



# UNEARTHING THE ANCIENT SECRETS OF ANGKOR IN CAMBODIA



# PLANNING CHECKLIST

## PLANNING CHECKLIST

### IMMEDIATELY

- Make sure you understand and agree to Earthwatch's **Terms and Conditions** and the **Participant Code of Conduct**.
- If you plan to purchase additional travel insurance, note that some policies require purchase at the time your expedition is booked.

### 6 MONTHS PRIOR TO EXPEDITION

- Log in at **earthwatch.org** to complete your participant forms.
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.
- Bring your level of fitness up to the standards required (see the Project Conditions section).

### 90 DAYS PRIOR TO EXPEDITION

- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- Make sure you have all the necessary vaccinations for your project site.

### 60 DAYS PRIOR TO EXPEDITION

- Review the packing list to make sure you have all the clothing, personal supplies, and equipment needed.

### 30 DAYS PRIOR TO EXPEDITION

- Leave the Earthwatch 24-hour helpline number with a parent, relative, or friend.
- Leave copies of your photo ID and flight reservation number with a parent, relative, or friend.

**READ THIS EXPEDITION BRIEFING THOROUGHLY.** It provides the most accurate information available at the time of your Earthwatch scientist's project planning, and will likely answer any questions you have about the project. However, please also keep in mind that research requires improvisation, and you may need to be flexible. Research plans evolve in response to new findings, as well as to unpredictable factors such as weather, equipment failure, and travel challenges. To enjoy your expedition to the fullest, remember to expect the unexpected, be tolerant of repetitive tasks, and try to find humor in difficult situations. If there are any major changes in the research plan or field logistics, Earthwatch will make every effort to keep you well informed before you go into the field.

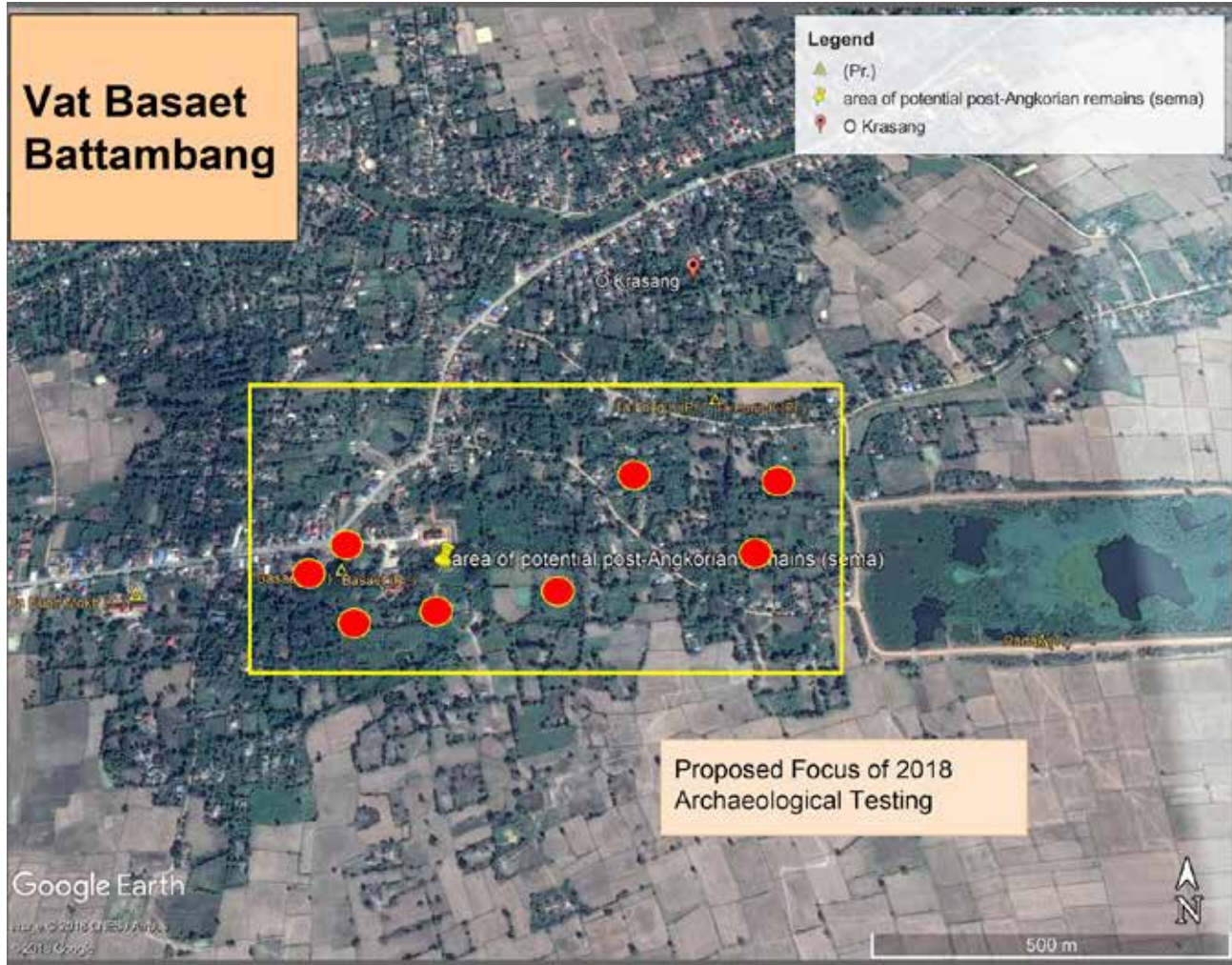




**Tourist Map of Battambang:**



Topographical map of field site in Battambang. Red points are excavation sites.



