



ALLIANCE FOR A  
**SUSTAINABLE  
AMAZON**



# 2018 Internships in the Peruvian Amazon

Edited 20 March, 2018

## Introduction to Sustainability

**Length: 4 weeks**

**Dates (2018):**

Session I: Apr 2–May 27  
Session II: Apr 30–May 25  
Session III: May 28–Jun 22  
Session IV: June 25–Jul 20  
Session V: Jul 23–Aug 17  
Session VI: Aug 20–Sep 14  
Session VII: Sep 17–Oct 12  
Session VIII: Oct 15–Nov 9  
Session IX: Nov 12–Dec 7

## Advanced Sustainability

**Length: 8 weeks**

**Dates (2018):**

Session I: Apr 2–May 25  
Session II: Apr 30–Jun 22  
Session III: May 28–Jul 20  
Session IV: Jun 25–Aug 17  
Session V: Jul 23–Sep 14  
Session VI: Aug 20–Oct 12  
Session VII: Sep 17–Nov 9  
Session VIII: Oct 15–Dec 7

## Academic Quarter

**Length: 12 weeks**

**Dates (2018):**

Session I: Apr 2–Jun 22  
Session II: Apr 30–Jul 20  
Session III: May 28–Aug 17  
Session IV: Jun 25–Sep 14  
Session V: Sep 17–Dec 7

## PROGRAM OVERVIEW

Our internship programs are designed to provide individuals—students, early-career or aspiring scientists, and/or those with an 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.

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 and guided reading discussion of primary scientific literature.

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 academic faculty.

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# I. About Us & the Internship Program

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## 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 research and education.

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.

Upon successful completion of an internship, participants will receive a Certificate of Completion from the ASA, as well as an evaluation, if requested. The evaluation is meant to serve as a way for us to provide informal feedback regarding interns' performance and academic progress throughout the program.

### 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, 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

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## Details

### Length

4 weeks

### Program Fees

\$325/week  
\$1,300 total

## Dates (2018)

Session I: Apr 2–May 27  
Session II: Apr 30–May 25  
Session III: May 28–Jun 22  
Session IV: June 25–Jul 20  
Session V: Jul 23–Aug 17  
Session VI: Aug 20–Sep 14  
Session VII: Sep 17–Oct 12  
Session VIII: Oct 15–Nov 9  
Session IX: Nov 12–Dec 7

## Application & Payment Deadlines

Session I:	Mar. 9
Session II:	April 6
Session III:	May 4
Session IV:	June 1
Session V:	June 29
Session VI:	July 27
Session VII:	Aug. 24
Session VIII:	Sept. 21
Session IX:	Oct. 19

## 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. After receiving training in basic field skills, 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)

### Biological monitoring

- Butterfly ecology, evolution, & natural history – participate in an ongoing, long-term study to understand butterfly diversity and biology, including butterfly collecting and rearing for host plant records
- Biological inventories – insects, birds, mammals, trees/plants
- Plant phenology (fruiting and flowering of select trees and plants) – to monitor changes over time in a changing climate
- Artificial macaw nest boxes – use and occupancy

### Sustainable agriculture

- Reforestation with native cacao – the plant from which chocolate is made is also a promising, biodiversity-friendly alternative to unsustainable agriculture in our region



- Experimental agricultural plots (e.g., to test effects of composting, biochar, & other organic fertilizers, intercropping, integrated pest management, etc.)
- Shade house and tree nursery management practices
- Native food forest monitoring – a future forest of native species with food, building, and/or medicinal uses

[Read more](#) about planned and ongoing projects in the Peruvian Amazon.

