Timeline and Checklist

In preparing for your upcoming Earthwatch expedition, please ensure that you:

Immediately

- ☐ Read this Expedition Briefing and all enclosed materials thoroughly.
- ☐ Book an appointment with a doctor; you'll need him or her to sign your participation form.
- ☐ Make sure you understand and agree to Earthwatch policies and participant responsibilities.

At least 90 days prior to your expedition start date

Complete and return your volunteer forms. **Below are the specific forms required for this expedition:**

- ☐ Earthwatch Participation Form for Adults, including Water-Based Projects section
- ☐ Travel Form

European volunteers can download forms at: earthwatch.org/europe/volunteerforms
US/North American volunteers can download forms at: earthwatch.org/volunteerforms
Australian volunteers can download forms at: earthwatch.org/australia/expeditions/volunteer_forms/
Japanese volunteers can download forms at: www.earthwatch.jp/getinvolved/condition/formdownload-i.html

- ☐ Pay any outstanding balance on the minimum contribution for your expedition.
- ☐ Book travel arrangements (see the *Rendezvous* section for details).
- ☐ If you plan to purchase additional travel insurance, note that some policies require purchase when your expedition is booked (see the *Insurance* section for more information).
- ☐ If traveling internationally, make sure your passport is current and obtain a visa for your destination country (if necessary) (see the *Passports and Visas* section for more details).
- ☐ Make sure you have all the necessary vaccinations for your project site (see the *Health Information* section).
- ☐ Purchase a guide book for your destination country.
- ☐ Bring your level of fitness up to the standards required (see the *Project Conditions* section).

At least 60 days prior to your expedition start date

- ☐ Review the packing list to make sure you have all the clothing and any special equipment needed.
- ☐ Obtain any necessary prescription medications that will be needed for your travels.

Up to 30 days before you leave for the expedition

- ☐ Read any required reading or websites recommended by the Earthwatch scientist(s) for your expedition.
- ☐ Make sure you have enough personal funds for your expedition (see the *Travel Planning* section).
- ☐ Leave the Earthwatch emergency contact number with a friend or relative (see the *Emergency Contacts* section).
- ☐ Leave a copy of your passport, visas, and airline tickets with a friend or relative.
- ☐ Confirm your travel arrangements.

Note: If you have signed up for an expedition within 90 days of the start date, you must return your fully completed volunteer forms as soon as possible.

Amazon Riverboat Exploration

Table of Contents

General Information

Project title	Amazon Riverboat Exploration
Earthwatch scientist	**Dr. Richard Bodmer**, Reader in Conservation Ecology, Durrell Institute of Conservation and Ecology (DICE) at the University of Kent and the Wildlife Conservation Society (WCS)
Research site	Samiria River, Peru

Expedition length: 8 or 15 days

Team size max: 20 participants

Minimum age of participation: 18 years of age*

***Note:** It may also be possible for 16- and 17-year-olds to participate on standard teams if accompanied by a parent or guardian. Contact Earthwatch for more information and see *Volunteers Under 18 Years of Age* in the *Passports and Visas* section for traveling advice for minors.

Emergency Contacts

Emergency contact number at Earthwatch headquarters in the US:

+1 (978) 461-0081

(800) 776-0188 (Please note that the 800-number works as a toll free call *only* for calls placed within the US.)

After business hours, leave your message with our live answering service. State that you have an emergency communication and leave a clear message with the name of the field program, your name, location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff person will be contacted and will respond to your call within one hour.

Emergency medical and evacuation assistance provider

To contact International SOS in the event of an emergency, dial:

- For assistance **within the US**: ISOS Philadelphia**,** +1 (215) 942 8459
- For assistance **outside the US**: ISOS London, +44 (0) 208 762 8008
- For assistance **within Australia**: ISOS Australasia, + 61 (0) 2 9372 2468

State that you are on an Earthwatch expedition. The following information must be provided:

1. The Insured Person's name
2. The Assured is **EARTHWATCH**, the Certificate No: **GP 0010214** and SOS reference **#14ACPA000075**
3. The telephone number and facsimile number where the Insured Person can be reached
4. The Insured Person's address abroad
5. The nature of the emergency

Dear Earthwatcher,

Welcome to Earthwatch! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. As an Earthwatch volunteer, you have the opportunity to create positive change. Each year we connect thousands of people just like you with research projects—approximately 65 projects in more than 35 countries—where they can participate in the fieldwork necessary to understand and help an array of species, habitats and cultures. These projects focus on: **climate change, cultural heritage, ecosystem services and oceans.**

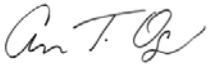
We are committed to caring for the safety of all those involved in our activities anywhere in the world. Although risk is an inherent part of the environments in which we work, through careful risk management and diligent planning we believe that all participants can have educational and inspirational Earthwatch experiences. We've been providing volunteer field experiences **for 40 years**, so you're in good hands.

It is essential that you carefully read your Expedition Briefing and complete the volunteer forms so that you are fully prepared. Your Expedition Briefing includes important information such as instructions for reaching the project site, what risks are present on the research project and how to avoid them, what to pack, what immunizations you need, how to physically prepare for your expedition, and more. It also explains the research being conducted on the project, why it's important, and what role you'll play as an Earthwatch volunteer.

Well-prepared volunteers are better able to enjoy the unique and exciting experiences that an Earthwatch expedition offers and will be more helpful to the scientists' important work. Open-mindedness, the ability to work on a team, and a desire to learn are keys to a successful and enjoyable Earthwatch experience. We hope this expedition will inspire you to get more involved in conservation and sustainable development priorities—not just out in the field but also when you return home. We encourage you to share your experiences with others, to transfer your skills and enthusiasm to environmental conservation efforts in your workplace, in your community and at home.

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

Sincerely,



Anne T. Ogilvie
International Director of Field Management

DICE
UNIVERSITY OF KENT
AT CANTERBURY

The Durrell Institute of
Conservation and Ecology

Dear Earthwatch Volunteers,

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 Samiria River of the Pacaya-Samiria National Reserve. The Samiria River basin is a flooded forest ecosystem that has truly exceptional wilderness and some of the greatest diversities 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 will be a vital part in helping to conserve this important conservation area. You will help survey river dolphins, macaws, caimans, monkeys, other mammals, large forest birds, and fish during all seasons, and turtles and wading birds during the low water season from August to November. These animals are being used as key indicator species to determine the success of conservation and the impact of global climate change in the Amazon basin. Some of the species, such as the dolphins, wading birds and macaws are being used to monitor the health of the aquatic and terrestrial habitats, whereas other species, such as the monkeys, caimans, turtles and fish are being used to monitor the impact of hunting and fishing, and the results of community-based management by the local Cocama Indians. The information you collect will be used by the protected area and the Cocama Indigenous Nation to improve their conservation strategies.

The Samiria River site is situated deep within one of the largest protected areas in Peru. The travel time to Samiria totals around two days. The Samiria site has an abundance of aquatic and terrestrial wildlife; it has one of the greatest dolphin densities of any Amazonian river, a recovering black caiman population, a successful turtle recovery program, and healthy populations of primates and other mammals. The local Cocama people are involved with the conservation activities and play a major role in helping to save the rainforests.

All accommodations, during travel to and while at the site, are based on river boats, either the *Ayapua* or *Clavero*. Both boats are historical steamships that have been restored as part of a holistic effort to help save both the Amazon rainforests and its history. The *Ayapua* is a restored rubber boom epic vessel built in Hamburg Germany in 1906. The *Clavero* is the oldest boat on the Amazon, and was built in Paris in 1876 She was used by the Peruvian government for much of her history. The *Ayapua* and *Clavero* have been fully restored as part of our project, as it links biodiversity and historical conservation.

We look forward to welcoming you aboard!

Sincerely yours,

Richard E Bodmer

Richard Bodmer
Durrell Institute of Conservation and Ecology

The Research

Amazon Riverboat Exploration

The rainforests of Loreto, Peru are situated in the western Amazon basin and harbor some of the greatest mammalian, avian, floral and fish diversity on Earth. Indeed, these forests are one of the last remaining true wilderness areas left on the planet. However, they will only remain intact if conservation programs are successfully implemented. The Earthwatch scientist and his team have been conducting research in the Loreto area since 1984. The vision of their studies, which is supported by Earthwatch Institute through the *Amazon Riverboat Exploration* project, is to set up long-term biodiversity conservation through community-based work, and to develop protected areas and landscape strategies based on wildlife conservation. The goals of this project are being implemented through action, promotion, research and collaboration between a number of conservation groups, universities, government agencies and concerned citizens.

You will be part of research and conservation activities that use an interdisciplinary approach to find a balance between the needs of the indigenous peoples and the conservation of the animals and plants in this region (Bodmer and Puertas 2000). The project is helping to conserve wildlife not only to save the biodiversity of the Amazon, but also as a means of helping the indigenous people who rely on these resources for their food and shelter (Bodmer and Robinson 2004). We work together with the local people because they are the true guardians of the forest, and information provided by our research can help the indigenous people make appropriate decisions on how best to save the Amazon. The Amazon has been abused in the past, through deforestation for timber, over-hunting of animals and over-fishing (Dourojeanni 1990). While the local people are taking actions in places like the Pacaya-Samiria National Reserve, there are still many people who look to the forest for profit. Illegal timber companies, illegal pet traders and illegal hunters all lead to the destruction of the Amazon (Little 1994). However, Pacaya-Samiria is an example of how things are changing—of how conservation can work in collaboration with local people.

The long-term goal is to have a matrix of land uses in the rural areas of Loreto that include areas where wildlife is hunted sustainably, where community-based source areas (in effect, fully protected areas that rural communities maintain) are adjacent to use-areas and where national-level protected areas and conservation concessions work with the rural people, not against them (Bodmer 2000). These goals are being implemented through conservation action, promotion of conservation, and conservation-orientated research.

The dramatic variations in water level caused by global climate change over the past four years have resulted in extreme flooding and droughts in the Peruvian Amazon. The droughts and floods impact both the aquatic and terrestrial wildlife and, in turn, resource use by the local Cocama Indians. The Peruvian government has publically declared its concern about climate change and is developing a strategy on how to deal with the problem. The research conducted during the *Amazon Riverboat Exploration* expedition is working with the Peruvian government and Cocama Indigenous Nation to determine the impact of the greater variations of water levels for the wildlife, local people and protected area management.

The flooded forests are the most severely impacted by climatic change and are therefore a good model to study not only the consequences, but also the actions needed in terms of community-based and protected area management. The research in the Samiria will help develop a broader conservation strategy for Amazon wildlife being impacted by global climate change.

As an Earthwatch volunteer, you'll help collect data on ungulates, macaws, wading birds, large-bodied primates, caimans, dolphins, giant river otters, manatees, river turtles, game birds, large cats, other large mammals and large fish. You may be responsible for helping research staff to sight animals, determine animal group sizes and composition, determine distance parameters, record information on datasheets, and weigh and measure animals. You'll also have the opportunity to explore wildlife use and community-based conservation plans in local indigenous villages.

