



**ECOSYSTEM CONSERVATION:
THE PERU PROJECT**

September 29 – November 11, 2017

**Meeting Place: Cuzco, Peru
15 quarter credits/10 semester credits**

FULL PROJECT DESCRIPTION

Thank you for your interest in our Peru field study. This is an exciting opportunity to gain hands-on experience in tropical ecology and conservation, while exploring some of South America's most important ecosystems, including windswept Andean grasslands, misty cloud forests, the lush foothills region where the Andes meet the vast Amazon rainforest, and the swirling headwaters of several major Amazonian tributaries. The montane and lowland rainforest habitats of our study region are incredibly biodiverse—so diverse, in fact, that the region has been called the 'Biodiversity Capital of the World.' That, coupled with southern Peru's exceptionally varied cultural landscape, make this an fascinating place to learn about and study both the natural and human environments. Under the guidance of Wildlands faculty, local experts, and research biologists, participants will learn about and participate in ongoing research at biological stations, as well as innovative conservation initiatives and study efforts to maintain the natural and cultural integrity of the region.

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I. Background information

Moving west across the Amazon basin in Peru, the Andes mountains rise suddenly and dramatically, towering over the steamy jungle below. Here, where these two great ecosystems meet, more species of plants and animals can be found per unit area than almost anywhere else on the planet. A few acres of tropical rainforest in the Tambopata National Reserve, for instance, which lies just a short canoe ride from the bustling regional capital of Peru's Madre de Dios Department, contain more species of tree than all of Great Smoky Mountains National Park, the most biodiverse park in the United States. The region is also a hotspot for butterfly diversity: working at one site in Tambopata and another in the nearby Manu National Park, Peruvian entomologists have identified over 1,500 species—compare that to fewer than 800 butterflies in all of North America!

In addition to holding world records for biodiversity, the vast rainforests of southern Peru are home to some of the Amazon's healthiest wildlife populations. Giant river otters, which are increasingly rare throughout much of their range in the Amazon basin, can be easily observed in many of the region's rivers and oxbow lakes. Parrots and brightly-colored macaws flock in the hundreds to 'colpas,' where they feed on salt-rich clay from exposed river banks. Jaguars are regularly seen resting on riverside beaches, alongside clouds of brilliant butterflies, some of which acquire salts from the tears of turtles and black caiman, the Amazon's largest and most endangered reptile species. Peru Project team members will have the rare opportunity to study these and many more of southeastern Peru's myriad life forms as we travel by foot, road, and boat to some of the most pristine, biodiverse, and visually stunning habitats on earth.

While human density in our study region is low, and forest cover is relatively high, extractive activities are emerging as a significant threat to the region. With the recent completion of the Interoceanic Highway, which connects the Cusco and Madre de Dios Departments with ports on the Atlantic and Pacific coasts of South America, as well as a dramatic rise in the price of gold, a flood of colonists from the Peruvian highlands have descended upon the rainforest in search of economic opportunity: gold mining, logging, slash and burn agriculture, and cattle ranching are all taking their toll on the forest ecosystem, its numerous plant and animal species, and local indigenous communities. One of the main challenges facing conservation and ecosystem restoration projects in this region is ensuring that biophysical and socioeconomic factors driving deforestation and ecosystem degradation are equally well understood and incorporated into management practices. Our field studies will permit us to study these complex dynamics firsthand, and directly observe the management of biological and other natural resources by government and local communities alike.

II. Project goals and activities

Participants will gain experience, skills, and understanding in three inter-related academic domains. These include: 1) Field research methods through an introduction to methods for biological research regarding ecology, natural history, and conservation; 2) Ecological theory and the flora, fauna, and ecosystems of the southern Peruvian Andes and Amazon regions, and; 3) conservation, natural resource management, and sustainable development, with particular attention to the relationship between society and the natural environment.

Our learning methods will be experiential and academic. We will learn through direct engagement with people, places, plants and animals, as well as through academic means such as lectures, readings, and discussions. Our learning will be both traditional and communal, with each team member striving to bring new insights to the group based on discussions with biologists and Amazonian people, and analysis of wide-ranging experiences. Our guest speakers will include indigenous experts with sophisticated traditional knowledge of their local environments and biologists engaged in studies of lowland forest, mountain, and aquatic ecosystems.

We begin in Cusco, high in the southern Peruvian Andes, where team members will be introduced to the program and expectations during the first few days of the project. From here, we begin our descent down the eastern slope of the Andes along the world-famous 'Manu Road,' stopping first at the Wayqecha Biological Station. At Wayqecha we'll study the ecotone where the windswept Andean altiplano meets lush Andean cloud forest, including an almost overwhelming abundance and variety of epiphytes: orchids, bromeliads, ferns, and mosses, as well as unique cloud forest animals such as birds, insects, and amphibians. From Wayqecha we continue our descent, ending in Pillcopata, where we will spend several days exploring primary and secondary forest habitats, including a several-day backpacking trip to the privately-managed 'Gallito de las Rocas' conservation concession where we'll have stunning views of cloud forest and mid-elevation rainforest, with the towering Andes as the backdrop.

From Pilcopata we'll travel for almost two entire days by motorized canoe to reach the remote Cocha Cashu Biological Station, located in the heart of Manu National Park, the gem in Peru's protected area network in the Madre de Dios region. Here, students will complete group projects that will emphasize field research methods in tropical ecology and conservation studies. Reading discussion, seminars, and faculty presentations continue during this period. At Cocha Cashu, due in part to its geology and also to its remoteness, we'll have the opportunity to study pristine lowland tropical rainforest that is essentially free from human impact (although hunter-gatherers do inhabit the area in low densities), and which is bursting with wildlife such as giant river otters, harpy eagles, jaguars, and anacondas.

