CEIBA FOUNDATION FOR TROPICAL CONSERVATION

TROPICAL ECOSYSTEMS: ANDES TO AMAZON

SUMMER FIELD COURSE

ECUADOR, SOUTH AMERICA

INFORMATION PACKET

CEIBA FOUNDATION FOR TROPICAL CONSERVATION
EDUCATION PROGRAM
1202 WILLIAMSON STREET
MADISON, WI 53703 U.S.A.
EMAIL: courses@ceiba.org

Ceiba Education Program
Summer Field Course Information Packet

Tropical Ecosystems: Andes to Amazon

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Tropical Ecosystems: Andes to Amazon

1. GENERAL INFORMATION

1.1 Purposes and Goals of Ceiba

The Ceiba Foundation for Tropical Conservation (Ceiba) is a 501(c)(3) nonprofit research, conservation and education organization founded in 1997. The purposes and goals of Ceiba are to: 1) teach applied ecology and management principles in field courses, seminars and technical training workshops, 2) support community-based wildlife and habitat conservation efforts in tropical South America, 3) identify and support resource management practices that maintain ecosystem integrity and biodiversity, 4) monitor the impacts of human land uses on ecosystems, habitats and species diversity and 5) facilitate communication between conservation organizations, farmers, scientists and resource managers.

The fate of natural resources, habitats and native plant and animal populations is in the hands of this and future generations. The goal of Ceiba's education program is to provide students with hands-on experience, as well as increased awareness and scientific knowledge of tropical ecosystems that will inspire and equip them to tackle current and future conservation challenges. We take students out of the classroom and immerse them in some of the richest ecosystems on earth, providing a solid background in ecological principles and field methods, while giving a realistic view of the biological, sociological and economic complexities underlying conservation issues.

1.2 Course Title, Dates and Tuition

Course Title: TROPICAL ECOSYSTEMS: ANDES TO AMAZON

Course Dates: May 28 - June 27

Course Tuition: $3,500 per student*****

The course tuition includes all food, lodging and travel within Ecuador. Tuition fee does not cover airfare to Ecuador, any pre- or post-course travel expenses, departure tax, or emergency medical costs. Students may want to bring some additional pocket money for gifts, snacks, laundry services and personal items. For more information on airfares and travel in Ecuador, see the Traveling to Ecuador section.

* The University of Wisconsin's International Academic Programs Office charges an additional fee for application and processing and accreditation (250 Bascom Hall, 608-265-6329, peeradvisor@bascom.wisc.edu, www.studyabroad.wisc.edu).

1.3 Course Summary

The course begins in Quito, where students will spend the first two nights in the comfortable Hotel Embassy. The next morning we depart for the El Pahuma Orchid Reserve, a private reserve protecting over 1,500 acres of superb middle elevation montane forest and cloud forest habitat. High in the epiphyte-laden Andean cloud forests, El Pahuma showcases a breathtaking diversity of native orchid species, and is a model conservation and ecotourism project owned and operated by a local family, the Limas. The El Pahuma Orchid Reserve is a conservation project managed by Ceiba, which provides technical expertise and training to the landowner and his family so they may continue to manage their land in a sustainable and non-destructive manner. Students will have an opportunity to see first-hand how private reserves are managed and how tropical conservation projects are implemented. Once at El Pahuma, a rugged three hour hike will take us to a remote cabin where we will camp for two nights, high in the virgin cloud forest. We spend the days studying the montane ecosystem and some of its natural and cultural riches, which include the famous Yumbo trail, used by pre-Colombian peoples to transport goods from Quito to the coast and back. This trail was used so heavily as a trade route that in places it has been worn over 10 feet deep into the earth by the passage of thousands of people.

The following morning, we leave El Pahuma and descend to the hot, dry and sparsely populated Pacific coast. Along the way we will stop to observe examples of common agricultural land uses, such as the banana and oil palm plantations that dominate the coastal foothills, as well as crops such as pineapple, papaya, manioc, and passion fruit. Although Ecuador's Pacific coast has long been settled, it retains a few splendid examples of seasonal dry forests, a highly threatened though often overlooked tropical ecosystem, very different from the "rainforest" people tend to think of when they picture the tropics. Our home for the next three days is the Lalo Loor Dry Forest reserve, a Ceiba project inaugurated in 2005 to protect one a few remaining tracts of semi-deciduous tropical forest in the region. Once there, we will explore this unique ecosystem, practice several standard field research methods, and discuss the distinct challenges that conservation projects in this region must confront. For our final days on the coast we will camp on the shore of the Pacific Ocean, soaking up the sun and studying rocky intertidal systems and visiting the mangroves of the Muisne estuary.

Having concluded the first section of the course, we return to Quito from the coast, passing several of central Ecuador's impressive volcanoes along the way. We spend a full day in Quito, visiting the colonial plazas and churches of the old town and making final preparations for our rainforest adventure. The following day we take a day trip over the 16,000 foot (4850 m) Papallacta Pass, dominated by the 19,000 (5760 m) foot high dormant volcano Antisana. Below the glacier-topped cone of this giant we stop to study the cold, windswept high-Andean páramo ecosystem, well above tree line, in the Cayambe-Coca National Park. Activities here will focus on the contrasts between high and low elevation ecosystems, and the factors responsible for the great differences in their flora and fauna. We return to Quito the same night to prepare for our journey to the lowlands the following day: we'll fly to the town of Coca, motor down the Napo river (the Amazon's largest tributary), drive through oil exploration and extraction territory, and finally travel by dugout down the wild Tiputini River to our destination.

We spend the remainder of the course (14 days) concentrating on the lowland rainforest ecosystems at the Tiputini Biodiversity Station (TBS) located deep within the Amazon forest. At TBS, students are immersed in the primeval rainforest adjacent to the 1.7 million acre Yasuní National Park and surrounded for miles on all sides by pristine forest. Students will have the rare opportunity to see many rainforest mammals, including 10 species of primates, jaguar, ocelot, puma, capybara, agouti, tapir, giant anteater, otters and tayra, fascinating river dwellers such as the pink river dolphin,

anaconda and caiman, as well as over 540 species of birds, including immense harpy eagles, toucans and macaws. To encounter as great a diversity of wildlife as possible, we take long forest hikes, day trips to salt licks and blackwater lagoons, and climb TBS's exhilarating canopy access tower for a unique bird's-eye view of the forest canopy and the throngs of birds and other wildlife that carry on their lives high above the forest floor.