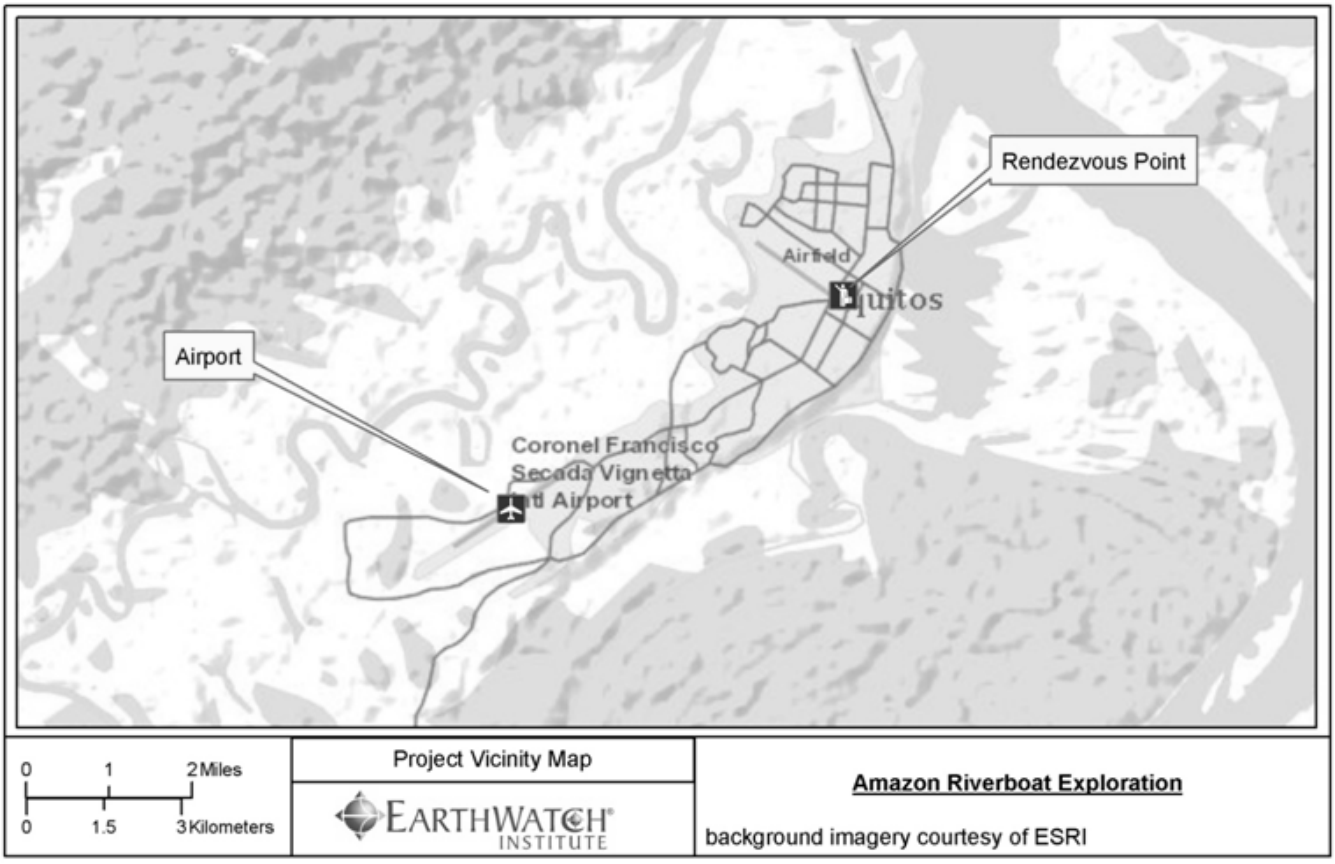
The Amazon Basin

The rainforests of the Amazon basin are virtually overflowing with a diverse array of plant and animal species. You'll share this tropical environment with beautiful birds, exotic plants, monkeys, dolphins and more. You should also be prepared to share with a few insects! Mosquitoes are most abundant just after sunset, but tend to stay away from the boat decks during the day and later at night. Sand and horse flies can be bothersome on the decks during the day, but vanish when night falls. The restored riverboat you'll call home during your expedition will provide some respite from the heat and insects. Life on the historic steamboat will provide a cultural experience that portrays the elegance of navigating the majestic Amazon River during the late 19th and early 20th century and the memories of this bygone era.

During your expedition you'll have the opportunity to interact with Cocama indigenous people from a nearby village. The Earthwatch scientist and his research team have formed very positive relationships with these communities over the past 20 years. The Cocama have always accommodated visitors with openness and friendliness.

Pacaya-Samiria National Reserve

The Pacaya-Samiria National Reserve is one of the largest protected areas in Peru, spanning over 20,000 square kilometers of tropical rainforest. The reserve is a truly exceptional wilderness area and a unique flooded forest. Situated deep in the rainforests of the western Amazon basin, the reserve teems with aquatic and terrestrial wildlife. It is at the point where the Amazon River begins its long journey to the Atlantic Ocean, passing through parts of Peru, Colombia and Brazil. The two major rivers that border the reserve are the Ucayali and Maranon, which join to form the Amazon proper right where the reserve begins. The huge floodplains of these majestic rivers have produced the low-lying flooded forests of the reserve. Both the Ucayali and the Maranon originate in the Andes Mountains; the Ucayali actually has its headwaters in the Urubamba River around Machu Picchu and Cuzco. Rivers that come from the Andes are rich in sediments that they pick up as they tumble down the rocky mountains. This gives the rivers a whitish-brown color. As this nutrient-rich water flows through the flooded forests many of the sediments become deposited on the forest floor, and at the same time, the water becomes impregnated by dark tannins from the leaf litter—the same effect that tea has on water. When the water flows out of the forest and into the channels and lakes it has a dark, almost black color.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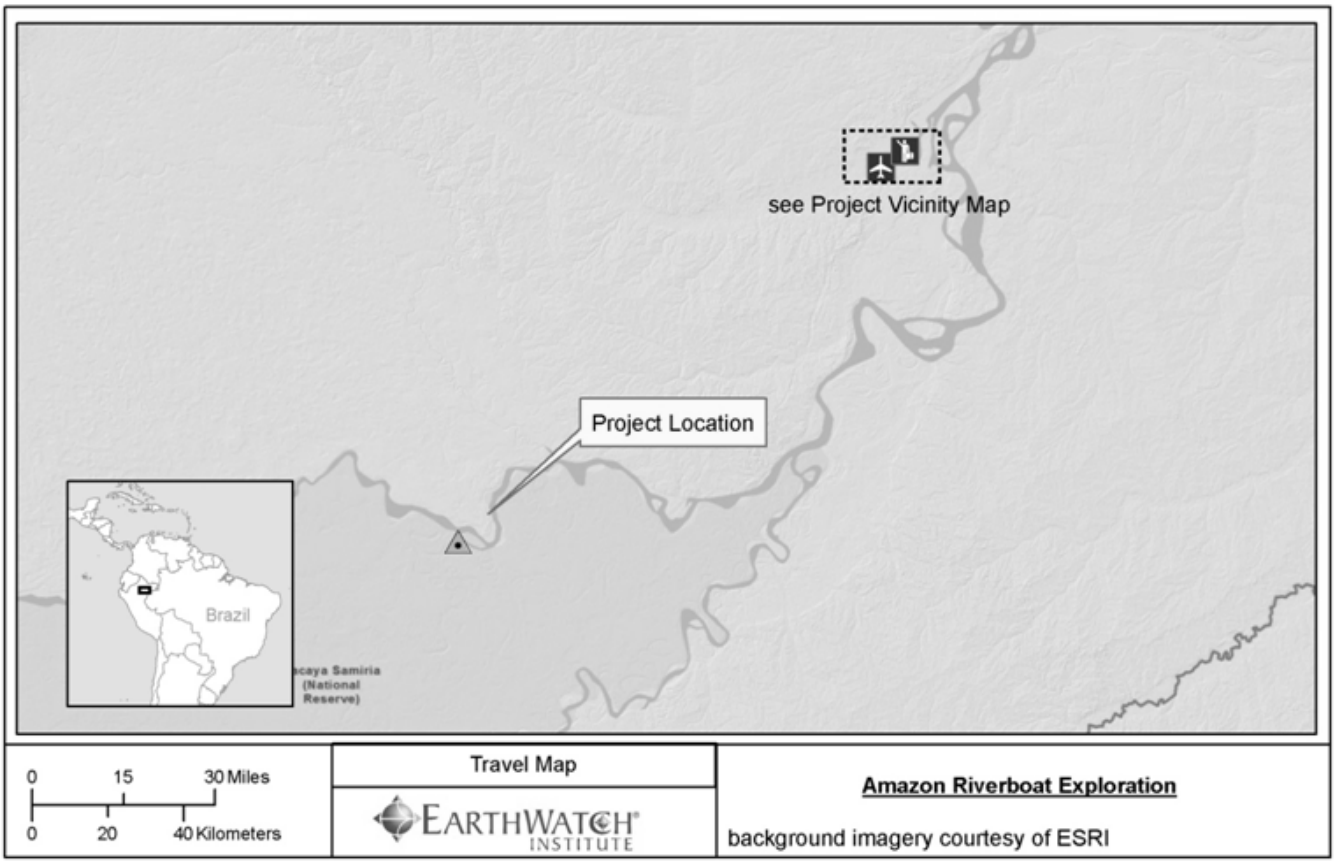
Project Vicinity Map
EARTHWATCH INSTITUTE
Amazon Riverboat Exploration
background imagery courtesy of ESRI


see Project Vicinity Map
Project Location
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(National
Reserve)
0 15 30 Miles
0 20 40 Kilometers
Travel Map
EARTHWATCH INSTITUTE
Amazon Riverboat Exploration
background imagery courtesy of ESRI

The Samiria River runs through the heart of the reserve and is formed from water flowing through the flooded forests. The aquatic and terrestrial wildlife of the Samiria River basin has recovered significantly over the past decade. The river has a particularly large population of river dolphins and is the last remaining refuge for the Amazon manatee. Giant river otters are also returning and every year more are sighted in the rivers, lakes and channels. There are 12 species of primates in the reserve, many of which are commonly sighted on the terrestrial transects. Macaws and wading birds are very abundant, as are game birds. Peccaries, deer, tapir and capybara are also on the increase. The caimans and turtles have rebounded and are now common features of the waterways of the Samiria.

The Pacaya-Samiria National Reserve is working with local Cocama communities to ensure that the natural and human worlds can coexist in harmony. While change has certainly come to the communities, the Cocama still live in many ways as they did centuries ago. They fish and hunt for meat, collect forest fruits and have small slash-and-burn gardens. They travel in small dugout canoes and live in thatched roofed houses made from trees and palm fronds of the nearby forest. The work that the project is doing is helping to develop management plans that incorporate both the needs of the Cocama people and the conservation of wildlife in the Samiria River basin.

The Pacaya-Samiria National Reserve has gone through a major shift in its management policies over the past two decades; it has gone from being an area of strict protection where local people were excluded from the reserve to an area where the local Indigenous people participate with the reserve management. This drastic shift in conservation policy has led to a reduction in hunting pressure and an increase in wildlife populations. When the park administration changed and the reserve began to incorporate local communities in the management of the area, attitudes of the local people also changed. Local management groups were given areas to manage and were no longer considered poachers. They were able to use a limited amount of resources legally and with reserve administration approval. Many of the local people changed their attitude towards the reserve and began to see the long-term benefits of the reserve for their future.

For information on the climate, conditions and potential hazards of these areas, please see the *Project Conditions* section.

Research Achievements

This project contributes to the management of the Pacaya-Samiria National Reserve by supplying data on the abundance, densities and diversity of many important wildlife groups, which helps develop appropriate management plans for wildlife species and community-based wildlife conservation programs. The results have shown the importance of the area for conservation and for the sustainable development of the region. Research results of the project will also be used to help establish new regional protected areas, which would conserve over an additional 1.5 million hectares of Amazonian forest. The research will also help develop an Amazon-wide conservation strategy for wildlife being impacted by global climate change.

The project also conducts research on the regional and national economy in regards to conservation, studying wildlife use from true subsistence, the rural bush meat and fisheries trade, city-based meat and fish markets, and the national and international wildlife trade. The long-term studies on sustainability of hunting and population monitoring conducted through this project will help environmental agencies determine conservation management policy, both inside and outside of the protected areas. Population ecology of the most commonly hunted species must be better understood in order to ensure that they are not over-hunted. Results will define appropriate sustainable-use models for the bush meat trade that can be used in other tropical forests of the world. The results of the monitoring activities will also be used by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to implement the certification of the peccary pelt trade and the timber industry to facilitate management of wildlife in timber concessions.

The *Amazon Riverboat Exploration* project has helped local communities set up and continue to monitor community-based conservation actions. The wildlife surveys in these areas are helping communities understand

how animal populations are responding to their actions. The data collected during field expeditions will also be used in the continued development of field based courses for local community members, in order to demonstrate the need for community-based conservation and wildlife research. Participants in these courses gain a better understanding of wildlife conservation in Loreto and how to incorporate conservation into the greater landscape and into their future activities.

As an Earthwatch volunteer, your contribution to this project will result in the advancement of community-based wildlife management, protected area management and wildlife conservation policies in the Peruvian Amazon. The research will also help to create new protected areas and will help determine the impact of global climate change on the Amazon rainforests.

Why field research?

As an Earthwatch participant, you will spend a significant amount of time each day assisting scientists with data collection. Some of this work will be repetitive, but it is fundamental to our scientific understanding of nature. Ecosystems are incredibly complex. The only way to begin to unravel this complexity is by designing good experiments, and carefully collecting as much data as possible. Without the work of thousands of dedicated scientists, we would know nothing about climate change, the effects of pollution, the thinning of the ozone layer, the extinction of species, or how to find cures for diseases or improve crops. Without science we would be blind to the world. This is your chance to be part of the scientific effort, to find solutions to pressing environmental and cultural problems, and to enjoy the beauty and diversity of nature as you work.