Our next stop is the Los Amigos Biological Station, adjacent to the 150,000 hectare Los Amigos Conservation Concession. At Los Amigos we will explore the rainforest canopy, practice river-based surveys for birds, mammals, and reptiles, and visit a *colpa* – a place where peccaries, monkeys, deer, tapir, birds, and insects come to supplement their diets with salt, which is otherwise in short supply in this part of the Amazon. Los Amigos is a world conservation first – a concession not for mining, logging, or oil extraction, but for the protection of biodiversity – that aims to preserve a major part of a biological corridor between Manu National Park (where we are coming from) and the Tambopata National Reserve (towards which we are headed next).

Our final field site will be a small Brazil nut concession near Puerto Maldonado, the humming economic hub of Madre de Dios. Here we will participate directly in the production of one of the Peruvian Amazon's major sustainable natural resources, as well learn about the unsustainable activities—slash and burn agriculture and illegal logging, mostly—that threaten its long-term viability. We'll then return to Puerto Maldonado, where the project concludes.

Please note that prior field research experience is not required, and all necessary field methods and data gathering skills will be taught on-site in Peru. However, we expect participants to arrive excited and prepared for a rigorous yet rewarding field study experience. Spanish language skills are not required, but will enhance the experience of participants.

III. Academic credit

Students will receive 15 quarter credits/10 semester credits from Western Washington University. Our staff will be happy to explain the program in further detail to the applicant's advisor, if necessary. This field studies program gives credit in three courses:

ESCI 497T, Environmental Wildlands Studies (5 quarter credits/3.35 semester credits)

ESCI 497U, Environmental Field Survey (5 quarter credits/3.35 semester credits)

ESCI 497V, Wildlands Environment and Culture (5 quarter credits/3.35 semester credits)

Letter grades are based upon: 1) active participation in our learning process and activities; 2) examinations and other graded assignments; and 3) implementation and presentation of an independent research project.

Team members are expected to conduct themselves in a mature and responsible manner. Wildlands Studies reserves the right to require any student to withdraw from the program if their conduct is detrimental to or incompatible with the interests, safety, or welfare of any course participants. We ask all students to read the Student Program Manual before joining the project on-site.

IV. Team logistics

Participants will fly into Cuzco, Peru, and meet the instructors at the Alejandro Velasco Astete International Airport (CUZ). We will end the project in Puerto Maldonado, Peru, where participants can decide either to fly home on the scheduled date or remain in Peru to travel independently.

All reasonable efforts will be made to follow the activities outlined above. However, please understand that on our Peru program, travel arrangements can remain tentative until the traveling actually takes place. Weather conditions and road closures, as well as political and bureaucratic considerations may affect our plans. Wildlands Studies has put together an innovative, unique program in Peru, and team members need to be flexible, patient, and prepared to adapt to unexpected situations. Being flexible also allows us to take advantage of unique opportunities that can produce some of the program's most memorable moments.

Participants are required to bring their own camping and backpacking equipment (tent, sleeping bag, backpack, water filter, etc.). A complete, detailed packing list will be provided to all participants.

V. Accommodations

We will camp, lodge primarily at research stations and stay at occasional hostels or rural lodges.

VI. Official documents/visa

You will need a current passport. Citizens of the U.S. and many other countries obtain visas upon arrival at the international airport in Lima, Peru.

VII. Language

This program is taught in English, although many of the research stations and locations we visit will speak Spanish. The ability to speak Spanish is not a course prerequisite. The Instructor and other staff will translate as needed. Of course, it is always helpful to speak Spanish, and if you have the chance, please practice or brush up on your language skills before the project initiates.

VIII. Pre-Program Mailings

Detailed information regarding travel/flight and visa information, equipment/gear requirements, food costs, meeting plans, group expenses payment, medical and vaccination recommendations, and academic preparations will be sent to all team members in a logistics letter emailed about 8-10 weeks before the project initiates.

IX. Project Leader

GEOFFREY R. GALLICE: Ph.D in Entomology, University of Florida, 2015. Geoff is a tropical biologist whose scientific research interests lie in the ecology and evolution of butterflies. In particular, he is interested in the clearwing butterflies, a group whose biology is fascinating, and which serves as a model for diverse studies in ecology and evolution in the tropics. He is also active in applied conservation research, and is currently leading a project to explore the threat posed by road construction to biodiversity conservation in the Amazon rainforest of Peru. His research has taken him throughout Guatemala, Costa Rica, Panama, Ecuador, Peru, Bolivia, Brazil, Malawi, Zambia, and Malaysia. Geoff has been teaching with Wildlands Studies since 2012 and currently leads our Peru and Ecuador Projects.

X. Project Costs

Program Fee:	<u>Fall 2017</u> : \$4150 plus \$150 Application Fee. Program fee due August 1, 2017.
	Enrollment on a space-available basis after the fee due date until the program is full.
Estimated In-country Expenses:	<u>Fall 2017</u> : \$2750 per person.
	This includes most in-country accommodations, travel in-country, camping costs/permits, logistical support, group supplies and materials/research costs.
Food Money:	\$600-700 (this varies according to taste - but don't be caught short)
Personal Spending Money:	\$400
Estimated Airfare:	\$1500

Students should inquire at the financial aid office of their home campus regarding the use of their loans or grants for this course. Wildlands Studies is not responsible for non-refundable airline or other tickets or payments or any similar penalties that may be incurred as a result of any course cancellation or changes.

XI. Contact Information

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