in particular. I am very pleased you can join us in this spectacular field expedition in a most friendly working environment at Olduvai.

My name is Fidelis T. Masao, and I am the Principal Investigator of this ongoing conservation project and a Professor of Archaeology at the University of Dar es Salaam. My main current research interest is the origins and development of our earliest cultures and technology (as demonstrated by the abundance of Early Stone Age artifacts at Olduvai). To this end, I have for the past 18 years co-directed the Olduvai Landscape Palaeoanthropology Project (OLAPP) together with Professor Robert Blumenschine of the Department of Anthropology at Rutgers University. The other Co Principal Investigators are Mr. C.S. Msuya, a conservator with the Department of Antiquities, and Dr. Jackson Njau, a zooarchaeologist and paleontologist working with the Natural History Museum at Arusha.

Olduvai Gorge is one of very few unique Plio-Pleistocene paleoanthropological sites in the world known for its important discoveries of human origins. Unlike many other sites, Olduvai Gorge exhibits a rare combination of paleontological remains including early hominids in an excellent state of conservation and a succession of stone cultures in an undisturbed geological layer cake. The proximity of Olduvai Gorge to pristine ecosystems, such as the Great Serengeti Plains, Ngorongoro Crater, the Lake Natron game controlled area and Manyara wildlife-biosphere reserve, afford relevant in-field laboratories to test models of ancient hominid foraging behavior and land use.

Olduvai Gorge would perhaps not have been known as a paleoanthropological site had nature not done the excavation for us. Pleistocene tectonic forces, resulting in faulting and tilting, preceded an episode of erosion that sliced to the Plio-Pleistocene sediments and thus exposed a succession of sedimentary lacustrine, fluvial and alluvial deposits. These deposits preserve a wealth of paleontological and archaeological records important for understanding our origins.

In addition to the scientific work there will be programs of social activities and visits oriented toward the understanding of the local culture, wildlife and the natural history of Olduvai. These
might include daylong as well as half-day visits to the Serengeti National Park, Ngorongoro Crater (one of the Seven Natural Wonders of the World), Maasai traditional homesteads, Maasai market day, the Olduvai museum, and more.

We will be camping at the picturesque and historic Leakey’s camp and dining at the same place that the Leakeys used when they worked at Olduvai Gorge.

See you in soon!

Sincerely yours,

Fidelis T. Masao
Principal Investigator

Email: fitman60@yahoo.com
Tel: +255-22-2775330
Cell: +255-754-274277 / +255-784-274277
PO Box 70566, Dar es Salaam, Tanzania
Human Origins at Olduvai Gorge
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GENERAL INFORMATION

PRINCIPAL INVESTIGATORS: 1) Professor Fidelis T. Masao  
2) Mr. Chediel S. Msuya  
3) Dr. Jackson Njau

POSITIONS: 1) Professor  
2) Senior Conservator  
3) Principal Curator

AFFILIATIONS: 1) University of Dar es Salaam  
2) Antiquities Department, Ministry of Natural Resources and Tourism  
3) National Museums of Tanzania

PROJECT TITLE: Human Origins at Olduvai Gorge

RESEARCH SITE: Olduvai Gorge, Tanzania

EXPEDITION LENGTH: 14 days

TEAM SIZE MINIMUM/MAXIMUM: 8/14 volunteers

MINIMUM AGE OF PARTICIPATION: 18 years of age*

* It may be possible for 16- and 17-year-olds to participate if accompanied by a parent or guardian. Contact Earthwatch for more information and see Section 9 ‘Before You Leave’ for traveling advice for minors.
THE EXPEDITION

1. PROJECT OVERVIEW

More than any other site, Olduvai Gorge in northern Tanzania conjures up the names of Louis Leakey and his wife Mary Leakey, who between them pushed back the known dates of our hominin ancestors by several million years. Their pioneering work established Olduvai as one of the most famous early prehistoric sites. As long ago as 1931, they began their search for human remains at Olduvai Gorge, but it was not until 1959 that their extraordinary perseverance was rewarded by the discovery of one of the most important hominin skulls, the almost complete *Zinjanthropus boisei* cranium. The Leakeys’ work at Olduvai shows that most of the major evolutionary stages of the African Stone Age from the jagged artifacts commonly known as choppers to the microliths of the Later Stone Age are well represented.

Olduvai Gorge was created as a result of erosion, which caused the ancient Olduvai lake basin to shift east to what is presently known as Olbalbal, leaving behind lacustrine, fluvial and tuffaceous deposits in its place. In the process a deep trough was cut into these Pleistocene deposits forming Olduvai Gorge. Subsequent erosion and faulting have exposed some 106 meters of stratified lacustrine, alluvial, aeolian and volcanic sediments within which is an almost complete record of man’s cultural development spanning two million years. The sediments are also rich in fossilized animal bones representing a diverse array of both extinct and extant species.

Although Olduvai has been the focus of many international research projects for over four decades, the area still holds many scientific surprises. During the last 12 field seasons for example, the Olduvai Landscape Palaeoanthroplogy Project (OLAPP) has recovered eight definite and two possible hominin remains while past expeditions of the *Human Origins at Olduvai Gorge* Earthwatch project have discovered four hominin remains, the last of which was found last year. The paleoanthropological deposits are stratified in almost continuous layers termed the “Olduvai Beds,” spanning almost 2,000,000 years of hominin history.

During the upcoming research season, Earthwatch volunteers will contribute to this research project by participating in surveying, excavation and/or analysis of paleoanthropological data (artifacts and fossil bones).

**Note:** See *Human Origins at Olduvai Gorge: The Research* in the appendix of this briefing for information on the research objectives, methods, and results of this project.
2. RESEARCH AREA

**Physical Environment**

Olduvai Gorge is perhaps one of the most famous paleoanthropological sites in the world. It lies at the southern end of the world-famous Serengeti Plains, which abound in many animal species characteristic of the African savanna. On the south and southeast, Olduvai is flanked by the picturesque Volcanic Crater Highlands; some of these peaks contributed the volcanic sediments which have so efficiently concealed and preserved the paleoanthropological traces at the famous footprint site of Laetoli as well as at Olduvai Gorge. The highest peak, Oldeani, rises to 3,188 meters above sea level.

Game is abundant near the Olduvai camp, and it is not unusual to see giraffes, elephants, antelopes and hyenas. Lions rarely come close to the camp, but they can be heard loudly and clearly at night. Elephant herds normally come through Olduvai during the dry season (June-September) on their way to water sources at Lakes Ndutu and Masek. They sometimes linger in the area, especially in the river valley, for one to two weeks before trekking away. Vegetation in the area is mostly acacia scrub, but there are other plant species including the wild sisal plant *Oldupai* in Maa, from which the word Olduvai derives, commiphora, and a few other trees.

The climate around Olduvai is hot and dry. The area is quite windy with mild to moderate easterly trade winds, strongest in August and September. The gorge and the surrounding area are home to numerous Maasai families who use the dry riverbed as goat and cattle track ways.

In addition to being at the southwestern end of the Serengeti Plains, Olduvai is also within the Ngorongoro Conservation Area Authority. The approach to Olduvai is through the Ngorongoro highlands area renowned for its spectacular crater and unique ecosystem, which is home to different kinds of wildlife including the Big Five: elephants, buffalos, rhinos, lions and giraffes. It takes only 50 minutes to drive from the Olduvai camp to Ngorongoro and a little more to get to the heart of the Serengeti.
**Cultural Environment**

Tanzania is one of the five East African countries (Kenya, Uganda, the United Republic of Tanzania, Republic of Burundi and Republic of Rwanda) that together form the East African Community with headquarters in Arusha. Multi-party democracy was instituted in Tanzania in 1992. It is a politically stable country and has never experienced a coup since independence in 1961.

Located in northern Tanzania, Olduvai Gorge is also in the heart of Maasai country. The Maasai people are basically pastoralists and move with their herds in search of good pastures, but there is also a resident community near Olduvai. They practice a strict hierarchical system based on age, whereby younger members are expected to show total respect and obedience to their elders. It is historically a strongly male-dominated society and females are not expected to either work alongside males or challenge male opinions. Nowadays, this attitude is slowly changing and it is not uncommon to see women working in groups or having discussions with men. The men dress very lightly, but females cover almost every part of their bodies. However, they have no problem working with foreigners who dress differently, as long as women do not expose the upper parts of their thighs or their midriffs. This would be looked upon with disdain. Shorts and long pants are acceptable. Volunteers should not take pictures of the local people without either consent or payment. Also, do not beckon with your index finger, as this is considered derogatory.