PROJECT STAFF

Earthwatch scientists

Dr. Richard E. Bodmer was born in England and spent his youth in Chicago where he worked with the Brookfield Zoo, first in the Children's Zoo and later as a research assistant on the Okapi project to Dr. George Rabb. Richard completed his BSc in ecology, ethology and evolution at the University of Illinois and his MSc in biology at the same university. He then went on to complete his PhD in zoology with Dr. Tim Clutton-Brock at the University of Cambridge, England. Richard has an honorary doctorate of science from the National University of the Peruvian Amazon and has received two Presidential Awards from the Chicago Zoological Society. He has worked in the Ituri forests of the Congo, the rainforests of central Borneo, and in many neotropical regions. His long-term research has been on the ecology, population dynamics and conservation of Amazonian wildlife in Peru and Brazil. He has been working in the Pacaya-Samiria National Reserve for over 20 years in collaboration with the Wildlife Conservation Society (WCS), the National University of the Peruvian Amazon (UNAP), the World Wildlife Fund (WWF), the Durrell Institute of Conservation and Ecology (DICE) and the University of Florida. During this time, he has conducted field courses at these sites, with over 600 students joining his research expeditions over the years. Richard is dedicated to finding real solutions to save the Amazon rainforest that include wildlife conservation, protected areas and working with local peoples. He will be present for part of each of this season's Earthwatch expeditions.

Tula Fang was born in Iquitos, Peru and spent her youth in the Amazon where she learned about the forest and its wonders. Tula completed her BS in biology at the National University of the Peruvian Amazon and her MSc at the Durrell Institute of Conservation and Ecology (DICE) at the University of Kent, England. She began her research career working with primates in the Tamshiyacu-Tahuayo Community Reserve, which forms part of the proposed Greater Yavari Protected Area. More recently, she has been involved with the Peccary Pelt Certification Programme in Peru, which is a joint program involving the Peruvian Government, CITES and numerous non-governmental organizations.

Pablo Puertas was born in the Peruvian Amazon and spent his youth in a small rural community on the Yavari River. With help from his church he was able to study in Iquitos and went on to complete his BS in biology at the National University of the Peruvian Amazon. He finished his MSc in wildlife ecology and conservation at the University of Florida, Gainesville. Pablo began his research career studying night monkeys for the World Health Organization's Peruvian Primatology Project. He then coordinated the WWF projects in the Pacaya-Samiria National Reserve and is currently coordinating WCS's Peru Program. Pablo is also the President of the Management Committee of the Pacaya-Samiria National Reserve. He has worked extensively with community-based conservation and protected area management over the years. Pablo plans to be present for most of this season's Earthwatch expeditions.

Earthwatch field staff

Miguel Antunez was born in Iquitos. He is a specialist in terrestrial censuses and fish ecology, and is the project's organizational coordinator. He completed his BS thesis on fisheries at the National University of the Peruvian Amazon. He is currently enrolled in the MSc program in Iquitos. Miguel has been involved with GIS (Global Information System) mapping and computer databases. He can read and write English quite well, and has limited but improving oral capabilities. Miguel is responsible for the email communication system on the boats.

Pedro Prez was born in Iquitos and is a specialist in amphibians, reptiles and terrestrial censuses. He completed his BS at the National University of the Peruvian Amazon, where his thesis focused on frog diversity. Pedro helps run the terrestrial wildlife censuses, and caiman and turtle surveys. He speaks relatively good English and has completed his MSc in the United Kingdom at DICE.

William Bodmer is both Peruvian and British and has been involved with dolphin research and terrestrial transect surveys for the past 5 years. He completed his BA at Christ Church University and has co authored publications on the impact of the drought on dolphin numbers. He will help with the dolphin and terrestrial transect surveys.

Additional **biologists** from the National and Private Universities of the Peruvian Amazon will also be joining the expeditions to help with the monitoring surveys and community visits.

Project collaborators

Depending on scheduling and the availability of funding, one or more of the following research collaborators may also join the team:

Dr. Mike Walkey has worked for the past 30 years on fisheries. He has supervised BS, MSc and PhD students throughout his academic career. Mike is currently developing the fisheries management plan for Lago Preto and is overseeing the fish studies in that area.

Dr. Pedro Mayor is a professor at the Autonomos University in Barcelona. He works on wildlife health and sustainable use of bush meat hunting. Pedro is actively involved in the Peccary Pelt Certification Programme.

Boat Crew

The Peruvian boat crew is licensed by the country's coast guard.

Staffing Schedule (Subject to Change)

X = present

Staff Member Present	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6	Team 7	Team 8	Team 9	Team 10	Team 11
Richard Bodmer	X	X	X	X	X	X	X	X	X	X	X
Tula Fang			X	X	X	X	X	X	X		
Pablo Puertas	X	X			X		X		X	X	X
Miguel Antunez		X			X	X		X	X	X	X
Pedro Perez				X		X		X			
William Bodmer		X	X	X	X	X	X	X	X		
Other Peruvian Biologists	X	X	X	X	X	X	X	X	X	X	X

Daily Life in the Field

VOLUNTEER TRAINING AND ASSIGNMENTS

Training

Volunteers will monitor populations of ungulates, macaws, large-bodied primates, caimans, dolphins, giant river otters, manatees, river turtles, game birds, large cats, other large mammals and large fish. Not all teams will be involved with monitoring all populations.

You will be trained to collect data during monitoring activities, help sight animals, determine animal group sizes and composition, determine distance parameters, record information on data sheets, weigh and measure animals and perform dietary analysis. Full instructions will be given on the relevance of the research and the specific data being collected.

You will also be given explanations on how the data collected by Earthwatch volunteers is used to help conserve the Amazonian rainforests. Informal lectures and briefings using PowerPoint presentations, participatory practice exercises, and question-and-answer periods will be used to help volunteers understand the procedures for data collection, analysis and interpretation. Briefing sessions will be held between 8:00 and 9:00 p.m. Some of the more general topics that will be presented on are:

- Biodiversity, geography and ecology of the Amazon
- History of the Amazon and of the research site
- Population ecology of Amazonian wildlife
- Community-based conservation in Amazonia
- Determining sustainable resource use in Amazonia
- The importance of monitoring in protected areas of Amazonia
- Socio-economics of wildlife use in Loreto
- The Peccary Pelt Certification Programme
- The future of the Amazon forests

The Earthwatch scientist will give a more detailed onsite project briefing when you arrive.

Assignments

During research days the team will split into small groups of two to six to conduct different activities. Volunteers will rotate activities each day. Some activities can be done on the same day, so on certain days you may be able to participate in more than one study. Each group will be accompanied by a Peruvian field biologist (see the *Project Staff* section) who will help with data collection to insure that quality data are recorded. Time required for data reduction and sample analysis will vary according to the different activities. In general, the daily schedule will vary and will depend largely on weather and research needs. Your flexibility is appreciated.

In addition to the field activities, you will assist with entering the data collected daily after completing a survey.

Populations Monitoring

Note: See *Team Itinerary and Daily Schedule* for more information.

Ungulates (All teams)

Ungulates, including the white-lipped and collared peccary, red and grey brocket deer, and lowland tapir, are the most important bush meat animals for the local indigenous people. Understanding their populations is essential to developing sustainable-use strategies through community-based wildlife management (Bodmer and Robinson 2004). Densities of ungulates will be used to examine the impact of hunting by comparing non-hunted and hunted sites (Robinson and Redford 1994). The densities will be incorporated into the stock-recruitment, harvest and unified harvest models to determine the sustainability of bush meat hunting (Robinson and Bodmer 1999). The long-term monitoring of ungulate populations will also be used to determine natural fluctuations in flooded and non-flooded forests (Bodmer 1990). This will allow the project to investigate the ecological interactions of species under different ecological regulatory systems, since non-flooded upland forests are very seasonal and regulated more by intrinsic factors, while flooded forests are very seasonal and regulated more by extrinsic factors (Caughley 1977).

Dolphins (All teams)

From auxiliary boats floating slowly along rivers and lakes, volunteers will count dolphins, identify the species, determine the group size and composition, and observe their behavior (Alfonso 2005). Dolphins are an excellent way to determine the health of the river since they are the area's top predators of fish. Decreases in dolphin populations indicate over-fishing, while increases indicate recovery. Long-term monitoring of the dolphin population will be used to evaluate the multi-year health of the river ecosystem.

Macaws (All teams)

You will count macaws at points along the river and lakes in the morning and afternoons, which are accessed by an auxiliary boat. Macaws fly over the rivers and lakes to feeding trees in the mornings and then back to their roosts at night. There are five common macaw species in Loreto. Macaws indicate the health of the forest ecosystem, as they feed on fruits and will only stay in an area if the forest is healthy and productive. If the macaws decrease this indicates a deterioration of the forest ecosystem, while an increase indicates ecosystem recovery.

Primates (All teams)

The density of primate populations will be monitored to determine the impact of hunting on arboreal mammals and to study the ecological interactions between the arboreal and terrestrial wildlife (Puertas and Bodmer 1993). Common species are the red howler monkey, brown capuchin monkey, squirrel monkey, tamarins, woolly monkey, saki monkey, white capuchin monkey and the rare spider monkey and red uakari monkey. Primate populations are good indicators for conservation, since they are very vulnerable to hunting and forest degradation. Primates have been over-hunted for bush meat in many parts of the Amazon, and conservation efforts focus on reducing hunting pressures on them. Primate populations indicate the impact of hunting on the ecosystem and the recovery of biodiversity. A decrease in primate populations is evidence of continued hunting or forest degradation, whereas an increase in the primate populations indicates a decrease in hunting and a recovery of the forest ecosystem.

Game Birds (All teams)

Game bird populations will be monitored to determine their conservation status. Common species include the curassow, spix's guan and piping guan. Game birds have been over-harvested in many areas of Loreto for the bush meat trade. Their populations are recovering in some of the protected areas, and population studies need to determine their rate of recovery and the sustainability of their hunting using sustainable use models (Flores 2005). Like primates, game bird populations are indicators of hunting and the overall quality of forests.

Caimans (All teams)

Caiman populations and their ecology will be studied in different river and lake systems. Three species occur along the larger rivers and lakes in Loreto: the black caiman, common caiman, and smooth-fronted caiman. These animals were once killed for their skins to make shoes, handbags, belts and other items. They are recovering along many rivers of Loreto and are again relatively common (Pask 2005). Changes in the caiman populations reflect the success of conservation efforts. However, as caiman populations increase the proportions of the species can change due to direct and indirect competition and predation. The project will study the relationships between the species as their populations increase to better understand the impacts of conservation actions on caiman community structure.

River Turtles (August – November teams)

River turtles have been overexploited in many regions of Loreto, and community-based conservation is helping to recover these species. Turtles are hunted for their meat and the eggs are sold as a local delicacy. However, over the past 10 years, conservation actions, especially in the Samiria River basin, have set up programs to save the two most endangered species of river turtles (Soini 1992). The river turtle populations will be monitored in order to document the success of these conservation actions. During the dry season the river turtles will be laying eggs and the project will be involved with the collection of turtle eggs and relocating them to artificial beaches. This will guarantee that some eggs will hatch and produce young. Otherwise, they could all be taken by poachers.

Fish (All teams)

Fish are one of the most important resources for local people, and their sustainable use is linked both to the health of the ecosystem and the socio-economic well-being of indigenous communities (Ruck 2005). The abundance, diversity and age structure of the large fish species will be monitored to determine the impact of local fisheries. Evaluations will be conducted on the capture rates using different fishing techniques, such as nets, hook and line, spears and harpoons. Fish numbers and sizes will be determined during high and low water seasons using catch per unit effort analysis.

Giant River Otter and Manatees (All teams)

The giant river otter was extensively over-hunted during the professional pelt period from 1940 to 1970. Currently, giant river otter populations are recovering in the Samaria and Yavari River basins (Uscamaita 2005). The project has set up long-term monitoring of the giant river otter to document this population recovery. The manatee is a rare and endangered species that requires conservation action, and this project has set up a long-term monitoring program in the Samiria River. Manatees are not recovering as rapidly as the giant river otter and are vulnerable to local extinction (Ulloa 2004). People still occasionally hunt manatee for the bush meat trade, and further work will be conducted with local communities to find ways of reducing the hunting pressure on manatee populations. Censuses of these animals will be conducted opportunistically: if these species are sighted during any of the terrestrial or aquatic surveys, they will be observed and information will be recorded on a separate data sheet.

Wading birds (August – November teams)

Wading birds, including neotropical cormorant and great egret, will be monitored at the mouth of the Samiria River during the dry season to evaluate seasonal multi-year population fluctuations.

