Alliance for a Sustainable Amazon

Internship Programs in the Peruvian Amazon
Summer – Fall 2017

Our Internship Programs are designed to provide individuals – students, early-career or aspiring scientists, and/or those with a deeper interest in tropical biology or conservation – with the chance to learn through direct, hands-on engagement in basic scientific research and applied conservation projects spanning our two focal areas: biological research and monitoring and sustainable tropical agriculture. More about our Internships, and the contents of this document:

Introduction to Sustainability

Length: 4 weeks

Dates (2017):

Session I: Jun 19-Jul 14
Session II: Jul 17-Aug 11
Session III: Aug 14-Sept 8
Session IV: Sept 11-Aug 6
Session V: Nov 20-Dec 15

Advanced Sustainability

Length: 4 weeks

Dates (2017):

Session I: Jun 19-Aug 11
Session II: Aug 14-Oct 6

Academic Quarter

Length: 12 weeks

Dates (2017):

Session I: Jun 19-Sept 8

Each of our three Internship Programs share a common academic structure that includes, in addition to hands-on field work, an exploration of topics in tropical biology and conservation through lectures, readings in the primary scientific literature, and through guided reading discussions.

Those electing the Advanced or Academic Quarter Internship Programs will also have the option to conduct an additional Independent Research Project under the guidance of our expert academic faculty.

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I. About Us & the Internship Program

Alliance for a Sustainable Amazon

The Alliance for a Sustainable Amazon (ASA) is a U.S.-based 501(c)3 non-profit organization that is active in the southeastern Peruvian Amazon. Our work aims to promote the conservation of biodiversity and other natural resources in the Amazon through biological research and monitoring and sustainable tropical agriculture.

A sustainable activity is one that can be carried out, or *sustained*, far into the future, even indefinitely. Although the term has been used more and more often in recent years—so often, in fact, that it has become something of a buzzword—we consider the idea behind it profoundly important in the age of expanding human influence in the natural world. To us, sustainable agriculture implies the production of food and other products that does not diminish the ability of future generations to meet their needs. Furthermore, we believe that people can benefit from the bounty of nature without reducing biodiversity or ecosystem services – water, a stable climate, or a healthy environment – that all of us have the right to enjoy. Our work in the Peruvian Amazon, therefore, aims to ensure the future of a more sustainable Amazon by promoting the conservation of biodiversity and the sustainable use of natural resources.

Why intern with us?

Whether you're considering a career in field biology and want to explore the possibility further, want to satisfy an academic curiosity about biological research and/or conservation in the tropics, or just want to try something challenging and new, we're excited to work with you to advance our mission in the Peruvian Amazon!

This is also an excellent opportunity for students who wish to complete a research project as part of their undergraduate studies, i.e., as part of a capstone or honors thesis project. Students interested in this possibility should coordinate with their academic advisor at their home

institution; we are happy to assist with letters of invitation, etc., as well as field supervision and training during the Internship. Feel free to contact us with any questions.

Interns will gain knowledge and skills in the following areas:

1. *Biological and human geography of the Amazon basin*. The Amazon rainforest is one of the most complex ecosystems on the planet, and harbors unmatched biological and cultural diversity. We will try to make sense of this vast complexity by examining the region's geologic history, how it came to be so biodiverse, and how humans have shaped the landscape in the past, present, and future.
2. *Tropical ecology and biology of key Amazonian plant and animal groups*. Interns will learn about the ecology of diverse Amazonian plant and animal groups, and how these diverse groups interact to form a dynamic ecosystem.
3. *Amazonian plant and animal identification*. One of the most fundamental yet challenging jobs of a field biologist in the hyper-diverse Amazon is the identification of organisms. Interns will sharpen their natural history skills by learning to identify key groups of Amazonian plants and animals.
4. *Field observation skills and methods in tropical biology*. Participants will learn and practice basic methods in tropical field biology, with a focus on techniques used in the study of the taxon or taxa of their choice. Specific skills include, but are not limited to: off-trail navigation using compass and map, GPS, and use of GIS (QGIS), wildlife survey methods (insects, mammals, birds, herpetofauna), camera trapping for rain forest vertebrates, plant survey methods (forest inventory plots, transects), experimental design, data collection and management, and tree climbing and canopy access techniques.
5. *Sustainable tropical agriculture methods and practices*. Interns will learn how food is grown in the tropics, the negative effects of unsustainable practices currently in use, and what can be done to improve agricultural efficiency and the value of cultivated land to people and biodiversity in the Peruvian Amazon.
6. *Major conservation challenges facing the study region and the broader Amazonian ecosystem*. Although very large and currently mostly forested, the Amazon basin is facing intense – and growing – pressure from uncontrolled resource extraction and development schemes, including the construction of roads and other infrastructure, hunting, logging, and gold mining. We will explore these conservation challenges, as well as what is being done to preserve biodiversity and promote the sustainable use of natural resources in the region.
7. *Issues facing the survival of indigenous Amazonian cultures*. The Amazon basin represents one of the most diverse cultural landscapes on earth. However, development has meant rapid change, and many groups are currently struggling to adapt to the new reality. We will examine Amazonian human geography, with an emphasis on our study region in southeastern Peru, and learn how the fate of Amazon peoples is intertwined with that of the forest.

