



AMAZON RIVERBOAT EXPLORATION



PLANNING CHECKLIST

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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.

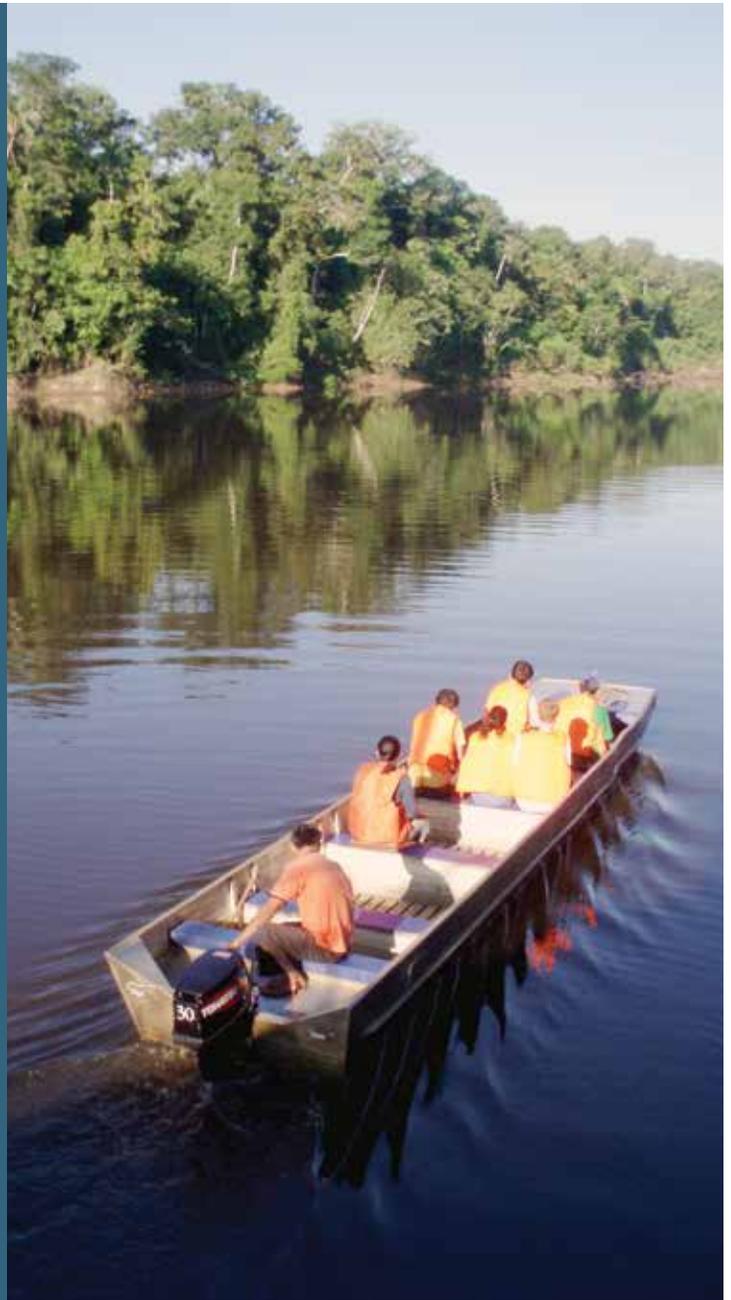
30 DAYS PRIOR TO EXPEDITION

- 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.

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NOTE FROM THE PI

DEAR EARTHWATCHER

Welcome to the Amazon Riverboat Exploration expedition! Our research boats in the Peruvian Amazon and our friendly team of researchers, conservationists, and crew warmly welcome you as we undertake an expedition to the Yarapa River of the Samiria-Yavari protected area landscape. The Yarapa River basin is a flooded forest ecosystem that has truly exceptional wilderness and some of the greatest diversity of animals and plants on Earth. These forests are a continuum between the terrestrial and aquatic ecosystems that form a unique and very important part of the Amazon. Your participation in this research expedition plays a vital part in helping to conserve this important area, and the information you collect will be used by the protected areas and the Cocama Indigenous Nation to improve their conservation strategies.

The Yarapa River site is situated between the Pacaya-Samiria National Reserve and the Tamshiyacu-Tahuayo Community Reserve in one of the largest protected area complex in Peru. The travel time to Yarapa totals around 3 hours. The Yarapa site has an abundance of aquatic and terrestrial wildlife; it has high dolphin densities, exceptional wading birds, abundant fish, recovering otters and caimans, and healthy populations of primates and other mammals and birds. The local Cocama people are involved with the conservation activities and play a major role in helping to save the rainforests. Over the past five years the Amazon has undergone changes from climate change, with greater levels of flooding interspersed by occasional droughts. The project is investigating how this climate change is impacting the wildlife and local people, and is working closely with the Peruvian government on its national policy of climate change.

We look forward to welcoming you aboard!

Richard Bodmer

Professor in Conservation Ecology, Durrell Institute of Conservation and Ecology
University of Kent

President, FundAmazonia





THE RESEARCH

AMAZON RIVERBOAT EXPLORATION



THE STORY

The Yarapa River, which is situated between Peru's Pacaya-Samiria National Reserve and the Tamshiyacu-Tahuayo Community Reserve, is home to a vast array of wildlife, from pink river dolphins and manatees in the waters to monkeys and extraordinary birds in the canopy. However, recent climate fluctuations characterized by successive intensive floods and occasional droughts are impacting the aquatic, terrestrial, and arboreal species in the flooded forests, and this is in turn impacting the local people.