3. **Project Staff**

**Principal Investigator**

Professor Fidelis T. Masao, born in 1942, is an archeologist with a Ph.D. from Simon Fraser University in Canada and has been directing Earthwatch expeditions at Olduvai Gorge since 2002. He was the first Tanzania National Director and CEO of the National Museum of Tanzania, a post he held until 1989 when he left to take up a teaching assignment at the University of Dar es Salaam (UDSM). He left UDSM in 1997 to join the Open University of Tanzania as a Professor of Archaeology, but has returned to the University of Dar es Salaam since March 2006 where he teaches Archaeology. Professor Masao also directs a research and a consulting establishment known as Palaeocultural and Environmental Research. In addition to the Earthwatch-sponsored research, he co-directs the Olduvai Landscape Palaeoanthropological Project (OLAPP) with Professor R.J. Blumenschine of Rutgers University and Dr. Jackson Njau of the Natural History Museum in Arusha. Professor Masao’s other research interests include the rock art of central Tanzania, the Later Stone Age of Tanzania and the Middle Stone Age of southeast Tanzania. He has been a Visiting Professor at Rutgers University in the United States and Hanyang University in South Korea. He is also the current chairperson of the East African Rock Art Research Association (EARAR) and he speaks English, Swahili, Kichaga and a little German.

**Co-Principal Investigators**

Mr. Chediel S. Msuya, born in 1961, is a Senior Conservator of Antiquities who joined the project in 2002 having worked with the PI since 1999. He was awarded an M.Phil. Degree in Archaeology by Bergen University in Norway. As a government employee, Mr. Msuya will be responsible for facilitating the issuance of permits. His interests include research work on the later prehistory of Tanzania, and conservation of Tanzania’s cultural heritage. He speaks English, Swahili and Kipare fluently.
Dr. Jackson Njau, born in 1967, is a Principal Curator at the Natural History Museum in Arusha. He is currently co-directing the Palaeoanthropological Exploratory Project in Tanzania with Dr. Leslea Hlusko of the University of California, Berkeley. This newly formed project aims to discover new fossil-bearing deposits of the upper Miocene, a time period when human lineage split from other hominoids. Dr. Njau’s main research interest is the archaeology of human origins and hominid paleoecology. He received his Ph.D. from Rutgers University in the United States under the directorship of Professor Robert Blumenschine. He has immense experience in taphonomy and zooarchaeological research and has conducted extensive fieldwork in modern Serengeti, Ngorongoro Crater, Lake Manyara and Lake Eyasi ecosystems with the aim of reconstructing the paleoenvironments in which early hominids lived during the Plio-Pleistocene times at Olduvai Gorge. He has analyzed most of the Plio-Pleistocene fossil bones of large vertebrate assemblages from Olduvai. In the meantime he is conducting taphonomic analysis of hominid bone specimens from Olduvai. Like the PI, he is a scientist also working with OLAPP. As a Co-PI, Dr. Njau will be responsible for coordinating the analysis and identification of all the paleontological remains. He speaks English, Swahili and Kichaga fluently.

Research Staff

Mr. Jesuit Temba is the Antiquities Representative and is in charge of all cleaning and restoration duties. He speaks English, Kiswahili and Kichaga fluently and will be present for all Earthwatch expeditions.

Mr. Augustino V. Songita, born in 1969, is a part-time technician at the Natural History Museum in Arusha and has a great deal of field experience. He has worked at Olduvai with OLAPP since 1995 and with the DK Conservation Project since 1999. Mr. Songita will be in charge of logistical operations for the project and will assist Dr. Jackson Njau with faunal identification. He is credited with finding Olduvai Hominid 65, an almost complete maxilla of *H. habilis*. He speaks English, though not fluently, Swahili and Kifyomi.

Mr. Goodluck Peter, born in 1975 in Arusha, is an experienced excavator and is skilled at finding and sorting fossils. His responsibilities include supervising excavation, section drawing and illustrating artifacts and bone. He speaks English and Swahili.

Additional Project Staff

Given the PI’s and Co-PIs’ experiences from nine Earthwatch field seasons at Olduvai, a minimum of 16 additional staff members are required for efficient field operations. While all of these additional staff members have at least three years of experience at Olduvai, some have worked with OLAPP since its first field season in 1989. These staff members will likely include a chief cook, three assistant cooks, a cleaning and laundry person, six experienced excavators, three excavator trainees, a driver/mechanic, and an experienced Maasai scout for wild animals who will serve as a watchman at Olduvai camp.

Current Staffing Schedule (Subject to Change)

Of the PI and two Co-PIs, at least one will be onsite for each Earthwatch expedition.

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<tr>
<th>Staff Member Present</th>
<th>Team I</th>
<th>Team II</th>
<th>Team III</th>
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<tr>
<td>Fidelis T. Masao</td>
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<td>Chediel S. Msuya</td>
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<td>Jackson. Njau</td>
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<td>Goodluck Peter</td>
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DAILY LIFE IN THE FIELD

4. VOLUNTEER TRAINING AND ASSIGNMENTS

Training
The expedition will begin with a day-long orientation session. This will include a visit to the Olduvai Museum where one of the museum guides will give an introductory lecture and the team will study exhibits summarizing the geology of the area, as well as the cultural and hominin evolution as revealed by past research investigations. Following the museum visit the team will visit several sites, including historical sites and geological landmarks such as the FLK Zinj site, HWK, Second and Third Faults within the gorge and the shifting sand dune. In the afternoon volunteers will visit the field lab to get acquainted with the set up, the comparative collection of bone, the collection of stone raw material from the region and plant specimens used for actualistic studies. Volunteers will also learn the locations of the survey and excavation equipment that will be used each day.

Volunteers will be trained in excavation techniques, drawing sections of the stratigraphy, recognition of artifacts, identification of skeletal parts and (where possible) the species they represent, analysis of artifacts and bone, and recognition of the common plants and birds in the Olduvai area.

Additionally, talks will be given on the following topics:

- Discovery of Olduvai Gorge and subsequent paleoanthropological research, emphasizing the change of interpretation of the artifact/bone concentrations and associated paleoenvironments
- The geology and interpretation of the JK site and other localities
- Geology of Olduvai
- Paleo-environments and climates
- Olduvai hominids in geological and associated industries
- Landscape archaeology approaches and hominid land use
- Actualistic studies and the use of modern analogs such as the Serengeti ecosystem, Lake Makat in the Ngorongoro Crater and Lakes Natron and Manyara
- Culture, legends and lore of the neighboring Maasai people
- Ongoing lion research by Ingela Junsson and Patrick Jigsved of the Serengeti Lion Research Project

Assignments
Depending on the size of the team, volunteers will most likely be divided into an excavation group and a survey group, with the Principal Investigator (PI) working with one group while one or both of the Co-PIs work with the other. If the team is too small to be split up, the entire team will excavate or survey together.

For excavation work, volunteers will need to dig (if desired) using large and small picks, load dirt onto dust pans, carry dirt to the screens, sift dirt through the screens, pick up and bag artifacts and bone, prepare labels, complete site record forms and carry artifacts to the camp after fieldwork. Most volunteers become skilled excavators and are able to recognize artifacts and fossils after excavating for just a couple of days.
Survey work will involve looking for surface artifacts and fossils while walking along the exposures. Volunteers will need to pick up finds and put them into bags, and complete survey forms summarizing the finds from each plot.

Tasks will be rotated among volunteers on a daily basis. If there are archaeologists or archaeology students among the volunteers, they may be allowed to supervise survey and/or excavation work.

Back at camp in the afternoon, volunteers and local workers will wash bone and artifacts and complete field notes. Half the team and an equal number of local workers might be assigned to wash artifacts during the first two days, while the others sort artifacts and bone to mark the initial steps of the preliminary analysis. Alternatively, a small group may be assigned survey work. Normally, 4:00-5:00 pm is considered the most ideal time for surveying.

As the data accumulates (e.g. after the fourth day), there will be many more activities. Team members will work in groups to wash artifacts and bone, assist the research staff in analyzing them, and record data on spreadsheets.

5. TEAM ITINERARY

Below is a tentative itinerary for the expedition.