## 2. Advanced Sustainability Internship

Details	Dates (2018)	Application & Payment Deadlines
<p><b>Length</b> 8 weeks</p> <p><b>Program Fees</b> \$275/week \$2,200 total</p>	<p>Session I: Apr 2 – May 25            Session II: Apr 30 – Jun 22            Session III: May 28 – Jul 20            Session IV: Jun 25 – Aug 17            Session V: Jul 23 – Sep 14            Session VI: Aug 20 – Oct 12            Session VII: Sep 17 – Nov 9            Session VIII: Oct 15 – Dec 7</p>	<p>Session I: Mar. 9            Session II: April 6            Session III: May 4            Session IV: June 1            Session V: June 29            Session VI: July 27            Session VII: Aug. 24            Session VIII: Sept. 21</p>

### 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.

### Successful past projects

- Wild cacao (*Theobroma cacao*) survey and mapping at Finca Las Piedras, Madre de Dios, Peru – *Zephyr Dang*, September 2017
- Herpetofaunal diversity and abundances change from abandoned agricultural areas over edge habitat to terra firma forest in the Amazon – *Tobias Süess*, September 2017
- A Scarlet macaw nesting box built for their conservation at Alliance for a Sustainable Amazon – *Maddy Stauder*, September 2017
- An Estimation of Carbon in the Living Above Ground Biomass of Finca las Piedras – *Laura Coomber*, September 2017
- Assessing the sustainability of local farming practices in the vicinity of Finca Las Piedras, Madre de Dios, Peru – *Joao Vilca*, October 2017
- Discerning diurnal roost preferences of cavity roosting Neotropical bats for the purpose of designing successful artificial bat roosts – *Angela Brierly*, August 2017

### Example Activities (Highlights)

#### Academic

- 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

#### Biological Research & Monitoring

- Butterfly ecology, evolution, & natural history—participate in an ongoing, long-term study to understand butterfly diversity and biology, including butterfly collecting and rearing for host plant records
- Biological inventories—insects, birds, herpetofauna, mammals, trees/plants
- Plant phenology (fruiting and flowering of select trees and plants)—to monitor changes over time in a changing climate
- Artificial macaw nest boxes—use and occupancy

#### Sustainable Tropical Agriculture

- Reforestation with native cacao – the plant from which chocolate is made is also a promising, biodiversity-friendly alternative to unsustainable agriculture in our region

- Experimental agricultural plots (e.g., to test effects of composting, biochar, & other organic fertilizers, intercropping, integrated pest management, etc.
- Shade house and tree nursery management practices
- Native food forest monitoring – a future forest of native species with food, building, and/or medicinal uses
- Green infrastructure development – solar food dehydrator, bicycle-powered water pump, etc.

[Read more](#) about planned and ongoing projects that interns may participate in here.

### 3. Academic Quarter Internship

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Details	Dates (2018)	Application & Payment Deadlines
<p><b>Length</b> 12 weeks</p> <p><b>Program Fees</b> \$250/week \$3,000 total</p>	<p>Session I: Apr 2 – Jun 22            Session II: Apr 30 – Jul 20            Session III: May 28 – Aug 17            Session IV: Jun 25 – Sep 14            Session V: Sep 17 – Dec 7</p>	<p>Session I: March 9            Session II: April 6            Session III: May 4            Session IV: June 1            Session V: August 24</p>

#### 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, and is ideal for those intending to complete an academic thesis, particularly at the undergraduate level (i.e., capstone).

## Example Activities (Highlights)

### Academic

- 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

### Biological Research & Monitoring

- Butterfly ecology, evolution, & natural history—participate in an ongoing, long-term study to understand butterfly diversity and biology, including butterfly collecting and rearing for host plant records
- Biological inventories—insects, birds, mammals, trees/plants
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### Sustainable Tropical Agriculture

- Reforestation with native cacao – the plant from which chocolate is made is also a promising, biodiversity-friendly alternative to unsustainable agriculture in our region
- Experimental agricultural plots (e.g., to test effects of composting, biochar, & other organic fertilizers, intercropping, integrated pest management, etc.
- Shade house and tree nursery management practices
- Native food forest monitoring – a future forest of native species with food, building, and/or medicinal uses
- Green infrastructure development – solar food dehydrator, bicycle-powered water pump, etc.

[Read more](#) about planned and ongoing projects that interns may participate in here.