The drought in 2010 caused decreases in fish, dolphin, caiman and wading bird populations. The consecutive intense floods that began in 2011 have resulted in a 95% die-off of some ground dwelling terrestrial mammals, such as peccaries, deer, large rodents, and edentates. Long-term data sets collected by this project and ongoing data collection are helping to show how community-based approaches conserve biodiversity in the face of these climatic fluctuations and help the livelihoods of indigenous people.

Since 2006, the Earthwatch-supported Amazon Riverboat Exploration project has worked to set up long-term programs to conserve biodiversity and to develop protected areas and landscape strategies to safeguard wildlife (Bodmer & Puertas 2007). We work together with the local people because they are the true guardians of the forest, and information provided by our research can help them make appropriate decisions on how best to save the Amazon (MINAM 2012).

Community-based conservation was initiated by the project in the 1980's when it helped set the first community reserve in the Peruvian Amazon, the Tamshiyacu-Tahuayo community reserve, which was used as a model to set new reserves and manage national reserves and indigenous territories. Today, regional community reserves, community co-managed national reserves and indigenous territories make up 160,000 km² or half of the region of Loreto. Wildlife research was fundamental in setting up sustainable use and management in these community areas and continues to validate this successful conservation strategy.





However, new threats are on the horizon. As part of a plan to modernize the infrastructure network between the Atlantic and the Pacific oceans, Mega Hydrovia project will be implemented to make Amazonian rivers navigable year round. To achieve this they will dredge shallow points on the Ucayali, Marañón and Huallaga Rivers to deepen them. The proposed dredging will likely change the water level of the rivers and impact wildlife and people, but there has been no scientific analysis to determine what those impacts will be. Using a Matrix model and Earthwatch research, this project aims to predict the possible impacts of the dredging if water levels are changed.

Even the most up-to-date conservation strategies become obsolete each year as new challenges emerge. Thanks to the consistent year-round monitoring conducted with the support of Earthwatch volunteers, it is possible to identify and respond to these challenges as they happen.

RESEARCH AIMS

The overarching goal of this project is to help conserve the Peruvian Amazon through field research that provides the scientific basis for biodiversity conservation. The data collected will help inform stakeholders and decision-makers on sustainable resource use, community-based conservation, impacts of climate change and the Mega Hydrovia project, and wildlife trade and recovery of endangered species.

The aim of this project is to gather the data necessary to develop dynamic community-based conservation strategies that confront the current threats from climate change and the hydrovia in the western Amazon. Our climate work is focused on collecting wildlife monitoring data to examine how wildlife populations are being impacted by climate change. These data will also reveal how livelihoods of indigenous people are being impacted by these fluctuations and examine mitigation strategies that use community management and economic incentives.

In parallel with the climate research, we will evaluate the potential impact of a major planned dredging project on the Amazon River, the Mega Hydrovia project. Similar efforts elsewhere have had a devastating impact on local fish populations, which could be devastating to the Cocama Indigenous Nation, as terrestrial sources of protein are already in decline.

The data collected on climate and the Hydrovia project will help to evaluate the sustainable use of wildlife in the area. Climate change and development projects can change ecosystem dynamics, shifting the goalposts for sustainable use. We will collect data on adaptations to changes in resource populations, like bushmeat and fish, to determine what sustainable use will look like in upland and flooded forest ecosystems. The sustainability research will also give insights into how stakeholders can best facilitate the recovery of endangered species, including giant river otter, black caiman, jaguars and large-bodied primates.

The indigenous people in Loreto are the major force behind the expansion of community-based conservation (Mayor & Bodmer 2009) which includes sustainable resource use of wildlife and wildlife products (Bodmer et al. 2004). Field-based research has been fundamental in providing the scientific base for sustainable wildlife use. Continued research will support sustainable use programs and help keep up the momentum of the conservation movement in Loreto.

HOW YOU WILL HELP

MONITORING WILDLIFE POPULATIONS

As an Earthwatch volunteer, you'll help the research staff survey animals, determine the size and composition of animal groups, determine distances to the animals, record information on datasheets, and weigh and measure animals. You'll also visit community-based conservation plans in local indigenous villages.

The overarching research questions are: What are the populations of aquatic, terrestrial and arboreal species and how do animal populations change from climate change, dredging and community conservation and sustainable use? You will help survey a variety of species that include, river dolphins, wading & aquatic birds, fishing bats (*Noctilio leporinus*), fish, caimans, frogs, large felids, giant river otter (*Pteronura brasiliensis*), ungulates and large rodents, macaws, primates, and game birds. Population trends of these species will be correlated with water level data, which are categorized into normal, extreme drought and intensive flood conditions (Cook Espinoza et al. 2013; Cook & Viza 2008).

METHODS

Densities and abundances of species assemblages will be estimated annually in the Yarapa and Tahuayo River basins of the Tamshiyacu-Tahuayo community reserve. Methods will differ between species assemblages and will include distance sampling, fixed width, line transects, catch-per-unit-effort, point counts, age structure and camera traps (Buckland et al. 2004).

The pink river dolphin (*Inia geoffrensis*) and the grey river dolphin (*Sotalia fluviatilis*) are used as indicator species for the aquatic ecosystem. Dolphin surveys are conducted in lakes, channels and rivers and will involve visual surveys, side-scan sonar surveys, and listening for dolphin echolocation signals through underwater microphones or hydrophones.

Macaws, parrots and parakeets eat fruits and seeds and are used as general indicators of the terrestrial forests. Fifteen-minute point counts along the river, streams and lakes are used to estimate the abundance of these colorful birds.