Example of temple at research site: Vat Baset is an 11th century temple erected during time of Suryavarman I. Contains inscriptions from 1036 and 1042.





Accommodations in Battambang:



# TABLE OF CONTENTS

NOTE FROM THE PI .....	2
THE RESEARCH.....	4
DAILY LIFE IN THE FIELD .....	6
ACCOMMODATIONS AND FOOD.....	7
PROJECT CONDITIONS.....	8
POTENTIAL HAZARDS .....	9
HEALTH & SAFETY .....	10
TRAVEL TIPS .....	12
EXPEDITION PACKING CHECKLIST .....	14
PROJECT STAFF .....	15
RECOMMENDED READING .....	16
LITERATURE CITED .....	17
EMERGENCY NUMBERS .....	18





# NOTE FROM THE PI

## DEAR EARTHWATCHER

Did you know that the ancient world's largest religious building was constructed in NW Cambodia? Today we call that temple Angkor Wat, and its ancient civilization was also home to one of the largest preindustrial cities in the world. When researchers visited Angkor in the 19th century, they found overgrown temples in the jungle and historic texts described the collapse of Angkor due to political conflicts with a kingdom in the north. However, recent archaeological research has begun to challenge these views. There is no archaeological evidence to suggest a violent conflict or warfare brought the end of Angkor. Instead, evidence points towards years of severe droughts and floods that strained the intricate water management network. Furthermore, while the kings and elites seem to have left Angkor in the 15th century, establishing a new capital further south, many people continued to live in this region. Our research seeks to better understand this period of great socio-political and climatic change and specifically how the local people in the area were adapting to these events. These are questions that are relevant today, as we are living in a period of climate change, with many people around the world struggling to maintain their livelihoods during periods of drought or dramatic flooding. Our work seeks to understand how Angkorian people in the past were managing these changes and living their daily lives through an excavation of a house mound.

We will be working with Cambodian students and colleagues within the enclosure of the Angkor Wat temple, a UNESCO World Heritage site. The temple of Angkor Wat was never abandoned, with evidence for use and habitation from its construction in the 12th century CE to today. Surrounding the temple is a series of mounds, arranged in a grid system according to the cardinal directions. We will be carefully excavating one of these mounds, recording the artifacts and features in order to identify the spatial distribution of activities on the mound and understand the daily lives of the people who lived here. The long history of use allows us to look at residential patterns over time. In doing so, we aim to understand the resiliency of the Khmer people.

We work in the first half of Cambodia's rainy season (May–August), when US classes have finished and Cambodia's climate has cooled slightly. You will help us in the challenging task; in fact your participation is vital. We can't wait to have you on our research project!

Sincerely,  
Miriam Stark and Alison Carter



Noel Tan reviews images while  
Nick Gani records data.



# THE RESEARCH

## UNEARTHING THE ANCIENT SECRETS OF ANGKOR IN CAMBODIA



### THE STORY

When the French naturalist Henri Mouhot first visited Angkor, he described ruined temples in the jungle; the remains of a great and forgotten civilization. While this has led many people to believe the civilization of Angkor collapsed and was abandoned, recent evidence suggests instead that people continued living sustainably in the Angkor region following a decline of the Empire and the capital's move to the south. What can we learn about dramatic changes that occurred in their society by studying their daily lives?

Much is known about the kings who ruled the Angkorian Empire from the 9th to 15th centuries, but far less is known about their subjects: the people who lived and worked during this time period and the following post-Angkorian period (15–17th centuries CE): the so-called “non-elites.”

Previous archaeological work by the Greater Angkor Project suggests that these communities’ survived political conflicts from rival kingdoms and multiple periods of drought and flooding (Buckley et al. 2010; Buckley et al. 2014). We still know far more about Angkor’s rulers than about their subjects. What were their home lives like? How did they manage sustainable households under such climatic and socio-political challenges? Why did they stay after the political capital moved south?

By studying the remains of households, scientists hope to solve some of these mysteries. Earthwatch teams on this novel archaeological expedition will join in the quest to uncover the answers to how the Khmer people endured in the face of these obstacles.





## RESEARCH AIMS

Our primary research objective is to understand local responses to socio-political and environmental changes during the Angkorian and post-Angkorian periods through a household archaeology approach. The heart of the Angkor Empire is located on the edge of the floodplain of the Tonle Sap Lake, the largest freshwater lake in mainland Southeast Asia and one of the world's most productive inland fisheries (Kummu 2003). The annual flooding of the Tonle Sap Lake also provides an ideal area to grow rice (Kummu 2003). These environmental factors must have certainly drawn early rice agriculturalists to the region, as we have evidence for habitation in the Angkor area as early as the Bronze Age period (approx. 1500 BCE) (Pottier et al. 2004), which continued through Pre-Angkorian and Angkorian periods (Zoppi et al. 2004). Ongoing work by the Greater Angkor Project and others has also demonstrated that people continued to live in this area following the "collapse" of Angkor and the movement of the political capital further south (Evans 2016; LeRoy et al. 2015; Stark et al. 2015).