## **III. General Program Details**

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### **Requirements**

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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

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Our projects in Peru are as diverse as the rain forest that surrounds us, and fall into one of our two focal research areas: biological research and monitoring and sustainable tropical agriculture. Interns staying one month will have the chance to participate in a broad range of projects that are ongoing at Finca Las Piedras throughout the duration of their stay, and may also assist visiting investigators or other interns conducting independent research. Interns staying two or more months will have the opportunity to design and implement an independent research project, covering a topic of their choosing that aligns with the ASA's research priorities (see next section for more details).

The following are projects that are currently ongoing at Finca Las Piedras:

### Biological Research and Monitoring

#### **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! Furthermore, our understanding of these species' is poor to non-existent for most species, particularly those in the world's tropical regions. Our goals with this project are two fold:

- Generate basic biological information that will serve as the basis for further ecological and biological study, and which can be used to assess the threat status of butterflies in the southeastern Peruvian Amazon. This includes the number of species present in the Madre de Dios region, as well as their abundances and regional distributions. There are an estimated 1,500-2,000 butterfly species present in Madre de Dios, yet data are currently unavailable for nearly all species in the region.
- Generate basic information regarding the natural history of butterflies in Madre de Dios—in particular, butterfly host plant records. A butterfly's food plant is perhaps its most critical resource and, given that as many as one quarter or more of the world's plant species are thought to be threatened with extinction, these data are also urgently needed to quantify butterfly species' threat status.

## **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*. Environmental change—habitat loss and conversion and hunting are increasing rapidly in Madre de Dios—are likely having negative impacts on mammals in the region. The loss of these species, in turn, has cascading effects, including the disruption of food webs and altered rainforest communities resulting from the elimination of important plant dispersers. We are using camera traps to assess the mammalian community at Finca Las Piedras and surrounding rainforest and agricultural habitats, and to monitor changes in populations over time.
- *Birds*. A bird monitoring study is ongoing at Finca Las Piedras and has two main goals. First, we aim to document species occurrences and improve the FLP species list. This information is useful in quantifying local and regional biodiversity, and currently lacking for most sites in the region. Second, we are gathering quantitative data on bird abundances to track declines or growth of different species as land-use change continues in the region, and to discover differences in the avian community between seasons, times of day, and habitats.
- *Herpetofauna (reptiles & amphibians)*. Tropical reptile and amphibian species are facing serious threats: habitat loss, and declining populations due to the amphibian fungal pathogen Chytridiomycosis. Therefore, we consider surveys of this group to be of particular urgency. Data gathered regarding reptile and amphibian species presence, absence, and abundance will be useful in understanding both the impacts of these threats and how we can protect as many species as possible.
- *Insects*. Insects and other invertebrates represent the overwhelming majority of earth's biodiversity, yet almost nothing is known about even how many species, exactly, exist. Some one million species are currently known to science, with perhaps many millions more awaiting discovery. We are inventorying several key groups of insects at Finca Las Piedras, including Lepidoptera (butterflies and moths) and beetles. Our goal is to build species lists for these groups which will form the foundation for further study in insect ecology and biology, as well as their importance in Amazonian ecosystems.
- *Plants*. The Amazon rainforest, and the western Amazon in particular, is the world's most diverse region in terms of plants. At the Cocha Cashu Biological Station, in Manu National Park's lowland rainforest, botanists have identified at least 1,460 species, with many more certainly awaiting discovery. Outside of this site, however, almost nothing is known about the diversity or abundance of plant species in the region. We are conducting inventories of trees and other plants, with a special focus on species of special economic and/or conservation importance. These data will be useful in identifying priority areas for

conservation efforts and to track changes in forest composition as human impacts evolve in the region.

### **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.

Species of interest:

- Brazil nut (*Bertholletia excelsa*). 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 deforestation and forest degradation threaten the activity's 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.

We currently monitor a number of trees that are spread between the forested portion of Finca Las Piedras and the property's abandoned agricultural fields and regenerating forest. This presents the opportunity for a simple comparison of phenology and yields between interior/exterior trees, and will allow us to understand the impact of agricultural expansion on Brazil nut harvesting in the region, and the role of edge effects in shaping phenology and output.