1. Introduction to Sustainability Internship

Details

Length: 4 weeks

Dates (2017):

Session I: Jun 19 - Jul 14
Session II: Jul 17 - Aug 11
Session III: Aug 14 - Sept 8
Session IV: Sept 11 - Aug 6
Session V: Nov 20 - Dec 15

Application Deadlines, & Fees: see table

Objectives

This 4-week program offers participants a broad introduction to biological research and conservation in the tropics. Our teaching and learning approach is both academic and hands-on. Interns will participate directly in scientific research and applied conservation projects that span our two focal areas: biological research and monitoring and sustainable tropical agriculture.

With the help of our academic faculty, interns will also navigate tropical biology and conservation science through lectures and weekly reading discussions covering articles drawn from the primary scientific literature. All interns maintain a field journal, including daily entries that aim to synthesize their learning experiences and sharpen their observational skills. This is an excellent opportunity to explore an exciting variety of potential career paths in biology and conservation under the guidance of experts in those fields.

Example Activities (Highlights)

- Weekly readings from the primary literature covering topics in tropical ecology, conservation biology, and sustainable development
- Group reading discussions led by academic faculty
- Lectures on topics ranging from Amazonian biodiversity, tropical ecology and biology, and conservation challenges
- Primate demography, spatial & feeding ecology of primates
- Biological inventories and data collection (insects, birds, mammals, trees/plants)
- Experimental agricultural plots (cacao, fruits & vegetables, staples such as cassava, etc.)
- Shade house and tree nursery management practices
- Efficacy of organic composting techniques
- Native food forest monitoring
- Green infrastructure development and maintenance

Read more about planned and ongoing projects in the Peruvian Amazon.

2. Advanced Sustainability Internship

Details

Length: 8 weeks

Dates (2017):

Session I: Jun 19 - Aug 11
Session II: Aug 14 - Oct 6

Application Deadlines & Fees: see table

Objectives

This 8-week program offers participants a more in-depth survey of biological research and conservation in the tropics. Interns will learn by participating directly in scientific research and applied conservation projects that span our two focal areas: biological research and monitoring and sustainable tropical agriculture.

Under the guidance of our academic faculty, interns will also navigate tropical biology and conservation science through lectures and weekly reading discussions covering articles drawn from the primary scientific literature. All interns maintain a field journal, including daily entries that aim to synthesize their learning experiences and sharpen their observational skills.

Independent Research Project

As well as the activities listed above, participants in the Advanced Sustainability Internship Program will have the added opportunity to develop an Independent Research Project on a topic of their choosing, under the supervision of our academic faculty. This will allow interns to build upon what they have learned at the beginning of the program and apply it to a project in an area that is novel or interesting to them. Topics may also be assigned in an area of our faculty's academic expertise, including wildlife biology and ecology, entomology, botany, natural history, sustainable agriculture, and community development. This optional project will provide participants with a more thorough insight into the process of scientific discovery and conservation in the tropics.

Example Activities (Highlights)

- Development of an Independent Research Project, including project proposal, data collection and analysis, and presentation of findings in multiple formats
- Weekly readings from the primary literature covering topics in tropical ecology, conservation biology, and sustainable development
- Group reading discussions led by academic faculty
- Lectures on topics ranging from Amazonian biodiversity, tropical ecology and biology, and conservation challenges
- Primate demography, spatial & feeding ecology of primates

- Biological inventories and data collection (insects, birds, mammals, trees/plants)
- Plant phenology
- Experimental agricultural plots
- Shade house and tree nursery management practices
- Efficacy of organic composting techniques
- Native food forest monitoring
- Green infrastructure development and maintenance

Read more about planned and ongoing projects that interns may participate in here.

3. Academic Quarter Internship

Details

Length: 12 weeks

Dates (2017):

Session I: Jun 19 - Sept 8

Application Deadlines & Fees: see table

Objectives

This 12-week program offers participants the most thorough exploration of biological research and conservation in the tropics. Interns will learn by participating directly in scientific research and applied conservation projects that span our two focal areas: biological research and monitoring and sustainable tropical agriculture.

Under the guidance of our academic faculty, interns will also explore topics tropical biology and conservation science through lectures and weekly reading discussions covering articles drawn from the primary scientific literature. All interns maintain a field journal, including daily entries that aim to synthesize their learning experiences and sharpen their observational skills.

Independent Research Project

As well as the activities listed above, participants in the Academic Quarter Internship Program will have the added opportunity to develop an Independent Research Project on a topic of their choosing, under the supervision of our academic faculty. This will allow interns to build upon what they have learned at the beginning of the program and apply it to a project in an area that is novel or interesting to them. Topics may also be assigned in an area of our faculty's academic expertise, including wildlife biology and ecology, entomology, botany, natural history, sustainable agriculture, and community development. This optional project will provide participants with a more thorough insight into the process of scientific discovery and conservation in the tropics.