Shore-line birds are used as indicators of the aquatic ecosystem, especially as it relates to fish production. Common species include herons, cormorants, egrets, ducks, terns, jacanas, screamers, hawks, osprey, kingfishers, among others. Shore-line transects conducted from aluminum boats and canoes record the number of birds per kilometer of shore-line.

Fish populations are surveyed to determine the impact of climate change on this important resource for local people. Surveys focused on species commonly used by local people and are surveyed using gill nets and hook & line fishing, and compared with abundance observations employing side-scan sonar.

Terrestrial mammals and game birds are surveyed to examine the impact of climate change on wild meat species. Mammalian groups include species of primates, ungulates, rodents, carnivores, edentates, and marsupials. Game birds include guans, curassow, tinamous and trumpeters. Surveys are done on foot using trails of 2-3 kilometers.

Camera traps are better at surveying the secretive ground-dwelling species than terrestrial transects such as jaguars (*Panthera onca*), pumas (*Puma concolor*), tapirs (*Tapirus terrestris*), peccary, red brocket deer (*Mazama americana*), anteaters and large rodents and nocturnal species such as opossums, armadillos, ocelots (*Leopardus pardalis*) and pacas (*Cuniculus paca*). Digital camera traps with heat/motion sensors are used to photograph ungulates, rodents, cats, armadillos and other terrestrial species.

Caiman surveys evaluate the status of caiman populations to study impacts of climate change. Black caiman (*Melanosuchus niger*), Common or Spectacled Caiman (*Caiman cocodrilos*) and Smooth Fronted or Dwarf Caiman (*Paleosuchus trigonatus*) are surveyed at night using spotlights along shore-line transects.

Monitoring fishing bats is done by visual and acoustic count using a bat-box, and carried out at night.

The giant river otters have been increasing in population and river otter groups will be recorded on any of the surveys.

Frog surveys will take place on the many "floating meadows" along the rivers, lakes and channels of the region. These floating mats of vegetation not only provide habitat for a rich array of wildlife-including frogs-but when these break free from where they are anchored, they become rafts and important vectors of dispersal for those on board.

Results of the expedition will be shared with local community members near the end of each team, providing them with important information for their management and conservation strategies





DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM



On research days, the team will split into groups of two to six people. We will do most activities each day, so you can participate in more than one survey in a day, and rotate tasks between days. A Peruvian field biologist and a local Cocama field assistant will accompany each group. At the end of the field day, you will help enter the data collected.

The daily schedule will likely vary, so we will very much appreciate your flexibility. All teams will help monitor dolphins, river otter, macaws, primates, terrestrial mammals, game birds, caimans, fish, wading birds and fishing bats.

During the course of the expedition, in addition to being trained on how to collect and record data in the field, you will learn how the data you're collecting will help conserve the Amazonian rainforests. Project staff members will give informal lectures, and lead practice exercises and question-and-answer periods on topics that may include the biodiversity, geography, and ecology of the Amazon region; history of the Amazon region and of the research site; population ecology of Amazonian wildlife; community-based conservation, impact of recent climate change, potential impacts of planned dredging, determining sustainable use of resources, and the importance of monitoring in protected areas of the Amazon region; socioeconomics of wildlife use in Loreto; local certification programs; and the future of the Amazon forests.



DAILY ACTIVITIES

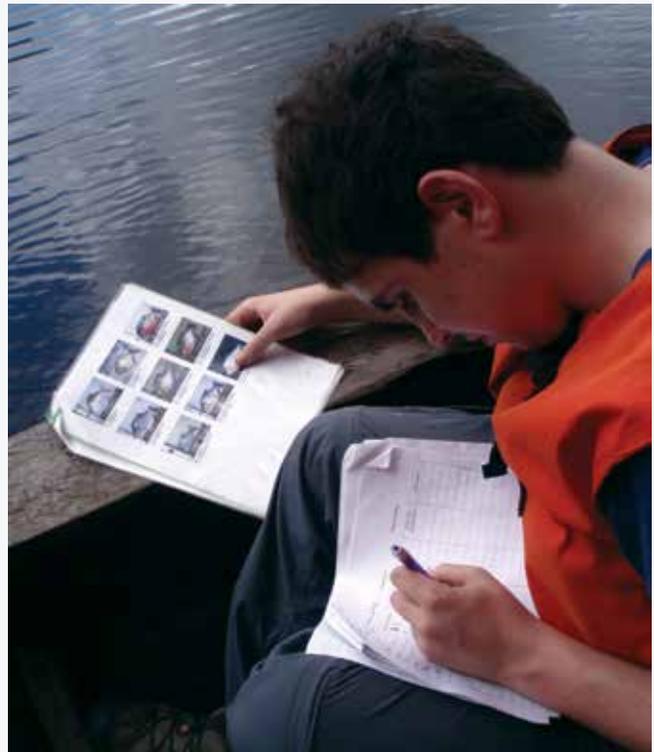
At the site, the surveys will run every day. You'll choose what surveys to participate in the next day at the 8:00 p.m. briefings. Early morning macaw and wading bird censuses are followed by breakfast. Terrestrial forest transects, dolphin, and fish censuses will depart after breakfast and return to the boat for lunch. Afternoon surveys depart after the lunch siesta. Fishing bats are done at dusk before dinner. After dinner, there will be an evening briefing followed by caiman censuses.

During free time, you can relax on the boat, enjoying the library and other spaces as you wish. Upon request, the crew may take you on short aluminum-canoe excursions.