Techniques

Terrestrial Transects: Ungulates, Primates and Game Birds

Terrestrial wildlife transects will be used to census ungulates, primates, and game birds. Observers will walk the line transect and record the perpendicular distance from sighted animals to the transect line (Buckland *et al.* 1993). This technique assumes that the probability of sighting an animal depends on the distance of the animal from the transect line. Distances must be measured before the animals move as a consequence of seeing the observer. That means observers must try and see the animal before they see the observer. It also means observers must measure the perpendicular distance of the first sighting. If animals move because of the observer, the estimate will be biased.

The method assumes that animals are independently dispersed throughout the habitat. Since individual animals within a social group are not independent, but move dependent upon one another, animal groups in social species must be considered as the sampling unit. Thus, the density of animal groups will be calculated (Buckland *et al.* 1993).

Equipment used for line transects includes a map of the area, a compass and GPS unit, data sheets, pencils and binoculars. Three to four transects are cut by field assistants prior to the census. They are usually four kilometers long and are not placed with any predetermined knowledge of the distribution of the animals. Censuses are done using small groups of three or four observers. Transects are walked slowly and quietly. This activity requires heavier exertion than boat-based censuses, because it involves hiking slowly through the forest and through some occasionally swampy and bug-ridden areas.

Aquatic Surveys: Dolphins and Turtles

Aquatic surveys will be used to census dolphins and river turtles. Three to four transects of five kilometers in length will be marked out, one traveling upstream on the main river, one traveling downstream on the main river, and one or two transects in nearby channels or lakes. A blue marker will be positioned every 0.5 kilometers along each transect using the aid of a GPS. An 8- or 15-horsepower canoe will be used to carry out the census. Any turtles or dolphins seen coming to the surface for air, swimming with their heads above water, sunbathing or swimming just below the surface of the water will be recorded. When recording a turtle or dolphin sighting the perpendicular distance will be estimated using a rangefinder. With the aid of the blue markers, the exact distance along the transect will be recorded, and the animal's position on the river and the time at which it was seen will also be noted. The dolphin and turtle species will be determined using the expertise of the accompanying Peruvian biologist. For each transect the weather conditions and the start and finish times will be recorded. For dolphins, the species, group size, age class and behavior will also be recorded. At least two turtle transects and two dolphin transects will be carried out per day, weather permitting. Turtle transects cannot be carried out if it is raining as the rain gives the water an uneven surface, making it very hard for the observer to spot a turtle coming up for air. Transects usually take three hours to complete depending on the speed at which the river is flowing.

Caiman Surveys

To assess the population and ecology of caiman species in the ecosystem it is necessary to gain an understanding of their population size and diet (Street 2003). Surveys will be conducted on the same aquatic transects as the dolphin and turtle studies. A GPS will be used to determine the distance surveyed each night. All caimans seen will be identified to the species level as best as possible and size of the caiman and location will be noted. These data, along with data collected from captured caimans, will be used to analyze the caiman

population size. Caiman surveys and captures will be conducted from a small boat fitted with a 15-horsepower engine. Caimans will be located by their eye reflections using a 12-volt spotlight and approached to a distance where the engine will be silenced and the boat paddled closer (Street 2003).

Noosing will be used to capture caimans. The noose is made of a long pole about two meters in length with a loop of rope that can be pulled tight over the caiman's neck. The caiman will be secured with rope tied around the jaw behind the nostrils and around the neck. Total body length will be measured from the tip of the snout to the tip of the tail, while head length will be measured from the tip of the snout to the posterior edge of the orbital (the vent) to ensure that the correct tube size is used. Weight of the caiman will also recorded in kilograms. A measuring tape and weighing scales will be used (Street 2003).

Macaw Surveys

Macaws tend to fly long distances between nesting, roosting and feeding areas. This means that the observation of birds flying overhead on a river or lake transect provides an excellent method for surveying macaws. Aquatic transect point censuses will be used to survey macaws at 500 meter intervals marked with GPS coordinates. These counts will consist of 15-minute observations along a five-kilometer transect. Within these counts, all macaw species either perched or flying will be noted. The distances of the birds from the observer will be estimated where possible. Motorized canoes will be used to travel to each point (Snelling 2005).

Fish Surveys

To determine fish abundance and diversity, 30-meter long fish nets of varying mesh size will be placed at sites along major rivers, channels and lakes. The nets will be set for a predetermined length of time. All fish captured in the nets will be identified, weighed and measured. Differences in the catch (or harvest) per unit effort are assumed to reflect differences in actual density or abundance. A decrease in the catch per unit effort suggests overuse (a decreasing population), a constant catch per unit effort suggests a stable population, and an increase in catch per unit effort suggests an increasing population. Catch per unit effort analysis will be used both for a comparative design that looks at non-fished, slightly fished or heavily fished areas, and for long-term monitoring of selected study sites (Walkey 2005).

TEAM ITINERARY AND DAILY SCHEDULE

Be aware that weather and work conditions may cause daily schedules to fluctuate. Should this situation arise, your cooperation and understanding are appreciated.

Day 1

Arrival

Day 2

9:30 a.m.	Depart for research boat
11:30 a.m.	Board the research boat *Ayapua* or *Clavero*
12:30 p.m.	Depart Nauta upstream on the Maranon River
1:00 p.m.	Instructions on onboard safety, introduction to the project and research team
3:30 p.m.	Talk: Ecology of the Amazon River
8:00 p.m.	Watch the film *Fitzcarraldo*

Day 3

Morning	Arrive at the Samiria River in the morning (depending on navigation) and steam up the Samiria River towards the field site
10:00 a.m.	Talk: Conservation Strategies in the Amazon
3:00 p.m.	Talk: Wildlife Surveys, Methods and Working in the Amazon forests

Days 4–6 for one-week expeditions and Days 4–13 for two-week expeditions

Macaw censuses	5:30–9:00 a.m. and 4:00–7:00 p.m.	Breakfast will be served after the morning survey, and dinner will be served after the afternoon survey
Ungulate, primate and game bird censuses	7:00 a.m.–1:00 p.m.	Breakfast will be served before you leave, packed food will be provided during the census, and lunch will be provided upon your return
Dolphin censuses	9:30 a.m.–1:00 p.m.	Surveys will begin after breakfast and lunch will be provided upon your return
Fish censuses	9:30 a.m.–1:00 p.m.	Fish surveys will begin after breakfast and lunch will be provided upon your return
Caiman censuses	8:30 p.m.–midnight	Surveys will begin after dinner and evening briefings and team members will return around midnight
	8:00 p.m.	Evening briefings, social activities

At the site the surveys will be running every day. Volunteers will choose what surveys they wish to help on the next day during the briefings at 8:00 p.m. Volunteers can relax on the boat enjoying the library and other spaces as they wish. Upon request, crew may take volunteers on short aluminum canoe excursions.

Day 7 for one-week expeditions and Day 14 for two-week expeditions

8:00 a.m.–noon	Visit local Cocama indigenous community. At the village, local handicrafts can be bought from the community. 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 in the course of the visit. 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 materials.
1:00 p.m.	Depart

Day 8 for one week expeditions and Day 15 for two week expeditions

Departure

Earthwatch Recreational Time Policy

Earthwatch will generally accompany participants from the rendezvous to the end of the expedition except for recreation time.

- For days when no research activities are scheduled, referred to as recreational days, Earthwatch scientists will offer either a planned team activity or a range of recreational activities that have been vetted and comply with Earthwatch standards. Participants will also have the option of remaining at camp or project accommodations to rest.

- Participants who are determined to pursue options other than those recommended by the project staff will be required to sign a release before doing so. If there is a period of time during a regular research day when no research activities are scheduled, adult participants may have the opportunity to leave the project site on their own; they will be asked to sign out of the project giving their intended destination. Not appearing for the next scheduled activity will trigger the Emergency Response Plan (ERP) regarding missing people. Earthwatch will assess the general risks of adult participants leaving the project site on their own at night after work hours but cannot guarantee participant safety or an awareness of all issues.

- In some cases, due to local conditions, it may be advisable to restrict adult participants to the project camp or accommodation after dark. This will be clearly communicated in the on-site safety briefing. However, if the local conditions are such that adult participants can go out at night under their own recognizance, there will be a sign-out process through which participants should state their proposed destination and estimated return time. Participants will be given twenty-four-hour contact information for project staff should assistance be needed. The sign-out is informational only and will not be used to enforce a curfew on adult participants. Adult participants should understand that unless contacted for help, project staff will not start a search for a missing participant unless he or she fails to appear the following morning or for the next scheduled research activity.

ACCOMMODATIONS

All volunteers will stay at the Casa Morey on the first night of the expedition. Details about the hotel can be found in the *Rendezvous* section.

On board the *Ayapua* and *Clavero*

The Ayapua
© Earthwatch

Apart from the first night, the entire expedition, including travel to the field site and accommodation at the field site, will be onboard a large vintage boat, either the *Ayapua* or *Clavero*—these are relic boats of the early steam navigation on the Amazon.

The *Ayapua* was used during the rubber boom. She was originally built in Hamburg, Germany in 1906 and brought over to the Amazon to collect rubber from the Purus, Japura, Jura, Putumayo and Yavari Rivers. More wealth was brought to the Amazon during the rubber boom than any other time period in history. The architecture of all major Amazonian cities, including Iquitos, is still dominated by buildings from the rubber boom period, which lasted from 1890 to 1920. Many people today still have the "rubber boom philosophy," believing that to make it rich, all you have to do is find the right natural resource. This boat offers an excellent insight into the importance of the rubber boom period, not only as an artifact from when it occurred, but also as a representation of how it is still influencing Amazon conservation today.

The *Clavero* was built in Paris, France in 1876 and is the oldest boat still navigating the Amazon River. She was purchased by the Peruvian government as a military vessel and used for exploration of many unknown rivers. She was also used to protect the Peruvian frontier and as a mail boat. The *Clavero* was sold into private hands in 1936 and acquired by the project in 2007.

The *Ayapua* is 33 meters long and the *Clavero* is 26 meters long, and both are made of steel. The main engines and generators are diesel powered. The boats have been fully restored with reinforced hulls and offer comfortable accommodation in double cabins and single cabins, plus one triple cabin on the *Ayapua*. Each cabin has an en-suite bathroom with shower and a conventional period toilet and sink. Towels, soap, shampoo and toilet paper are all provided. The limited single and semi-single rooms are available partly on a first-come, first-serve basis, with final selection being based on volunteer numbers and gender ratios. There is no cost difference for the different rooms available. The Earthwatch scientist will need to make cabin assignments based on age and gender and will do his best to accommodate requests, but please be aware that it will not always be possible. Please contact Earthwatch to submit rooming requests. **Note:** On full expeditions the smaller boat *Nutria* may be lashed alongside the *Ayapua* to provide for additional space.

All cabins have single beds (no bunk or double beds), air-conditioning, a desk and a wardrobe. Cabins and toilets are cleaned daily. Hot water in the showers is provided by a solar system that works best on sunny days, and not so well during the night. Linens are provided, bedding is changed for you, and laundry is done regularly (usually every couple of days). Laundry is available for personal items as well for no fee, but only when the boat is parked. Note that limiting the amount of laundry done helps reduce soap runoff into the river and is more environmentally friendly. Also, please bear in mind that it may take a few days for laundered items to dry due to high humidity.

There is 220-volt electricity available in the cabins and throughout the boat, which is provided by a generator. Note that the generator is turned off during much of the day and between the hours of 11 p.m. to 5 a.m. to conserve energy, except on very hot nights and during navigation to the site. The large air-conditioned dining room is used for meals, lectures and dances. A data projector is provided for lectures and movies. There is a bar on the upper deck where volunteers can purchase alcoholic and non-alcoholic beverages and snacks, coffee and tea are provided free of charge in the dining room.. If volunteers use the bar, you will pay your bill at the end of the expedition. There are no other boat-related costs during the expedition. The boat has a well stocked, air-conditioned library that has most of the classic books on the Amazon. Major headlines of world news are downloaded daily and available in the library, so you can keep in touch with global issues if you wish.

The Clavero
© Earthwatch

In addition to the main boat, there are many auxiliary boats used for the field activities. These include large wooden motorized canoes (maximum capacity of eight people each), small aluminum canoes (maximum capacity of three people each), one 50-horsepower speedboat, one motorized dory, and one vintage 10-meter long rubber boom launch.

Aboard Ayapua and Clavero: The legal drinking age in Peru is 18. Team members under the age of 18 are not permitted to drink alcoholic drinks. Team members are not permitted to drink alcoholic drinks on designated Teen Teams regardless of age as per Earthwatch policy. School groups may also be subject to their own rules and regulations regarding alcohol and smoking.