Day 1: Arrive and stay overnight in Arusha
Day 2: Depart in the morning, lunch at Karatu, arrive at Olduvai (~ 5:00 pm), pitch tents (local workers will set up camp and assist volunteers), dinner, informal welcoming speech, introductions and work plan
Day 3: Orientation at Olduvai (8:00 am-12:00 pm), visit to the museum and other sites, lunch (12:30-1:30 pm), orientation at camp and labs (3:00-5:00 pm), dinner followed by a small welcome party (7:00-9:00 pm)
Days 4-6: Drive to the field site after breakfast (8:00 am), excavation group will lay one trench for excavation and start digging, survey group will go to the targeted exposures and start surveying, lunch together at camp (10:30-11:00 am), return to site and work (3:00 pm), return to camp to wash up (5:00 pm), dinner (if the team does not have enough volunteers for two groups, the whole team will excavate in the morning and survey in the afternoon)
Day 7: Same as above except the two groups will rotate: excavation group will remain at camp for washing and data sorting in preparation for preliminary analysis, survey group will keep the survey going
Day 8: Excursion to Ngorongoro Crater (volunteers will be expected to contribute US$30 each for park fees)
Days 9-10: Same schedule as for Day 7
Days 11-12: Same schedule as for Days 4-6 (on one day the team may visit the local Maasai open market day at Enduleni)
Day 13: Break camp and drive to Arusha for departure either on Day 13 or Day 14*
Day 14: End of expedition, depart from Arusha (Team I volunteers may depart on the evening of Day 13)

Evening campfires will provide a chance for team members to relax and mingle. If desired, a party/dance can be organized on one of the last nights and local Maasai people would be invited. In case of a Maasai performance, volunteers will be required to contribute to the cost of having the dancers, an average of US$5 each. At the end of the expedition, volunteers will be given five minutes each to address the team.
Recreational Time

Earthwatch has a duty of care to our participants from the rendezvous to the end of the expedition. In order to ensure you are as safe during your recreational time as you are during research time, we have put a number of measures in place.

- If there is a recreational day during the expedition, the project staff will offer either a planned team activity or a small choice of recreational activities that have been vetted and comply with Earthwatch standards. You will also have the option of remaining at the project accommodations to rest. All participants are strongly encouraged to take part in the group activity, but if you are determined to pursue other options you will be asked to sign a release before doing so, stating that Earthwatch is not responsible for your welfare.

- When there is a period of free time scheduled into a regular research day, the staff will ask you to sign out of the project (using a means which may vary by project and project location) if planning to leave the group. This will include your destination and estimated time of return. If participants do not show up to the next activity the project staff will then know where to begin a search.

- In the evenings when you can go out at night, you will again be asked to sign out of the project as above. The project staff will give you 24-hour contact information for them should assistance be needed. The sign-out is informational only and will not be used to enforce a curfew. Please be aware that project staff would not start a search until the following morning or the next scheduled activity unless contacted for help sooner.

6. Daily Schedule and Tasks

Volunteers should be aware that schedules can and do fluctuate due to weather, research needs, team size, etc. Your cooperation and understanding are appreciated.

6:00 am: Wake up, coffee ready on the dining table (earlier risers are welcome to fetch a cup of coffee from the kitchen before 6:00)
7:00 am: Breakfast and briefing on the day’s work
7:30 am: Begin organizing the fieldwork gear and supplies for the day
8:00 am: Travel to the research site and begin work
1:00 pm: Lunch
2:00 pm: Recreational time
3:00 pm: Depending on progress of work, volunteers will either survey or work in the lab washing or analyzing data
5:30 pm: Wash up, tea/coffee
7:00 pm: Meet in the lab for an informal show-and-tell, which normally summarizes the day
7:30 pm: Dinner, discussions and time for socializing, relaxing, etc.

Volunteers will be free to retire any time after the discussions following dinner. If desired, a campfire can be lit in the evening for people to sit around and chat. The evening campfire can be relaxing and people find it easy to mingle and talk very freely.
7. ACCOMMODATIONS

On the first and last nights of the expedition, volunteers will stay at the Arusha Resort in the city of Arusha. Each volunteer will have his or her own room with en suite bathroom, hot-water shower, television and telephone. If anything in the room is not functioning properly, please report this to the reception desk. You will be able to make international calls from your room, but may find it less expensive to call at the TTCL offices, a five-minute walk from the hotel. Internet facilities are available at the hotel, and there are also nearby internet cafes. Like the rest of Africa, Tanzania uses 220-volt electricity with two- or three-pin plugs.

If you wish to spend more time at the Arusha Resort before or after the expedition, you will need to arrange and pay for this on your own; however, the Principal Investigator is willing to assist with arrangements.

After staying in Arusha on the first night of the expedition, the team will travel to the Leakey camp at Olduvai, approximately 280 kilometers (180 miles) away. The journey takes about 4.5 hours with a stopover at Karatu for lunch. Three-quarters of the drive is on tarmac (pavement) but the rest is on rough and bumpy road.

At Olduvai, volunteers will be accommodated in tents. You will need to bring your own tent. A two- or three-person tent is recommended for accommodation and storage of your belongings. Couples might prefer a slightly larger tent. Foam sleeping pads will be supplied by the project, but you will need to bring your own bed sheets or sleeping bag and towel(s). The toilets at camp are single-sex pit latrines fitted with toilet seat covers. Hot water is not available at camp, but people normally use two-gallon solar shower bags to wash in the camp’s makeshift shower huts. The bags are filled with water and laid outside in the morning and by afternoon the water is quite warm. In order to conserve water, please try to restrict showers to one every other day. Laundry service will be provided at US$5 per load, but this does not include ironing. If you would like laundry service, you must pay US$15 to the Principal Investigator at the beginning of the expedition. Money left over from this deposit will be refunded at the end of your stay.

The camp has solar-powered electricity with transformers for 110-volt and 220-volt equipment; however, the use of this electricity is restricted to the project laboratory. You are advised to bring a reading light for your tent. Occasionally, wind-generated electricity is available in the dining room. Volunteers may charge digital cameras, laptops, cell phones, etc. in the lab during the day only. Both Vodacom and Celtel provide cell phone service at Olduvai. There are no internet facilities at camp. If necessary, volunteers can access internet facilities in Karatu during one of the trips to get supplies.

The research site is approximately a 15-minute drive from camp. Staff will transport the team each day using project vehicles. From the drop-off point, you will need to hike in and out of the gorge. The team will drive back to camp for lunch, then back to the site, and then back to camp again in the evening. If some adventurous volunteers would like to walk back to camp in the evening, they can do so under the company of a Maasai guide. The terrain is rugged and this walk would take approximately one hour.
8. Food

Arusha is a bustling metropolis with all sorts of interesting restaurants, pubs and cafes; however, Olduvai Gorge is in the bush. There are tourist hotels and lodges within an hour’s drive of camp, but they are normally very expensive.

At Olduvai, meals will be prepared in a kitchen shed fitted with a stove that uses firewood. Led by either Samuel Lawuo or Frank Mataro, both experienced “bush cooks,” the project staff can turn out rather tasty dishes. Because volunteers will have full days of fieldwork, you will not be expected to assist in meal preparation or clean-up. However, you are welcome to watch. If desired, you may accompany the local people on trips to the market for grocery shopping.

Typical sources of carbohydrates will include rice, pasta, bread, potatoes, ugali (bread or stiff porridge made from corn meal), chapati (similar to pancakes), cooked bananas (considered a delicacy by the locals), etc. An assortment of vegetables will be available, such as carrots, cabbage, mchicha (spinach), green peppers, cabbage, lettuce, peas, tomatoes, onions, garlic, eggplant, etc. Depending on the season, a wide range of tropical fruits may be available, such as bananas, oranges, lemons, mangoes, pineapples, papaya, avocado, breadfruit, watermelons, etc. Beef and chicken will be the main meats, but the team may occasionally have goat and possibly venison.

Below are examples of the types of foods and drinks you can expect during your expedition. Please be advised that availability of certain foods may be limited. This list is intended to provide a general idea of food types, but it is very important to be flexible.

**Breakfast:** Toast, eggs, uji (porridge made from sorghum flour), fruit (see above)

**Lunch:** Rice, pasta, ugali, chapati, fried or boiled potatoes, beef or chicken curry, shishkababs, fried chicken, barbecue beef, mutton, chicken or maize cooked with beans, tinned beef and tuna fish for sandwiches

**Dinner:** Same as lunch plus soup with bread/croutons and possibly cake when available (note that dessert will not typically be available)

**Snacks:** Cheese, popcorn, peanuts

**Beverages:** Coffee and tea (available at all times, along with sugar and honey), hot chocolate, powdered milk, boiled drinking water (alternatively, you may wish to bring your own bottled water)*

*Volunteers can buy alcohol (beer, wine or spirits) in Arusha prior to the expedition, or in any of the grocery stores on the way to Olduvai. There is also a local bar at camp with a limited range of beers and soda, and occasionally wine. Any purchase of alcohol will be at your own expense.