- Aguaje (*Mauritia flexuosa*). We are also monitoring aguaje palms, which grow in a palm swamp or 'aguajal' on the Finca Las Piedras property. These palms produce a fruit that is another important non-timber forest product in Madre de Dios. In addition to the cutting of trees to harvest fruit and palm weevil larvae that colonize fallen trees, climate change and the destruction of swamp habitat for agriculture and gold mining in the region threaten the long term viability of the species' harvest. Phenology data collected at the field site will help managers determine the impacts of these threats on them.

### **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 heavily sought-after for the local and international pet trades. In addition, widespread selective logging removes the largest trees

from the rainforest landscape (e.g., ironwood, *Dipteryx* spp.), which are favored by macaws as nesting sites. This project has several goals: 1) Examine the efficacy in our area of two box designs that have been deployed previously with success elsewhere in Amazonia, and 2) Provide nesting opportunities for macaws in an area with scarce natural nest hollows, thus immediately boosting breeding success at the field site.

Although some work has explored the effectiveness of artificial boxes in pristine rainforests in our region, none have examined their use in previously logged forests, such as those that comprise the extensive Brazil nut concessions that surround the study site. These forests have been logged for several species of marketable timber but large Brazil nut trees—which are ideal for the placement of boxes—are generally left standing. Thus, a third contribution important will be the creation of a replicable model that others in our area can follow, enhancing the project's long-term prospects for success.

## Sustainable Tropical Agriculture

### **Organic Farming & Agroforestry**

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 other fruit and vegetable species.

*Cacao agroforestry.* Cacao (*Theobroma cacao*), from which chocolate is made, is native to the Amazon rainforest. As many varieties 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. Cacao agroforestry systems provide a number of benefits as compared to monocultures of other crops: the cacao forest canopy and the litter fall that it produces conserves and even improves the soil, and shade plants provide benefits ranging from increased complexity and thus higher value to biodiversity, nitrogen fixation (e.g., *Inga* spp.), and long-term economic benefits to farmers (e.g., via timber trees).

We are developing a series of experimental plots to test different organic growing practices to maximize yields using a native variety of cacao known locally as 'chuncho.' Our goal is to promote cacao agroforestry in already cleared and abandoned land along the Interoceanic

Highway in southeastern Peru, simultaneously improving local livelihoods and boosting the biodiversity value of agricultural lands, without promoting new deforestation.

*Organic compost & 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.

### **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.

**\*\*\* 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, or would like more information about something that is, please feel free to ask—we are always happy to help our interns design and execute projects that are within our focal areas. Please feel free to [email us](#) if you have any questions.\*\*\***

## **Independent Research Project**

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### **Overview**

The ASA is a research-focused organization, and we work to promote basic and applied research that helps us conserve biodiversity and other natural resources in our region. The internship program is a key part of our strategy, and interns can contribute by conducting research that



generates novel information of conservation importance. Basic research can be both directly and indirectly valuable, so we are open to a wide variety of research interests, not only those that are clearly and immediately linked to conservation.

The independent research project can be divided into three phases:

1. Project proposal.

The project proposal is a key part of the research process, and takes place before any data collection begins. It is critical that the proposal clearly makes a case for the importance of the proposed research, i.e., that it is justified. This is also where the methodology that will be used to gather data and answer the question of interest is laid out. The proposal should include the following sections:

*Introduction.* This is where you introduce your audience to your topic, and define the question that the project will attempt to answer. The introduction should begin broad, first hooking the reader and then going on to provide all of the information necessary to understand *why* this research is being conducted and why it is important or interesting. The introduction should build to the proposed research question, which is presented at the very end.

*Methods.* In this section you will clearly outline the methodology you intend to use to gather data and answer your question. The methods section serves two purposes: 1) First, it allows others to evaluate the proposed methodology, to ensure that it is adequate to answer the question being asked, that there are no important sources of bias, etc. 2) Second, this allows others to replicate and verify the study's findings. In science, one study does not create a rule; only by accumulating evidence does the scientific community converge on general patterns, theories, or laws of the natural world. Replication is a crucial part of that process, and this is greatly facilitated by clearly-defined methods.