At the station, lecture topics focus on tropical rainforest structure and dynamics, tropical flora and fauna and ecological interactions, with daily field activities geared toward learning methods for ecological research. We'll also discuss many of the problems confronting conservation of tropical rainforests, including some particularly applicable to this region: oil development, colonization, and tourism. We may also have the opportunity to hear from scientists working at TBS, a research station that has become a hotspot for the study of insects, primates, plants, and birds by biologists from around the world.

We end our learning adventure by retracing our steps back upriver by canoe and by bus, finally flying back to Quito from the town of Coca. The course will wrap up with a visit to the artisan market in Otavalo, where Highland Quichua vendors with traditional long, black ponytails still speak their ancestral language.

2. DETAILED COURSE INFORMATION

2.1 Course Itinerary, Lectures and Activities

The next two pages provide a summary of our itinerary and a list of course activities and lecture topics. The very nature of field courses and travel in Latin America necessitates a certain measure of flexibility, and the final course itinerary will most likely be slightly different from the one provided here. Lecture topics may change opportunistically in response, for example, to an interesting observation in the field or the presence of a visiting scientist. Activities may change in response to weather, unexpected delays or other unpredictable circumstances.

2.1.1 Course Itinerary

Days 1-2	Quito: general introduction, lectures, last-minute shopping
Days 3-5	Cloud forest: El Pahuma Orchid Reserve
Day 6	Travel to Pacific coast
Days 7-9	Dry forest: Lalo Loor Reserve
Days 10-11	Mangroves & intertidal systems: Muisne and Pacific coast
Day 12	Travel to Quito
Day 13	Free time – optional tour of Quito's colonial old town
Day 14	Páramo and *Polylepis* woodland: Cayambe-Coca Ecological Reserve
Day 15	Travel to Tiputini Biodiversity Station
Days 15-29	Lowland Rainforest: Tiputini Biodiversity Station
Day 29	Travel to Quito
Day 30-31	Otavalo artisan market, course wrap-up, departures

2.1.2 Lecture Topics

Tropical Climate and Ecosystems
Montane Forest Ecology & Conservation
Orchids & Other Epiphytes
Introduction to Birds & Birdwatching

Important Tropical Plant Families
Tropical Deforestation & Fragmentation
Large-scale Agriculture in the Tropics
Tropical Dry Forest Ecology & Conservation
Sampling & Experimental Design
Recognition & Ecology of Major Tropical Insect Groups
Reptiles & Amphibians
Patterns & Processes of Biodiversity
Mangroves & Intertidal Systems
Habitat Fragmentation & Conservation
Tropical Alpine Ecology & Conservation
Indigenous Peoples of Ecuador (guest lecture)
Introduction to Rainforest Structure & Diversity
Mammals I - Neotropical Primates
Mammals II - Bats, Rats & Cats
Mammals III - Ungulates, Anteaters, Sloths & Dolphins
Recognition & Ecology of Tropical Spiders
Tropical Rainforest Dynamics
Rainforest Bird Communities
Tropical Freshwater Environments

2.1.3 Field Activities & Discussion Topics

Research Methods: Plant Identification & Voucher Specimen Collection
Research Methods: Observation Skills & Hypothesis Generation
Research Methods: Insect Collection and Identification
Discussion: Cases Studies in Conservation -- El Pahuma and the Lalo Loor Reserve
Research Methods: Avian Inventory Techniques
Research Methods: Quantifying Vegetation Structure
Research Methods: Biodiversity Sampling & Measurement
Research Methods: Observation Skills & Hypothesis Generation
Discussion: Conservation Challenges in the Modern World
Research Methods: Measuring Altitudinal Gradients
Research Methods: Population Estimation & Monitoring
Research Methods: Terrestrial Arthropod Sampling with Pitfall Traps
Research Methods: Estimating Rates of Nest Predation
Research Methods: Ethology & the Measurement of Behavior
Research Methods: Stream Sampling: Whitewater vs. Blackwater

2.2 Course Size and Structure

Ceiba's field courses are open to all high school graduates, currently enrolled college students and adults seeking education in tropical ecology. For liability reasons, students participating in Ceiba courses must be 18 years of age or older. A previous biology or ecology course is required. Course size is limited to a maximum of 18 students, with an optimal student:instructor ratio of 6:1. Ceiba employs only highly qualified university instructors with extensive experience in Latin America. For more information on the course instructors, please see below.

Ceiba's tropical ecology courses emphasize learning through seeing and doing. Lectures will be presented both in a classroom-style setting as well as in the field. Topics to be covered, ranging from tropical climate to forest mammals, are listed above. Lectures frequently will be given in the evening

so that daylight hours can be spent in the field. Informal lectures will take place periodically during field projects and site visits to take advantage of observations made in the field. Organized group discussions will encourage students to explore relevant conservation issues in depth. Field activities will complement lecture material, and focus on learning and putting into practice many standard field methods and techniques used in ecological research.

During the last week of the course, students will spend time working in pairs or in small groups to define a research question, collect data and present their findings to the class. Due to time restrictions the projects will necessarily be limited in scope, but should employ concepts and methods learned in the course. The purpose of these projects is to allow students to pursue a subject of interest to them in greater depth, practice defining a research question, increase their confidence in their ability to conduct field work, and give them some experience utilizing field research methods.

2.3 Required Reading

Kricher, John. 1999. *A Neotropical Companion*. 2nd edition. Princeton University Press.