ITINERARY

DAY 1	Rendezvous: Arrive in Iquitos; stay overnight at the Casa Morey. Team dinner and introductions.
DAY 2	Morning visit to the Museums. Travel 2 hours on chartered bus to the town of Nauta then 1 hour in a chartered passenger boat. Board the research boat, orientation to project safety and research, and talk on the ecology of the Amazon River.
DAY 3	Morning talks on wildlife surveys, methods, and working in the Amazon forests. Afternoon research surveys
DAYS 4–9	Research days, including:
6:00–9:00 a.m.	Macaw & wading bird surveys
7:00–noon	Terrestrial transects using forest trails
9:30–1:00 p.m.	Dolphin & fish surveys
2:00–5:00 p.m.	Dolphin & fish surveys
4:00–7:00 p.m.	Macaw & wading bird surveys
6:30–7:30 p.m.	Fishing bat survey
8:00 p.m.	Research briefing
8:30–11:00 p.m.	Caiman survey

DAY 10	Visit to local Cocama indigenous community. At the village, you can buy local handicrafts. These are generally inexpensive, and Peruvian soles should be used for purchases. This visit involves some medium-level exertion due to the heat and some short walks. For these visits, it is useful (but entirely optional) for volunteers to bring a few educational materials for the children, such as booklets, pencils, pens, and other basic school supplies, and small toys for the younger children.
DAY 11	Arrive back at Nauta and take chartered bus to Iquitos. End of expedition.



ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD



CASA MOREY

Teams will stay at the Casa Morey Hotel on the first night. Built in 1913 by a wealthy rubber baron, Casa Morey was recently restored by the Earthwatch scientists and runs as a small hotel. The casa is in the city center, overlooking the Iquitos waterfront. It has air conditioning, a swimming pool, and a library, and includes breakfast.

ON BOARD THE RESEARCH BOATS

For the rest of the expedition, teams will stay on the docked boats, either the Rio Amazonas or the Clavero—large, authentic boats from the days of early steam navigation on the Amazon, all restored to conditions near their original designs. Smaller teams will run aboard the Clavero.

RIO AMAZONAS: This boat, which will be used on large teams, houses volunteers in 14 cabins. At 44 meters long and nine meters wide, the Rio Amazonas was once one of the largest rubber transport boats on the Peruvian Amazon. She was built in Scotland in 1899 as a rubber transport steamship, and, in the mid-1900s, transitioned into a cargo and passenger ship and regularly navigated the 2,000-mile route from Iquitos to Belem at the mouth of the Amazon. In the early 1980's she became a tourist boat.

CLAVERO: The Clavero measures 23 meters long and six meters wide and has cabins spread over two decks. It will be used for small and medium-sized teams. Built in Paris, France in 1876, the Clavero is the oldest boat on the Amazon. The Peruvian government purchased her as a military and exploration vessel. She was also used to protect the Peruvian frontier and as a mail boat.

SLEEPING

Each of these fully restored boats offer equal amenities and comfortable accommodations in single- and double-occupancy cabins. The limited single rooms are available on a first-come, first-serve basis at no extra fee. Singles cannot be guaranteed. The Earthwatch scientist must make cabin assignments based on gender and can usually accommodate single room requests, but it's not always possible. Please contact Earthwatch with rooming requests.

All cabins have single beds (no bunk or double beds), air-conditioning, a desk, and a wardrobe. Cabins and toilets are cleaned daily. Showers have hot/warm water. Linens are provided, bedding is changed for you, and laundry is done regularly (usually every couple of days). Laundry is also available for personal items for no fee. It is washed in a communal space, so labelling your clothes is helpful if you use this service.



BATHROOMS

Each cabin has an attached private bathroom with a shower and a conventional toilet and sink. Towels, soap, shampoo, and toilet paper are provided, but we recommend you bring biodegradable soap and shampoo if possible.

ELECTRICITY

The cabins and the rest of the boats have 220-volt electricity provided by a solar hybrid generator system recently installed, which is on during the day and turned off between 11:00 p.m. to 5:00 a.m. to conserve energy, except on very hot nights. The boat has both continental European plugs and US-style plugs (see picture). If you have US-style plugs that have one prong wider than the other—these don't fit in the boat's outlets, and you will need an adapter. Also, you may need a voltage converter for some 110-volt US appliances, though many cameras and battery chargers can accept either voltage; please check your equipment's requirements.

PERSONAL COMMUNICATIONS

The rendezvous site in Iquitos has mobile phone reception and ground line access; while on the boat there is mobile phone reception and wifi available.

Family and friends of volunteers should note that personal communication is not always possible while volunteers are on an expedition. Earthwatch encourages volunteers to minimize outgoing calls, and family and friends should restrict calls to urgent messages only.

VOLUNTEER CONTACT INFO

IQUITOS OFFICE TEL/FAX: +51 65-231913

The boat is in daily communication with the office. These numbers are for emergencies and official business **ONLY**, not for personal communication.

FACILITIES AND AMENITIES

We use the large, air-conditioned dining rooms for meals and lectures. Coffee and tea are provided free of charge and snacks can be purchased at the bar.

The boats have libraries that have field guides, academic and classic books on the Amazon, and all boats have upper sun decks.

In addition to the main boat, we use many auxiliary boats for the field activities: several large aluminum motorized skiffs (maximum capacity: 20 people), small aluminum canoes (maximum capacity: three people), one speedboat, and one 10-meter-long rubber-boom-era launch.

FOOD AND WATER

The kitchen staff prepares breakfast, lunch, tea, and dinner, which are served buffet-style. Breakfast will be served from 7:00 to 9:30 a.m., lunch at 12:30 to 2:00 p.m., and dinner at 7:00 to 8:00 p.m. During field activities, meals will be available longer to accommodate different schedules: breakfast from 6:30 to 10:00 a.m., lunch from 12:00 to 2:00 p.m., and dinner at 7:00 p.m. Packed meals are provided for land-based surveys when needed.