Example Activities (Highlights)

- Development of an Independent Research Project, including project proposal, data collection and analysis, and presentation of findings in multiple formats
- Weekly readings from the primary literature covering topics in tropical ecology, conservation biology, and sustainable development
- Group reading discussions led by academic faculty
- Lectures on topics ranging from Amazonian biodiversity, tropical ecology and biology, and conservation challenges
- Primate demography, spatial & feeding ecology of primates
- Biological inventories and data collection (insects, birds, mammals, trees/plants)
- Plant phenology
- Experimental agricultural plots
- Shade house and tree nursery management practices
- Efficacy of organic composting techniques
- Native food forest monitoring
- Green infrastructure development and maintenance

Read more about planned and ongoing projects that interns may participate in here.

III. Program Details

Requirements

An academic background or strong interest in biology, ecology, agriculture, or conservation is highly recommended for all interns. We do not offer academic credit through our organization, but we are happy to sign documents for credit from your home institution. All instruction at the field site is in English. Although Spanish is not required, basic skills will be very useful.

Internship Activities

Our projects in Peru are as diverse as the rainforest that surrounds us, and fall into one of our two focal areas: biological research and monitoring and sustainable tropical agriculture. Interns may participate in or lead research related to one of following projects that we have ongoing or planned in the Peruvian Amazon (or a similar project of the intern's design):

Biological Research and Monitoring

Primate demography, spatial & feeding ecology

Finca Las Piedras is home to several species of primate – the species most commonly encountered at the site are brown titi (*Callicebus brunneus*) and brown capuchin monkeys (*Cebus apella*), and saddleback tamarins (*Saguinus fuscicollis*). These species – like many others in the region – are threatened by human activities, including deforestation and conversion of rain forest to agriculture. These activities not only reduce the habitat available to these primates, but forest fragmentation also reduces and isolates individual populations, threatening their long-term survival.

Our ongoing monitoring project aims to understand the biology of these species locally, in order to improve the management of their habitat and populations. Primary activities include: 1) Demography studies (understand group and population sizes in our study area); 2) Spatial ecology (group home range sizes; e.g., how many groups does/can the local habitat support, and how can we maintain group and habitat connectivity); 3) feeding ecology (evaluate primate diets to improve habitat management).

Biological Inventories

Although the rain forests of the western Amazon are among the most biodiverse ecosystems on the planet, they are also among the most poorly studied. We do not know

to any degree of certainty, for instance, how many species are present in our region, nor do we know even the basic biology of most species. Our biological inventories aim to produce species lists at our study site – the most basic biological information upon which many other ecological or conservation studies are based – that are currently lacking for most plant and animal species. Focal groups of plant and animals include:

- Mammals (camera trapping)
- Birds (morning/afternoon bird counts and surveys)
- Herpetofauna (reptiles & amphibians; nocturnal surveys)
- Insects (butterflies, beetles, & others; baited traps, aerial hand nets, nocturnal surveys)
- Plants (trees, lianas, & others; plot and transect surveys)

Plant Phenology

Phenology refers to the timing of fruiting and flowering of plants. This information is key to understanding how diverse Amazonian plant communities function, how plants respond and adapt to climate change, and also for forest restoration work. Phenological information is currently lacking for most species in our study region, and our goal is to gather it for key plant groups, including trees and other species of ecological importance or conservation concern. To do so, we have developed a long-term monitoring protocol that includes weekly and monthly surveys of fruiting and flowering of key plant species.

Butterfly diversity and biology

Although tropical insects comprise the largest group of animals on earth and are essential to the functioning of ecosystems (e.g., as pollinators, food for predators, etc.), almost nothing is known about even the basic biology of most species. In the Amazon, scientists do not know how many insect species there are to within even an order of magnitude – that is, there may be 1, 10 or even 100 million! Our goal is to conduct a (near) complete survey of the butterfly fauna at Finca Las Piedras. Specimens are deposited in important collections at museums in Peru and the USA, which are then used to study butterfly abundance, distribution, and conservation. We also gather important food plant records, to shed light on the basic feeding ecology of species of special ecological, agricultural, or conservation importance.

Artificial Macaw Nest Boxes

Macaws are among the largest and most beautiful members of the parrot family, and a true symbol of the Amazon. Due to their extreme beauty, they are also heavily sought-after for the local and international pet trades. In addition, widespread selective logging removes the largest trees from the rainforest landscape, which are favored by macaws as nesting sites. Our project aims to boost local macaw populations by providing artificial nest boxes to replace lost natural nesting sites, giving macaws the space they need to reproduce. Activities include nest box construction and placement, and regular monitoring of usage.

Sustainable Tropical Agriculture

Organic farming

In the tropics, agriculture is generally practiced using lots of inorganic inputs—synthetic fertilizers, pesticides, and herbicides. While this often boosts production, at least initially, over time heavy chemical applications damage soils, promote pest resistance, and eventually lead to declining harvests, all while polluting the environment. Through careful planning, however, crop yields can be improved without the negative effects of chemical inputs, promoting the long-term sustainability of agricultural practices. Organic farming methods include the use of organic compost and biochar, reduced tillage, intercropping to promote natural enemies of pests, and structural complexity to reduce the incidence of pests and plant disease. An added benefit of organic farming is that organic agricultural products receive higher prices, especially in international markets, boosting the incomes of local farmers without damaging the environment.