FOOD

Meals will be prepared by kitchen staff, served buffet-style and will include breakfast, lunch, tea and dinner. During navigation/traveling periods, breakfast will be served from 7:00 to 9:00 a.m., lunch will be served at 1:00 p.m., and dinner at 7:00 p.m. During field activities, meals will be available for longer periods of time due to activities beginning and ending at different times. Breakfast will be available from 6:30 to 10:00 a.m., lunch from 12:00 to 4:00 p.m., and dinner will be served at 7:00 p.m. Please note that packed food is provided for the terrestrial census, in addition to the hot lunches that will be served upon return to the boat.

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

All team members are supplied with treated drinking water bought from a licensed company. The food service can accommodate vegetarian diets; however vegan meals are very difficult to accommodate.

Below are examples of the foods you might expect in the field. Please bear in mind that variety depends on availability. This list is intended to provide a general idea of food types, but it is very important that volunteers be flexible.

Breakfast	Fresh coffee, tea, milk, toast with jam and butter, cereal, yogurt drinks, fruit drinks, oatmeal, eggs, pancakes, fruits, ham and cheese
Lunch	Main course of fish, beef, pork, poultry or pasta; salad, soup, rice, potatoes, bread and butter, fruits, fruit drinks, coffee and tea
Tea	Freshly baked cake, tea and fresh coffee
Dinner	Main course of fish, beef, pork, poultry or pasta; salad, soup, rice, potatoes, bread and butter, dessert (e.g. pudding, ice cream, fruit dishes), fruit drinks, coffee and tea
Snacks	Snacks (e.g. biscuits, chocolate wafers, crackers, chocolate bars) are provided at the bar area

Special Dietary Requirements

Please alert Earthwatch to any special dietary requirements (e.g. diabetes, lactose intolerance, nut or other serious food allergies) as soon as possible, and note them in the space provided on your volunteer forms. Accommodating special diets is not guaranteed and can be very difficult due to availability of food, location of field sites, and other local conditions.

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

Project Conditions

Please show this section to a doctor when he/she is completing your participation form. Be sure to discuss inoculation requirements with the doctor well in advance of your departure date. See the Health Information *section for inoculation information.*

To the doctor:

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

General Conditions

The Amazon is hot and humid during the daytime, and while it cools off at night, the humidity remains high. The climate in an equatorial rainforest does not vary much throughout the year.

The main research boat is a large steel vessel and you will feel minimal movement during navigation. Auxiliary boats will be used for activities for about three hours per day. These boats will have plastic sun canopies during the dolphin census, as this is conducted when the sun is more intense. Canopies will not be used during early morning censuses, night censuses, or on fishing surveys. There are no toilets on the auxiliary boats, but boat drivers can be asked to stop at a beach if necessary.

The rivers are usually calm, but during rain storms there can be winds and a light chop. During heavy storms the research boats dock alongside the river. Rainfall is heaviest from December to June, resulting in a higher water level during these months. July through November is considered the dry season, with lower water levels.

The weather is expected to vary within the limits below.

Project Month(s) or Annual			
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

Physical Demands

Field Activities

Field activities on this project have a range of physical demands, and can be selected depending on individual desires and needs of Earthwatch volunteers. You will never be asked to do an activity that you feel is too demanding. But at the same time, the project will offer very demanding activities for those who wish to have a more extreme Amazonian experience.

Level of Physical Demand	Field Activity
Light to medium	Dolphin and macaw surveys
Medium	Caiman and fishing surveys
Medium to heavy	Terrestrial transects on dry forest trails
Very heavy to extreme	Terrestrial transects in palm swamps and back swamps

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

Activity	Workload/Intensity
Sitting	In auxiliary boats for 3-6 hours per day on 4 days
Hiking/Walking	1 km/0.6 mi per hour for 6 hours per day on 3 days
Carrying	Personal water and rain gear
Working on a boat	Decks can be slippery when wet and special care should be taken when walking on deck and going up and down the stairs. Hand rails should be used and non-slip shoes should be worn.

Water Conditions

The information provided is estimated as accurately as possible, but please keep in mind that once in the field conditions may change and could potentially be outside the range that the chart indicates.

Typical Water Temperature	18°C/64ºF	to	25°C/77ºF
Typical Water Visibility	0.15 m/0.5 ft	to	0.3 m/1 ft
Typical Maximum Water Depth in Area	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

POTENTIAL HAZARDS

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.

Hazard Type	Associated Risks and Precautions
On the Main Boat	You should wear non-slip shoes when on the deck and always use handrails when going up and down the stairs to avoid slipping and becoming injured. You should NOT sit on rails, dangle feet over the deck, or enter the engine room. 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. All crew members are certified by the Peruvian Coast Guard for their respective duties and all have official maritime marine documents. The boat is inspected for safety by the Peruvian Coast Guard prior to every departure. Annual inspections on safety installations are also conducted by the Coast Guard.
On the Auxiliary Boats/Canoes	Team members must wear life vests at all times when working from the auxiliary boats or canoes. Vests must be donned before boarding these vessels, and must only be removed once fully disembarked. All volunteers should wear sun block and hats for protection from the sun. All volunteers should bring 1-2 litres of drinking water on the boat or canoe surveys or transects. Volunteers will always go with a boat guide 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 help volunteers in an emergency.
Police, Coast Guard and Military Controls	Some volunteers may be intimidated by official security controls, through which the boat may have to pass. All controls will be dealt with by the captain and boat crew. You should provide passport information when requested by the captain and/or officials at the controls.
Climate/ Weather	It will be hot and humid and you will need to protect yourself from the sun with appropriate clothing and sunscreen (30-60 SPF) and drink plenty of water throughout the day to avoid dehydration. Some of the small auxiliary boats have plastic sun shades, 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 during any time of the year, so you should bring light rain gear suitable for tropical climates. All volunteers should wear (light) warm clothes during the early-morning macaw transects and the evening/night caiman surveys, which can be chilly.

Forest Transects/ Trails	Transect census walks can be very physically demanding and can result in extensive perspiration. All volunteers should bring a minimum of 1-2 litres of drinking water on the transects. All participants should walk slowly and rest frequently if overheated. Volunteers should always wear field boots and field clothes. Guides will also pace the walk in relation to the physical condition of volunteers and terrain. You will be informed about the difficulty of the trails and the guides will point out any potentially harmful plants, especially those with thorns. All volunteers should be careful not to place hands on any trees prior to checking for thorns. Thorns will be removed and treated with disinfectant solution and antibiotic cream. All volunteers should walk slowly and carefully when in the forest and use a walking stick when going through muddy areas. Walking sticks can be cut in the forest. Messengers on foot will be used to alert the boat crew in case of emergency during terrestrial transects, as handheld radio signals are not reliable in the dense forest.
Insects	Biting and/or stinging bees, wasps, isula ants, scorpions and spiders are all present in the research area. Team members will occasionally be bitten or stung, but these are usually not very severe. If anyone develops an allergic reaction, they will be taken to the nearest clinic. If you are allergic to insects, please discuss this with your doctor and bring an appropriate amount of medicine (e.g. antihistamines, at least two Epi-kits). Insect bites can get infected, and team members should treat bites and keep them clean. It is important to wear appropriate footwear and clothing and bring insect repellent into the field. All volunteers should be careful not to place hands on any trees without first checking for dangerous insects, and should carefully examine any area where you intend to sit down. During the caiman surveys, volunteers should use flashlights/torches with a red filter to avoid attracting wasps. Flash bulbs and anti-“red eye” flashes should also be turned off on cameras, and leather gloves should be worn by the person handling the spot light.
Handling Caimans and Fish	Handling caimans and fish is completely voluntary. Volunteers will only handle caimans and fish, including piranha, once they have been properly secured by project staff. Leather gloves should be worn if touching any species of live fish. In the event of a bite, first aid will be applied and, depending on severity, the person may be taken to the nearest clinic.
Snakes	During the past 20+ years, no one on the research team has been bitten by a venomous snake. Nevertheless, harmful snakes do exist in the area, including fer-de-lance, bushmaster and coral snakes. Anti-venom, which is kept on the boat, 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 intend to sit down. All volunteers should always look at the ground when walking and only look for arboreal wildlife while standing still.
Recreational Time	You should always stay with a group when the boat makes stops along the river. Do not attend late-night activities or stay out late at bars. In case of a problem when you are away from the boat you should contact the nearest police station or consulate. Please see the *Earthwatch Recreational Policy* in the *Team Itinerary* section. Volunteers should not bring or use any illegal drugs and should not have any inappropriate interactions with other people, including local people, crew, staff or other volunteers. Inappropriate interactions could include wrongful sexual conduct, racial abuse, aggressive behavior and excessive drunkenness. Volunteers may be removed from the project at their own expense for inappropriate behavior. Please see the *Earthwatch Policies and Volunteer Rights and Responsibilities* at the back of this Expedition Briefing. Local authorities will be contacted in case of any illegal activity.
Swimming	Swimming is not permitted on this project.
Disease	See the *Health Information* section.
Traveler’s diarrhea	Traveler’s diarrhea affects 20-50% of all international travelers. Always wash your hands with soap and water or a hand sanitizer before eating, and drink only filtered or bottled water and avoid ice. You should also carry an over-the-counter anti-diarrheal medication in your personal first aid kit. Ensure all food is well cooked before consumption and do not eat fruit or vegetables unless they have been peeled or cooked. Speak to your doctor about other options for treating traveler’s diarrhea and see the ISOS or CDC websites for advice on avoiding this condition.

HEALTH INFORMATION

See www.internationalsos.com for information on the current health conditions in Peru. At the homepage, enter Earthwatch's member identification number: 14ACPA000075. Under "Select Resource" choose "English Country Guide," and then select Peru from the list.

Routine Immunizations

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

Project Inoculations

Medical decisions are the responsibility of each volunteer and the following are recommendations only. While Earthwatch can provide details regarding suggested inoculations, we are not a medical organization and decisions about which inoculations to receive should be made between you and a doctor. Health conditions around the world are constantly changing, so keep informed and consult your physician, a local travel health clinic, the US Center for Disease Control (www.cdc.gov), the World Health Organization (www.who.int), and International SOS (see above) for the latest health information for travelers. Please consult a physician for guidance on inoculations if you intend to travel to other parts of the country.

Inoculation chart available on ISOS member site (English Country Guide, medical summary).

	Required for Entry	Recommended for Health Reasons
Typhoid		X
Yellow fever	X - If traveling from countries or region where it is endemic, a Certificate of Vaccination is required.	X
Hepatitis A		X
Hepatitis B		X
Rabies		X

Advice Regarding Diseases

In addition to those listed below, other diseases found in Peru include: American trypanosomiasis, filariasis, leishmaniasis, Mayaro virus disease, onchocerciasis, and oropouche fever. Please see the CDC (www.cdc.gov) or WHO (www.who.int) websites for more information.

- *Malaria:* Chloroquine-resistant malaria is endemic to the Peruvian Amazon and has occasionally been found in the Samiria River, but has been reported frequently along the route to Samiria in towns such as Nauta. Volunteers should speak with their doctor about prophylaxis medication.
- *Rabies:* Rabies vaccinations are generally recommended for this expedition given the prevalence of rabies in the region, with the main concern being stray dogs and vampire bats. Please be sure to consult your physician or travel health clinic well in advance to decide if the rabies vaccinations are recommended for you and to ensure you have time for the full vaccination series (three doses over a 28-day period). If you have previously been vaccinated, you must have a medical professional check your antibody levels; a booster shot may be required. Rabies is a fatal disease. Treatment after rabies exposure requires immediate care (within 24 hours), and this type of rapid response may not always be available to volunteers due to the remote

locations. 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, any bites or scratches should be immediately and thoroughly washed with soap and clean water and a topical povidone-iodine solution or ethanol.

- *Tuberculosis:* The WHO estimates that one-third of the world's population is infected with the bacterium (*M.tuberculosis*) that causes tuberculosis (TB). Incidence of tuberculosis is higher in developing countries, particularly in Asia, Africa, the Caribbean and Latin America. In general, approximately 10% of persons infected with *M. tuberculosis* are at risk for developing active TB during their lifetimes. TB is considered highly treatable with medications that are of relatively low toxicity and cost. Volunteers returning from developing countries are encouraged to have a (PPD)-tuberculin skin-test to screen for potential infection.
- *Dengue fever:* Dengue fever is endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, Southeast Asia and the western Pacific, and can occur throughout the year. Globally there has been a 30-fold increase in the number of reported cases of dengue. Dengue fever is a flu-like virus spread primarily by day-biting mosquitoes. It is characterized by fever, headache, rash, vomiting and severe muscle pains. There is no vaccine, and mosquito bites should be avoided whenever possible. Insect repellent and long sleeves and pants are highly recommended. There is no treatment for standard dengue fever other than acetaminophen (avoid aspirin), fluids and rest. It is usually resolved after about two weeks. However, hemorrhagic dengue fever, characterized by bleeding and shock, can occasionally occur and requires medical care.
- *Yellow fever:* Yellow fever is a viral infection, which people can get if they are bitten by a mosquito carrying the virus. Very rarely, the virus can also spread if someone receives blood from an infected person. Only a handful of such cases have been documented. Incubation period is 3-6 days. The majority of people infected with yellow fever develop only mild symptoms—some may not show any symptoms at all. About 5% of people infected develop a more serious form of the disease. Symptoms include sudden headache, fever and flu-like symptoms that can include sensitivity to light, chills, joint and muscle pain, and sometimes vomiting. Most people recover thereafter, though some develop a severe toxic form of the disease. This can involve jaundice, which turns the skin and eyes yellow (hence the name "yellow fever"), with hemorrhagic (bleeding) symptoms and organ failure. Between 20%-50% of people who have a severe case of yellow fever die from the disease. There is no cure for yellow fever - treatment is supportive. Laboratory diagnosis is via a blood test.