In concert with this long-term pattern of habitation, is the previous and ongoing paleoenvironmental research by the Greater Angkor Project (GAP), which has focused on key climatic events in the 9th–15th centuries and determining the long-term record of environmental climate and anthropogenic processes in the region (Buckley et al. 2010; Buckley et al. 2014; Day et al. 2012; Penny et al. 2014). This includes extensive modifications made to the landscape as part of Angkor's urban infrastructure (e.g. Evans et al. 2007; Evans et al. 2013; Stark et al. 2015) especially their intricate water management and agricultural networks (Fletcher et al. 2008a; Fletcher et al. 2008b; Hawken 2013; Lustig et al. 2008). This work has proposed that the water management infrastructure (and by extension the socio-political infrastructure) collapsed due to a cycle of serious droughts and monsoon-floods during the 14–15th century CE (Buckley et al. 2010; Buckley et al. 2014).

Despite the socio-political fluctuations over time, there has been persistent settlement in the Angkor region for thousands of years. Jacques Gaucher's fieldwork (2003) within the walled city of Angkor Thom identified an orthogonal grid system that structured residential spaces in this area. The recent LIDAR survey (Evans et al. 2013; Evans 2016) demonstrates that this urban grid network extended well outside the walls of Angkor Thom to the surrounding urban core and that individual temple enclosure had their own urban grid network (e.g. Stark et al. 2015). Researchers are using this urban grid network to structure our research on house mounds, which we are using as a proxy for a house or household site. We use the mounds as a proxy due to preservation issues, which make identification of a specific house structure difficult. What we seek to understand broadly is how the local system changed or persisted as the climate fluctuated and the Angkorian state rose and fell. Archaeologists seek to address this research question with a focus on the small-scale household, which over the long-term offers a unique perspective on the historical ecology of how human actions affect, and are affected by, global change.

## HOW YOU WILL HELP

You will help with the following tasks:

- **DOCUMENT EXCAVATION:** Through photography, plan drawings, and recording forms, you will carefully document excavation and record changes in the soil looking for clues to the daily life of the Angkorian people.
- **RECOVER SCIENTIFIC REMAINS:** Screen archaeological deposits to recover scientific remains.
- **ANALYZE FINDINGS:** Process artifacts recovered from excavations by washing, photographing, and recording different types of ceramics found at the dig site.

Volunteers will have an opportunity to wash ceramic sherds and those adept at photography may be able to assist with the photographing of artifacts. Volunteers may also have an opportunity to work with a trained supervisor to assist in the sorting and recording of different types of ceramics. Throughout this process, volunteers can expect to work closely with Cambodian archaeologists and archaeology students.



# DAILY LIFE IN THE FIELD

## PLANS FOR YOUR TEAM

Most teams will work within the broader temple enclosure inside the moat of the Angkor Wat temple, and be specifically in the dense trees surrounding the temple. This forested area is home to numerous birds, insects, and monkeys (mostly long-tailed macaques, but sometimes langurs or gibbons). On a typical day, Earthwatch volunteers will leave for the site at approximately 7:00 a.m. Once on site, pairs of volunteers will join up with trained trench supervisors to assist with the daily tasks of undertaking an excavation. This will involve filling out our excavation recording forms, carefully documenting our excavations through photography and plan drawings, and observing and recording changes in the soil and stratigraphy. Volunteers will be trained and supervised in these tasks by trench supervisors. Although we use skilled laborers to undertake most of the actual digging, we will ensure that volunteers have an opportunity to experience the excavation process by setting aside several trenches or areas within trenches in which citizen scientists can put trowel to dirt for as long as they can tolerate it, based on their abilities and the weather. Volunteers will also screen archaeological deposits to recover scientific remains. We take a lunch break from 11:30 a.m.–1:00 p.m. and will plan to depart the site by 4:00 p.m. Volunteers who may not feel well enough to come to the field on a particular day can still participate, if feeling well-enough, by undertaking office-based activities such as data entry and scanning of field forms.

### POLICIES

There is a code of conduct that is required for visitors to Angkor to help respect the environment, people and culture of Cambodia. The field team will teach Earthwatch teams how to conduct themselves appropriately within the research site. Visitors must wear modest clothing and obey all signage. There is no littering or smoking within the temple. It may be very tempting to touch the beautiful architecture, but this is also not allowed. Visitors must respect the monks and refrain from handing our money and/or candy to children in the area. There is a video that describes the code of conduct that you will watch once on-site, but you can also see it here: [www.youtube.com/watch?v=qoFKLDSt1j8](http://www.youtube.com/watch?v=qoFKLDSt1j8).

You can also read more here (choose English in the upper right hand corner of the page): <http://apsaraauthority.gov.kh/?page=detail&ctype=article&id=1757&lg=en>

### DAILY ACTIVITIES

Weather and research needs can lead to changes in the daily schedule. We appreciate your cooperation and understanding.

### DAILY SCHEDULE

6:15 a.m.	Continental Breakfast at guesthouse/ research center
7:00 a.m.	Leave for site
7:30 a.m.–11:30 a.m.	Fieldwork at site
11:30 a.m.–1:00 p.m.	Lunch and rest
1:00–4:00 p.m.	Fieldwork at site
4:00 p.m.	Depart for guest house/research center
4:00–6:00 p.m.	Downtime
6:00 p.m.	Dinner at our guesthouse/ research center
7:30–8:30 p.m.	Lecture or documentary film



# ACCOMMODATIONS AND FOOD

## ABOUT YOUR HOME IN THE FIELD

Teams will stay in a guesthouse near the center of Siem Reap. The house will be shared by the research team and volunteers and have a guard on duty at night.