**Note:** All meals will be eaten together at one large table. The project has a tradition that whoever happens to occupy the chair at the end of the table has to give a speech. The speech can be about anything and could be one sentence or several sentences long.

**Special Dietary Requirements**

Please alert your Earthwatch Expedition Coordinator to any special dietary requirements as soon as possible (e.g. diabetic, lactose intolerant, etc.). Vegetarian dishes can be prepared but the cooks will need to know in advance in order to purchase appropriate supplies. Accommodating special diets is not guaranteed and can be very difficult due to availability, location and local conditions.

**Special note to vegans and strict vegetarians:** Please be aware that it is often difficult to accommodate strict vegetarians and vegans. It may be possible to get meatless meals but vegans and strict vegetarians may have a problem avoiding animal products altogether. If this poses a problem, then participation on this Earthwatch expedition should be seriously reconsidered.
TRAVEL PLANNING

9. BEFORE YOU LEAVE

Note: Earthwatch Institute’s international travel insurance company, International SOS, has a wealth of useful information available at their website, including visa, passport, currency, medical, etc. information for Tanzania. See www.internationalsos.com and enter Earthwatch’s member identification number: 14ACPA000075. Under “Select Resource” choose “English Country Guide,” and then select Tanzania from the list. For a listing of other useful websites for passport and visa requirements, see Section 15 ’Helpful Resources.’

Entry Requirements for Tanzania
All volunteers traveling from outside Tanzania will require a passport valid for at least six months beyond the dates of travel, as well as a tourist visa for entry. Many volunteers will be able to get their Tanzanian visa upon arrival in the airport. However, this is not guaranteed so you are advised to inquire about any restrictions at the nearest embassy or consulate.

Essential Information for Volunteers Requiring Visas

<table>
<thead>
<tr>
<th>Type of Visa</th>
<th>You must get a TOURIST VISA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where to Get a Visa</td>
<td>Contact the nearest Tanzanian Embassy or Consulate to find out how to apply for your visa. Please note that this process can take weeks or more. If you have less than six weeks or wish to save yourself trouble, we strongly recommend using a visa agency, which can both expedite and simplify the process. See below for a list of visa agencies.</td>
</tr>
<tr>
<td>Required Information</td>
<td>You will need to send your passport (valid for at least six months beyond your stay), a Visa Application and Immigration Form, 2-4 passport-size photos plus payment to the embassy or visa agency (if applicable). Please be sure that your passport is valid for at least six months beyond your stay.</td>
</tr>
<tr>
<td>Cost of a Visa</td>
<td>Generally between US$40-100, but varies from country to country and can potentially cost up to US$180. A visa agency will charge an additional fee (depending on the amount of time it takes to process the application), which you can inquire about directly.</td>
</tr>
</tbody>
</table>

Reminder: The purpose of your visit is for vacation, holiday or travel. Foreign immigration officials do not always understand the concept of a “working vacation” or even “volunteering.” Words such as “working”/“volunteering,” “research” or a “scientific expedition” can raise questions concerning the country’s foreign labor laws and/or prompt questions about official scientific research permits and credentials, etc., to which volunteers on their own will not be equipped to respond. All required research permits for the project are in place and have been approved by the proper authorities.
Visa Agencies

<table>
<thead>
<tr>
<th>In the United States</th>
<th>In Europe</th>
<th>In Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>PassportVisaExpress.com 1911 North Fort Myer Drive, Suite 503 Arlington, VA 22209 Tel: +1 888 596-6028, +1 703 351-0992 Fax: +1 703 351-0995 Email: <a href="mailto:info@passportvisaexpress.com">info@passportvisaexpress.com</a> Web: <a href="http://www.passportvisasexpress.com">www.passportvisasexpress.com</a></td>
<td>The Visaservice Tel: +44 (0) 8708 900 185 Fax: +44 (0) 20 7278 8464 Web: <a href="http://www.visaservice.co.uk">www.visaservice.co.uk</a></td>
<td>Ask your travel agency if they can send your visa application on your behalf.</td>
</tr>
<tr>
<td>Thames Consular Services Ltd Tel: +44 (0)20 8995 2492 Fax: +44 (0)20 8742 1285 Web: <a href="http://www.visapassport.com">www.visapassport.com</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Volunteers Under 18 Years of Age

Entry to Foreign Countries

In an effort to prevent international child abduction many governments have initiated procedures at entry/exit points. It may be possible for 16- and 17-year-olds to participate in the project if accompanied by a parent or guardian. In this case, if the minor will be traveling with only one guardian or if for any reason they will be traveling alone, it may be necessary to have a notarized letter from all legal guardians stipulating that they may travel unaccompanied or in the presence of a single guardian. This letter must give an explanation for why only one parent or someone other than a parent is signing the letter. For example, if one parent is deceased, only one parent has legal guardianship, or someone other than the parents are legal guardians, the letter should state that.

In addition, airlines may also have documentation requirements for unaccompanied minors. Parents of minors are responsible for checking with each airline that their child will be flying to ensure that sufficient documentation is provided. This could include a copy of a birth certificate or a notarized letter stating that the minor has his or her parent’s permission to travel alone or with only one parent.

Note: Requirements by specific countries and airlines vary and change frequently. You MUST keep informed of the requirements on your own to avoid problems at immigration. If a letter is not available, the volunteer under 18 can be refused entry into the country. There is nothing Earthwatch Institute can do to help in this circumstance.

Travel Medical Insurance

Travel medical and evacuation insurance is mandatory for Earthwatch volunteers while on an Earthwatch expedition anywhere in the world. The cost of this insurance is included in your volunteer contribution. It covers volunteer travel medical risk, including medical expenses and medical evacuation, while traveling with Earthwatch overseas or on an expedition within your home country. Without insurance, the costs of such measures can range from US$20,000 to $50,000.

The emergency medical and evacuation assistance provider for Earthwatch is On Call International. On Call is a 24-hour international operation which provides medical assistance and evacuation, a 24-hour nurse help line and other travel assistance services such as lost baggage and lost document assistance.

Basic coverage is valid in the country of your Earthwatch expedition and during international travel to and from your expedition. If the expedition takes place in your home country, coverage begins when your group forms for the expedition and ends when the group disbands, and is
incremental to your existing health insurance. Options are available for volunteers who would like to extend the period of coverage, increase insurance amounts or purchase additional cancellation or baggage insurance. Application forms for additional coverage are included in your volunteer packet.

A detailed description of the Volunteer Medical and Evacuation Insurance Program policy, including the optional coverage increases, will be sent with this briefing. Please note that policies are specific to each Earthwatch office.

To contact On Call International in the event of an emergency, dial:
• 1-866-509-7715 from within the US
• +1-603-898-9159 from outside the US

State that you are on an Earthwatch expedition. The Earthwatch policy number is #US008020.

Cancellation Insurance

Trip cancellation insurance is highly recommended for Earthwatch volunteers. Depending on the level of coverage you purchase, cancellation insurance will help cover your airfare and Earthwatch contribution if you need to cancel your expedition due to medical or other covered reasons. Earthwatch Institute does not reimburse airfare or costs associated with cancelled flights or expeditions. Levels of reimbursement for cancelled airline tickets or ticket change fees will vary depending on what type of trip cancellation policy you purchase. You are strongly advised to buy flexible or refundable plane tickets. Note that volunteers with preexisting medical conditions are encouraged to explore their coverage options.

For US and Canadian Volunteers

Earthwatch is offering comprehensive optional travel insurance through CSA Travel Protection as a service to our US and Canadian volunteers. While our inclusive insurance covers your emergency medical needs while in the field, this optional policy covers trip cancellation insurance due to medical emergencies, lost luggage, travel delays, etc. For more information on the insurance policy, call Earthwatch at 1-800-776-0188 or visit www.csatravelprotection.com. Please note that some coverage is dependent on purchasing insurance within 24 hours of paying in full for your expedition. Should you decide to take out our optional insurance, please use the following producer code to indicate your affiliation with Earthwatch: 83534816.