  A vaccination protecting against yellow fever is available, given in the form of a single injection. Protection is effective 10 days afterwards and lasts for 10 years. Pregnant women and immunocompromised individuals cannot be vaccinated.

  Your home country may require a Certificate of Vaccination for re-entry if you have traveled to an area where yellow fever is endemic.

MEDICAL CONDITIONS OF SPECIAL CONCERN

Condition	Concerns and Precautions
Severely limited mobility	Volunteers with severely limited mobility (e.g. back problems, wheelchair bound, etc.) may not be able to navigate the stairs on the boat, nor the trails in the forests. You may wish to consider participating on a different Earthwatch expedition.
Conditions that affect balance	Conditions that affect balance should be considered carefully.
Wheelchair bound	The boats are not equipped for wheelchair access.
Mold allergies	The constantly damp conditions of life on the river and in the rainforest make mold and mildew hard to avoid, which can be irritating to severe allergies.
Hydrophobia	Hydrophobia, or discomfort in or around boats, should be considered carefully.
Impaired hearing	Because of the high humidity, persons using a hearing aid device may find it doesn't work properly. You should consider purchasing a hearing aid dehumidifier. See http://www.shopmash.com/AIDS_TO_DAILY_LIVING/HEARING_ASSIST_DEVICES/HEI400587/product.aspx for one example.
Sleep apnea or conditions that require use of C-PAP machine	Volunteers must be able to do without a C-PAP machine for the length of the project, as this project may not have a reliable source of electricity throughout the night.
Pregnancy	This project site is remote with limited emergency response in case of medical concerns. If you are pregnant, you should discuss with your physician prior to considering this project.

Additional Health Information Resources

- Travel health website: www.mdtravelhealth.com
- The Travel Doctor: www.tmvc.com.au
- Australian Department of Health and Aging: www.health.gov.au
- Hospital for Tropical Diseases: www.thehtd.org
- Travellers Healthline Advisory Service Tel: 020 7950 7799
- MASTA Travelers' Healthline (UK) Tel: 0906 8 224100 (within UK)

EMERGENCIES IN THE FIELD

The project will have a certified Peruvian nurse onboard the boat during the field portion of the expedition. This nurse will have training in CPR (Cardiopulmonary Resuscitation), first aid, and wilderness first response. Additionally, the Earthwatch scientist is certified in First Aid and the boat crew members are all certified in water safety. Any team member requiring emergency medical attention will be brought to a clinic or hospital to be treated by an appropriate medical professional.

A medical clinic can be reached in three or four hours by speedboat from Samiria River. Ana Stall Hospital will be used by all Earthwatch teams if necessary (see chart below for contact information). It can be reached in five hours by speedboat and ambulance service or by float plane in two hours from take off; however, it takes several hours to arrange an emergency float plane evacuation.

Proximity to Medical Care

Physician, nurse, or EMT on staff	Certified Nurse
Staff certified in safety training	CPR (Cardiopulmonary Resuscitation): Nurse First Aid: Nurse Wilderness First Responder: Nurse and Richard Bodmer Water Safety: Richard Bodmer and boat crew members
Nearest hospital and/or clinic	Ana Stall Hospital 285 Av. De la Marina, Iquitos, Peru Tel: +51 65-252535 (ask for the hospital section if calling after hours, as the telephone will be answered by security)
Distance	4-5 hours

COMMUNICATIONS

Emergency Communications in the Field

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

The emergency contact number at Earthwatch headquarters in the US is +1 (978) 461-0081 (see *Emergency Contacts* for calling instructions).

Personal Communications

The rendezvous site has mobile phone reception and ground line access; however, while on the boat mobile phone reception will NOT be available.

Volunteers will have some access to a satellite email system, so you can keep in touch with family and friends if you so desire, at a cost of $1.70 USD for each email sent or received. Emails can only go through the project email address (ayapua@uuplus.net (on the *Ayapua*) or clavero@uuplus.net (on the *Clavero*)), not through personal web-based email systems, so if you expect to receive an email, have the sender clearly indicate your name in the subject line. Likewise, if you are emailing from the boat, either make sure the recipient knows to expect messages from this email address, or include your own name within the subject line. The same email address is shared by everyone on the boat, so please be aware that it is NOT private and its use may be somewhat limited. ONLY text messages can be sent or received; photos, images, and attachments will be rejected by the email server. Access to email is not constant, and is more likely to be available only every 1 – 2 days.

Family and friends of Earthwatch volunteers should be aware that personal communication with outsiders is not always possible while participating in an expedition. Earthwatch encourages volunteers to minimize outgoing calls; likewise, family and friends should restrict calls to urgent messages only. Measures have been taken to ensure that appropriate communication tools are available in cases of emergency.

All volunteers are asked to remember that Earthwatch expeditions offer a rare chance to escape from hearing ringing phones and others' phone conversations, and to regulate their cell-phone use with respect for fellow volunteers and staff.

Travel Planning

Note: Earthwatch Institute's international emergency medical and evacuation assistance provider, International SOS, has a wealth of useful information available at their website, including visa, passport, currency, medical, etc. information for the country in which this project takes place. See www.internationalsos.com and enter Earthwatch's member identification number: 14ACPA000075. Under "Select Resource" choose "English Country Guide," and then select this project's country from the list.

You are encouraged to register your travel itinerary with your embassy. For information on embassies around the world see www.embassyworld.com.

- Citizens of Australia may register online at: www.orao.dfat.gov.au.
- British citizens may register online at: www.fco.gov.uk/en/travel-and-living-abroad/staying-safe.
- Citizens of the United States may register online at: travelregistration.state.gov.
- Citizens of other countries are encouraged to check with their appropriate embassy or consulate regarding registration.

RENDEZVOUS

The rendezvous information for this project has been removed from this web version of the Expedition Briefing. Please do not make any travel arrangements to join an expedition on this project without receiving full and up-to-date rendezvous information from Earthwatch. Full rendezvous details including places and times are available from Earthwatch upon request prior to registration for an expedition. Please use the "Contact Us" button on the top right hand corner of our website to get in touch with us and we will be very happy to help you. This information is provided in the printed version of this Expedition Briefing.

PASSPORTS AND VISAS

Visa Information

Citizens of the US, EU, Australia and Japan **DO NOT** need tourist visas for entry. Citizens of other countries should check with their travel agent or a visa agency for specific visa and entry requirements.

Passport Information

Most volunteers traveling from outside the host country will require a passport valid for at least six months beyond the dates of travel.

Electronic System for Travel Authorization (ESTA)

Online registration is now mandatory for all visitors traveling to the United States without a visa. The Electronic System for Travel Authorization (ESTA) is used to screen short-term visitors who are citizens of the 36 countries eligible for the US Visa Waiver Program (for a list of participating countries, see travel.state.gov/visa/temp/without/without_1990.html#countries).

Visitors are required to complete ESTA **at least three days before traveling to the US**. Once approved, the authorization will be valid for up to two years if the individual's passport does not expire in the meantime. Applications can be submitted through the ESTA website esta.cbp.dhs.gov/esta. **Note:** As of September 2010 ESTA will cost approximately US$14.00.

Citizens of countries covered by the Visa Waiver Program (VWP) traveling to the US for tourism or business for 90 days or less do not need to obtain a visa provided they have a valid passport (for exceptions see the VWP Quick Reference Guide on travel.state.gov/pdf/VWP-QuickReferenceGuide.pdf).

For Volunteers Requiring Visas ONLY: Essential Information

Type of Visa	Volunteers requiring a visa must get a **TOURIST VISA**.
Where to Get a Visa	Contact the nearest **Peruvian embassy or consulate** to find out how to apply for your visa. Please note that this process can take weeks or more. We strongly recommend using a **visa agency**, which can both expedite and simplify the process. See below for a list of visa agencies.
Required Information	You will need to send your **passport** (valid for at least six months beyond your stay), a **Visa Application and Immigration Form, 2-4 passport-size photos, and payment** to the embassy or visa agency (if applicable). Please be sure that your passport is valid for at least six months beyond your stay.
Contact Information	You may be required to list the following contact information on your Visa Application and Immigration Form: **Note:** Contact information only available in print version of this briefing.
Cost of a Visa	Generally between US$40-100, but varies from country to country and can potentially cost **up to US$180**. A visa agency will charge an additional fee.

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

Visa Agencies

In the United States	In Europe	In Australia
Travisa* 290 5th Avenue, 4th Floor New York, NY 10001 Tel: (212) 613-2223 Fax: (212) 613-2287 Hours: 9:00 AM to 5:00 PM EST Web: www.travisa.com (*See the website for additional offices)	CIBT, Inc.-UK 25 Wilton Road Lower Ground Floor Victoria SW1V 1LW Tel: 0844 736 0211 Fax: +44 (0) 207 828 5411 Calling from Europe outside UK: +44 (0)207 802 1000 Email: info@uk.cibt.com Web: www.uk.cibt.com (has alternate address for urgent requests)	Ask your travel agency if it can send your visa application on your behalf.

Volunteers Under 18 Years of Age

Entry to Foreign Countries

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

Airline Documentation Requirements

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

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

Additional Passport and Visa Resources

- For Japanese citizens: www.rainbowt.jp/travel/visa_top.html
- For Australian citizens: www.passports.gov.au and www.dfat.gov.au/visas/index.html
- For US citizens: www.passportvisasexpress.com
- Travel Document Systems: www.traveldocs.com/index.htm

INSURANCE

MedEvac assistance, advice, and insurance are included in the contribution you pay to Earthwatch. It covers your travel medical risks, including medical expenses and emergency medical evacuation, while you are traveling and it provides trip cancellation insurance (see www.earthwatch.org/downloads/Insurance/post15Jan_TravelFAQs.pdf for more details), baggage and personal money insurance. It doesn't provide personal liability insurance. This coverage is valid in the country of your Earthwatch expedition (**Note:** For US volunteers, as long as the expedition is over 100 miles from your place of residence) and during travel to and from your expedition. Please see the FAQ for information about when coverage starts and ends.

If you have additional vacation time before and/or after your Earthwatch expedition that forms part of your overall time away from your place of residence, this additional vacation time is not covered under this policy. If you are in any doubt as to whether your travel plans before and/or after your Earthwatch expedition constitute additional vacation time please contact Sutton Winson.

This insurance policy is secondary to your existing health insurance policy (e.g. the NHS in the UK).

If you signed up through Earthwatch UK/Europe, or Earthwatch Japan:

Details of this insurance policy are included in your expedition briefing pack and can be found at www.earthwatch.org/europe/insuranceinfo. Please refer all queries regarding this policy to Sutton Winson in the UK at +44 (0) 845 688 9088.

Information about additional insurance available to UK residents for coverage before or after your Earthwatch project can be found at www.earthwatch.org/europe/insuranceinfo. Should you have any questions about whether you require coverage for your travel plans, please contact Sutton Winson. Earthwatch is not authorized by the FSA to give advice on any additional travel insurance you might require.

If you signed up through Earthwatch US:

Details of the US insurance policy can be found at www.earthwatch.org/insurance. Please refer any queries regarding this policy to Sutton Winson in the UK. From the US, dial 011 44 845 688 9088. Please note the time difference between the US and the UK and call during UK business hours, which are from 08:45 to 17:00 GMT (from November to April) and GMT +1 (from April to November).

Information about additional insurance can be found at www.earthwatch.org/volunteerresources. Should you have any questions about whether you require coverage for your travel plans, please contact Sutton Winson. Earthwatch is not authorized by the FSA to give advice on any additional travel insurance you might require.