All cooking is done with treated drinking water brought in from a licensed company. All porcelain, cutlery, and cooking materials are sanitized in a chloride solution. All uncooked foods, such as salads, are prepared using latex gloves.

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

TYPICAL MEALS

BREAKFAST	Coffee, tea, milk, toast with jam and butter, cereal, yogurt drinks, fruit drinks, oatmeal, eggs, pancakes, fruits, ham, cheese
LUNCH	Fish, beef, pork, poultry, or pasta; salad, soup, rice, potatoes, bread and butter, dessert, juice, coffee, tea
TEA	Freshly baked cake, tea, coffee
DINNER	Fish, beef, poultry, or pasta; salad, soup, rice, potatoes, bread and butter, dessert, juice, coffee, tea
SNACKS	Biscuits, chocolate wafers, crackers, chocolate bars, and other snacks are available at the bar area.
BEVERAGES	For drinking, we have treated water bought from a licensed company. Fruit juices are provided and additional drinks can be purchased at the bar.

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.

The food service can accommodate vegetarian diets; however, it is recommended you bring some of your favorite snacks. Vegan meals are very difficult to accommodate.



PROJECT CONDITIONS

THE FIELD ENVIRONMENT

The information below is as accurate as possible, but conditions are subject to change.

The Amazon is hot and humid during the day, and although it cools off at night, the humidity stays high. The climate does not vary much throughout the year.

GENERAL CONDITIONS

HUMIDITY: 80% to 90%

TEMPERATURE RANGE: 20°C/68°F to 35°C/95°F

ANNUAL RAINFALL: 2,000 mm/78 in to 3,000 mm/118 in

ALTITUDE: 80-m/262 ft. to 200-m/656 ft.

WATER CONDITIONS

TYPICAL WATER TEMPERATURE: 18°C/64°F to 25°C/77°F

TYPICAL WATER VISIBILITY: 0.15 m/0.5 ft. to 0.3-m/1 ft.

TYPICAL MAXIMUM WATER DEPTH: 1.5 m/5 ft. to 14-m/45 ft.

TYPES OF WATER ENVIRONMENT: river and stream

TIMING OF BOAT-BASED WORK: day and night



BOATING CONDITIONS

You will feel minimal movement on the docked research boats. Auxiliary boats will be used for activities for about three hours per river survey. These boats have sun canopies for use during the dolphin and fish census, which happens when the sun is intense. Canopies will not be used during early morning or night censuses. There are no toilets on the auxiliary boats, but boat drivers can stop at a beach if necessary.

The rivers are usually calm, but can get choppy during storms or from wakes when boats pass. Rainfall is heaviest from December to June, so there is a higher water level in these months. From July through November, the dry season, the water level is lower, but there still may be heavy rains.

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 and around water all day, in all types of weather, in the potential presence of wild animals, insects, and mold.
- Tolerate approximately 20°C (68°F) to 35°C (95°F) heat, direct sun, and high humidity levels.
- Be comfortable and maintain balance climbing in and out of small boats, walking on the deck of large research vessel, which can potentially be slippery at times, and climbing boat stairways.
- Sit on auxiliary boats for three to six hours per day on at least four days.
- Carry personal daily supplies such as water, rain gear, and some small field equipment.
- Function without a consistent source of electricity. Generators will not always run throughout the night; therefore, the project cannot accommodate electrical devices such as a C-PAP machine.
- Participants who choose to take part in terrestrial transects must be able to:
 - Traverse cleared paths on dry forest trails and sometimes wet, very muddy terrain at a pace of one km per hour for up to six hours per day on three days or more, while carrying personal supplies and small field equipment.