### SLEEPING

There will be 2–4 people per room, separated by gender, in twin beds or bunk beds. The rooms will have AC. Couples accommodations may be possible depending on the makeup of the team, and are on a first come, first-served basis, but are not guaranteed. On full teams, couples accommodations may not be possible.

### BATHROOMS

There are shared bathrooms within each 2–4 person bedroom, with conventional western toilets and hot water.

### ELECTRICITY

Electricity in Cambodia is 220V, and most sockets accommodate plugs with two flat pins. The plug types are A, C and G.

### PERSONAL COMMUNICATIONS

There is Wi-Fi Internet at the accommodations. There is cell service in the area, but you may need to check with your provider if they have coverage in Cambodia.

### FACILITIES AND AMENITIES

There are many grocery stores, souvenir stores, restaurants and market stalls in the city of Siem Reap.

### DISTANCE TO THE FIELD SITE

The research site is about a 10–15 minute daily drive from town.

### FOOD AND WATER

For lunch and dinner we will be eating mainly Cambodian food, which is similar to Thai food, although not as spicy. All meals include rice and there is frequently a protein, soup, and vegetables. Breakfast will be continental style and served at the accommodations. Lunch will be packed for the field either from a local restaurant or the cook at the accommodations. Dinner will be Khmer food prepared by local cooks. Earthwatch volunteers will not be responsible for meal preparation or food shopping, but will participate in some light cleanup (i.e. clearing the table at the end of the meal). Drinking water will be provided at the accommodations and in the field.

The following are examples of foods you may find in the field. Variety depends on availability. We appreciate your flexibility.

### TYPICAL MEALS

<b>BREAKFAST</b>	French bread, coffee/tea, fruit, coffee
<b>LUNCH</b>	Rice, a chicken or fish-based soup with vegetable, a protein cooked with vegetables and spices sandwiches, fruit
<b>DINNER</b>	Rice, a chicken or fish-based soup with vegetable, a protein cooked with vegetables and spices
<b>DESSERT</b>	Fresh Fruit
<b>BEVERAGES</b>	Water, soda

### SPECIAL DIETARY REQUIREMENTS

Please alert Earthwatch to any special dietary requirements (e.g., diabetes, lactose intolerance, nut or other food allergies, vegetarian or vegan diets) as soon as possible, and note them in the space provided on your volunteer forms.

Vegetarian/vegan diets can be accommodated, but more some dietary restrictions and allergies (particularly soy and peanut allergies) are difficult to accommodate. Strict vegetarians and vegans should understand that many times food is cooked next to or in the same pan as animal products. Additionally, many vegetarian/vegan dishes might still include fish sauce or chicken-flavored powder. Soy and/or peanut allergies are especially difficult to accommodate. Peanuts, peanut oil and soy are very common in Khmer food and it will be impossible to guarantee peanut and/or soy-free food if your allergy is severe. Lactose free and gluten free diets can be accommodated.



# PROJECT CONDITIONS

## THE FIELD ENVIRONMENT



The following are averages. Please check weather resources for your team dates for more accurate weather predictions. Projects have experienced unseasonable weather at all times of year.

### GENERAL CONDITIONS

#### MAY-JULY

**HUMIDITY:** 80–85%

**TEMPERATURE RANGE:** 26–35°C/79–93°F, Average daily temperature is 29–30°C/84–86°F

**RAINFALL:** Average of 155mm/6in per month; rain generally falls in the mid-afternoon and may continue through the evening

### ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Enjoy being outdoors in the potential presence of rain, wild animals and insects, including mosquitos.
- Tolerate high temperatures (26–35°C/79–93°F) and high humidity levels (80–85%) outside without fans or air conditioner for up 9 hours per day
- Traverse short distances of uneven (mounds and depressions), sometimes wet, muddy and/or slippery terrain to reach research sites
- Stand and “be on your feet” for 8–9 hours throughout the day.
- Bend and kneel to get low enough to access the ground for digging and trowelling in the sediment, several times per week
- Handle a shovel and trowel to sift through sediment, and lift and carry a bucket about 10–15 lbs./4.5–7 kgs. of sediment
- Carry personal daily supplies such as water and some small field equipment weighing 10 lbs./4.5 kgs. or less
- Get up into and down out of a vehicle and ride, seated with seatbelt fastened, for a total of about 1.5 hours a day