Students should read the required text prior to coming to Ecuador. A busy lecture and field schedule will leave little time for catching up on reading during the course. Besides the text, each student is required to bring two copies of scientific articles or controversial popular pieces related to tropical ecology or conservation, in an area of interest to the students. Articles will be used during group discussions and will be left behind at the end of the course to contribute to the library of reprints.

2.4 Suggested Reading

Below we have included a list of recommended reading, arranged by category. It is highly recommended that students read at least one book that interests them from each of the first two categories before the course begins. Readings have been selected to enhance students' understanding of material encountered during the course and to deepen students' knowledge in one or two subject areas prior to traveling to the tropics. Look for them at your university library. The field guides listed below are useful for identifying the plants and animals we will encounter during the course. There will be at least one copy of each in the TBS library, and our traveling library.

Tropical Ecology and Conservation

Forsyth, Adrian and Ken Miyata. 1984. Tropical Nature: Life and Death in the Rainforests of Central and South America. Charles Scribners Sons.

Hilty, Steven. 1994. Birds of Tropical America: A Watcher's Introduction to Behavior, Breeding and Diversity. Chapters Publishing Limited.

Lowman, Margaret D. and Nalini M. Nadkarni. 1995. Forest Canopies. Academic Press.

Schelhas, John and Russell Greenberg (eds.). 1996. Forest Patches in Tropical Landscapes. Island Press.

Terborgh, John. 1992. Diversity and the Tropical Rain Forest. Scientific American Library.

Terborgh, John. 1999. Requiem for Nature. Island Press.

Oil Development in Ecuador

Kane, Joe. 1996. *Savages*. Vintage Books (an excellent book about the Huaorani and their struggle against the oil companies that takes place near Tiputini).

Kimerling, Judith. 1991. *Amazon Crude*. Natural Resources Defense Council.

Field Guides

Ridgely, Robert S. and Paul J. Greenfield. 2001. *The Birds of Ecuador Field Guide*. Cornell University Press.

Emmons, Louise H. 1990. *Neotropical Rainforest Mammals: A Field Guide*. 2nd edition. University of Chicago Press.

Gentry, Alwyn H. 1993. *A Field Guide to the Families and Genera of Woody Plants of Northwest South America (Colombia, Ecuador and Peru)*. Conservation International.

Travel in Ecuador

Murphy, Alan. 1999. The Ecuador and Galapagos Handbook. Footprint Handbooks, UK.

Pearson, David L. and Les Beletsky. 2000. Ecuador and it's Galapagos Islands: The Ecotraveller's Wildlife Guide. Academic Press.

Rachowiecki, Rob. 1997. *Ecuador and the Galápagos Islands*. Lonely Planet Publications.

2.5 Obtaining Course Credit

The Ceiba Foundation's courses are fully accredited by the University of Wisconsin - Madison. Students from any USA institution receive 4 credits for the summer course through UW - Madison's Office International Academic Programs. Students from outside the USA are advised to contact Ceiba about obtaining credits at their home institution.

2.6 Course Faculty and Staff

Joe E. Meisel — US coordinator and course instructor

Dr. Meisel holds a Ph.D. in zoology from the University of Wisconsin and an M.S. in wildlife ecology and conservation from the University of Florida, and is a board member and vice-president of Ceiba. He has conducted research in Ecuador, Panama and Costa Rica for over 13 years, studying the effects of habitat alteration on native and migratory birds and evaluating the impact on tropical wildlife of varying land management practices. He has led numerous summer and semester field courses in Panama, Costa Rica and Ecuador. Previously, he worked in Panama with the Smithsonian Migratory Bird Center, studying the use of forest patches by North American migratory birds. His research interests include the foraging behavior of Neotropical army ants and ant-following understory birds in isolated forest fragments, and the dynamics of fragmented landscapes.

Javier Robayo — Ecuador coordinator and course instructor

Mr. Robayo holds a degree in botany from Ecuador's Universidad San Francisco de Quito. He also is the director of Ecuadorian conservation programs for the Ceiba Foundation. He has conducted botanical inventories and spearheaded numerous conservation campaigns in Ecuador over the past decade. For his thesis, he studied the effect of invasive plant species in the Galapagos Islands, living there for nearly two years. A former recipient of a Ceiba summer course scholarship, he has worked widely in Ecuador in both lowland and high elevation forests. Upon graduation he was selected to coordinate bird conservation field programs for the world-renowned Jocotoco Foundation, before becoming Ceiba's program director in Ecuador.

2.7 Where We Go

We visit an exciting array of sites during our travels in Ecuador – from the desolate heights of the Andes to the steamy rain forest of the Amazon. The map below indicates the locations of the sites we visit, followed by a brief description of the field stations where we stay.