*Expected results.* In this section you will outline what you expect to find after completing your field study. This is also the place to discuss what might go wrong, and what might result if it does. Be especially attentive to possible biases in the experimental design, as well as other factors that might be out of your control, that could present problems collecting data or interpreting findings. The better you think about possible pitfalls at this stage, the better you will be able to avoid problems and deal with them as they arise in the field.

2. Data collection.

This is the stage of the research project that will occupy the bulk of your time in the field. You should aim to spend as much time as possible in the field collecting data, to make sure that you have as much information as you need to draw reliable inferences from your data set. One or two months may sound like a long time for a field study, but the reality is that things almost always take longer than expected, and there are always setbacks that

consume time and energy. Make sure that in your project proposal you have a realistic plan in place before beginning data collection, and that you have thought through any possible pitfalls and how to deal with them efficiently.

### 3. Project report.

A study is of little use if its findings are not available to others. Therefore, all interns are required to submit a final research report *before* leaving the field site in Peru. The ASA will publish this report on its website, so that others can access it. No matter how modest your study and its findings might seem, the extreme lack of basic research being conducted in our region ensures that any information generated by your study will at some point be useful to somebody. It is tempting to cut corners at this stage, especially after spending several months of hard work conducting the field study, but make sure that you produce as good a report as you can, to maximize its impact within the scientific and conservation communities.

The final report should be a shortened version of a peer-reviewed scientific article, and should contain the following sections:

*Introduction.* In this section, just as you did in your proposal, you will outline why this study is novel, interesting, or important, provide the reader with all of the essential information they need to understand your study in its broader context, and lay out very clearly the question that you have addressed. Remember to start broad, first hooking the reader and then proceeding in a logical fashion to the question, providing all of the important background information. Again, the main purpose of this section is to contextualize your study and make it clear not only what you have done, but why you have done it.

Once you have collected your data and analyzed it, you might be surprised to arrive at something unexpected—perhaps your data suggests that your hypothesis was incorrect, maybe you think the study did, in fact, suffer from one of the pitfalls you foresaw in the proposal, or maybe something entirely unanticipated occurred. Another possibility, one which occurs frequently in science, is that you stumble upon something that you had not considered at all, i.e., you are able to answer a question that is partially or even totally unrelated to your original question, and that is perhaps even more interesting or compelling. If this is the case, it is okay at this stage to reframe your study, or continue as originally planned and produce another report entirely regarding this new question. Good data sets will often allow you to tackle several related questions, and you should always maximize your hard-earned dataset's utility.

*Methods.* In this section you will outline exactly what you did in the field, just as in the proposal's methods section. And, just like in the proposal, the goal of this section is to allow other scientists to evaluate the appropriateness of your methods to the question being asked, to catch any biases or mistakes that might have been made, and to replicate the study in another system. Make sure that you modify the methods section in the final report if anything has changed from the proposal.

*Results.* In this section you will present your findings. Do not interpret your results here, that is for the next section. The main findings of most studies should be easily presented visually, as a graph, table, or other figure, and should summarize the results so that a reader can very quickly see what was found. There are a massive number of articles being published today by the global scientific community, and you can ensure that your work is read and cited by making the main point and the most important findings of your study very easy to obtain, at a glance. Aesthetics also counts—try to make your figures as visually appealing and as easy to follow as you can.

*Discussion.* In this final section, you will discuss your results. Did your results support your hypothesis? If so, then discuss in more detail why this is important. Did you find something unexpected? If you did, then you should discuss why this might have been. This is where you will discuss possible pitfalls, how you dealt with them, and how you could do better in the future. Finally, you should discuss in detail what should come next. Perhaps you have answered your question satisfactorily, in which case you should propose new questions to follow. If you have not answered your question, what should be done next time? Science never stops, and tomorrow's discoveries will be built upon those made today; make sure you clearly lay out what the next step is, to keep momentum going in your field.