POTENTIAL HAZARDS

AMAZON RIVERBOAT EXPLORATION

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	<p>On the Main Boat</p> <p>Wear non-slip shoes when on the deck, and always use handrails when going up and down the stairs. Do not sit on rails, dangle feet over the deck, or enter the engine room. We have taken the following safety precautions: Life vests are readily available for all passengers and crew. Life rings are visibly placed along railings. Fire meeting points are pointed out to all passengers and crew. The boat crew is trained in emergency procedures, and all crewmembers are certified by the Peruvian Coast Guard and have official maritime marine documents. The Peruvian Coast Guard inspects the boat for safety.</p> <p>On the Auxiliary Boats/Canoes</p> <p>You must always wear a life vest when working from the auxiliary boats or canoes. You will always go with a boat guide in these smaller boats, and should not handle the outboard engines, nor enter the immediate engine area. All guides are trained in boat safety and handling. Canoes and auxiliary boats will never exceed their maximum capacity. All guides can swim, and can assist volunteers in an emergency.</p> <p>Police/Coast Guard/Military Controls</p> <p>The expedition may have to pass through official security controls; please do not be alarmed by these. The PI and staff will deal with all controls. You should provide passport information when requested by the PI, staff and/or officials at the controls.</p>
Forest Transects/ Trails	<p>Transect census walks can be very physically demanding and potentially dehydrating. Please bring a minimum of one to two liters (approx. 33 to 100 ounces) of drinking water on the transects. Walk slowly, and rest frequently if overheated. You must always wear field boots and field clothes. We also suggest using a walking stick (which you can cut in the forest) when going through muddy areas. Guides will also pace the walk in relation to the physical condition of volunteers and terrain. You will be informed about any potentially harmful plants along the trails, especially those with thorns. Thorns will be removed and treated with disinfectant solution and antibiotic cream. Messengers on foot will be used to alert the boat crew in case of emergency during terrestrial transects, because handheld radio signals are not reliable in the dense forest.</p>
Animals	<p>Handling Caimans and Fish</p> <p>Handling caimans and fish is completely voluntary. Volunteers will only handle caimans and fish, including piranha, once project staff have properly secured the animals. You should wear leather gloves to handle any species of live fish. In the event of a bite, first aid will be administered and, depending on severity, the person may be taken to the nearest clinic.</p> <p>Mosquitos</p> <p>Mosquitos are most abundant inside the forest on terrestrial transects. Long sleeved shirts, mosquito net hats and insect repellent are the best ways to decrease annoyance.</p> <p>Snakes</p> <p>In the past 20 years of the project, a venomous snake has bitten no one. Nevertheless, harmful snakes, including fer-de-lance, bushmaster, and coral snakes, do live in the area. Anti-venom is kept on the boat and can be applied in extreme cases, but the preferred alternative is to get the injured person to a clinic or hospital as soon as possible. Guides will carry extractors and pressure bandages into the field. All volunteers should wear rubber boots or snake guards when walking in the forest to protect their ankles, and should carefully examine any area where they walk or sit.</p> <p>Insects</p> <p>Biting and/or stinging bees, wasps, bullet ants, scorpions, and spiders are all present in the research area. Team members will occasionally be bitten or stung, but these injuries are usually not very severe. If anyone develops an allergic reaction, he/she will be taken to the nearest clinic. If you are allergic to insects, please discuss this with your doctor and bring appropriate medication (e.g., antihistamines, at least two Epi-Pens). Insect bites can get infected, so you should treat and clean any bites. To repel insects, please wear appropriate footwear and clothing, and bring insect repellent into the field. Do not touch trees without first checking for dangerous insects, and carefully examine any area where you intend to sit down. During the caiman surveys, volunteers should turn off flashlights/torches if wasps are present. Anti-red-eye flashes should also be turned off on cameras, and the person handling the spotlight should wear leather gloves.</p> <p>Domestic Animals and Pets</p> <p>Volunteers should not touch, pet, or handle any domestic animals at the guard posts, villages, or towns, including dogs, cats, chickens, ducks, or pet primates, parrots, macaws, and any other species.</p>



Climate/ Weather	<p>It will be hot and humid. You will need to protect yourself from the sun with appropriate clothing and sunscreen (at least 30 to 60 SPF) and drink plenty of water throughout the day to avoid dehydration. Some of the small auxiliary boats have sunshades, but the reflection off the water can still cause sunburn. After-burn cream will be available. Rehydration solution may be given to anyone who gets dehydrated. It can rain at any time of the year, so please bring light rain gear suitable for tropical climates. All volunteers should wear light, warm clothes during the early-morning macaw transects and the evening and night caiman surveys, which can be chilly.</p> <p>Because of the high humidity, those using hearing aid devices may find they don't work properly.</p>
Personal Security	<p>Always stay with a group when on the expedition. We advise against attending late-night activities when in Iquitos. In case of a problem when you are away from the boat, you should contact the nearest police station or consulate. Local authorities will be contacted in case of any illegal activity.</p>
Swimming	<p>Swimming is not permitted on this project.</p>
Distance from Medical Care	<p>The nearest hospital is a clinic in Nauta and is approximately 30 kilometers (19 miles) from the site and one hour to reach by speedboat. The hospital in Iquitos is 130 kilometers (80 miles) from the site and takes approximately 3 hours to reach. If you have a chronic condition which could require immediate medical care (e.g., heart conditions, kidney problems, severe asthma, etc.), or if you are pregnant, please discuss your participation on this expedition with your physician.</p>
Diseases	<p>Diseases found in this region may include dengue fever, Zika virus, cholera, tuberculosis, filariasis, leishmaniasis, onchocerciasis, trypanosomiasis, schistosomiasis, strongyloidiasis, hepatitis, leptospirosis, chikunguya, polio, tick-borne encephalitis, plague, and typhoid. You can decrease your risk of most diseases above by avoiding mosquito bites, wearing protective clothing and shoes, practicing good hygiene, and drinking only bottled or filtered water when appropriate. Chloroquine-resistant malaria is endemic to the Peruvian Amazon, and has been frequently reported along the route to Samiria in towns such as Nauta. Rabies is present in the region and can be transmitted by stray dogs and bats. Whether you have been vaccinated or not, always avoid loose and stray dogs. The pre-exposure vaccination does not eliminate the need for post-exposure medical attention and treatment, but it does provide additional protection against the disease in event of a delay in treatment. In addition, bites or scratches should be immediately and thoroughly washed with soap, clean water, and a topical povidone-iodine solution or ethanol. If you feel ill once you return from your trip, make sure you inform your doctor that you have recently returned from a tropical region.</p> <p>Please see the US Centers for Disease Control and Prevention (cdc.gov) or the World Health Organization (who.int) websites for more information on these conditions and how to avoid them.</p>



HEALTH & SAFETY

AMAZON RIVERBOAT EXPLORATION



EMERGENCIES IN THE FIELD

The boat is equipped with a telephone, wifi and short-wave radio for project and emergency use. Daily communication is maintained with the office in Iquitos.

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 the [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: Spanish. Although the project is conducted in English, most staff members are native Spanish-speakers, and we suggest you learn a few Spanish phrases to get the most out of your trip.

TIME ZONE: GMT/UTC - 5 (same as Eastern Standard Time in the U.S.).