For Volunteers Signing Up through Earthwatch Europe

Earthwatch Europe volunteers can purchase travel insurance from Earthwatch that is underwritten by Endsleigh and includes Additional Cancellation Cover. Additional Cancellation Cover insurance includes cover for non-refundable travel expenses should your expedition be cancelled. Alternatively, if Earthwatch Europe volunteers hold their own travel insurance they may be able to purchase Additional Cancellation Cover through their existing insurer.

Travel Agencies

Contact your local travel agent or use the web to find the lowest rates to make your travel arrangements. A list of suggested travel agents can be found in Section 15 ‘Helpful Resources.’ Be sure to give your rendezvous details to your travel agent as soon as possible so they can plan your trip accordingly.
Other Advice / Information

- **Languages:** English and Swahili
- **Telephone code:** +255
- **Electricity:** 220 volts, 50 Hz, two- or three-pin plugs (110-volt electricity is also available at camp during the day)
- **Time zone:** UTC/GMT +3 hours
- **Local currency:** Tanzanian shilling (TZS or TSh). Notes are in denominations of TSh10,000, 5,000, 2,000, 1,000 and 500. Coins are in denominations of TSh200, 100 and 50. In Kiswahili, it is *shilingi* and written prices are often denoted with the symbol “/”; 100/ is the same as TSh100. See [www.xe.com/ucc](http://www.xe.com/ucc) for current exchange rates.
- **Personal funds:** There are two currency exchange services (*Bureaux de Change*) in the arrival hall of the Kilimanjaro International Airport. All tourist hotels and banks in Arusha also exchange money, and while most accept credit cards, VISA cards are preferable. MasterCard credit cards are not accepted in many businesses. US dollars are accepted throughout Tanzania, so a supply of those is helpful. Once outside of Arusha it will not be possible to go to a cash machine/ATM, but it may be possible to use credit cards in the tourist hotels in Ngorongoro. You are strongly advised to travel with cash; US$500 should be enough for shopping, tipping, alcohol, soft drinks, lunches at a local hotel and the departure tax. However, please plan to bring additional funds if you will be arriving prior to the rendezvous or departing on a flight other than the evening KLM flight. When exchanging currency, be sure to get a supply of Tanzanian shillings as this is the only currency accepted at the Maasai markets. Traveler’s checks are not widely accepted outside Arusha.
- **Tipping:** At camp, it is standard for visitors to tip the cooks, drivers and the woman who does laundry. Tips for the cooks and laundry woman can range from US$5-10 per volunteer; however drivers will expect at least US$100 from the group as a whole for the two weeks. You may want to budget approximately US$200 total for the cooks, laundry woman and drivers. Also be aware that there is an expected contribution of US$5 per person for the Maasai dance at the end of the expedition. Although typically Earthwatch tries to include all expenses in the volunteer contribution, in this case a personal tip is a culturally expected acknowledgement of a job well done.
10. PROJECT CONDITIONS

*Please show this section to your physician when he/she is completing your health statement. Be sure to discuss inoculation requirements with your physician well in advance of your departure date. See Section 11 ‘Health Information’ for inoculation information.*

**To the examining physician:**

Your patient has volunteered to join a field research team that has specific physical demands of which you and your patient should be aware. *We need your accurate evaluation of your patient’s ability to meet the conditions detailed below in order to safeguard his/her health and safety and ensure that he/she can participate fully and effectively.*

**General Conditions of the Research Site**

Olduvai is in the southern part of the Serengeti. The terrain at camp is flat, but the rim of the main arm of Olduvai Gorge is immediately outside camp. Trails to the gorge are steep and may be slippery due to loose sand and grit. The dry season is June to September. August will be hot and dry, and May and June will be somewhat cooler. March to May is considered the rainy season, but light showers might fall in August and September. The days are likely to be hot, but the evenings and mornings should be cool or even cold. You are advised to bring light cotton shorts and shirts for the days and long pants and sweaters for the evenings and mornings.

<table>
<thead>
<tr>
<th>Humidity</th>
<th>20% to 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>75°F/24°C to 95°F/35°C</td>
</tr>
<tr>
<td>Altitude</td>
<td>5,249 ft/1,600 m to 5,300 ft/1,615 m</td>
</tr>
<tr>
<td>Rainfall</td>
<td>55 mm per year</td>
</tr>
</tbody>
</table>

**Physical Demands**

Be forewarned that this project requires a fair amount of physical exertion, and those with cardiac or respiratory conditions will not be able to participate. Daily activities will demand hiking down and up the gorge where the steepness/gradient is 30% or more, requiring boots with deep tread for a good grip. The distance from the rim of the gorge to the site is about 200 meters (656 feet) and takes about five minutes to descend and about 10 minutes to ascend, though you should go at a pace that is comfortable. People who are not used to hiking might find the walk to be tough. It would be helpful to undertake brisk uphill walking exercises at least a month before the expedition begins. The site can be very dusty, so a bandana or dust mask may be useful.

Below are the expected demands of the project, but please keep in mind that conditions may change and the project could potentially be more or less strenuous than the chart indicates.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting</td>
<td>~1 hour per day (about 10% of working hours)</td>
</tr>
<tr>
<td>Bending</td>
<td>2 hours per day (about 25% of working hours)</td>
</tr>
<tr>
<td>Hiking</td>
<td>30 minutes per day over steep terrain (about 5% of working hours)</td>
</tr>
<tr>
<td>Walking</td>
<td>2 hours per day (about 30% of working hours)</td>
</tr>
<tr>
<td>Carrying</td>
<td>2 hours per day (about 30% of working hours)</td>
</tr>
</tbody>
</table>
Potential Hazards

You are advised to be mindful of your actions and surroundings as you walk around camp, excavate and survey. There will be a First Aid kit at camp with basic medicines for fevers, stomach upsets and insect bites. Below are potential hazards associated with the project, area, etc.

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Associated Risks and Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>The roads in the research area are dirt or gravel and often bumpy and either dusty or muddy and slippery, depending on weather conditions. Road hazards include fast and reckless drivers, livestock and wildlife, heavy rain, poor or no lighting and banditry. Volunteers will not drive.</td>
</tr>
<tr>
<td>Terrain</td>
<td>There is risk of tripping or falling as the terrain can be steep and full of debris or gravel. You must bring proper footwear with ankle support and thick tread for the walk up and down the gorge, and physically prepare prior to the expedition. The area is dusty so you are advised to bring bandanas to protect your face.</td>
</tr>
<tr>
<td>Animals</td>
<td>Mosquitoes could be a nuisance during and immediately after the rains (March-June). Occasionally, one may see scorpions. Other insects include wasps, flies, ants and ticks, but these are not generally bothersome. There are also snakes present in the research area, but they have never posed a threat to Earthwatch teams. Other wildlife in the area includes lions, giraffes and elephants. You should wear close-toed shoes and use a flashlight when walking around camp at night.</td>
</tr>
<tr>
<td>Plants</td>
<td>There is thorny vegetation around the research site and camp, so wear closed-toed shoes outside and be cautious to avoid injuries from the thorns.</td>
</tr>
<tr>
<td>Climate/Weather</td>
<td>Intense sunlight can cause sunburn and dehydration. You should use sunscreen liberally and hydrate properly, and bring a wide-brimmed hat. Note that antibiotics can make people highly sun-sensitive and are not recommended for malaria prophylaxis. Please discuss this with your physician before the expedition.</td>
</tr>
<tr>
<td>Project equipment</td>
<td>Volunteers must be cautious while undertaking project tasks. There is a risk of cutting oneself with a trowel while churning the excavated dirt on the screens.</td>
</tr>
<tr>
<td>Health hazards</td>
<td>Health hazards include malaria, stomach discomforts and mild diarrhea. Speak with your doctor about anti-malarial medication. Mild stomach discomfort may occur as a result of different foods or water with different mineral concentrations, but typically only lasts for the first couple of days. The kitchen staff routinely boil drinking water; however, you may prefer to bring your own bottled water, which you can purchase before heading to camp. Please see Section 11 ‘Health Information’ for inoculation recommendations.</td>
</tr>
</tbody>
</table>

Conditions of Special Concern

Below are conditions which would make participation in this project difficult or impossible.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Concerns and Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired mobility</td>
<td>Volunteers must be able to hike in and out of the gorge. If your mobility is impaired (wheelchair-bound, bad back, etc.), you should not participate.</td>
</tr>
<tr>
<td>Cardiac/Respiratory conditions</td>
<td>Hiking up and down the gorge would be difficult or impossible for anyone with a cardiac or respiratory condition. Participation would not be possible.</td>
</tr>
<tr>
<td>Anemia</td>
<td>Anemic volunteers could become dizzy, fall down and sustain injuries. Know and maintain your Hb levels by taking haematinics.</td>
</tr>
<tr>
<td>Epilepsy or seizure condition</td>
<td>A sudden attack could lead to falling down in the gorge. Take prescribed medication or abstain from participating.</td>
</tr>
<tr>
<td>Hypertension</td>
<td>This could lead to hypertensive crisis. Take prescribed medication.</td>
</tr>
<tr>
<td>Fear of heights or steep slopes</td>
<td>Those who are scared of heights or slopes might find hiking into the gorge uncomfortable, but should be able to overcome fears after the first few days.</td>
</tr>
</tbody>
</table>
11. **HEALTH INFORMATION**

See [www.internationalsos.com](http://www.internationalsos.com) for information on the current health conditions in Tanzania. At the homepage, enter Earthwatch’s member identification number: 14ACPA000075. Under “Select Resource” choose “English Country Guide,” and then select Tanzania from the list.