Crops grown organically at Finca Las Piedras (or planned) include cacao, pineapple, a variety of citrus, banana, avocado, papaya, tomatoes, cassava, sugarcane, coffee, watermelon, and a diverse variety of native fruit species.

Organic Compost and Biochar

Tropical soils are notoriously poor—being exposed to intense sun and leached by constant rains, they are not capable of retaining nutrients and thus are relatively infertile. However, with good management, tropical soils can be improved, reducing or eliminating the need for inputs such as synthetic fertilizers. Composting is a simple way to produce nutrient-rich organic material that can be incorporated into poor tropical soils, a cheap, effective, organic fertilizer.

Biochar is burned organic material—dead wood from fallen trees, for instance—that is incorporated into the soil to provide nutrients for crops. Biochar was used extensively by indigenous Amazonian peoples as a key part of sustainable swidden or slash-and-burn agriculture.

Organic Cacao

Cacao (*Theobroma cacao*), from which chocolate is made, is native to the Amazon rainforest. As the plants require shade to grow best, it can be grown as part of an 'agroforestry' system, in which cacao is grown alongside trees and other plants that provide shade. This system of agriculture has a dual benefit: first, as it is a complex system, it has a higher value for biodiversity than many other crops currently grown in the Amazon. In addition, due mainly to the fact that timber trees can be grown alongside the cacao, it provides long-term benefits to farmers. We are developing a series of experimental plots to test different organic growing practices to maximize yields, and also an outreach program to promote cacao agriculture in our area.

Native food forest

Many of the estimated 30,000 or so native Amazonian plant species have important local uses as food, building material, or medicine – many have been used by indigenous Amazonian societies for hundreds or even thousands of years. Traditional uses range from a variety of medicinal application to food and fiber. An entire house can even be constructed using the woody centers and leaves of just two palm species!

We are working to convert a large, abandoned agricultural field at our site in Peru into a forest composed mostly of species that produce things of value – not only to us, but to the other animal species that call the rain forest home. Native plants that we will incorporate into our food forest include a variety of palms that produce fruits, building, and thatch material for roofs, timber trees, 'shiringa' (rubber), and numerous fruit trees, including a wild variety of cacao, among many others.

Bat House

Although feared by many and largely misunderstood, bats are a key component of tropical ecosystems – they eat tons of insects each day (literally, tons) and help to keep their populations in check. Bats are also important pollinators of many plants, especially early-pioneer species that are important in forest regeneration. Human activities, especially the removal of large trees that serve as roosting sites, as well as misplaced persecution, have caused some bat species to decline.

When completed, the bat house will provide shelter to these animals, helping to conserve these important animals, but also promoting the healthy functioning and regeneration of rainforest ecosystems and controlling populations of annoying biting insects. An added benefit is the production of bat guano, and excellent organic fertilizer.

Brazil Nut Harvesting

This is the southeastern Peruvian Amazon's leading non-timber forest product, and contributes significantly to the region's overall economy. Brazil nuts can not be grown in plantations in the Amazon – pests, including endemic plant diseases, decimate the trees when they're grown close together – and thus much of the standing rain forest outside of protected areas in the region has been set aside by the Peruvian government as extractive reserves. However, a looming demographic crisis driven by the overharvest of nuts and forest deforestation and degradation threaten the long-term sustainability. If Brazil nuts are no longer viable economically, much of the rain forest that has been set aside as concessions for their harvest will likely disappear. Our program in Madre de Dios targets reforestation with Brazil nut saplings, improved silvicultural practices, and increasing profitability for harvesters.

Butterfly house/enclosure

The life cycle of a butterfly, from egg to caterpillar to pupa and finally adult—a process known as *metamorphosis*—is one of the most fascinating transformations in the natural world. We view this phenomenon as an tremendous teaching tool and, in particular, for revealing the exciting world of biology and natural history to young people and for engaging them in the process of discovery. We are working to develop a walk-in enclosure at Finca Las Piedras that we can use to demonstrate the butterfly life cycle from start to finish in detail, including the use of host plants for oviposition and feeding, as well as the beauty of native adult butterflies, primarily to groups of local school children who visit the site on a regular basis.

Biogas converter

Cattle production is one of the leading sources of greenhouse gas (GHG) emissions that are driving global climate change. Not only is rainforest cleared to make way for cattle, but the cows themselves emit large amounts of GHGs through their burps and farts (really, it's true!), and through the decomposition of their solid waste. Biogas converters transform the methane gas that is produced as a natural product of the fermentation of this waste into clean gas that can be used for cooking.

Solar food dehydrator

Tropical agricultural products are often grown in remote regions, where temperatures are high and distances to markets are large. As a result, many tropical farmers struggle to get their products to market before they spoil. Solar food dehydrators use the energy of the tropical sun to dry food products, so that they can be stored longer and sold in more distant markets. Dehydrated foods such as pineapples, for instance, have the added benefit of being 'value-added products,' meaning that they sell for a higher price than the raw product. By harnessing the free energy of the sun and dehydrating agricultural products, we can boost the incomes of local farmers and reduce our ecological footprint at the same time.