### **Project topics**

There are a dizzying variety of plants and animals at our field site in the Peruvian Amazon, and the way in which these organisms interact with one another to create a functioning ecosystem is truly perplexing. Therefore, narrowing down a study topic is often one of the most challenging parts of an internship with us. However, we can offer some advice. First, you should think about what biological or other natural processes interest you the most? For example, going back to your introductory ecology or biology course, which section most captured your attention? Do you gravitate to plants, or perhaps insects, or perhaps the interaction between the two? Do you care about climate change, and how trees and other plants can help mitigate its effects? Maybe you are fascinated by aquatic ecosystems, or by the birds that occupy the forest edge or its interior. You should begin by thinking broadly about what you find interesting. A good place to start is by reading through the recommended readings (Tropical Nature & the New Neotropical Companion), or by reading carefully through the ongoing projects at Finca Las Piedras. Our academic faculty is always here to help as well, all you have to do is seek their guidance.

Whatever question you decide to pursue, it is important that your proposed research is feasible, both in terms of the time that you have to do it and the tools that will be available to you in the field. Some projects will be more realistic than others, and you should coordinate with the ASA academic faculty if you have any doubt. When considering your topic, please keep in mind that you will have only basic tools available at the field site: hand-held GPS units, basic tools like shovels, hammers, nails, hand saws, scrap wood, butterfly nets, and a few other sorted tools and equipment are available. Other things can be purchased in Puerto Maldonado, but will be your financial responsibility. Keeping it simple is always best, at least when possible.

You should also be aware that internet access is not very reliable at the field site, even if you purchase a sim card for your smartphone, and any serious internet time will likely be spent in Planchon, the closest small town to us. To get to Planchon you will have to walk 2 kilometers to the paved highway, from where you will take a colectivo (shared taxi) to town. The colectivo charges 2-3 Peruvian Nuevos Soles, and the internet café charges 2 Soles per hour. Alternatively, you can call a car to take you door to door for a few soles more. Bringing some literature with you, therefore, in addition to the two recommended readings, will be very helpful. Our academic faculty also maintain an extensive digital library of primary scientific literature spanning ecology, biology, evolution, and conservation science, and will be happy to share this information with you.

## **Schedule**

Adhering to the following schedule will help you organize your time effectively, and will ensure that you work efficiently and maximize the time you have to collect data in the field.

*Pre-proposal—due two weeks prior to arrival.* This is optional, but highly recommended, and should be formatted following the guidelines outlined above. Please feel free to write to us with your ideas, and our academic faculty will be happy to provide guidance.

*Full proposal—due at the beginning of week 3.* Interns will begin work on this proposal during the second week of their internship, under the guidance of on-site academic faculty. If you have provided a pre-proposal prior to your arrival (highly recommended), that will serve as the basis of the full proposal, and ASA faculty will provide comments and suggestions to strengthen the proposal.

Full proposal re-submission—due at the end of week 3. ASA academic faculty will review the proposal during week 3 of the internship, and a final version will be due at the end of the same week.

*Field data collection—begins during week 4.* Interns should be ready to begin collecting data at the beginning of week 4 of their internship. This week should be viewed as a pilot period, and interns should plan to work out kinks in the data collection protocol during this period, with normal data collection beginning subsequently.

*Project report—due during the final week of the internship.* The final report, which is outlined above, is due at the beginning of the final week. This will allow interns not only to maximize the period of data collection, but will also permit academic faculty to review the work and provide comments, corrections, and suggestions. The final report is due the day before interns depart Finca Las Piedras, and will share their project with the field station during a brief (10 minute) oral presentation.