**Routine Immunizations**

All volunteers should make sure to have the following up-to-date immunizations: DPT (diphtheria, pertussis, tetanus), polio, MMR (measles, mumps, rubella) and varicella (if you have not already had chicken pox). Please be sure your tetanus shot is current.

**Project Inoculations**

The following are recommendations only. Medical decisions are the responsibility of each volunteer. Note that health conditions around the world are constantly changing, so keep informed and consult your physician, a local travel health clinic, the US Center for Disease Control ([www.cdc.gov](http://www.cdc.gov)), the World Health Organization ([www.who.int](http://www.who.int)), International SOS (see above), and/or the resources in Section 15 ‘Helpful Resources’ for the latest health information for travelers. Please consult your physician for guidance on inoculations if you intend to travel to other parts of the country.

<table>
<thead>
<tr>
<th>Inoculation</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid</td>
<td>These inoculations are recommended for health reasons.</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
</tr>
<tr>
<td>Rabies</td>
<td>Inoculation is recommended for long-term travelers to Tanzania, those who will be 24 hours from medical care, and those who will have contact with dogs or other potentially infected animals. Please speak with a physician about inoculation.</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>Inoculation is recommended for all travelers to Tanzania. If traveling from an area where it is endemic, a Certificate of Vaccination is required.</td>
</tr>
</tbody>
</table>

**Other Advice / Information**

- **Malaria:** Malaria is present in the research area. Please consult with your physician about the appropriate prophylactic malaria medication for the region.

- **Tuberculosis:** The World Health Organization estimates that one-third of the world’s population is infected with the bacterium (M.tuberculosis) that causes tuberculosis (TB). Incidence of tuberculosis is higher in developing countries, particularly in Asia, Africa, the Caribbean and Latin America. In general, approximately 10% of persons infected with M. tuberculosis are at risk for developing active TB during their lifetimes. TB is considered highly treatable with medications that are of relatively low toxicity and cost. Volunteers returning from developing countries are encouraged to have a (PPD)-tuberculin skin-test to screen for potential infection.
12. PACKING CONSIDERATIONS

PLEASE SEE THE PACKING CHECKLIST AT THE BACK OF THIS BRIEFING AND REMEMBER TO TAKE YOUR BRIEFING WITH YOU ON YOUR EXPEDITION.

General Considerations

Please avoid bringing large/bulky luggage as it takes up too much room in the project vehicles. Due to the rough terrain, you are advised to bring one hard-cover suitcase/bag and a small canvas bag; please try to limit luggage to these two bags. You are advised to pack a carry-on bag with an extra set of field clothing and personal essentials in case your luggage is lost and/or takes several days to catch up with you.

You will need to bring money, credit cards, a good supply of work clothes, a set of clothes for camp and nights in Arusha, worn-in hiking boots with good tread, comfortable walking shoes, gloves, sweaters or a fleece jacket for the chilly mornings and evenings, sunglasses, a wide-brimmed hat, bandana(s), flashlight, sleeping bag or bed sheets, towel(s), tent, personal toiletries, insect repellant, water bottle, etc. Laundry service will be available for a fee.

Excavation equipment will be provided by the project, but some volunteers prefer to bring their own trowels. If possible, it would be much appreciated if you could bring a few sealable plastic bags (e.g. Ziploc brand) of any size.

Weather Considerations

Please take weather conditions into consideration when packing for your expedition. Climate information can be found in Section 10 ‘Project Conditions.’ The days will be hot while nights and mornings will be chilly. Short pants and light t-shirts are recommended for the day. Hats, sunglasses and sunscreen lotions are also recommended. For the cool times, a sweater or two plus a minimum of two pairs of jeans will do. There is no need for special foul-weather gear.

Cultural Considerations

Women should refrain from wearing very short skirts, extra-short shorts or bare midriff shirts. They should bring shorts that cover most of their thighs and shirts that cover their midriffs. Gifts of pens, balloons, crayons, chalk, etc. are always appreciated by the Maasai children.

Essential Items

Make sure to bring your Earthwatch Expedition Briefing with you! It includes essential information to which you may need to refer during your expedition, as well as during your journey to and from the rendezvous site. Again, it is very important to bring well worn-in hiking shoes with good tread in order to hike in and out of the gorge.

Please see the Expedition Packing Checklist for a complete list of what you will need to take with you. You are encouraged to go through the list and mark off each required item right before you leave for your expedition.
13. **RECOMMENDED READING**

Please read *Human Origins at Olduvai Gorge: The Research in the appendix of this briefing.* This document was prepared by the Principal Investigator and Earthwatch and explains the research conducted through this project as well as some results to date. Below are additional recommended materials for those interested in further preparing for the expedition. These materials may be available at university libraries, and they will all be available at the project site. Some can also be purchased online through popular vendors. See Section 15 ‘Helpful Resources’ for suggested vendor websites.

**Books**


**Journals**


**Project Field Report**

Each Earthwatch Institute-supported project submits a report on the past year’s research and results to Earthwatch, generally on an annual basis. The most recent field report for this project may be available online through [www.earthwatch.org/expeditions/masao.html](http://www.earthwatch.org/expeditions/masao.html). Note that reports are not available for all projects.
14. EMERGENCIES IN THE FIELD

Very minor injuries such as small cuts or bruises will be attended to in the field. There will be a First Aid kit with bandages, disinfectants, painkillers, etc., and a nurse orderly certified in First Aid will be onsite. Major injuries will be rushed to the Enduleni Hospital (tel: 255-713-630833). This hospital is located in Ngorongoro, Tanzania, 80 kilometers (50 miles) southwest of the project site (about a 1.5-hour drive). A vehicle will always be available for emergency transportation. In the event of a life-threatening injury, the victim would be flown by the Flying Doctors service to a major hospital in Arusha, Moshi or Nairobi.

If a volunteer has to leave the expedition early due to a personal emergency, he/she will be driven to the Arusha Resort by a project staff member and thereafter to the airport. Alternatively, the Arusha Resort will make arrangements for transportation to the airport.

15. HELPFUL RESOURCES

Project-related Websites
- Natural History Museum of Arusha: http://www.museum.or.tz/natural.asp
- Professor Masao’s website: http://www.fidelmasao.com

Passport and Visa Information
- Embassies around the world: http://www.embassyworld.com
- Passport Visa Express (for US citizens): www.passportvisasexpress.com
- The Visaservice: http://www.visaservice.co.uk
- Thames Consular Services Ltd: http://www.visapassport.com

Travel Guidebooks and Booksellers
- Lonely Planet: http://www.lonelyplanet.com
- Amazon: http://www.amazon.com
- Barnes and Noble: http://www.bn.com

Travel Agencies and Advice
- STA Travel (contact Angie Kurtz or Chris Chappell and mention that you will be going on an Earthwatch Expedition): http://www.statravel.com
  36 Geary Street
  San Francisco, CA 94108
  Tel: +1 415 391-8407
  Email: sfo@statravel.com
- STA Travel (UK): http://www.statravel.co.uk
  Tel: +44 (0) 1865 792800
  Fax: +44 (0) 1865 792911
  Email: manager.oxford@statravel.co.uk
  Quote code: EWE01/02
• Wexas International (Europe): http://www.wexas.com
  Tel: +44 (0) 20 7581 8761
  Fax: +44 (0) 20 7581 7679
  Email: southern@wexas.com
  Quote code: EWE01/02