# POTENTIAL HAZARDS

## UNEARTHING THE ANCIENT SECRETS OF ANGKOR IN CAMBODIA

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Volunteers will be transported to and from the field site in a van with seat belts from a reputable company. Licensed drivers will be used. Participants will not drive any vehicles. If volunteers wish to go into town during their downtime or visit the temples on a recreational day, they will use English-speaking drivers known to the project staff, for safety purposes. Volunteers will be provided a list of the drivers with their phone numbers. Volunteers will not drive or ride on motorcycles or bicycles.
Uneven terrain	Volunteers will be given a safety briefing upon arrival at the field site and will only walk in designated areas. Appropriate footwear with good grips must be worn. There is no running allowed on site, and participants must be aware of where they are walking and follow instructions. In wet weather, many surfaces become slippery—participants will be warned of hazards in wet weather may need to minimize their movement across the site.
Equipment	Volunteers will use trowels, shovels, picks, soil screens and other hand tools and will receive instruction on proper excavation technique. The field staff will ensure proper inspection of the equipment to ensure safety. Gloves will be provided, but volunteers are also welcome to bring their own gloves.
Insects and Animals	Mosquitos, termites, spiders, ants and scorpions may be encountered in the research area. Dengue and Malaria are present in Cambodia including the location of the research site. Zika and Japanese encephalitis are also present in area of Cambodia. Consult your doctor before travelling and take precautions against mosquito bites, such as wearing repellent, and long sleeves. Anyone with severe bug or snake phobias may find it difficult to be in the field. Volunteers are advised not to approach or pet any dogs or wild animals, including monkeys. One way that we use to combat mosquitos on site is to light small fires and burn mosquito coils. Volunteers that are sensitive to smoke or have asthma should be aware.
Climate/ Weather	The climate is very hot and humid. Volunteers will be instructed to wear high factor sunscreen, hats, and long sleeved clothing, drink plenty of water, which is freely available on site and use electrolyte replacement (Royal D). Volunteers must take frequent breaks and not overexert themselves. Volunteers will rotate tasks, and spend time under shade when needed, which will always be available. The team will be monitored for signs of fatigue and heat exhaustion, and will be given regular water breaks during fieldwork.
Personal Security	The accommodations will have a security guard at night. The team will be reminded to lock the doors to their rooms and secure all valuables. The team will be briefed on the best practices for ensuring personal safety when entering and travelling around town. This includes standard urban precautions, such as walking in groups, not walking after dark and not flaunting expensive belongings.
Drugs/Alcohol	Alcohol is cheap and many illegal and prescription drugs are freely available in Siem Reap. While participants are welcome to enjoy an adult beverage with dinner, the abuse of alcohol and the use of illegal or prescription drugs without a prescription are strictly forbidden. The use of alcohol and drugs while on site in the park is also forbidden. Violation of this policy is grounds for dismissal.