Bicycle-powered water pump

We use water for nearly everything—drinking, cooking, cleaning, and irrigating crops. Although abundant in the rainforest, water is not necessarily located where it is most convenient for human use. That is, it must be moved. Typically this is done with gas-powered pumps that burn fossil fuels, polluting the air and contributing to global warming. The bicycle-powered pump is powered by biological machines (people!) that consume food and convert it to the chemical and kinetic energy needed to pump water.

*** These are only a few of the many projects that we have ongoing or planned at our field site in the Peruvian Amazon. If you are interested in a topic that is not on the list, please feel free to let us know – we are always happy to help our volunteers and interns design and execute projects that are within our focal areas. Please feel free to email us if you have any questions.***

Dates, Deadlines, & Fees (2017)

	Internship Program		
	Introduction to Sustainability	**Advanced Sustainability**	**Academic Quarter**
Duration	4 weeks	8 weeks	12 weeks
Fee/week	$325	$275	$250
Total fees	$1,300	$2,200	$3,000
	Session Dates		
Session I	Jun 19-Jul 14	Jun 19-Aug 11	Jun 19-Sept 8
Session II	Jul 17-Aug 11	Aug 14-Oct 6	--
Session III	Aug 14-Sept 8	--	--
Session IV	Sept 11-Oct 6	--	--
Session V	Nov 20-Dec 15	--	--
	Application Deadlines		
Session I	May 26	May 26	May 26
Session II	June 30	July 28	--
Session III	July 28	--	--
Session IV	August 25	--	--
Session V	October 27	--	--

2017 Internship Program fees include the following:

- Full-time Academic/Internship Coordinator
- Independent Research Project guidance (where applicable)
- All food and accommodation at Finca Las Piedras (3 meals/day, dormitory housing w/shared bathroom)
- Snacks and hot drinks available 24 hrs.

- All local program-related transportation (incl. transfer from Puerto Maldonado airport or bus terminal to Finca Las Piedras)
- Welcome kit including ASA t-shirt

Program fee DOES NOT include the following:

- Air transportation, incl. international airfare to Peru, domestic flight to Puerto Maldonado (PEM), air taxes, ticketing fees, etc.
- Travel/medical insurance
- Passport (required)
- Travel visa for Peru (generally not required for most countries for stays of < 90 days)
- Additional local travel/optional activities (weekends free; see below)

How to Apply

Applying for an Internship is easy!

1. Decide which Internship you wish to participate in (Introduction to Sustainability, Advanced Sustainability, or Academic Quarter)
2. Select the Internship Program session you want to attend (e.g., Session I, II, III, etc.; dates are shown in this table)
3. Fill out the Application Form (or visit www.sutainableamazon.org/internships-register), and we'll contact you with more information and payment details.

Make sure to register by the Application Deadline (see the table)

Still Have Questions?

Click here to view the FAQ section, or feel free to email us (info@sustainableamazon.org)

IV. FAQ

Traveling to Peru

How do I get there?

You will have to make your way to the town of Puerto Maldonado, located in Peru's Madre de Dios Department. There are two ways to get there: overland (i.e., by bus) or by air. A bus from Lima will take about 30 hours or more, from Cusco about 10 hours; a direct flight from Lima is about 1.5 hours. The Puerto Maldonado airport (PEM) is serviced by Latam, Avianca, and Star Peru, each of which have multiple daily flights to and from either Cusco, Lima, or both. You may be able to fly directly to PEM from your home city, with a layover in Lima; you might also find it more convenient or cheaper to purchase your flight to Lima, and then a separate flight onward to Puerto Maldonado. Note that Latam and Avianca are the most reliable airlines, but charge higher rates for foreign (i.e., non-Peruvian) travelers. If coming by bus, we recommend either Tepsa or Movil Tours; these are the most reliable companies that have service to Puerto Maldonado, and both have excellent safety records.

Do I need a visa to enter Peru?

Citizens of the United States do not need to apply for a visa to enter Peru for stays of 90 days or less. Rather, a visa will be granted at the international airport in Lima upon entering the country (or at the border with a neighboring country). Requirements for citizens of other countries vary, and we recommend that you check these with the website of your country's embassy in Peru. Once you have entered Peru, make sure to keep the small white slip of paper that the immigration officer gives you ('Tarjeta Andina de Migracion' or 'Andean Migration Card'), as you may be fined if you can not produce it upon exiting the country.

What about money in Peru?

Peru's currency is the Nuevo Sol, usually referred to simply as the 'sol' (plural 'soles'). The exchange rate as of Nov. 2016 was about S/. 3.40 to US $1, and this has been stable for several months. ATMs are widely available in most major Peruvian cities, including Puerto Maldonado, many of which dispense either soles or US dollars. You will receive a slightly better exchange rate at a currency exchanger (available in Cusco and during business hours in Puerto Maldonado) than at an ATM when withdrawing soles. We recommend that you avoid changing money at airports, as the rate will be very poor.