## **Dates, Deadlines, & Fees (2018)**

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	<b>Internship Program</b>		
	<b>Introduction to Sustainability</b>	<b>Advanced Sustainability</b>	<b>Academic Quarter</b>
Duration	4 weeks	8 weeks	12 weeks
Fee/week	\$325	\$275	\$250
Total fees	\$1,300	\$2,200	\$3,000
	<b>Session Dates</b>		
Session I	Apr 2 – Apr 27	Apr 2 – May 25	Apr 2 – Jun 22
Session II	Apr 30 – May 25	Apr 30 – Jun 22	Apr 30 – Jul 20
Session III	May 28 – Jun 22	May 28 – Jul 20	May 28 – Aug 17
Session IV	Jun 25 – Jul 20	Jun 25 – Aug 17	Jun 25 – Sep 14
Session V	Jul 23 – Aug 17	Jul 23 – Sep 14	Sep 17 – Dec 7
Session VI	Aug 20 – Sep 14	Aug 20 – Oct 12	--
Session VII	Sep 17 – Oct 12	Sep 17 – Nov 9	--
Session VIII	Oct 15 – Nov 9	Oct 15 – Dec 7	--
Session IX	Nov 12 – Dec 7	--	--
	<b>Application &amp; Payment Deadlines</b>		
Session I	March 9	March 9	March 9
Session II	April 6	April 6	April 6
Session III	May 4	May 4	May 4
Session IV	June 1	June 1	June 1
Session V	June 29	June 29	August 24
Session VI	July 27	July 27	--
Session VII	August 24	August 24	--
Session VIII	September 21	September 21	--

Session IX	October 19	--	--
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2018 Internship Program fees include the following:

- Full-time Academic Programs 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)
- Costs of materials for independent research projects (where applicable)

### Fees & Cancellation Policy

- An Application Fee of \$150 is due after registering for the Internship Program. This deposit is non-refundable under any circumstances.
- If you cancel on or before the Application & Payment Deadline (specified for each Program and Session), we will refund all program fees paid (except for the \$150 non-refundable fee).
- No fees will be refunded after the Application & Payment Deadline.
- No refunds will be made for early departures.

Alliance for a Sustainable Amazon reserves the right the change or cancel an internship program for any reason. If a program gets cancelled for which you have registered and/or paid for (either partially or in full), we will refund the total amount of fees paid directly to us (including the Application Fee).

Alliance for a Sustainable Amazon is not responsible for non-refundable airline or other tickets, or payments or penalties from any third parties that may be incurred as a result of a program cancellation.



## How to Apply

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Applying for an Internship is easy!

1. Decide which Internship you wish to participate in (Introduction to Sustainability/4 wks, Advanced Sustainability/8 wks, or Academic Quarter/12 wks)
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.sustainableamazon.org/internships-register](http://www.sustainableamazon.org/internships-register)). If you're accepted into the program, we will contact you with further details regarding the registration process, including payment options for the \$150 non-refundable Application Fee to reserve your spot, as well as the remaining balance of the Program Fees.

Make sure to register and pay by the Application & Payment Deadline for your Program (see the [table](#)). Please also read our [Cancellation Policy](#), as well as our [Terms and Conditions](#) before making a payment.

## Still Have Questions?

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

## IV. About the Field Site, Finca Las Piedras

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Finca Las Piedras is the Alliance for a Sustainable Amazon's field site and base of operations in the Peruvian Amazon. Located about an hour north of the Madre de Dios Department's capital of Puerto Maldonado near the recently paved Interoceanic Highway, the site provides researchers, students, educators, conservation professionals, and others access to a variety of Amazonian ecosystems. The site is located at the edge of an upland 'terra firme' rain forest that extends for hundreds of kilometers to the east; regenerating secondary forest and active and abandoned agricultural fields are also within easy reach.



Living facilities on site include shared dorms and private rooms, shared composting toilets, a shared bathing platform over a crystal clear jungle stream, and kitchen and dining hall where meals are served—all rustic and designed to minimize our environmental impact. An irrigated shade house, a flight cage for research on Lepidoptera, and a trail network that provides access to numerous rain forest habitats are also available.

The ASA maintains a number of projects at the site, including [biological research and monitoring](#) and [sustainable tropical agriculture](#) projects. Through these projects, our international team of faculty, staff, and visitors works to mitigate the impacts of human activities in the region, and stem the loss of species as the Amazon experiences unprecedented change.

## V. FAQ

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### 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 cannot 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 September 2017 was about S/. 3.23 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 'frijajes,' 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 interns 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 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.