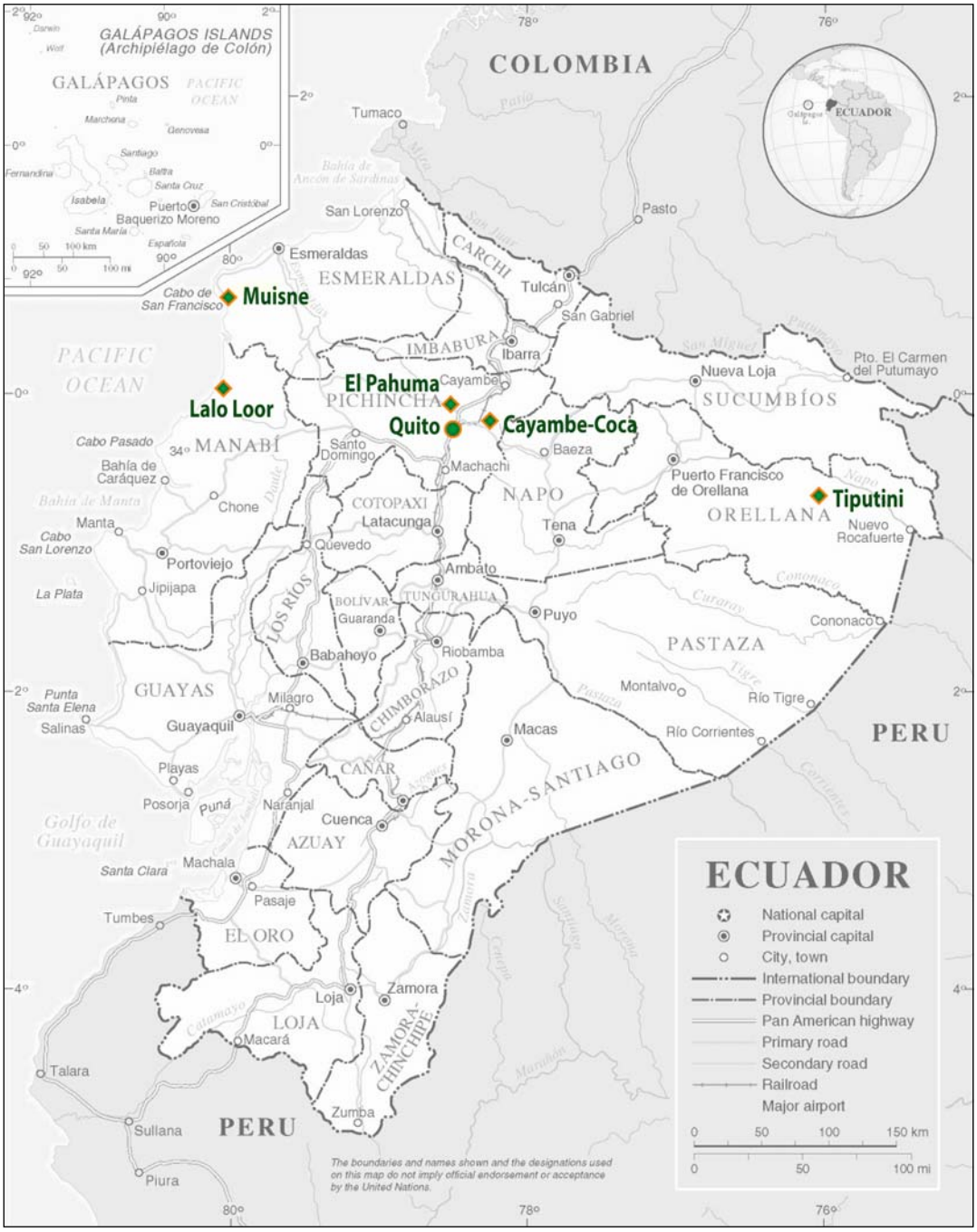
2.7.1 El Pahuma Orchid Reserve

El Pahuma is a private reserve established as a collaboration between the Ceiba Foundation and the Ecuadorian property owners, the Lima family. This pristine cloud forest is protected via a conservation easement (the first of its kind in South America) between the foundation and the Limas, which exchanged long-term habitat preservation for assistance in establishing basic ecotourism infrastructure including a trail system, a visitor center and a researcher cabin. Ceiba continues to provide training to reserve staff as well as modest financial support, however El Pahuma now is managed and operated entirely by the Lima family. It has become a popular ecotourism destination for foreign and national visitors alike. The Lima family is now leading a local movement towards forest conservation and tourism, thanks to El Pahuma's success.

Location and Climate: El Pahuma is situated approximately 45 minutes from Quito, on the western flanks of the Andes, in northwest Pichincha province. The reserve protects some 650 hectares of montane and cloud forest between 1900 and 2400 meters of elevation, and encompasses the ridgeline between the Alambi and Pichán rivers. This nearly virgin forest provides habitat for an estimated 300 species of orchids, montane specialist birds such as hummingbirds and tanagers, and the vegetarian spectacled bear (seen and photographed in the reserve on numerous occasions). The climate at El Pahuma typically is warm (23°C, 75°F) and dry until mid-afternoon, when clouds roll in and the temperature begins to fall. Nighttime temperatures can reach 10°C (50°F). Of course, this is a cloud forest so it may be misty or rainy at any time!

Accommodations: At El Pahuma the course stays in two distinct locations. Our first two nights are spent at the high elevation researcher cabin known as the Guarida del Oso (Bear's Den). This rustic cabin has bunkbeds and several camp sites in clearing around it. There is no electricity, running water or indoor toilets. A roofed dining area with a fire pit offers warmth against the evening chill, and becomes an improvised lecture hall during our stay.

2.7.2 Map of Field Sites



2.7.3 Lalo Loor Dry Forest

The newest reserve of the Ceiba Foundation, Bosque Seco Lalo Loor is the result of a collaborative partnership between its landowner (Mr. Loor), Ceiba, and the Jatun Sacha Foundation of Ecuador. Together we signed a conservation agreement whereby the two foundations jointly manage the reserve and protect its wildlife, while the landowner receives a proportion of the monthly income from visitors. Although open for only a few years, the Lalo Loor reserve already is recognized in the region as a superb example of coastal deciduous forest, a terrific site for day visits, and a place where monkey sightings are nearly guaranteed!

Location and Climate: The Lalo Loor reserve is 1 km from the Pacific coast, in the northern Manabí province, between the towns of Pedernales and Jama. We travel here by bus from El Pahuma, a trip of approximately 6 hours that leads us out of the Andes mountains through lush foothills and rich agricultural areas. The course visits the reserve in the midst of the region's long dry season (April - December), and we can expect hot sunny days and warm nights, with temperatures between 25 and 35°C (78 - 85°F). However, July on the coast is often dominated by *garua*, a weather phenomenon caused by ocean mist, in which thin clouds cover the skies resulting, thankfully, is slightly cooler temperatures and some protection from the scorching rays of the equatorial sun.

Accommodations: Students and staff stay in a large, rustic facility built for researchers and volunteers. Made almost entirely of bamboo, the thatched-roof station can accommodate over 20 people. There is a full-time cook who provides three delicious meals each day. At this time, the research station does not have electricity, and running water is supplied by a small stream-fed reservoir within the reserve. Here in the dry forest, water conservation is imperative, so short showers are the rule! Toilet facilities are provided by outdoor latrines. The site also has an outdoor fire pit and lecture area, and shaded hammocks for resting after our long hikes.