Emergency Medical and Evacuation Assistance (For All Volunteers)

Emergency medical and evacuation assistance is available for all Earthwatch participants from International SOS (ISOS), a twenty-four-hour, independently operated international emergency medical and evacuation service. Please see the contact information and card on the *General Information* page. Participants should carry the card with them on the expedition.

ADDITIONAL TRAVEL INFORMATION

Packing and Luggage

- *General considerations:* Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, you are advised to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost and/or takes several days to catch up with you. **Lost luggage is not uncommon in Peru, so you are strongly encouraged to leave ample time between flight connections and pack some essentials in your carry-on bag.**

  Many airlines have strict baggage policies. Please check with your airline(s) on baggage weight limits, liquid restrictions, fees for checked baggage, etc.

- *Checking luggage:* Please note that if you will be taking an international flight that has one or more connections within the country of your destination, it will be necessary to collect any checked bags at the airport where you first arrive in the destination country. After proceeding through customs, you will have to recheck your luggage before flying on to your final destination. **YOU MUST PICK UP YOUR BAGGAGE IN LIMA AND RE-CHECK IT IN FOR THE FLIGHT TO IQUITOS. EVEN IF YOU HAVE BEEN TOLD OTHERWISE AT YOUR DEPARTURE CHECK-IN, THAT INFORMATION IS WRONG, AND YOU MUST PICK UP YOUR BAGGAGE AT THE LIMA AIRPORT UPON ARRIVAL.**

Money Matters

- *Personal funds:* It is best to bring a Visa or MasterCard credit card for withdrawing cash advances from automated teller machines (ATMs), which are readily available in Iquitos. Many businesses in Iquitos will also accept credit card payment. Alternatively, you can bring US dollars for exchange, but they MUST be in good condition without any tears or damage. *US one-hundred-dollar bills with a CB issue are not accepted due to counterfeit currency precautions.* Note that 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 or MasterCard credit cards to pay the bar and Casa Morey bills. Please note that American Express is not accepted on the boat.

  The total amount of money you should bring depends on how long you plan to stay in Iquitos before or after the trip, and how much you plan to drink on the boat. In Iquitos, you can purchase food and souvenirs, but on the boat, there is no opportunity to purchase anything other than drinks at the boat's bar. You will also not have the opportunity to change money into nuevos soles on the boat, so you may wish to do so before departing Iquitos.

- *Local currency:* Peru nuevos soles (PEN). See the International SOS website and www.xe.com/ucc for currency information and exchange rates.

- *Airport Fees and/or Departure Taxes:* There is a US$34 (about 100 PEN) airport tax that you must pay when leaving the country and a US$6 (about 20 PEN) airport tax for all national flights. These taxes are payable in cash only, either in Peruvian soles or US dollars.

Your Destination

- *Language:* Spanish. Although the project will be conducted in English, most of the project and boat staffs are Peruvian nationals from the local area. Past volunteers have commented that you can learn a lot more from these friendly people and about their culture, and thus get more out of the project in general, if you know a bit of Spanish.

- *Cultural considerations:* The team will visit villages that are quite conservative, so please do not wear inappropriate (e.g. tight or revealing) clothing. The locals like to have their photo taken, so feel free to take photos during the visits. The children love small toys, like the ones that come with kids' fast food meals, so it would be nice if you could bring a few of these. The project helps the villages with other basic materials, and a few items of used clothing are always welcome. Gifts are not required and are strictly voluntary on your part.

- *Electricity*: 220 volts. The boat is equipped with both Continental European plugs and US style plugs (see picture). Please bring an adapter for US style plugs that have one prong wider than the other—the boat's outlets do not accommodate these. Also note that a voltage converter may be necessary for some 110-volt US appliances, though many cameras and battery chargers can accept either voltage; please check your equipments' specific requirements. Please note that the generator-produced electricity will only be available for 5 hours a day. For additional information see kropla.com/electric2.htm.

- *Time zone:* GMT/UTC - 5 (same as Eastern Standard Time in the US). For time worldwide with GMT/UTC see www.worldtimeserver.com.

- *Telephone Dialing codes:* When calling Peru from another country, dial the country's international dialing code, followed by 51 and the number. When calling within Peru, omit the 51 and dial 0. When calling another country from Peru, dial 00, followed by the other country's country code and the number. **PLEASE NOTE:**

you should check with your cell phone provider to obtain any carrier-specific dialing codes you may need; many providers have dialing procedures that may differ in whole or in part from these directions. For additional information see kropla.com/dialcode.htm.

- *Tipping:* Bar proceeds are given to the boat staff. Additional tipping is optional only via the bar bill.

More Country Information

- UK Foreign and Commonwealth Office: www.fco.gov.uk/travel
- Country information from around the world: www.countryreports.org
- National Geographic Map Machine: plasma.nationalgeographic.com/mapmachine
- US State Department: www.state.gov
- Online unit conversions: www.onlineconversion.com
- Worldwide weather: www.wunderground.com or www.tutiempo.net/en
- ATM locator: visa.via.infonow.net/locator/global/jsp/SearchPage.jsp or www.mastercard.com/atmlocator/index.jsp

RECOMMENDED READING

Below are additional recommended materials for those interested in further preparing for the expedition. Many can be purchased online through popular vendors. See the *Helpful Resources* section for suggested vendor websites.

Scientific Media

- Hemming, J. *Tree of Rivers: The Story of the Amazon*. London: Thames & Hudson, 2008.
- Lange, Algot. In the Amazon Jungle (link: http://www.amazon.com/Amazon-Jungle-Algot-Lange/dp/1438594534/ref=sr_1_107?s=books&ie=UTF8&qid=1282072542&sr=1-107)
- Grann, David. The Lost City of Z: A Tale of Deadly Obsession in the Amazon (Vintage Departures) (link: http://www.amazon.com/Lost-City-Obsession-Vintage-Departures/dp/1400078458/ref=sr_1_1?s=books&ie=UTF8&qid=1282072676&sr=1-1)

Journals

- *Conservation Biology*
- *Biotropica*
- *Biological Conservation*

Articles

- Field Museum of Natural History, Chicago. 2003. *Rapid Biological Inventory: Yavari, Peru* (available at http://fm2.fieldmuseum.org/rbi/results_per11_dload.asp).
- Silvius, K., Bodmer, R. and J. Fragoso. 2004. *People in Nature: Wildlife Conservation in South and Central America*. Columbia University Press, New York.
- Bodmer, R. 2005. “Hunting for Conservation in the Amazon Rainforests: Lessons Learned from Peru.” In: *State of the Wild: A Global Portrait of Wildlife, Wildlands and Oceans*. Island Press.

Popular Media

Field Guides

- Clements, J.F. and N. Shany. 2001. *A Field Guide to the Birds of Peru.* Ibis Publishing.
- Kricher, J. 1999. *A Neotropical Companion.* Princeton University Press.
- Bernard, H., 1999. Amazon Wildlife, Insight Guide, APA Productions.
- Bright, M. 2001. South America Revealed: A Wildlife Guide From Andes to Amazon. DK Publications

Films

- *Fitzcarraldo.* Werner Herzog, 1982. (This will be shown on board.)

Project Field Report

Each Earthwatch Institute-supported project submits a report on the past year's research and results to Earthwatch, generally on an annual basis. The most recent field report for this project is available online through www.earthwatch.org/FieldReportpdf/Bodmer_FieldReport2010.pdf. Note that reports are not available for all projects.

Project-related Websites

- AmazonEco: www.amazoneco.com
- DICE: www.kent.ac.uk/anthropology/dice/dice.html
- Dr. Bodmer's homepage: www.kent.ac.uk/anthropology/dice/dicestaff/rickB.html
- A brief history of Casa Morey and the boats: www.mbowler.mistral.co.uk/amazoneco/pages/Historical%20Boats%20of%20the%20Amazon%20IV.pdf.
- Pacaya-Samiria National Reserve: peru.gotolatin.com/eng/Guide/PeruNationalParks/PacayaSamiria/Pacaya-Samiria-1.asp
- Lago Preto: www.kent.ac.uk/anthropology/dice/lagopreto/index.html
- Uakari: www.uakari.co.uk/

HELPFUL RESOURCES

Please see Earthwatch's Volunteer Resources pages for additional information, including:

- Travel agencies with whom Earthwatch volunteers can get preferential rates
- Recommended kit and clothing providers
- Recommended travel booksellers

Volunteers who sign up through our US office, please visit: www.earthwatch.org/volunteerresources
Volunteers who sign up through our UK office, please visit: www.earthwatch.org/europe/volunteerresources

Appendix

Recommended Hotels in Lima, Peru

NM Lima Hotel Tel: +511 612-1000 Fax: +511 612-1000 Web: http://www.nmlimahotel.com/#Scene_3 (English version)	**Manhattan Inn Airport Hotel** Tel: +511 464-5811 Web: http://www.perucontact.com/en_peru/ManhattanInnAirportHotel_305.html#519
Casa Andina (operates three different hotels in the Miraflores area of Lima) Tel: +511 446-8848, ext. 630 Web: www.casa-andina.com	**Hotel Faraona** Tel: +511 446-9403 Web: http://www.enjoyperu.com/hotels/ingles/lima/faraona
Country Club Lima Hotel Tel: +511 611-9000 Web: http://www.hotelcountry.com	**Kamana Hotel** Tel: +511 426-7204 Web: http://www.hotelkamana.com/indexi.htm

The hotels above have been recommended by Earthwatch volunteers who have stayed in Lima before or after their expeditions. For information on other hotels in Lima, visit:

- http://www.worldres.com/Hotels/Peru/Lima
- http://www.enjoyperu.com/hotels/ingles/lima/
- http://www.perucontact.com/Hotels_Limas.html
- http://www.tripadvisor.com/Hotels-g294316-Lima-Hotels.html
- http://www.worldairportguide.com/airport (search for Lima to find hotels near the airport)

Literature Cited

Alfonso, A. 2005. *Situación actual de los delfines de río bufeo colorado (Inia geoffrensis) y delfín gris (Sotalia fluviatilis), en la Reserva Nacional Pacaya Samiria, cuenca Samiria.* Titled thesis. UNAP.

Bodmer, R.E. 1990a. Responses of ungulates to seasonal inundations in the Amazon floodplain. *Journal of Tropical Ecology* 6:191-201.

Bodmer, R.E. 2000. Integrating hunting and protected areas in the Amazon. In N. Dunstone and A. Entwistle (eds.) *Future Priorities for the Conservation of Mammals: Has the Panda had its Day?* Cambridge University Press, UK.

Bodmer, R.E. and Robinson, J.G. 2004. Evaluating the sustainability of hunting in the Neotropics. In: Silvius, K., Bodmer, R. and Fragoso, J. (eds.) *People in Nature: Wildlife Conservation in South and Central America*, Columbia University Press, New York.

Bodmer, R. and Puertas, P. 2000. Community-based co-management of wildlife in the Peruvian Amazon. In: J. Robinson y E. Bennett (eds) *Hunting for Sustainability in Tropical Forests*. Columbia University Press, New York. Pp.395-409.

Buckland, S.T., Anderson, D., Burnham, K. and J. Laake. 1993. *Distance Sampling: Estimating the Abundance of Biological Populations.* Chapman & Hall, London.

Caughley, G. 1977. *Analysis of vertebrate populations.* John Wiley & Sons. New York. 234 pp.

Dourojeanni, M.J. 1990. *Amazonía, qué hacer?.* CETA. Iquitos, Perú.

Flores J. 2005. *Aspectos ecológicos de Crácidos*. Titled thesis. UNAP.

Little, P.D. 1994. The link between local participation and improved conservation: a review of issues and experiences. In: D. Western y R.M. Wright (eds) *Natural connections: perspectives in community based conservation*. Washington D.C. Covelo, California. Pp. 347-371.

Pask D. 2005. *The Abundance of three Caiman Species (Caiman crocodilus, Paleosuchus trigonatus and Melanosuchus niger) Along the Rio Javari, Peru/Brazil.* Dissertation. University of Kent. DICE.

Puertas, P.E. and Bodmer, R.E. 1993. Conservation of a high diversity primate Amazonian. *Biodiversity and Conservation* 2:586-593.

Robinson, J.G. and Bodmer, R.E. 1999. Towards wildlife management in tropical forests. *Journal of Wildlife Management*, 63: 1-13.

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Earthwatch Institute Policies & Participant Rights and Responsibilities

This document contains important information concerning Earthwatch Institute policies and participant rights and responsibilities for inclusion on an Earthwatch expedition. Please read this document thoroughly and sign the liability section of your Earthwatch Participation Form to indicate that you understand and accept the risks inherent to your expedition and the policies, rights, and responsibilities enumerated in this document. Participants will not be permitted to partake in an expedition until Earthwatch has received the signed form.