# HEALTH & SAFETY

## UNEARTHING THE ANCIENT SECRETS OF ANGKOR IN CAMBODIA



### EMERGENCIES IN THE FIELD

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

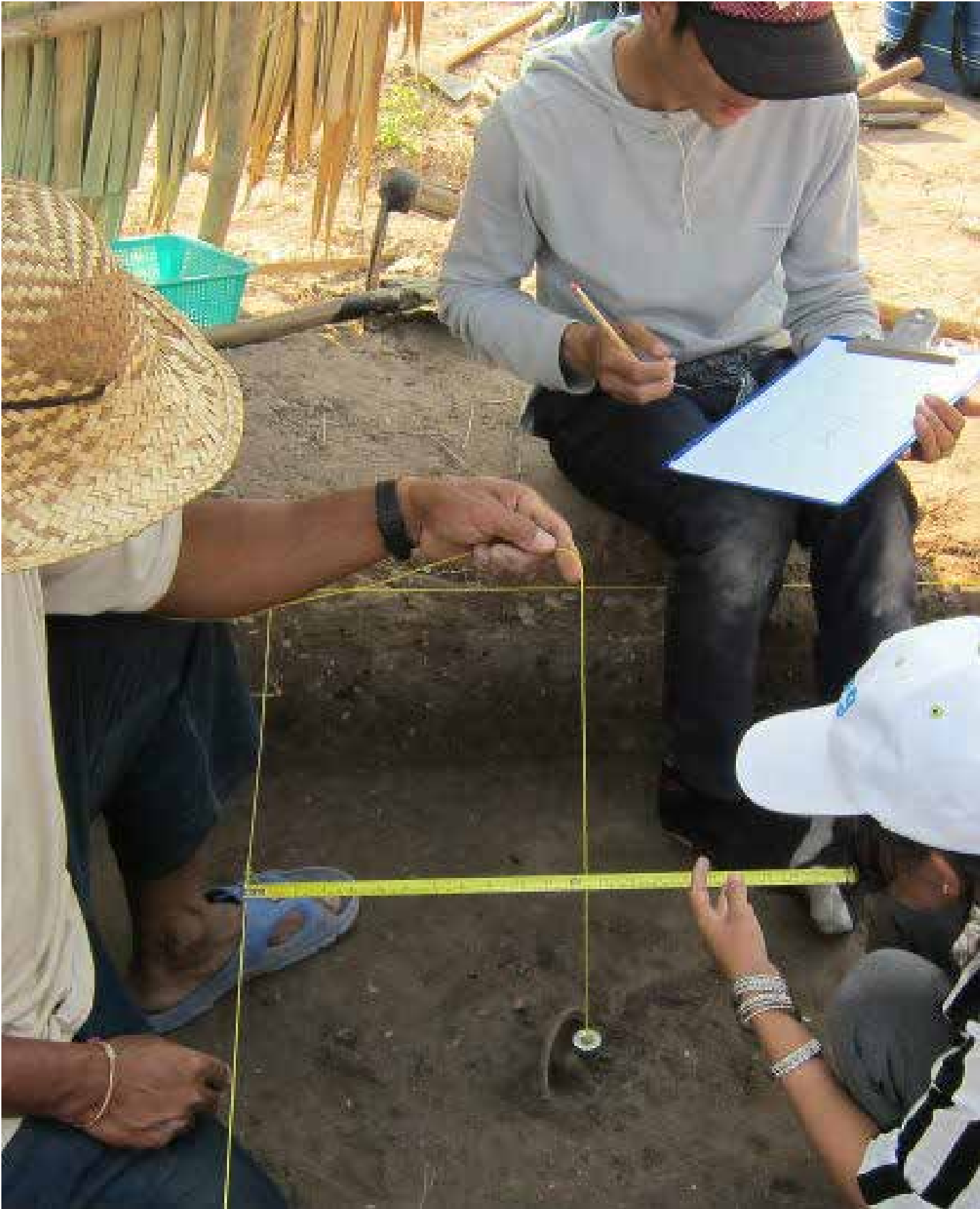
### IMMUNIZATIONS & TRAVEL VACCINATIONS

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella) and you have the appropriate vaccinations for your travel destination. Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit [cdc.gov](https://www.cdc.gov) or [who.int](https://www.who.int) for guidance on immunizations.

If traveling from countries or region where yellow fever is endemic, you must have a certificate of vaccination.







# TRAVEL TIPS

## SUGGESTIONS FOR THE ROAD



### YOUR DESTINATION

**LANGUAGE:** Khmer; English and Chinese widely spoken, plus some French. Most communication on the project will be conducted in English, although crew members (and laborers) will also speak Khmer.

**TIME ZONE:** GMT/UTC + 07:00. Cambodia does not utilize daylight savings time.

**CULTURAL CONSIDERATIONS:** Cambodia is a Buddhist country although many people also believe in and worship local ancestor spirits. Cambodia is also a conservative country, both in personal attire and in interaction between the sexes. Both men and women should wear clothing that covers their shoulders and knees. Women should be mindful of covering cleavage. Men and women rarely touch each other, and—while women can speak with Buddhist monks—they must not touch them.

**LOCAL CURRENCY:** The currency in Cambodia is the US Dollar and Cambodian Riel (KHR). US Dollars are used for many transactions, although smaller transactions and change is given in Riel. Please note that Cambodians will not accept any ripped or excessively worn or wrinkled currency. ATMs are widely available in Siem Reap; please note that many will charge a transaction fee of a few dollars. Please check with your local bank regarding any additional fees for using a local ATM as well as your daily withdrawal limit. You may also want to set-up a travel notification with your bank and credit cards.





## COUNTRY AND PROJECT ENTRY REQUIREMENTS

Entry visa requirements differ by country of origin, layover, and destination, and do change unexpectedly. For this reason, please confirm your visa requirements at the time of booking and, again, 90 days prior to travel. Tourists staying less than 30 days can apply for an e-visa via the official Cambodian e-visa website: <https://www.evisa.gov.kh/>. The cost for a visa is approximately 30 USD.

Visas can also be purchased on arrival at the airport. For the Visa on arrival you will need a 2x2 recent photograph and it is also helpful to have exact change in US Dollars for the fee. You will receive your visa application on the plane en route to Cambodia. Application forms are also available in the airport. Please note that not all foreign passport holders are able to apply for a visa on arrival or e-visa. You can read more here: <http://www.embassyofcambodia.org/faq.html>

Refunds will not be made for volunteers cancelling due to not obtaining their visa in time to meet the team at the rendezvous. You can find up to date visa requirements via one of the following sites:

[www.passportsandvisas.com](http://www.passportsandvisas.com)  
<https://www.travisa.com/>

If a visa is required, participants should apply for a TOURIST visa. Please note that obtaining a visa can take weeks or even months. We strongly recommend using a visa agency, which can both expedite and simplify the process.

Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.

Volunteers will need to purchase a 7-day Angkor park pass for 72 USD (as of July 2017) before entering the field site. On 14-day teams, volunteers will need to purchase two one-week passes. The field staff will assist with purchasing this pass prior to going into the field on the first day. It should be noted that US Dollars are the primary form of currency in Cambodia, although local currency can be used and is exclusively used for transactions less than \$1. You can read more about the Angkor Archaeological Park here: <http://www.angkor.com.kh/angkor/index>

## CONTACT INFORMATION

You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

### Angkor Paradise Hotel

National Road No.6  
Phum Sala Kanseng  
Sangkat Svay Dangkoum  
Siem Reap KH-1700 Cambodia





# EXPEDITION PACKING LIST

## WHAT TO BRING

### EXPEDITION PACKING CHECKLIST

#### GENERAL

- This expedition briefing
- Your travel plans, rendezvous details, and Earthwatch's emergency contact information
- 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 vaccination (if necessary)
- Documentation for travel by minors (if necessary)

#### CLOTHING/FOOTWEAR FOR FIELDWORK

##### ALL TEAMS:

- Earthwatch T-shirt
- 2–3 lightweight, quick-drying, button-down long-sleeved travel shirts
- 2–3 pairs of quick-drying long pants
- Wide-brimmed sun hat or baseball hat
- Lightweight raincoat or poncho
- Bandana
- Well worn in close-toed lightweight hiking or walking shoes with ankle support
- Leather or cloth and rubber garden/work gloves

#### CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for end of expedition
- Rubber slippers (for research center and bathroom use)
- Sandals (Tevas, Chacos, Keens etc. are comfortable for walking and provide comfort and grip)
- Light weight pants
- Shorts
- T-shirts / tank tops
- Sweatshirt / light jacket
- Tennis shoes / casual shoes
- Swimsuit

#### FIELD SUPPLIES

- Daypack to carry and keep your personal items together and dry
- Sunscreen lotion with SPF 45
- Lip balm with sunscreen
- Field notebook and pencils
- 2 one-liter water bottles, OR 1 two-liter water bottle or reservoir

- Insect repellent
- Electrolyte powder packets
- Sunglasses
- Drybag or plastic sealable bags (good for protecting equipment like cameras from dust, humidity, and water)
- 72 USD for 7-day Angkor park pass to enter field site or \$144 if you are on a 14-day team.

#### BEDDING AND BATHING

**NOTE:** Sheets, blankets, pillows and a towel are provided at the guesthouse.

#### PERSONAL SUPPLIES

- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- High SPF sunblock (SPF 30 or higher)
- Antibacterial wipes or lotion (good for cleaning 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 medications
- Baby powder (recommended by field staff to relieve chafing in the hot, humid environment)
- Small Bottle of Aloe Vera or equivalent skin calming cream (good for bug bites and sunburn)
- Spending money
- Flashlight or headlamp with rechargeable batteries (don't forget your charger!)

#### OPTIONAL ITEMS

- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers
- Quick-dry towel
- Travel plug adapter
- Mosquito net

**NOTE:** Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, we advise you to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost or delayed.



# PROJECT STAFF

## YOUR RESOURCES IN THE FIELD



**NOTE:** The specific staff scheduled to run your team is subject to change.

**DR. MIRIAM STARK** is a professor at the University of Hawaii-Manoa in Honolulu, Hawaii. Miriam was a Partner Investigator on the Australian Research Council-funded Greater Angkor Project Phas III (2010–2015) and directed five field seasons that included three field seasons at Angkor Wat and two field seasons at Ta Prohm. Before 2010 she co-directed archaeological excavation and field survey teams through the Lower Mekong Archaeological Project (LOMAP) in southern Cambodia from 1996–2009. Prior to her Cambodian projects (which have involved volunteers), Miriam worked in the Philippines and in Thailand. She has ample volunteer experience, both intermittently through her Cambodia-based projects, and more formally through the Earthwatch-sponsored Homol’ovi Archaeological Project (Arizona State Museum), Desert Archaeology, Inc. and the Center for Desert Archaeology. She also served as the Public Relations Specialist for several field projects in downtown Tucson Arizona. She has conducted STEM training for the Girl Scouts of Hawai’i, and is an award-winning teacher at her university.



**DR. ALISON CARTER** is an Assistant Professor of the Department of Anthropology at the University of Oregon. Alison has worked in Cambodia since 2005 and worked with the Greater Angkor Project since 2011. She undertook excavations at Angkor Wat with the Greater Angkor Project, and has also worked with Earthwatch Volunteers at the site of Ban Non Wat, Thailand. She has also worked with Royal University of Fine Arts archaeology students is a current mentor, teacher and supervisor for students at the University of Oregon.



**MR. RACHNA CHHAY** works with the APSARA Authority and is the Head of the Angkor Ceramic Study Unit at the International Center of Research and Documentation of Angkor. Mr. Chhay has been a Greater Angkor Project team member since 2010, and has undertaken excavations at Angkor Wat for several years. Mr. Chhay has extensive experience working with western archaeologists and volunteers through collaborative projects; he has also supervised many Royal University of Fine Arts students in both fieldwork methods and ceramics processing, and has overseen several BA Honors Theses by RUFA students. He will be one of the field team leaders on Earthwatch teams.



# RECOMMENDED READING

## YOUR RESOURCES AT HOME

### RESOURCES

#### ARTICLES

- Stark, Miriam T., Damian Evans, Chhay Rachna, Heng Piphah, and Alison Carter. 2015. Residential patterning at Angkor Wat. *Antiquity* 89 (348): 1439-1455
- Available to Earthwatch volunteers at this address: [https://www.dropbox.com/s/7lgqqv8dp9rfj4m/Starketal2015\\_AngkorWat.pdf?dl=0](https://www.dropbox.com/s/7lgqqv8dp9rfj4m/Starketal2015_AngkorWat.pdf?dl=0)
- Publications related to the recent LIDAR survey at Angkor can be found here: <http://angkorlidar.org/publications/>

#### PROJECT-RELATED WEBSITES

- Alison Carter blogs about archaeology in Cambodia at: <https://alisonincambodia.wordpress.com> and at <https://www.facebook.com/alisonincambodia>
- Alison Carter wrote about the 2015 field season at Angkor Wat here: <http://www.khmertimeskh.com/news/26973/household-archaeology-at-angkor-wat>
- Miriam Stark provides some background to her research in Cambodia and links to her publications here: <http://www.anthropology.hawaii.edu/people/faculty/stark/index.html>

#### BOOKS

- Angkor and the Khmer Civilization (Ancient People and Places) by Michael D Coe

#### EARTHWATCH SOCIAL MEDIA

- FACEBOOK: [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- TWITTER: [twitter.com/earthwatch\\_org](https://twitter.com/earthwatch_org)
- INSTAGRAM: [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- BLOG: [blog.earthwatch.org/](http://blog.earthwatch.org/)
- YOUTUBE: [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)