2.7.4 Páramo and *Polylepis* Forest in Cayambe-Coca Ecological Reserve

Majestic examples of the high elevation systems of páramo and *Polylepis* can be found within the boundaries of the Cayambe-Coca National Park, atop the eastern chain of the Andes that separates the highlands from the Amazon basin. The cold, windswept and often snowy páramo ecosystem challenges visitors' notions of the "tropical" climate!

Location and Climate: We travel by bus from Quito to Cayambe-Coca, only an hour or so from the city. Several stops along the way enable us to experience the changing climate and vegetation as we climb in altitude. Weather extremes are typical in the highlands, and can include high winds, driving rain or sleet, and cold temperatures, which can dip below freezing. On other occasions, we've basked in delightfully warm sunshine, so one has to be prepared for anything! Our full-day trip to Cayambe-Coca takes us to lofty peaks over 14,000 feet high, so we urge staying hydrated and getting plenty of sleep the night before to avoid altitude sickness.

2.7.5 Tiputini Biodiversity Station

The Tiputini Biodiversity Station (TBS) is property of and administered by the Universidad San Francisco de Quito (USFQ), a private university in Quito. The primary purpose of Tiputini is to provide a research station and education facility for students of USFQ and other institutions, and for visiting scientists.

Location and Climate: The Tiputini Biodiversity Station sits less than 1 degree south of the equator in the eastern Napo Province of Ecuador. It encompasses approximately 650 hectares of tropical

rainforest along the Tiputini River, which drains into the Napo River, the largest tributary to the Amazon. Just opposite the river lies the 1.7 million acre Yasuní National Park (recently declared a Biosphere Reserve). The region boasts astounding biodiversity with 540 species of birds (and counting), 10 species of primates and five species of cats. Ongoing plant inventories in the region report an incredible 290 species of trees per hectare, and countless, largely unstudied, species of ferns, herbs, shrubs, lianas and epiphytes. The region truly classifies as rainforest, receiving approximately 3000 mm (10 ft) of rain per year, with a mean annual temperature of about 25°C (~78°F). April through June are the wettest months, while July and August are the driest. It rains, however, all months of the year.

Access: We will travel to the station by motorized canoe on the Rio Napo from the town of Coca to the village of Pompeya, where we climb aboard an open-sided "ranchera" bus and travel two hours down the famed Maxus oil company road to the Tiputini River (read Joe Kane's "Savages" for recent history on this area). From there we travel another 2 ½ hours by dugout downstream on the Tiputini river to get to the station. There is no road to the station thus all people and supplies are brought in by boat. The station maintains communication with Quito via radio and satellite phone, and has 24-hour emergency radio communication with the nearby oil company production headquarters which houses a medical facility.

Accommodations: Accommodations at the station are rustic but comfortable. New wooden buildings, nestled beneath huge tropical trees contain 2 rooms, each holding 2-4 people, with private bath. Each room has its own porch looking out into the rainforest. Electricity is supplied by a generator from 6:00 to 10:00 p.m. River water is filtered and treated, and supplies most of the station's water needs. There is no hot water. Laundry service is provided once a week. Besides dormitories, a main building contains laboratories and offices, a lecture room and air-conditioned computer room. Meals are served in an open-air dining hall by the staff cook who prepares national dishes and American-style favorites. Meals are served at 6:30 a.m., 12:00 p.m. and 7:00 p.m., though mealtimes may vary depending on the field activity schedule.

Educational facilities: The new and spacious laboratory facility contains plant presses, specimen jars, microscopes, plant and soil drier, balances, insect setting and preparation equipment, and various other field equipment. There are several computers available for word processing and data analysis. Thanks to a satellite connection, there is now a decent internet connection. A whiteboard and projector are available for lectures. There is an ample library of books, field guides and scientific articles.

Trails, Wildlife and Other Features: The station has many well-maintained low-impact nature trails through both floodplain forest and upland terra firme. Wildlife is prolific and relatively unafraid. It is not unusual to see more than 5 species of primates in one day on the trails! Also regularly seen are pink river dolphins, scarlet and blue-and-yellow macaws, agoutis, caiman, hoatzin and king vultures. Less common, but occasionally seen by the lucky observer are jaguar, ocelot, puma, tapir, giant anteater, anaconda and harpy eagle. Other attractions in and around the station include natural salt licks that attract hordes of animals, and a canopy access system with two observation towers and an aerial walkway.

Native guides working at the station have an extensive knowledge of medicinal plants. Quiet dugout canoe trips along the border of Yasuní National Park offer opportunities to view rare and elusive wildlife. Climbs to the top of a 150 foot tall canopy towers provide a spectacular "top-down" view of the forest and the unique plants and animals that live there. Oil development and ongoing colonization in Yasuní National Park and the profound consequences of complex political, socioeconomic and ecological changes offer students firsthand exposure to some of the driving

forces behind rainforest destruction. Students can take the opportunity to reflect on and discuss causes, solutions and alternatives.

Many scientists have visited or worked at TBS and students may get an opportunity to watch these scientists in action, or even with their field work. Included among those who have worked at TBS are Terry Erwin, the entomologist famous for his "fogging" technique of canopy sampling (see National Geographic, Feb. 1999), Robin Foster, a botanist with the Smithsonian Tropical Research Institute, and the late Ted Parker, arguably the world's best birder. As an active research station in a threatened biodiversity "hotspot" that is attracting top scientists from around the world, and as a center committed to education, TBS is an ideal location for students to immerse themselves in a real rainforest, and witness the many facets involved in the struggle to save it.

Rules and Regulations for Visitors to TBS. For the safety and comfort of visitors, USFQ enforces a number of rules and regulations for visitors to TBS. Some of these rules are outlined below:

To expedite passage through military and oil company checkpoints, each person must carry a valid passport and **the original, official record of a currently valid vaccination against yellow fever.** The passport and the vaccination record may be reviewed and kept by oil company personnel at the entrance to their operation in Block 16. These documents will be returned upon exit.