How much money you will need while in Peru will depend on how often you leave the field site (all food and lodging is covered for the entire duration of your stay, 7 days per week, although you are free to leave during weekends to explore the region if you wish), as well as your taste and spending habits. Transportation from Monterrey (a short walk

from Finca Las Piedras to the highway) to Puerto Maldonado is S/. 12. As a rule, you can eat at a fancy restaurant in Puerto Maldonado for about $10 (S/. 30-35); cheaper places (e.g., set lunch or 'menu' restaurants) will obviously be much less, usually from S/. 6-15. Prices for hotels also vary – backpacker hostels may charge S/. 25-30 per night, whereas nicer hotels will charge as much as S/. 200-300 per night. Mid- to high-end tourist lodges might be as much as $100-300 per person, per night, less for cheaper tours (day tours can be as little as S/. 60-100 per person, but prices vary by destination and activities).

What's the weather like in the Amazon?

We are located in the lowland Amazon rainforest. You should be prepared for periods of intense heat when the sun is out, and intermittent, torrential rain when storms pass through. Summer (May through October) also brings periodical 'friajes,' which are cold snaps resulting from a front moving north from Patagonia along the Andes mountains. Temperatures during friajes can drop below 10°C (into the 40s Fahrenheit), so you should be prepared with a change of warm clothing. The rainforest is an interesting, if bizarre place during one of these cold spells, but you'll want to be prepared for it!

What clothing and gear should I bring?

We will provide all of the gear and equipment that will be used for our field activities (e.g., collecting equipment, tree climbing gear, etc.). Towels, bedding, and mosquito bed nets are also provided. Everything else is your responsibility. Please see our recommended packing list for a complete list of what to bring with you to Peru.

How do I stay healthy in the rainforest?

Despite some of the stories and exaggerated tales from past explorers in the Amazon, the rainforest is not as dangerous or scary a place as many people think. Nevertheless, we take the safety of our volunteers very seriously, and offer a number of recommendations to help ensure that you have a safe and enjoyable visit.

Perhaps the greatest nuisance to humans in our region is posed by biting insects, especially mosquitos. Although they are not very common, especially outside of the forest, these insects are the vectors of several rare, but serious, tropical diseases.

Malaria is rare in our area, but does occur. It is more of an issue in larger towns, though, since at remote sites such as ours there aren't enough people to serve as constant reservoirs for the disease. However, it is your decision as to whether or not you will take a malaria prophylaxis, and you should discuss this with your doctor.

Dengue is slightly more common in the region in general, especially in Puerto Maldonado, where there are many potential reservoirs and *Aedes aegypti* – the mosquito that transmits the disease – is more common. There is no vaccine for dengue, but there are treatments. However, as with all insect-vectored tropical diseases, avoiding insect bites is your best protection. Although it can be unpleasant, DEET is very effective at

keeping these and other biting insects from biting you and transmitting the disease in the first place.

Zika. This disease has received much attention in the news lately, and has infected large numbers of people across Latin America. Although the symptoms of infection with the virus are typically rather mild (e.g., fever, rash, etc.) and only about 20% of those infected exhibit even mild symptoms, there is a possible link between infection during pregnancy and a condition known as microcephaly in newborns. We know that the Zika virus is transmitted by *A. aegypti* (the same mosquito that transmits dengue), but much of the rest of the disease's biology remains a mystery. We follow the U.S. Centers for Disease Control (CDC) guidelines, and recommend that women who are pregnant, or who may become pregnant during or soon after their stay in the Amazon, exercise extreme caution while in Peru. The CDC has a very informative webpage regarding this disease: http://www.cdc.gov/zika/index.html.

One final thing – if you are allergic to bee and/or wasp stings, make sure to bring at least two Epi-Pens with you (prescription required), plus an antihistamine such as Benadryl. These are not readily available in our area in Peru.

Do I need any vaccinations?

We recommend that all travelers to the Amazon region have their updated Yellow Fever vaccine, as well as all other standard vaccines and boosters (e.g., hepatitis, typhoid, measles mumps & rubella, tetanus, etc.). Please note that we do not intend to dispense medical advice here; any medical decisions you make, including those regarding vaccinations or other health precautions, are between you and your travel doctor.

How can I stay safe in Peru?

As with anywhere else in the world, you should exercise caution and common sense while traveling in Peru. Don't walk alone late at night in larger towns and cities, for instance, and avoid ingesting substances from people you don't know and trust. In addition, you should try to travel only with official taxis or shared 'colectivos,' as unofficial 'pirate' taxis (just unmarked cars) have been implicated in robberies. This is more of a problem in larger cities, such as Lima. Although violent crime directed to foreigners is relatively uncommon in Peru, it is not unknown, and a good dose of caution will help you to avoid any trouble.