# LITERATURE CITED

## YOUR RESOURCES AT HOME

### LITERATURE CITED

- Buckley, Brendan M, Kevin J Anchukaitis, Daniel Penny, Roland Fletcher, Edward R Cook, Masaki Sano, Le Canh Nam, Aroonrut Wichienkeo, Ton That Minh and Truong Mai Hong 2010. Climate As a Contributing Factor in the Demise of Angkor, Cambodia. *Proceedings of the National Academy of Sciences* 107 (15): 6748-52.
- Buckley, Brendan M. Roland Fletcher, Shi-Yu Simon Wang, Brian Zottoli and Christophe Pottier 2014. Monsoon Extremes and Society Over the Past Millennium on Mainland Southeast Asia. *Quaternary Science Reviews* 95 (July): 1-19.
- Evans, Damian 2016. Airborne Laser Scanning As a Method for Exploring Long-term Socio ecological Dynamics in Cambodia. *Journal of Archaeological Science* (In Press). doi:10.1016/j.jas.2016.05.009.
- Evans, Damian, Christophe Pottier, Roland Fletcher, Scott Hensley, Ian Tapley, Anthony Milne, and Michael Barbetti. 2007 A comprehensive archaeological map of the world's largest preindustrial settlement complex at Angkor, Cambodia. *Proceedings of the National Academy of Sciences* 104 (36): 14277-14282.
- Evans, Damian H., Roland J. Fletcher, Christophe Pottier, Jean-Baptiste Chevance, Dominique Soutif, Boun Suy Tan, Sokrithy Im, Darith Ea, Tina Tin, Samnang Kim, Christopher Cromarty, Stephane De Greef, Kasper Hanus, Pierre Baty, Robert Kuszinger, Ichita Shimoda, and Glenn Boornazian 2013. Uncovering archaeological landscapes at Angkor using lidar *Proceedings of the National Academy of Sciences* 110 (31): 12595-12600.
- Fletcher, Roland, Christophe Pottier, Damian Evans, and Matti Kummu 2008. The development of the water management system of Angkor: A provisional model. *Bulletin of the Indo-Pacific Prehistory Association* 28:57-66.
- Fletcher, Roland, Dan Penny, Damian Evans, Christophe Pottier, Mike Barbetti, Matti Kummu, and Terry Lustig. 2008. The water management network of Angkor, Cambodia. *Antiquity* 82:658-670.
- Gaucher, Jacques 2003. New Archaeological Data on the Urban Space of the Capital City of Angkor Thom. In *Fishbones and Glittering Emblems: Southeast Asian Archaeology 2002*, edited by Anna Karlstrom and Anna Kallen. Museum of Far Eastern Antiquities, Stockholm, pp. 233-242.
- Hawken, Scott 2013. Designs of kings and farmers: Landscape systems of the greater angkor urban complex. *Asian Perspectives* 52 (2): 347-367.
- Kummu, Matti, 2003 The Natural Environment and Historical Water Management of Angkor, Cambodia. Paper Presented at the Fifth World Archeological Congress, Washington D.C. USA.
- Leroy, Stéphanie, Mitch Hendrickson, Emmanuelle Delqué-Kolic, Enrique Vega, and Philippe Dillmann 2015. First Direct Dating for the Construction and Modification of the Baphuon Temple Mountain in Angkor, Cambodia. *PLoS One* 10:e0141052.
- Lustig, Terry, Roland Fletcher, Matti Kummu, Christophe Pottier, and Dan Penny 2008. Did traditional cultures live in harmony with nature? Lessons from Angkor, Cambodia. In *Modern Myths of the Mekong*, edited by M. Keskinen, O. Varis, and Matti Kummu. Helsinki UT, Helsinki, pp. 81-94.
- Penny, Dan, Jean-Baptiste Chevance, David Tang, and Stéphane De Greef 2014. "The Environmental Impact of Cambodia's Ancient City of Mahendraparvata (Phnom Kulen)." edited by Gary W Crawford. *PLoS ONE* 9:1-9.
- Pottier, Christophe, Vichear V. S. Phin, Than Heng, Rachana Chhay, Khieu Chan, and Fabrice Demeter 2004 Koh Ta Meas, Un Site Préhistorique Dans Le Baray Occidental Rapport Préliminaire. *Udaya* 5:167-191.
- Stark, Miriam T., Damian Evans, Chhay Rachna, Heng Piphah, and Alison Carter 2015. Residential Patterning at Angkor Wat. *Antiquity* 89:1439-1455.
- Zoppi, U., Barbetti, Michael., Fletcher, Roland, Hua, Q., Chhem, R.K., Pottier, Christophe, and Watanasak, M. 2004, The contribution of 14C AMS dating to the Greater Angkor archaeological project, *Nuclear Instruments and Methods in Physics Research, B*, 223: 681-685.



# EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



# MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

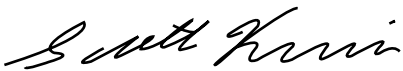
Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

If you have questions as you prepare for your expedition, we encourage you to contact your Earthwatch office. Thank you for your support, and enjoy your expedition!

Sincerely,



Scott Kania  
President and CEO, Earthwatch

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