All visitors are expected to behave in a way that is compatible with conservation of the rainforest. This includes control of trash and not harassing, collecting, capturing or exporting fauna or flora, dead or alive.

No one is allowed on the trails alone. No night hikes may be made without permission from the instructors. A staff guide must participate in all night hikes.

No alcoholic beverages may be brought to TBS. Visitors may not use any substance considered illegal by the legal system of their home country or Ecuador.

Noise must be curtailed after 9:00 p.m.

TBS is a smoke-free environment. No smoking is allowed in buildings, during organized activities, or on the trails.

Violation of these regulations can result in fines or permanent expulsion from TBS and the Ceiba field course, without reimbursement of tuition or other fees.

2.8 Previous Students

Below is a list of some students (in alphabetical order) that have taken Ceiba field courses in the past and that may be contacted for feedback:

Zach Ahrens	University of Wisconsin – Madison	ztahrens@wisc.edu
Emilia Arcos	Universidad San Francisco de Quito - Ecuador	emilia8arcos@hotmail.com
Liza Baer	University of British Columbia, Canada	lizabaer@yahoo.com
Claire Boyce	University of Wisconsin – Madison	boyce@wisc.edu
Laurie Bruns	Phipp's Conservatory, PA	lbruns2@hotmail.com
John Dietrich	University of Wisconsin – Madison	jrdietrich@wisc.edu
Caitlin Dodge	University of Wisconsin – Madison	cqdodge@wisc.edu
Juan Dueñas	Universidad Católica, Quito	juanferdu@yahoo.com
Kendra Elliott	Portland State University	kelliott@pdx.edu
Meghan Fox	University of Wisconsin – Madison	mifox@wisc.edu
Kristina Geiger	University of Wisconsin – Madison	kgeiger@wisc.edu
Xavier Haro	Universidad Católica, Quito	xavierhc@gmail.com
Chris Hayden	University of California - Berkely	lorddevlin47@hotmail.com
Diego Hidalgo	Universidad San Francisco de Quito	dfh5786@hotmail.com
Stephanie Jacobs	University of Wisconsin – Madison	sljacobs2@wisc.edu
Sarah Johnson	University of Wisconsin – Madison	sajohnson3@wisc.edu
John Knudsen	University of Wisconsin - Madison	jonathan_knudsen@hotmail.com
Rachel Kastenberg	Cornell University, NY	razbull23@yahoo.com
Brianna Laube	University of Wisconsin - Madison	laube@wisc.edu
Stephen McGrath	University of Wisconsin - Madison	scmcgrath@wisc.edu
Matt Smith	University of Wisconsin - Madison	mmsmith9@wisc.edu
Joeri Strijk	Wageningen University, Netherlands	joerisergeystrijk@botanymail.com
Ashley Viste	University of Wisconsin - Madison	viste@wisc.edu

3. INFORMATION FOR APPLICANTS

3.1 Traveling to Ecuador

Air transportation to Ecuador: Students will need to make their own travel arrangements for arriving in Ecuador on or before the course start date. Several major airlines serve the international airport in Quito, Ecuador, including American Airlines, COPA (through Miami) and Continental (through Houston). Occasionally student fares are available. We recommend you make your travel arrangements through student travel specialists STA Travel (1-800-781-4040, www.sta-travel.com).

After purchasing your ticket, please fill out a Travel Itinerary form (supplied in your acceptance materials) and mail, email or fax it to Ceiba. Course staff will meet you at the airport when you arrive and take you to the Hotel Embassy in Quito.

Air transportation in Ecuador: We will be flying between Quito and Coca for our trip to the Amazon rainforest. The cost of airfare is included in the course tuition fee, however be aware that passengers are allowed to check a **maximum of only 25 pounds (11 kg) of luggage**, plus a small carry-on bag. Please plan accordingly when you pack for your trip! One way to minimize the impact of this limitation is to pack heavier items (books, cameras, binoculars) in your carry-on bag and check only your clothes. You will be able to leave items in storage at the hotel in Quito while we travel to the Amazon.

Passports: You must have a valid passport to travel to Ecuador. No additional visa is needed, though you will obtain a tourist visa stamp at the airport upon your arrival at the airport in Quito. It is best to request a 30 or 60-day visa from the customs official at the airport, in case you decide to extend your stay after the course. If you do not request this length of time, they will usually give you a stamp good for only 15 days. If you do not have a passport, or need to renew yours, contact your local U.S. passport office or post office for an application. Apply early, as it may require up to six weeks to process. You will need:

1) Two passport-sized photos
2) Certified birth certificate
3) Photo I.D.

Customs: When entering Ecuador and returning, you will pass through customs ("migración"). It is likely that your luggage will be searched. Possession of illegal drugs or other contraband will result in your arrest and expulsion from the course without refund. Drug penalties in Ecuador for possession of even small amounts of illegal drugs are much stricter than in the U.S., and the U.S. embassy will not be able to provide assistance if you are jailed in Ecuador!

Departure Tax: There is a $42 departure tax that you will be required to pay upon leaving Ecuador. This departure tax is not included in the course tuition fees.

3.2 Health and Safety Issues

The health and safety of participants in our courses is of primary concern, and we take every precaution to ensure that the potential for accidents is minimized. However, we will be working in an environment unfamiliar to many and it is up to each individual to exercise caution, good judgment and common sense, and to follow the rules of safety that are outlined herein and that will be reiterated during orientation upon arrival in Ecuador. As a developing nation Ecuador does not have the same high standard of sanitation we enjoy in the U.S. and Europe, and there are certain diseases and ailments characteristic to developing tropical countries against which one must take proper precautions. If basic precautions are followed, however, it is very unlikely that you will become ill.