Petty crime, especially opportunistic thievery, is more common in Peru than violent crime. Don't leave valuables (cash, cell phones, tablets, wallets, etc.) in visible or easily accessible, public places at hotels or hostels; instead, check these with your hotel's safe deposit box or put them in a locker. Also be careful when traveling on long-distance buses—leave your backpack in the rack above your head while napping and you might wake up to it missing. Wallets in back pockets are also easy targets for pickpockets, especially in large cities. Finally, when in doubt, ask at your hotel which parts of the town or city you should avoid, and at what times, and heed their advice. The vast

majority of visitors to Peru have a safe and healthy visit, and with a bit of good judgment you will likely have the same experience.

At the Field Site

Where is the field site, and what's it like?

The Alliance for a Sustainable Amazon's Volunteer and Internship Programs are based at Finca Las Piedras, a 54 hectare property located in Peru's Madre de Dios Department. The Finca is about ½ hour by car north of Puerto Maldonado, the regional capital, along the Interoceanic Highway that connects the city with Cusco in the Andes, to the west, and Rio Branco in Brazil, to the northeast. The area is a mosaic of agricultural fields, pasture, and rainforest, including extensive Brazil nut concessions and numerous protected areas.

The property itself is covered mostly in rain forest, and is situated at the limit of the agricultural frontier in Peru; to the east the forest extends, essentially unbroken, for hundreds of kilometers into Bolivia. The opposite border of the property is formed by a small stream that flows through an 'aguajal,' large a stand of *Mauritia* palms, where there is a platform built at a pleasant swimming hole. Between the aguajal and the rainforest are pastures, abandoned fields, and our numerous agricultural plots.

What's a typical day like in the field?

A volunteer's day typically starts early at Finca Las Piedras. We begin at sunrise to take advantage of the cool morning hours, but also because days are shorter in the tropics than further north—no long, lazy dog days of summer here! For those studying birds as a volunteer, the day starts even earlier, as many species are up even before it's light to start foraging. Still, others, particularly those electing to study our many reptile and amphibian species—the majority of which are active only after dark—will be out at night and often require a few extra hours to rest in the morning. Meals are taken on a fixed schedule, and prepared by our local chef, to maximize our time in the field. Field work is usually conducted in the morning, unless an afternoon session is also required (e.g., for biological monitoring); afternoons are typically spent working around the main house doing chores, tending to the plant nursery, etc. After the day's activities—whether it's biological monitoring, working in the organic agricultural plots, or improving our green infrastructure—volunteers are free to lounge around, read a book, or just take in the sounds of the jungle at night. You may also join in on weekly reading discussions, lectures, or other activities that we have ongoing as part of our other programs (e.g., the Internship Program). There's always something interesting happening at Finca Las Piedras!

What is there to do in my free time?

On weekends, volunteers are free to stay at Finca Las Piedras and explore the property's 35 ha of protected rainforest, dabble on the farm, or simply catch up on reading in a hammock (your fees cover food and lodging for 7 days per week for the entire duration of

your stay). For those wishing to get out and explore, however, Peru's Madre de Dios Department, in which we are centrally located, is among the world's premiere destinations for ecotourism and nature travel – the region is home to enormous expanses of pristine rainforest and other tropical habitats, as well as a dizzying variety of plant and animal species that inhabit them. Highlights include the nearby Las Piedras watershed and the Tambopata National Reserve, both of which are home to abundant wildlife populations and boast world-class opportunities for absolute immersion in wild nature.

We are also an overnight bus ride from Cusco and the Sacred Valley, home to the world-famous Machu Picchu ruins and a large number of other important cultural landmarks. Refreshing montane forests, bursting with unique plants and wildlife, are also within easy reach.

Our staff is happy to assist volunteers to plan travel either before or after their program, or during weekends. We encourage everyone to get out there and explore!

What's the food like at the field site?

Three healthy meals will be served each day at the field site in the common dining hall (the 'comedor'). Meals are prepared by our chef using fresh, local ingredients, many of which come right from our very own fields! Meals reflect both general Peruvian and regional (i.e., Amazonian) cuisine. Hot water for coffee and tea, as well as snacks, will be available at all times.

We are also happy to accommodate any special diets or food restrictions (allergies, etc.) with advanced notice.

What is phone and internet service like?

There is good cell coverage in Puerto Maldonado, decent coverage in smaller towns (Monterrey is the closest small town to us, and there is coverage), and limited reception at Finca Las Piedras (only with Claro). Internet is widely available in Puerto Maldonado, as well as smaller cities that lie to the north and south of us (Planchon and Alegría), at internet cafes.

If you wish to make or receive calls while in Peru then we recommend that you discuss international rates and plans with your home service provider. We are also happy to discuss options for purchasing cheap phones or cell/data plans (pay as you go or 'chips') with local carriers as well. Make sure you mention this early so we can go over options.

How do I do laundry at the field site?

There are laundry facilities in Puerto Maldonado that can wash and dry laundry for a fee. At Finca Las Piedras, however, we wash clothes by hand. We recommend that you bring laundry soap (preferably biodegradable) with you. Otherwise, you can purchase soap and/or detergent in Puerto Maldonado before you arrive.