• Democracy Travel (contact Jean S. West, Assistant Manager)
  4818 MacArthur Blvd NW
  Washington DC 20007
  Tel: 202 965 7200 or 866-557-9968 (toll free US and Canada)
  Fax: 202 342 0471
  Email: jean@democracytravel.com

• World Travel Guide: http://www.worldtravelguide.com

• UK Foreign Office travel advice: http://www.fco.gov.uk/travel

• Third World Traveler: http://www.thirdworldtraveler.com/Travel/Travel_Links.html

### Airline/Airport Resources


• Airport codes worldwide: http://www.logisticsworld.com/airports.asp

### Country Information

• Country information from around the world: http://www.countryreports.org

• National Geographic Map Machine: http://plasma.nationalgeographic.com/mapmachine

• US State Department: http://www.state.gov

• Time worldwide with GMT/UTC: http://www.worldtimeserver.com

• Currency converter: http://www.xe.com

• Electrical current converter: http://kropla.com/electric2.htm

• Telephone dialing codes: http://kropla.com/dialcode.htm

• Online unit conversions: http://www.onlineconversion.com

• Worldwide weather: http://www.wunderground.com or http://www.tutiempo.net/en


### Health Information

• Travel health website: http://www.mdtravelhealth.com

• Center for Disease Control: http://www.cdc.gov
  Tel: +1 800 311-3435 or +1 888 232-3228

• World Health Organization: http://www.who.int

• The Travel Doctor: http://www.tmvc.com.au

• Disease outbreaks: http://www.who.int/csr/don/en

• Hospital for Tropical Diseases: http://www.thehtd.org

• Travellers Healthline Advisory Service
  Tel: 020 7950 7799

• MASTA Travelers’ Healthline (UK)
  Tel: 0906 8 224100 (within UK)
HUMAN ORIGINS AT OLDUVAI GORGE: THE RESEARCH

The following information was taken from the research proposal submitted by the Principal Investigator to Earthwatch Institute. Included is a description of the research conducted through this project, some results to date, and other information regarding the accomplishments of the project and the staff. Specific details regarding research sites, methods, etc. is subject to change slightly from year to year and such changes may not be incorporated into this document.

BACKGROUND, OBJECTIVES, AND METHODS

Note: Areas where fossil remains or artifacts have been found are named by using the initials of the person who either discovered them or was associated with the Leakeys in one way or another (e.g. DK for Douglas Korongo, FLK for Frida Leakey Korongo, etc.).

Background

The paleoanthropological deposit layers of Olduvai Gorge, listed from the oldest to the youngest, include Bed I, Bed II, Bed III, Bed IV, the Masek Beds, the Ndutu Beds, and the Nasiusiu Beds. Bed I was defined by Reck (1951) as a sequence of tuffs between the basalt in the bottom and the lacustrine marls of Bed II. The word “tuff” refers to the layers of volcanic material that divide deposits at Olduvai. The volcanic tuff layers run throughout the gorge and are used as reference points and relative dating guides from one site to another. The very lowermost layer at the gorge is volcanic basalt.

Bed I was further redefined by Hay (1963) to include the entire sequence of tuffs and clays between the Naabi Ignimbrite and Bed II. Further, Bed I was divided into the Lower Member, beds below the basalt and the Upper Member in the eastern part of the gorge. The tuffs are useful in correlating the deposits of Bed I across the basin (Hay 1963, Leakey M.D. 1971). Being the oldest stratigraphic unit, Bed I, especially the Upper Member, has yielded almost all the earliest cultural and faunal material. Several dates ranging from 1.75 to 2.03 million years ago have been obtained.

Bed I and II contain a variety of fauna and depositional features or litho facies, which can be used in attempting to reconstruct the paleolandscaes/paleoenvironments. Correlation of the deposits is rendered less difficult due to their being generally well exposed in most parts of the gorge. In the western part of the gorge, the stratigraphy consists of fluvialite and land-laid deposits succeeded by green claystone. The latter are suggestive of the paleolake, which was present in the region about two million years ago. Saline and alkaline lake water persisted in the central and western part of the lake (Hay 1963, 1966, 1968). What one sees on the eastern part of the gorge is the Upper Member made up of fossiliferous claystone deposited on the lake margin, which was periodically flooded. Remains of crocodile, hippos, tilapia fossil plants such as Cyperus nemensis, C. papyrus, etc. suggest that the lake was fresh at least periodically. Indeed, ongoing work by OLAPP suggests that some areas in the eastern lake margin may have been fed by fresh ground water discharge, which would account for the high yield of plant and animal fossils (Blumenschine and Masao 1996, 1997, 1998).
Work at the DK and Surrounding Sites

Archaeological materials are only known to occur in the tuff-claystone sequence of the Upper Member. Mary Leakey has divided the archaeological occurrences into Lower, Middle and Upper Bed I sites. The three sites in Lower Bed I (DK, MK and FLK NN: Level 4) are the oldest sites at Olduvai. This project focuses on DK, the areas west of DK, such as JK and the eastern lake margin areas, particularly FLK, HWK, and MCK.

The DK site is best known for its apparent stone circle, formed by blocks of vesicular basalt loosely piled. Mary Leakey (1971), finding the feature intriguing, surmised it to be the supports for branches or poles anchored to the ground to form a wind break or a rough shelter, implying the oldest evidence of some form of a hut structure. The deposits at DK lie above the basalt at the base of the Upper Member of Bed I. Erosion has removed Tuff IA so that the basalt is overlain by Tuff IB, which has been dated to 1.75 million years old. Between Tuff IB and Tuff IF is a sequence of clays and tuffs with a wealth of fossilized animal bone remains, including five hominids and artifacts (Leakey M.D. 1971, Hay 1976, Masao 2003, 2004). The assemblages make up what has been described by Mary as a typical Oldowan industry. The industry is usually represented by a heavy-duty component consisting of a variety of choppers, polyhedrons, scrapers and light-duty scrapers and burins. However, the most common tool forms are side choppers, polyhedrons and discoids (Leakey M.D. 1971). The DK deposits are by far among the richest in animal fossils, which include crocodiles, hippos, turtles, elephants, and an assortment of bovids. Of the bovid remains at both DK and FLK-NN, the most common are Reduncini, the water loving antelopes, which includes living reedbuck, kob, lechwe and waterbuck. Alcephani, the tribe containing living wildebeest, hartebeest and topi are represented, but were not very common (Hay 1976).

Currently, however, all the deposits and the database below Tuff ID are threatened by water and slope erosion as witnessed during the last El Niño rains. The archaeological data base targeted for retrieval and conservation will therefore consists of stone artifacts and bone recovered from excavations and survey, field notes, maps, photographs, drawings, sketches and field records, i.e. the written and graphic data that together with artifacts and ecofacts constitute the archaeological data (Fowler and Givens 1997).

It is known that every rainy season exposes significant paleoanthropological remains and paleoecological features all over the Olduvai sequence, which owing to lack of comprehensive conservation programs are relegated to oblivion. Limited work conducted at the DK site by Masao and Msuya in 1999 and subsequent investigation by Earthwatch groups in 2002-2006 confirm this observation. Immediately east and west of the DK site and in various other sites are exposures with bones and artifacts lying on the surface, while up slope from Bed I deposits, directly above the area where previous Earthwatch groups have been working, is a rich concentration of artifacts and fossils. These are waiting to be collected, analyzed and curated at the museum in Arusha. From past experience, we know that some of the fossil bone remains to be recovered could belong to rare finds such as those of carnivores and primates, hence the need to survey the exposed surfaces so as to retrieve remains constantly threatened by rainwater, humans and animals. In addition to focusing on the excavation of the sediments below Tuff IB due to their being the most seriously threatened, as has hitherto been the case at DK, the target areas for survey are now the sediments bracketed by Tuffs IB and IF between JK and DK, and other exposed sediments as already mentioned. Efforts will also be directed at any other sites where the continued preservation of remains is endangered.