Altitude: The city of Quito is at 9,350 feet (2850m) of elevation, and some of the other areas we will be traveling through are even higher. Altitude sickness, your body's response to lower oxygen concentration at high altitudes, can affect anyone and is characterized by headache, fatigue, dizziness, trouble sleeping and occasionally stomach upset. If you know you are prone to altitude sickness, consult your physician. There are prescription drugs now available to take prior to traveling to high altitude that mitigate the negative effects. In any case, you can minimize the symptoms of altitude sickness by drinking plenty of water before and after your arrival, avoiding alcohol consumption, taking aspirin and iron supplements, and avoiding overexertion for the first few days.

Vaccinations: The best way to avoid the most serious illnesses is by getting vaccinated prior to traveling to Ecuador. **It is *mandatory* that you obtain a yellow fever vaccine at least 21 days prior to arriving in Ecuador** (you will be required to show proof of this vaccine in order to travel to TBS). The yellow fever vaccination lasts 10 years. It is also required that you have an up-to-date tetanus shot. Malaria, dengue and leishmaniasis have been known to occur in the region. The simplest way to avoid contracting these illnesses is to avoid contact with the insects that transmit them: wear long pants and sleeves, apply insect repellent and sleep under a good mosquito net. It is recommended that you take anti-malaria pills for your visit to Ecuador. The pills are taken once a week and must be started 2 weeks prior to your departure and continued for 4 weeks after your return. Anti-malaria pills are readily available at pharmacies in Ecuador and are much less expensive than in the U.S., so

you may want to purchase only enough to get you to Ecuador and bring your prescription to purchase the rest once you arrive. Typhoid fever and Hepatitis A and B vaccinations may also be recommended. Please consult your doctor or public health service for the most recent information regarding vaccinations for travel to Ecuador.

Physical Examination: All applicants must submit a letter signed by their physician along with their application. This letter must certify that you have no health problems that might prevent you from participating in a rigorous field expedition, and should list any known ailments including allergies, any prescription medication taken, and any history of medical problems (asthma, diabetes, etc). Because field work in the tropics can be physically demanding, it is essential that we be aware of your physical condition and your medical history. During orientation, students will be asked to inform other course participants of any medical concerns that may require immediate attention in the field (allergy to bee stings, asthma, diabetes, heart condition, etc.). This will enable all course participants and personnel to respond appropriately should you require medical attention. Please bring an adequate supply of any required prescription medications and keep it in your carry-on bag at all times to avoid the risk of it being lost in the event that the airline misplaces your luggage.

Medical Insurance: Ceiba provides no health or accident insurance. All participants are therefore required to have active medical insurance that covers them during their stay in Ecuador. Check to see if your current medical insurance will cover you while you are overseas, and if not, there are providers offering low-cost insurance for students traveling overseas, including the student travel agency, STA Travel (1-800-781-4040). If accepted to a Ceiba field course you must submit a Certificate of Insurance Form as soon as you obtain and/or verify your coverage. Please bring your insurance card with you to Ecuador. Whether or not you are covered by your insurance, participants are responsible for paying their own medical and/or evacuation costs should the need arise. Health care is inexpensive in Ecuador and we recommend you carry $50-100 in addition to your spending money, in case you require services of a local clinic or pharmacy for minor illness or medication.

3.3 What to Bring

Please remember, you are *required* to bring proof of yellow fever vaccination and your insurance card with you to Ecuador. All students should also bring two photocopies of their passport (one for themselves in case their passport is lost or stolen) and one to be given to the course instructor. The list of recommended items that follows is intended to help you decide what to bring when you are packing. It is not intended to be comprehensive. Note that students will have access to a Quito laundromat midway through the course, and laundry service at the Tiputini Biodiversity Station.

Ceiba Tropical Ecology Summer Field Course - Required Gear:

- Good binoculars*
- Sleeping bag and pad (temperatures will range from 45 F at high elevation to the 70 F on the coast; pad may not be necessary if you don't mind tenting on sand)
- Field notebook (we recommend waterproof notebooks, available from Forestry Suppliers, www.forestry-suppliers.com, or at scientific or engineering book stores)
- Lecture notebook and pens/pencils
- Compass
- Impermeable raincoat or poncho (you WILL get rained on!)
- Hat or cap
- Shoes suitable for trail hiking
- Rubber boots (mid-calf to knee high – may purchase sizes less than 10 cheaply in Ecuador)
- Small, personal first-aid kit (Band-Aids, antacid/anti-diarrhea, antibiotic ointment, insect bite relief)
- Water bottle (1 liter)
- Insect repellent (25% DEET is sufficient)
- 2 flashlights (we recommend one headlamp and one hand-held flashlight)
- Spare batteries
- Signal whistle
- Daypack or fanny pack (big enough for carrying water, field notebook, camera, raingear)
- 2 large trash bags for keeping luggage dry in the dugout canoe

Ceiba Tropical Ecology Summer Field Course - Recommended Gear:

- 2-3 lightweight, long pants for field work and wearing at night (cotton is best)
- 2 lightweight long-sleeved shirts for field work and wearing at night
- Warm clothing for Quito and high elevation sites (temperatures can dip below freezing!)
- A set of nice clothes to wear in Quito (appropriate attire is expected in city restaurants/shops)
- T-shirts and shorts
- Socks long enough to tuck your field pants into
- Swimming suit (men should bring briefs or trunks with close-fitting liner)
- Towel
- Sunscreen (SPF 20 or stronger)
- Sunglasses
- Camera and plenty of film or memory cards
- USB drive for saving project files (data, write-up, etc.) at TBS
- Pocket knife
- Wristwatch
- Calculator
- Alarm clock
- Ziplock bags (for protecting binoculars, cameras, snacks, etc.)
- Spare prescription glasses or contacts, if you wear them
- Motion sickness medication (e.g., "Less Drowsy Dramamine," for bus and plane travel)
- Biodegradable multipurpose soap

* Binoculars: A good pair of "bins" are essential. You will use them every day, and will be severely disappointed if yours are inadequate. Binoculars are rated by their magnification power, and the size of the lens (i.e., light-gathering capacity): 10x42 is 10-power with 42 millimeter lenses. Smaller lenses are lighter and cheaper, but drastically reduce light gathered, making objects appear dim and colorless. We recommend 8-10 power with a minimum 30 mm lens size. Decent pairs can be found for $100 - $150.