CULTURAL CONSIDERATIONS: The team will visit conservative villages, so please do not wear tight or revealing clothing. During these visits, you may take photos: the locals enjoy being photographed. The children love small toys, like the ones that come with kids' fast food meals, so you may wish to bring a few of these. The project helps the villages with other basic materials, especially school supplies for primary education. Gifts are strictly voluntary on your part.

TIPPING: Tipping is optional and can be arranged with the boat Captain.

LOCAL CURRENCY: Peru nuevos soles (PEN). We suggest bringing a Visa or MasterCard for withdrawing cash from ATMs, which are available in Iquitos. You cannot change money into nuevos soles on the boat, so you may wish to do so before departing Iquitos. Many businesses in Iquitos will also accept credit cards. Alternatively, you can bring US dollars for exchange, but they must be in good condition (crisp and like new), without any damage. It is difficult to exchange euros in Peru, and even more difficult to exchange UK pounds. You may use US dollars or Peru nuevos soles, and Visa, MasterCard and American Express credit cards to pay the bar and Casa Morey bills.

The amount of money you should bring depends on how long you plan to stay in Iquitos before or after the expedition, how much you spend on the boat bar and purchase of local handicraft. In Iquitos, you can purchase food and souvenirs, but on the boat, you can't buy anything other than drinks at the boat's bar and some local handicrafts from the Cocama villages.

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. Please apply early for your visa (we recommend starting 6 months prior to the start of your expedition). 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 the following site:

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.

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:

Casa Morey Hotel

Loreto 200
Plaza Ramon Castilla
Iquitos, Peru

TEL: +(51-65) 231 913



TRAVEL PLANNING

RENDEZVOUS AND DEPARTURE INFORMATION

**COMPLETE TRAVEL INFORMATION IS NOT INCLUDED
IN THIS PUBLIC VERSION OF THE BRIEFING..**

Please find the complete briefing, available only to project participants, in your Earthwatch Portal.
The version in your Portal will include all of the travel information for you to book appropriate flights. Please DO NOT book flights without referring to this information.





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

- Synthetic quick-dry or light cotton pants
- Shorts
- Synthetic quick-dry or light cotton long-sleeved shirts
- T-shirts and/or short-sleeved shirts
- Sweater or light jacket
- Socks
- Rain gear, such as a light poncho
- Rubber boots are much better on the muddy and wet trails than hiking boots and help protect against snake bites. If you don't want to pack rubber boots, you can purchase them in Iquitos. The project has some pairs to lend, but if you have an uncommon size, please bring a pair. You may also choose to donate yours to the project or community upon your departure.
- Nonslip, closed-toed shoes (not open sandals) for the boat decks and river-based surveys
- Sun hat
- Mosquito net hat

CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for end of expedition

FIELD SUPPLIES

- Small daypack
- Drybag or plastic sealable bags (good for protecting equipment like cameras from dust, humidity, and water)
- Insect repellent spray
- Water container able to hold at least one liter (the project can supply empty plastic soda bottles if you do not wish to bring your own)
- Flashlight with extra bulbs and batteries (headlamps are not recommended, since they attract insects toward your eyes).

BEDDING AND BATHING

- Bedding and towels are provided at the hotel and on the boat.

PERSONAL SUPPLIES

- Personal toiletries (small bottle of shampoo and bar of soap provided)
- Personal first-aid kit (e.g., anti-diarrhea pills, antibiotics, antiseptic, itch relief, antibacterial wipes or lotion, pain relievers, bandages, blister covers, etc.) and personal medications
- Sunscreen lotion with SPF 30 or higher
- Sunglasses
- Spending money; crisp bills in low denominations are more widely accepted.



EXPEDITION PACKING CHECKLIST

OPTIONAL ITEMS

- Travel guidebook
- Field guide
- Shower shoes (flip-flops or other rubberized sandals)
- Travel alarm clock (the crew can also wake you up if you ask)
- Binoculars (the higher the quality and magnifying power, the happier you will be)
- Favorite music
- Pocket knife (be sure to pack this in your checked luggage and not your carry-on)
- Favorite snacks, particularly if you follow a restricted diet
- Small, handheld fan (useful for keeping sand flies away; can also be purchased very inexpensively in Iquitos)
- Simple school supplies for the local children (pens, pencils, paper, rulers, etc.), or other small gifts
- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers

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.

EARTHWATCH SCIENTIST DR. RICHARD E. BODMER was born in England and spent his youth in Chicago, where he worked with the Brookfield Zoo. He completed his PhD in zoology at the University of Cambridge in England, and has received two Presidential Awards from the Chicago Zoological Society. He has worked in the Peruvian Amazon for over 30 years. Present on all teams.

EARTHWATCH SCIENTIST TULA FANG was born in Iquitos, Peru and spent her youth in the Amazon. She completed her MSc at the Durrell Institute of Conservation and Ecology at the University of Kent, England, and began her research career working with primates in the Tamshiyacu-Tahuayo Community Reserve in Peru.



KIMBERLY CHOTA PINEDO, from Iquitos, studied biology at the National University of the Peruvian Amazon. She did her research thesis on the Amazon River dolphins and has worked with the other survey methods for several years. Present on all teams.

JOSEPH ZEGARRA is also from Iquitos and studied biology at the National University of the Peruvian Amazon. He did his research thesis on the understory birds and has worked with the other survey methods for several years. Present on all teams.

ABEL GOMEZ has assisted with the dolphin and caiman research and terrestrial transect surveys for the past two years. He is a Peruvian biologist who did his thesis on community conservation at the Scientific University of Peru. Teams larger than 8 volunteers.