Living facilities on site include shared dorms and private rooms, shared composting toilets, a shared bathing platform over a crystal clear jungle stream, and kitchen and dining hall where meals are served—all rustic and designed to minimize our environmental impact. An irrigated shade house, a flight cage for research on the Lepidoptera, and a trail network that provides access to numerous rain forest habitats are also available.

### What's a typical day like in the field?

An intern'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 an intern, 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—interns 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, interns 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 interns 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.

However, please note that, even if you purchase a sim card and data package through Claro, internet will be extremely limited at the field site. The most realistic and convenient option for accessing the internet, other than from Puerto Maldonado, is to go to Planchon, the nearest town to the site that has internet cafes. To get to Planchon, you must first walk 2 kilometers to the paved Interoceanic Highway, from where you can get a ‘colectivo,’ or shared public taxi. The fare is roughly 2-3 Nuevos Soles. Our usual drivers can also be called, and may provide door-to-door service for slightly more. Internet service is usually around 2 Soles per hour, and is typically of good enough quality for conducting most usual business (e.g., replying to emails, surfing the web, making calls, etc.). Please be aware, however, that internet service in our region is not always reliable, and there are frequent periods when speeds may be slower than usual or when there is no internet at all.

#### 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

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The following is a list of clothing and gear that we strongly recommend you bring with you for your Internship Program in the Peruvian Amazon. The ASA will provide interns with all of the gear and equipment that is needed for participating in the field projects (e.g., scientific equipment, tools, etc.), but we do not provide anything that is of a personal nature. Please look over the following list carefully, and make sure that you bring all of the things necessary for you to enjoy your time in the rainforest. Please also be aware that we’ll stop briefly at the market in Puerto Maldonado, where you can purchase forgotten items or things you might prefer not to travel with (rubber boots, rain poncho, soap & other toiletries, etc.).

### Clothing

**Long-sleeved shirts:** Several, for protection against sun, insect bites, and other jungle hazards.

**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. We prefer thicker pants (e.g., Dickies or similar) for working in the field, but quick-dry material is also

very nice.

**Cold weather gear:** It may seem strange, but it can actually get quite cold in the Amazon! During the austral winter (roughly May through September) cold fronts known as ‘frijas’ move up the Andes from Patagonia and Antarctica, dramatically reducing temperatures in the southwestern Amazon, including our area in Peru. During strong frijas temperatures can drop into the 40s for several days, so if you are interning during these months we recommend that you bring something for colder weather—a light jacket or fleece, and whatever else you think you’ll need to stay warm.

**Rain jacket or poncho:** You will need it! Make sure the jacket is water *proof*, not just water *resistant*. Gore-Tex is the best. We 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, working in the agricultural plots, etc.

**Socks:** 5-10 pairs. Bring as high-quality as you can; thin socks tend to wear out quickly and can cause blisters, especially while wearing rubber boots, which will make hiking and working no fun.

**Shoes:** A pair of sneakers or running shoes to wear around camp, in towns, etc.

**Sandals:** You may want to also consider a pair of hiking sandals (e.g., Teva, Chaco, etc.) or simple flip-flops, to use as camp shoes or in town.

**Rubber boots:** Essential in the jungle—these offer great protection from mud, as well as biting and stinging insects and other animals. You can bring your own, but good rubber boots are also available cheaply in Puerto Maldonado. We require all interns to wear rubber boots while working in the field or hiking in the rainforest. We also recommend against bringing hiking boots—they are heavy and bulky, they are slow to dry once wet, and they are essentially useless when it’s muddy (which is often!).

**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 and keeping a journal during your time as an intern. 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 in the U.S.

**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!

**Laptop computer:** For data entry, management, and analysis. Make sure the computer's battery stores a charge, as electricity will be available only periodically at the field site. The following programs should also be installed: QGIS, R, a spreadsheet program, and a word processor (see above for details).

**USB flash drive:** For transferring files.

**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.

**Trail mix, trail bars:** Packaged snacks are available in Peru, but selection not what you might be used to.

**Peanut butter in plastic jar:** Rare and expensive in Peru. While this might seem like an odd thing to bring, believe us, you will be glad to have it in the Amazon!