4. COURSE APPLICATION

The last section of this packet contains the course Application Form and Recommendation Form. If either of these forms is missing, please let us know as soon as possible. The application forms also are available online, at www.ceiba.org/courseapp.htm. To apply for the course, the following items must be received by the application deadline.

1) Application Form
2) Student Recommendation Form
3) Letter of health from your physician
4) Official copy of undergraduate transcript(s)
5) $100 application fee*

4.1 Application Deadline: First Friday in March

Students taking this course for academic credit must apply through UW International Academic Programs (IAP). Please contact the IAP office for all details (250 Bascom Hall, 608-265-6329, peeradvisor@bascom.wisc.edu, www.studyabroad.wisc.edu). Students not seeking credit for the course can apply directly to Ceiba and avoid the processing and credit fees charged by UW.

4.2 Application Instructions

The Application Form, Student Recommendation Form, and a letter of health signed by your physician (see above) must be **received** by the deadline for your application to be considered complete. *Please note: If you are applying directly to Ceiba, you must include a $100 application fee; if accepted to the course, this fee will be applied to your tuition. If you are applying to UW-IAP you will be billed for the application fee (Wisconsin students), or asked to submit the fee via a UW Deposit Ticket (available for download on Ceiba's website). Please deliver application materials to:

Office of International Academic Programs
University of Wisconsin
250 Bascom Hall
500 Lincoln Drive
Madison, WI 53706
Tel: (608) 265-6329
Fax: (608) 262-6998
Email: peeradvisor@bascom.wisc.edu

Ceiba Foundation for Tropical Conservation
Education Program
1202 Williamson Street
Madison, WI 53703
Tel: (608) 232-5550
Fax: (608) 227-0141
Email: courses@ceiba.org

4.3 Enrollment and Tuition Payment

Acceptance notification and materials necessary to complete your enrollment will be mailed to you within 2 weeks of each application deadline. These materials are: an enrollment form, a liability release waiver, and a travel itinerary form. If you are accepted to the course it is your responsibility to complete all enrollment materials within 2 weeks of receiving your notification. If you are applying directly to Ceiba, you must submit your tuition (less the $50 application fee) with your enrollment materials; if you apply through UW's Office of International Programs, you will be billed for tuition.

Andes to Amazon -- Summer Course
Ceiba Foundation for Tropical Conservation
Application Form

Please complete all fields. See Information Packet or Ceiba website (www.ceiba.org) for details & instructions.

Personal Information

Full Name: _____

Email Address: _____

Passport Number: _____ *(may be submitted later)*

Date of Birth: _____ **Place of Birth:** _____

Sex: **F** ☐ **M** ☐ **U.S. citizen?** **Yes** ☐ **No** ☐

(If no, please indicate citizenship _____)

Mailing address: Street _____

_____

City _____ State _____

Country _____ Zip _____

Dates address is valid: from _____ to _____

Phone _____ Fax _____

Parent or Guardian Address (if different from above):

Street _____

City _____ State _____

Country _____ Zip _____

Tel (d) _____ Tel (n) _____

Email _____

References

First Academic/Professional Reference

Name _____ Relationship _____

Company/Institution _____

Address _____

City _____ State _____ Zip Code _____

Country _____ Day phone _____

Email _____

Second Academic/Professional Reference

Name _____ Relationship _____

Company/Institution _____

Address _____

City _____ State _____ Zip Code _____

Country _____ Day phone _____

Email _____

Education

	Name, City & State	# Years Completed	G.P.A.	Graduated
High School				Yes / No ☐ ☐
College				Yes / No ☐ ☐
Other				Yes / No ☐ ☐

List any university biology (zoology, botany, ecology, etc.) classes you have had:

Do you speak Spanish, and if so, describe your level of competence:

Briefly explain why you want to take this course: what do you wish to gain from your experience, what do you hope to learn? (250 words max.)

Describe any other experiences you have relevant to your participation. (250 words max.)

How might your participation contribute to the success of the course? (250 words max.)

Applicant's Signature _____ **Date** _____

Please be sure you have enclosed:

- ☐ Student Recommendation Form
- ☐ Official copy of undergraduate transcript(s)
- ☐ Letter of health from your doctor

Mail to:

University of Wisconsin - Madison
International Academic Programs
250 Bascom Hall
Madison, WI 53706
Tel: 608.265.6329 Fax: 608.262.6998
Email: mailto: peeradvisor@bascom.wisc.edu

The Ceiba Foundation for Tropical Conservation is a nonprofit corporation under section 501(c)(3) of the Internal Revenue code, and does not discriminate on the basis of, age, gender, religion, race, ethnic origin, or sexual orientation.

Andes to Amazon -- Summer Course

Ceiba Foundation for Tropical Conservation

Student Recommendation Form

Applicant's name _____

Phone (_____) _____ Email _____

Referee: The student listed above has applied to participate in an intensive field ecology course in Ecuador, South America. The course visits a remote research station in the Amazonian lowlands, and involves a number of trips by bus to middle and upper elevation sites of interest. Students, instructors, and course assistants live together in a close and continuous academic environment that presents intellectual and interpersonal challenges to everyone involved. Lectures assume that students have a basic understanding of the principles of biology, and have taken at least one college-level course in biology, zoology or botany. Please provide an evaluation of the applicant's academic preparedness, maturity, interpersonal skills, and potential for success and satisfaction in this type of program.

For how long have you known the applicant? _____

In what capacity? _____

_____

_____

Please attach a separate letter of recommendation for the applicant, which addresses the issues mentioned above.

Referee name _____

Address _____

Phone (_____) _____ Email _____

_____ _____

Referee's signature Date

Please fill out all fields, and email, fax or post the form and letter to:

University of Wisconsin International Academic Programs
250 Bascom Hall
Madison, WI 53706
Fax: 608.262.6998
Email: peeradvisor@bascom.wisc.edu