PLEASE NOTE: Additional biologists from the Durrell Institute of Conservation and Ecology - DICE and the Peruvian Amazon's national and private universities will also join the expeditions to help with the monitoring surveys and community visits as part of our capacity-building program. Also, depending on scheduling and the availability of funding, one or more other research collaborators may join the teams.



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

ARTICLES

- Bodmer, R., P. Mayor, M. Antunez, K. Chota, T. Fang, P. Puertas, M. Pittet, M. Kirkland, M. Walkey, C. Rios, P. Perez-Peña, P. Henderson, W. Bodmer, A. Bicerra, J. Zagarra and E. Docherty. 2017. Major shifts in Amazon wildlife populations from recent intensification of floods and drought. *Conservation Biology*. 32(2): 333-344
- Bodmer, R. 2005. Hunting for Conservation in the Amazon Rainforests. In: *State of the Wild: A Global Portrait of Wildlife, Wildlands and Oceans*
- Bodmer, R., P. Puertas, and T.G. Fang. 2008. Co-managing Wildlife in the Amazon and the Salvation of the Pacaya-Samiria National Reserve in Peru. In: *Manfredo, M. et al (eds.). Wildlife and Society: The Science of Human Dimensions* Island Press.
- Upton, K., Warren-Thoman, E., Rogers, I., and Docherty, E. 2014. Amphibian Diversity on Floating Meadows in Flooded Forests of the Peruvian Amazon. *Herpetological Review* 45(2): 209-212.

BOOKS

- Bodmer, R. 2014. *Pacaya-Samiria: Land of Mirrors*. Wust Publications. Available on board.
- Hemming, J. 2009. *Tree of Rivers: The Story of the Amazon*
- Grann, D. 2010. *The Lost City of Z: A Tale of Deadly Obsession in the Amazon*
- Lange, A. 2011. *In the Amazon Jungle*
- Silvius, K., Bodmer, R., and J. Fragoso. 2004. *People in Nature: Wildlife Conservation in South and Central America*

FIELD GUIDES

- Clements, J.F. and N. Shany. 2001. *A Field Guide to the Birds of Peru*.
- Schulenberg, T.S. et al. 2010. *Birds of Peru*.
- Kricher, J. 1999. *A Neotropical Companion*.
- Bernard, H. 2002. *Insight Guide: Amazon Wildlife*.
- Emmons, L.H. and Fea, F. 1997. *Neotropical Rainforest Mammals: A Field Guide* (2nd ed.).
- Bright, M. 2000. *South America Revealed: A Wildlife Guide From Andes to Amazon*.

PROJECT FIELD REPORT

Each Earthwatch-supported project submits a field report on past research and results. The most recent for this project is available online at <http://earthwatch.org/FieldReports/earthwatch-field-report-amazon-riverboat-exploration-2016.pdf>. (Reports not available for all projects.)

PROJECT-RELATED WEBSITE

- **Latin American Wildlife Society:** <http://comfauna.org/> (in Spanish)
- **FundAmazonia:** fundamazonia.org
- **Dr. Bodmer's homepage:** kent.ac.uk/sac/staff-profiles/profiles/conservation-biology/honorary_staff/bodmer-richard.html
- **Pacaya-Samiria National Reserve:** pacaya-samiria.com/
- **Museums:** historicboatmuseum.org

EARTHWATCH SOCIAL MEDIA

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



LITERATURE CITED

YOUR RESOURCES AT HOME

LITERATURE CITED

- Bodmer, R., P. Mayor, M. Antunez, K. Chota, T. Fang, P. Puertas, M. Pittet, M. Kirkland, M. Walkey, C. Rios, P. Perez-Peña, P. Henderson, W. Bodmer, A. Bicerra, J. Zegarra and E. Docherty (2018). Major shifts in Amazon wildlife populations from recent intensification of floods and drought. *Conservation Biology*
- Bodmer, R., Fang, T., Puertas, P., Antúnez, M., Chota, K. and W. Bodmer. 2014. Cambio Climático y Fauna Silvestre en la Amazonía Peruana: Impacto de la Sequía e Inundaciones Intensas en la Reserva Nacional Pacaya Samiria. Eds Wust, Lima, Peru.
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- Buckland, S.T., Anderson, D.R., Burnham, K.P., Laake, J.L., Borchers D.L. and L. Thomas. 2004. *Advanced Distance Sampling*. Oxford University Press, Oxford.
- Cook, K. H. y E. K. Vizy. 2008. Effects of twenty-first-century climate change on the Amazon rainforest. *J. Climate* 21:542-560.
- Espinoza JC., Ronchail J., Frappart F., Lavado W., Santini W., Guyot JL., 2013. The major floods in the Amazonas River and tributaries (Western Amazon basin) during the 1970 – 2012 period: A focus on the 2012 flood. *Journal of Hydrometeorology* 14: 1000-1008.
- GOREL. Gobierno Regional de Loreto. 2011. Estrategia Regional de Cambio Climático. GOREL- Gerencia Regional de Recursos Naturales y Gestión del Medio Ambiente, Comisión Ambiental Regional de Loreto, Iquitos, Perú.
- Ministerio del Ambiente del Perú MIAM. 2010. El Perú y el Cambio Climático, Segunda Comunicación Nacional del Perú a la Convención Marco de las Naciones Unidas sobre Cambio Climático 2010. MIAM, Lima, Perú.
- Silvius, K., Bodmer, R.E. and J. Fragoso (eds.). 2004. *People in Nature: Wildlife Conservation in South and Central America*. Columbia University Press, New York.



EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



EMERGENCY NUMBERS NOT INCLUDED IN THIS PUBLIC VERSION OF THE BRIEFING.

The version in your Portal will include all of the necessary emergency numbers..



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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