IV. Packing list

Clothing

Long-sleeved shirts: Several, for protection against sun, insect bites, and other jungle hazards. I prefer old, button-down dress shirts that are cheap and easily found at thrift shops.
Short-sleeved shirts, T-shirts: Several, for wearing underneath long-sleeves and for camp.
Shorts: One or two pairs, for lounging around camp.
Pants or trousers: At least two, for protection against insects and thorny vegetation. I prefer thicker pants for working in the field, but quick-dry material is also very nice.
Rain jacket or poncho: You will need it! Make sure the jacket is water *proof*, not just water *resistant*. Gore-Tex is the best. I prefer ponchos to rain jackets, but many people prefer jackets, and it's up to you which option you go with. Good ponchos can be purchased cheaply in Puerto Maldonado.
Hat, cap, or visor: Nice to have while in the hot tropical sun for long periods, especially outside of the rain forest.
Socks: 5-10 pairs. Bring as high-quality as you can; thin cotton socks tend to wear out quickly and can cause blisters, especially while wearing rubber boots, which will make hiking and working no fun.
Sandals: Hiking sandals (Teva, Chaco, etc.) or simple flip-flops. Use as camp shoes or in town.
Shoes: A pair of sneakers or running shoes to wear around camp, in towns, etc.
Rubber boots: Essential in the jungle. You can bring your own, but good rubber boots are also available cheaply in Puerto Maldonado. I recommend against bringing hiking boots—they are heavy, they never dry once wet, and they are essentially useless when it's muddy in the jungle. We require all volunteers to wear rubber boots while working in the field.
Swim suit: There is a platform built at a pleasant swimming hole at our quebrada (jungle stream).

Paper Items

Passport: Keep sealed in a zip-lock bag, to prevent growth of mold.
Photocopy of passport photo-page: Stored separately, for replacement process if passport gets lost or stolen.
Notebook and pencils: For taking notes during your time as a volunteer. These are available in Peru, but not very good in wet environments. Rite-in-the-Rain brand field notebooks are high-quality and waterproof, and widely available online.
Insurance papers: The name and number of your health insurance policy. Compensation forms required by your insurance company.
ATM card and bank phone number: To call in case of loss or theft. Also, you should inform your bank of your travel plans to avoid blocks being placed on transactions.

Equipment

Backpack: The largest size that fits your body, to carry all of your stuff and supplies during your transfer from Puerto Maldonado to the field site. We recommend against using a duffel bag or

anything with wheels, as these are much more difficult to carry around.

Daypack: Small enough to bring into the field regularly, with enough space for water, field notebook, and raincoat, snacks, etc.

Pack cover: A means of keeping the stuff in your pack dry while travelling – a pack cover – or you can put your stuff in garbage bags, and put those in your pack. A pack cover will be much easier and will keep the bag itself dry.

Stuff sacks: To organize items in your backpack and daypack. Or use sturdy plastic bags.

Binoculars: You will have opportunities to use them almost every day, and you will be disappointed if yours are not adequate. Binoculars are rated by their magnification power and the size of the lens (measure of light-gathering power): 8 x 42 magnify eight times with 42 mm diameter lenses. We recommend these since they have sufficient magnification and light-gathering capacity for the dimly-lit rainforest environment while not being too large and heavy to use comfortably for longer periods. Smaller lenses are lighter and cheaper, but drastically reduce the amount of light gathered: this makes objects seem dim, colorless, and not sharp. 7 x 25 is minimal, and decent pairs can be found for $80 - $100; however, as field naturalists you may want to invest in a slightly better model. My favorite is the Nikon Monarch series (8 x 42), which run between $200 - $300. They're totally worth it!

First aid, personal pharmaceutical, and toiletry supplies: Your choice of items such as moleskin, Band-Aids, antibiotic ointment, ibuprofen, Benadryl, hydrocortisone cream, anti-diarrhea medicine (note that group first aid kit is for injuries, not small stuff). Also, bring any personal care items you need, as we will not be able to re-supply these items regularly and selection in Peru might be different than what you are used to. Don't forget sunscreen.

Headlamp: Sturdy, compact, good quality, several sets of batteries. Black Diamond, Petzl, or Princeton Tec are reliable brands. For those intending to explore the rain forest at night we recommend something with at least 200 lumens of light output, which is ideal if you really want to see well.

Water bottle or bladder: We prefer bottles; we've had many problems with leaky hydration packs/bladders.

Insect repellent: Biting insects aren't too common at our field site, but you may want to bring repellent just in case. Please remember that covering up is the best protection against bites, as well as the hot tropical sun and other hazards of field work.

Optional Equipment

Colored pencils: These will be useful for illustrating plants and animals in the field journal. Any artists will be happy to have even basic supplies.

Wristwatch: Get going on time.

Travel alarm clock: We start early! Your smart phone should have this option.

Camera: You'll want to take lots of photos!

Waterproof/dry bag or sturdy ziplock bags: Protect camera, etc., in rain.

Biodegradable soap: For washing clothes, dishes, your body.

Sunglasses

Spanish-English dictionary: For help with Spanish, spoken exclusively by locals at most of our field sites.

AA or AAA batteries: Batteries are available in Peru but price and selection are much better in USA.