Another reason for restricting excavations to the DK area is to enable comparison with data retrieved by the project members from the same locality. The JK Bed I site is reported to have scattered artifacts and faunal remains in claystone beneath Tuff IB. Patches with overburden of more recent deposits originating from upper stratigraphic units will be avoided (Leakey 1971).
Research Objectives and Methods

The overarching goal of this project is the conservation of the archaeological and paleontological remains from various sites at the Olduvai Palaeolithic site. Louis and Mary Leakey, who more than anyone else have made Olduvai Gorge world-famous, tried onsite conservation by building huts to protect unique features such as the Stone Circle at DK, the salt pans at JK, the Chert Horizon at MNK, etc. However, a few years later the huts were vandalized and reduced to ruins. In the absence of round-the-clock monitoring, onsite conservation has proven futile. However, unlike in the past when all efforts were directed at salvaging the remains from the DK site, this research project is a bit more extensive. Additional sites, such as MK, FKL and HWK complexes, have been targeted.

Important past research objectives and outcomes of this project were to:

1) Retrieve as much of the threatened archaeological and paleontological heritage from the DK site. By the end of the 2007 field season close to 70% of the targeted data was retrieved. This is considered very satisfactory. It is now necessary to survey the area to retrieve whatever traces may have been exposed on the surface during the past year.

2) Salvage an elephant skeleton from Bed III at DK. The skeleton was successfully excavated and transported to Arusha where it is waiting to be mounted into an exhibition. It was almost 60% complete, hence the need to go back to the site to search for loose skeletal parts. This should not take more than a couple of days.

Current objectives are as follows:

1) Retrieval of important scientific archaeological and paleontological remains, to be achieved through survey, excavations and mapping.

2) Create public awareness and government commitment to conservation of the cultural heritage, to be achieved through visits, lectures, press releases and interviews with officials.

The objectives will be achieved by employing the methods discussed below.

Survey

Team members will carefully survey the exposed surface, walking in the same direction spaced five meters apart from one another. While walking, the surveyors will scan the area in front, to the right and to the left, noting and marking the location of significant artifacts and fossils using GPS coordinates. Thereafter, a map of the distribution will be generated using GIS.

Collection

After the survey and the maps have been generated, the artifacts and bone in good state of preservation will be collected, bagged and moved to the laboratory for washing, study, analysis and recording.

Excavation

As an alternative to surveying, limited excavations at selected areas will be initiated for two main reasons. First and foremost, excavations will target areas with dense concentrations of artifacts and bones and the data retrieved will complement the survey findings. Secondly, the excavated data will help to put the surface data into proper temporal or chronological context. Excavators will follow standard protocols, excavating by natural layers, noting lithological changes, screening, bagging and drawing the sections.

All the data collected will be subjected to preliminary analysis at the field laboratory where, for the artifacts, attributes such as weathering stage, whether detached or flaked piece, type of
modification, raw material, etc., will be noted. The bone remains will also be subjected to similar analysis noting the weathering stage, taxon (genus), modification, etc.

**Public Relations Program**

For this kind of work to be sustainable it must be publicized. The public and the government must be able to see themselves as stakeholders and to that end become part and parcel of the conservation efforts. Therefore, the project will invite community leaders to Olduvai, distribute press releases, document the work by video, seek audiences with government officials, etc. – all with the view of bringing about positive public awareness and government commitment to provide funds to keep the work going.

**RESULTS AND OPPORTUNITIES**

The success of the research will be measured by the number of scientifically significant specimens collected. The project has not only rescued important scientific traces, but has also generated a number of reports and conference papers. Long-term objectives, such as developing public awareness of and government commitment to issues of cultural heritage conservation, are more difficult to measure. However, increased visits to Olduvai by different groups, occasional feature articles in some of the daily tabloids and discussions about cultural heritage in general and Olduvai Gorge in particular show the success of this project so far. The number of organized secondary school visits to Olduvai has increased two-fold since the project started. At one a time a group of parliamentarians also visited Olduvai.

The cultural heritage salvaged by the project is properly curated at the Natural History Museum of Arusha, where it is made available to scientists as well as the public. Some of the remains will also be incorporated in future exhibits and thus enrich the museum’s public education. One can also argue that the project indirectly encourages tourism and stimulates the economy, as visitors to Olduvai are fascinated by the project’s work in the gorge.

Unlike past projects at Olduvai, which were led primarily by foreigners, this project has established excellent rapport with the community at both the individual household level as well as the leadership level. The project benefits the local Massai people in a number of ways. Massai men are employed by the project, and one season of work provides them with enough money to increase their livestock. Maasai also visit the Olduvai camp to sell jewelry, often visiting the lab to see what we have collected. We make use of the opportunity to educated them on the scientific and touristic significance of the remains and try to instill in them the responsibility to safeguard the heritage by refraining from grazing their cattle in the gorge, picking up bones or artifacts or selling fossils to the tourists. We also visit the local kindergarten to give gifts to the children, talk to them about our work and invite them to come to the camp to see the collection. Occasionally we organize an open evening event whereby we invite representatives of the local community and government and elders to tell them about and show them our work.

The Department of Antiquities of the Tanzanian Government has been impressed by the results so far and is engaged in discussions with Professor Masao about employing two technicians in the work at Olduvai Gorge. They would be responsible for monitoring the exposure on a daily basis and retrieving paleoanthropological traces before they are trampled by animals or washed down the slope to the river. The project also hopes to get agreement from the government to create a post for a fulltime conservator to take charge of this kind of work at Olduvai, thus ensuring the sustainability of these efforts.
LITERATURE CITED


Clark, J.D. 1970. The Prehistory of Africa. Thames and Hudson.


EXPEDITION PACKING CHECKLIST

Essential Items

☐ This Expedition Briefing (contains contact information and instructions should you miss your rendezvous)
☐ Photocopies of your passport, flight itinerary and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents
☐ Passport and/or visa (if necessary)
☐ Certification of inoculation (if necessary)

Required Items

Clothing/Footwear for Fieldwork

☐ Well worn-in and comfortable hiking boots with deep tread and ankle support
☐ Well worn-in and comfortable walking shoes
☐ Lightweight long- and short-sleeved shirts
☐ Lightweight long and short pants
☐ Wide-brimmed hat for sun protection
☐ Work gloves
☐ Bandana or dust mask

Clothing/Footwear for Leisure

☐ One set of clothing to keep clean for the end of the expedition and in town
☐ Clothes for relaxing around camp
☐ Comfortable shoes to wear in camp (please note that flip-flops/sandals are not recommended due to the thorny vegetation)
☐ One or two sweaters/sweatshirts or a fleece jacket for chilly nights and mornings

Field Supplies

☐ Small daypack/rucksack
☐ Plastic sealable bags (e.g. Ziploc) of varying sizes for project use and to protect equipment such as camera from dust
☐ Insect repellent spray
☐ Water bottle(s) able to hold at least one liter
☐ Notebooks and pens
☐ Pen knife (be sure to pack this in checked luggage)
☐ Lantern, flashlight/torch or headlamp with spare batteries (a lantern-style light will be useful for camp meals)
**Bedding and Bathing**
- Tent (you may find a one-person tent too small for your foam mattress and personal gear)
- Bed sheets or sleeping bag
- Single sheet for foam mattress (the mattress will be provided)
- Towels
- Small, thick tarp or durable footprint to place under your tent (the campsite has thorns that may puncture your tent)
- Rainfly for your tent (especially important for those on Team I)
- Solar shower bag (two- or three-gallon bags are generally preferred over five-gallon bags)

**Personal Supplies**
- Spending money (see Other Advice / Information in Section 9 ‘Before You Leave’)
- Personal toiletries (biodegradable soaps and shampoos are recommended)
- Roll or two of toilet paper
- Antibacterial wipes or lotion (good for “washing” hands while in the field)
- Personal First Aid kit (e.g. anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and personal medications
- Sunscreen lotion with SPF 30 or higher
- Sunglasses

**Optional Items**
- Camera, film/memory card(s), extra camera battery
- Reading material, music, playing cards, travel games, journal, art supplies, etc. for down time
- Extra bed mat/pad (single-sized foam mattresses are available onsite)
- Earplugs for light sleepers
- 4.5-inch pointing trowel if you prefer to use your own (can be purchased online at numerous supply stores such as www.marshalltown.com/artrwbuy.html)
- Kneepads or gardening mat to help with kneeling in the field
- Some duct tape (always handy, but a whole roll is not necessary)
- Inflatable pillow
- Travel dust pan and broom to help keep dust out of your tent
- Instant cooling packs
- Presents for Maasai children (e.g. ball point pens, paper, crayons, chalk, books, etc.)
- Miscellaneous office supplies to donate to the new Maasai school for children
- Powdered drink mixes such as lemonade, Kool-Aid, Gatorade, etc.
- Favorite candies/snacks