Intellectual Property Rights

It is permissible to share photos, videos, and stories of your expedition with family, friends, local media, and in a public forum. Sharing your new perspectives and experiences is welcomed and encouraged.

However, please recognize that all information, data, and images shared or gathered in the course of your expedition's field work become the intellectual property of the Earthwatch scientist (ES). Co-opting or plagiarism of data, images or information gathered during an expedition for use in a scientific thesis, masters or PhD work, or for profit or for the academic or business use of a third party without the permission of the ES is strictly prohibited. Please be aware that data gathered during the interviewing of local people becomes the intellectual property of the ES. Earthwatch scientists have the right to place additional restrictions on your ability to share data or certain research-related images.

Conversely, an Earthwatch scientist may give written permission to use data and images for academic or profitable activity. Please be sure to ask what is acceptable to the Earthwatch scientist.

Fellows or scholarship recipients are sometimes required to submit a written report reflecting what they have learned on a project, sometimes as a step toward developing a curriculum. Earthwatch scientists have the right but not obligation to review and edit materials involving information gathered on one of their expeditions.

Discrimination

Earthwatch does not discriminate on the basis of race, religion, ethnicity, national origin, gender, sexual orientation, or any other reason prohibited by applicable law and respects participants' right to privacy. However, you must be aware that local laws in countries in which Earthwatch operates may not be anti-discriminatory and that the possibilities exist that local residents may not have an awareness of best practice regarding discrimination.

Discrimination on the basis of race, religion, ethnicity, or sexual orientation will not be tolerated on Earthwatch teams. Disruptive behavior, or verbal, physical or any other type of abuse or harassment will also not be tolerated. Violation of Earthwatch's non-discrimination policy is grounds for expulsion from the program without a refund.

Intimate relationships

Earthwatch scientists, their staff, their colleagues, and their associates are prohibited from becoming romantically involved with participants during the entire duration of the period that the team is in the field. Romantic relationships that may otherwise seem permissible may eventually create an unpleasant or unproductive work environment and are therefore strongly discouraged for the duration of an Earthwatch project.

Sexual Harassment

Please recognize that the relationship that exists between Earthwatch scientists and staff and participants is analogous to the student-teacher relationship. Therefore, please be aware of the following policies.

Sexual harassment of participants by the Earthwatch scientist or Earthwatch staff is prohibited. Likewise, sexual harassment of other participants, Earthwatch field staff, or local people by participants is also prohibited.

Sexual harassment infringes on an individual's right to an environment free from unsolicited and unwelcome sexual overtones of conduct either verbal or physical. Sexual harassment does not mean occasional compliments of a socially acceptable nature.

Sexual harassment refers to conduct which is offensive, which harms morale, or which interferes with the effectiveness of Earthwatch expedition teams; such conduct is prohibited. Lewd or vulgar remarks, suggestive comments, displaying derogatory posters, cartoons or drawings, pressure for dates or sexual favors and unacceptable physical contact or exposure are examples of what can constitute harassment. No one should be touched in areas that otherwise would be covered by a bathing suit. It is important to realize that what may not be offensive to you, may be offensive to participants, the local population, and Earthwatch field staff.

Any individual who feels subjected to sexual harassment or has any knowledge of such behavior should report it at once to his or her PI or to Earthwatch staff members. All Earthwatch scientists and Field Team Leaders (FTLs) will notify Earthwatch immediately when an accusation of sexual harassment or abuse is made or witnessed.

All reports of sexual harassment will be handled with discretion and will be promptly and thoroughly investigated. Any participant who is found to have engaged in conduct constituting sexual harassment will be immediately removed from the expedition at his or her own expense. If a minor is immediately involved in allegations of sexual harassment, his or her parents will be contacted.

Drugs

Laws on drug use in most countries are severe and may carry lengthy imprisonment or death penalties. I understand and accept that the manufacture, possession, use, purchase and/or sale of illegal drugs or other illegal substances while on an Earthwatch expedition is strictly prohibited. Prescription drugs may only be purchased and used by the individual indicated on the prescription in keeping with their intended use guidelines.

Alcohol

Local statutes, customs, practices, ordinances, and regulations with regard to the use, possession, sale, or purchase of alcohol are applicable to all participants and project staff in Earthwatch expeditions. Participants and project staff on Earthwatch expeditions must comply with the law of the country in which a project is located regarding the minimum age required to consume alcohol. In addition, restriction on the use, possession, sale, or purchase of alcohol may be set by the Earthwatch scientist. Any restrictions on the consumption of alcohol should be clearly outlined by the project staff in the briefing to participants at the start of the project, and in the Expedition Briefing.

Consumption or possession of alcohol or smoking is not permitted on any Earthwatch Teen Team, regardless of local law.

Excessive consumption of alcohol by staff or participants is not acceptable on any Earthwatch project. Intoxication can jeopardize personal safety, in addition to the safety of the team. It can also cause delay, and hinder response in the event of a crisis or emergency situation.

Earthwatch staff and the Earthwatch scientist have the discretion to remove individuals from the project who consume alcohol in a time and manner that endanger the safety and/or productivity of the expedition.

Minors

Earthwatch considers participants under eighteen (18) years of age to be minors. Minors are not permitted to participate on any of Earthwatch's standard teams unless accompanied by a parent or legal guardian in which case the minimum age is sixteen (16). Minors on regular teams do not receive additional guidance or supervision from Earthwatch beyond what is offered to the adult participants. The number of minors on regular teams is limited to two (2) per team. Earthwatch has developed teams specifically for 16 and 17 year olds ("Teen Teams") as well as teams specifically for families ("Family Teams") with children as young as 10 years old. These teams focus on the same research activities and have the same expectations as our regular teams, but with more facilitation and support. Exceptions for some projects are made at the discretion of Earthwatch and the Earthwatch scientist. Due to a more in-depth screening process for certain programs that select candidates based on school year rather than age, there may be 18 year olds fielding on the same team as 16 and 17 year olds. Please be aware that some Earthwatch projects do not allow participation by minors in any circumstance.

Participants and Driving

Participants are not allowed to drive project vehicles or aircraft during an expedition. In select circumstances, participants may be able to drive boats under the direct supervision by project staff. These circumstances are pre-determined by project staff in collaboration with Earthwatch. Participants must respect the restrictions for boat driving in place for each project.

If a project environment is such that participants can drive their own vehicles to the rendezvous, those who have driven themselves to the project may not drive their own vehicles to, from or for project activities, including the transport of project equipment after arriving at the site.
Participants who have driven themselves to the project may choose to utilize their own vehicle during recreational time, but project staff will brief them on the driving restrictions. All driving during recreational time is done at your own risk.

Please be advised that the only exception to the above driving restrictions is emergency situations.

Riding in other participants' vehicles is not covered under the participants' insurance policy for the expedition. Riding in another participant's vehicle is done at a participant's own risk.

In the Event of an Emergency
In the event of emergencies, judgments must be made by Earthwatch field staff and participants. While Earthwatch makes an effort to ensure that qualified people make the most informed decisions possible, occasionally first aid may be administered and other immediate steps taken by expedition participants who are not licensed medical providers.

Each Earthwatch expedition has safety protocols and emergency procedures in place. Earthwatch encourages team members (the field staff and participants) to exercise their best judgment with regard to their own safety and the safety of other team members. Other participants may perform "Good Samaritan" actions, or actions taken to assist fellow participants during emergency situations in the field. However, Earthwatch does not encourage or expect you to jeopardize your own safety or that of others in attempting to rescue or assist your fellow team members.

Right of Refusal
Earthwatch reserves the right to refuse an applicant's participation on Earthwatch projects at any time and to terminate any work being done by a participant and require the participant to vacate the project site if any of the Earthwatch Expedition Team in his or her absolute discretion considers it appropriate. In this event, the participant (and his/ her parent/ guardian, if appropriate) will be responsible for arranging and paying for any accommodation, travel or other arrangements which may be necessary following the termination of a participant's involvement in a project, for whatever reason and may not be eligible for a refund.

Earthwatch and the project staff may not refuse a participant for discriminatory reasons (race, religion, ethnicity, national origin, sexual orientation, or any other reason prohibited by applicable law). Earthwatch will make reasonable efforts to accommodate participants with disabilities and the organization endeavors to find appropriate expeditions for those participants that have physical limitations. Refusal of a participant is an unusual event and is generally due to either an applicant's failure to meet the essential eligibility requirements of a particular project, or in the interest of team compatibility. In the event that an applicant is refused participation, Earthwatch will refund in full any deposit or payment made toward the expedition.

Earthwatch scientists have the right to refuse special requests, such as media visits (film, photography or print), special groups or teams (students, donors, etc.), if they conflict with Earthwatch scientist schedules, safety, research objectives or general performance of the team.

Any participant found in violation of any of the policies described in this document ("Earthwatch Institute Policies & Participant Rights and Responsibilities") is subject to removal from the team at their own expense. By signing the Liability section of the Earthwatch Participation Form, participants are indicating that they have read and understand the policies in this document. Removal of a participant from a team is at the discretion of the Earthwatch scientist or Field Team Leader and Earthwatch staff. In addition, Earthwatch will support the right of the scientist to send participants away from a project once in the field should their behavior compromise the safety, research objectives or general performance of the team, or if the participant has violated a stated policy. In the event that a minor is dismissed from a project, Earthwatch will contact the participant's parents or legal guardian prior to their dismissal. Should a participant be removed from a team, he/she is responsible for any or all costs associated with departure from the team and will receive no refund of the share of costs of the expedition nor any expenses incurred in participation on the expedition.

(November 2010)

Expedition Packing Checklist

Required Items

- ☐ **Expedition Briefing**
- ☐ **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)** (see *Volunteers Under 18 Years of Age* in the *Travel Planning* section)

Clothing/Footwear for Fieldwork

- ☐ Be sure to bring your Earthwatch T-shirt and remember to wear it, as appropriate, throughout your expedition
- ☐ 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
- ☐ Extra socks
- ☐ Rain gear, such as a light rain poncho
- ☐ Comfortable knee-high rubber boots with good tread (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 at Mad Mick's Trading Post, Putumayo 163 in Iquitos, not far from your hotel. Mick will buy back most things you buy from him at the end of your expedition, at half price.)
- ☐ Non-slip shoes for the boat decks
- ☐ Sun hat

Clothing/Footwear for Leisure

- ☐ One set of clothing to keep clean for end of expedition

Field Supplies

- ☐ Small daypack/rucksack
- ☐ Drybag or plastic sealable bags (good for protecting equipment such as cameras from dust, humidity, and water)
- ☐ Insect repellent with high DEET percentage
- ☐ Sunscreen lotion with SPF 30 or higher
- ☐ Canteen or personal drinking 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)
- ☐ Personal flashlight (torch) with extra bulbs and batteries and red filter for the caiman censuses and other night uses (headlights are not recommended, since they attract insects towards your eyes).

Personal Supplies

- ☐ Personal toiletries (biodegradable soaps and shampoos are encouraged)
- ☐ 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 personal medications
- ☐ Sunscreen lotion with SPF 30 or higher
- ☐ Sunglasses

Miscellaneous

- ☐ Spending money
- ☐ Camera, film/memory card(s), extra camera battery (if you bring a digital camera, bring your interface cables for downloading
- ☐ Binoculars (the higher the quality and magnifying power, the happier you will be)

Optional Items

- ☐ Flashlight or headlamp with extra batteries and extra bulb
- ☐ Earplugs
- ☐ Hardware for sharing digital photographs at the end of the expedition
- ☐ Travel guidebook
- ☐ Field guide
- ☐ Books, games, journal, art supplies, etc. for recreational/rest time and travel
- ☐ Shower shoes (flip-flops or other rubberized sandal)
- ☐ Travel alarm clock (the crew can also wake you up if you ask)
- ☐ Favorite music on MP3-iPod to share with the team
- ☐ Pocket knife (be sure to pack this in your checked luggage and not your carry-on)
- ☐ Favorite snacks, particularly if you follow a specific diet (non-dairy, vegan, etc.)
- ☐ Small handheld fan (useful for keeping sand flies away; can also be purchased very inexpensively in Iquitos)
- ☐ Mosquito head net
- ☐ Portable sling-style chair with or without a back (can be very helpful when conducting surveys in the auxiliary boats, as these boats have only bench seats without back support) (see www.nadachair.com for one suggestion.) **Note**: Please don't bring a chair that needs to sit on the floor of the boat as it has a curved floor and there's not much space.
- ☐ Simple school supplies for the local children (pens, pencils, paper, rulers, etc.)

Please note: Required and Optional Items lists are accurate to the best of Earthwatch's knowledge at the time of publication.