

INT 475: Field Studies in Ecology -- Ecology of Coastal and Highland Peru (Spring Break 2005)

Instructors: for 2005	Aram Calhoun Plant, Soil & Env. Sci. 119 Deering 581-3010	Malcolm Hunter Jr. Wildlife Ecology 226 Nutting 581-2865	William Glanz Biological Sciences 311 Murray Hall 581-2545
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University of Maine Catalog Description for INT 475:

INT 475 (BSC, FTY, SMS, WLE, PSE): Field Studies in Ecology. An intensive ecology field trip of one to several weeks to an area of ecologic interest scheduled during winter, midyear, spring recess, or summer. Field and living conditions may be rigorous and/or primitive. Prerequisite: a course in ecology. Other preparation and/or recommended prerequisites announced for each trip. Credit depends on specific trip. Cr Ar.

Course History (since 1998):

The course has been taught every year since 1998, focusing each time on ecosystems in tropical and subtropical regions of the world. Countries visited include Costa Rica, Honduras, Belize, Peru (twice) and South Africa (twice). It has been offered both through normal departmental listings and via the Continuing Education Division of the University of Maine, and has been taught by faculty in Biological Sciences (W. Glanz), Wildlife Ecology (M. Hunter, M. Hartley), and Plant, Soil and Environmental Sciences (A. Calhoun). Credits offered have ranged from one to three hours.

General Information and Objectives for Spring Break 2005 Course:

The INT 475 course for Spring Break 2004 will visit coastal and highland regions of Peru, to study contrasting ecosystems in this diverse country. From the Amazonian rainforests in the east to its rugged Andean mountains and on to its coastal deserts, Peru spans more climatic and life zones than any other country on Earth. More bird species (almost 1800) have been recorded there than in any other country, and its species totals for mammals, reptiles, amphibians, some insect groups, and woody plants are similarly impressive. This course will introduce students to a portion of this ecological diversity, both in terms of natural ecosystems and in the ways they have been and are being altered by the humans living there.

The course will explore three major regions of Peru. First, we will visit the arid coast south of the capital city Lima. This zone is one of the driest deserts in the world, with vegetation dependent primarily on the local *garua* coastal fog. Nevertheless, it is rich in marine life, with impressive colonies of breeding seabirds and marine mammals that depend upon the rich food web of the Humboldt Current nearby. We will witness much of this wildlife on the coast and while on a boat trip off Paracas National Park.

Next we fly to Cusco, our base for exploration of montane habitats particularly the cloud forest fringing the Amazon basin. Much of this region was settled and farmed by the Inca civilizations prior to the Spanish conquests, and we will study human effects on the landscape near Cusco and at the fabled ruins of Machu Picchu. At this latter site some natural cloud forest remains, and this will introduce us to the diverse life forms of this zone, including epiphytic plants like orchids and bromeliads, many diverse hummingbirds and tanagers, and rock-dwelling mammals like the mountain vizcacha. We then explore this zone further at the Cloud Forest Lodge along the Manu Road leading east into the Amazon basin. Here we will encounter more pristine forest, the home of mammals such as woolly and capuchin monkeys, mountain coatis, and spectacled bears, and of unusual birds such as the Andean Guan, the Solitary Eagle, and the Cock-of-the-rock.

Finally, we will travel to the Peruvian *altiplano* at Puno on Lake Titicaca. The natural vegetation of this zone is high-altitude *puna* grassland, but it has been farmed and grazed since pre-Incan times. We will observe llama and alpaca herds and witness the incredible range of potato varieties grown there, and view pre-Incan ruins in several places. Lake Titicaca is the highest navigable lake in the world, and we will take boats to the Uros floating village built on reed islands. We will visit natural *puna* at the Lake Umayo reserve, where *vicuna* (wild relatives of llamas) and other wildlife roam. Unusual highland birds like Andean Flamingos and Giant Coots may also be seen on the lake.

Course objectives for INT 475 in March 2005 will follow those of the 2003 course to Peru (taught by Calhoun, Hunter, and Glanz). Students will be introduced to various aspects of the ecology of tropical ecosystems in 4 class meetings prior to the trip, and in several evening sessions in Peru. These meetings will include lectures on: climatic determinants of vegetation structure; ecology of highland and rainforest animals; pollination and frugivory; highland and tropical agriculture, and rainforest conservation. Students will read specified chapters in the text (*A Neotropical Companion*, by J. Kricher), and participate in discussions of these topics during the evening sessions on the trip. The itinerary of the 14-day trip (see below) has been prepared in cooperation with Dr. Paul Beaver, co-owner of Amazonia Expeditions, to expose the students to examples of Peruvian ecosystems and conservation problems. Students will visit rainforest, lake, riverine, and village sites in the first eight days, including an optional overnight camping trip to an upland site. On the return trip to Quito, we will visit montane forest, cloud forest and alpine grassland sites. At each site students will receive a short lecture on ecological and/or conservation problems there, and will be expected to take part in related field trips and discussions. Work load for the course, involving pre-trip meetings, readings, participation in the discussions and field activities, and a brief presentation during the trip is comparable to a 3 credit course. We require full-time students at the University of Maine to register for 3 credits. Non-UMaine participants who have limited funds and who do not need 3 credits may discuss with the instructors and CED the possibility of registering for fewer credits. All students will keep and submit a journal of the trip. Grades for all students will be based primarily on their understanding of tropical ecology and conservation as revealed by participation in class meetings, field trips, and discussion sessions, and in their journals and their research for individual presentations.

Selection of Course Participants:

Registration is by Permission of Instructors Only. As the course involves foreign travel in an underdeveloped country, we want only mature, responsible, and interested students. Applicants will (on a form available from the instructors and in the INT 475 folder on First Class) do the following: (1) provide information on their University of Maine class and affiliation, identification and contact data, and document they have the ecology course prerequisite or equivalent experience; (2) describe their reasons for wanting to go on the trip; (3) provide two references (preferably faculty) who can comment on how they are likely to function in a field course; (4) acknowledge they have read a statement describing physical demands and risks of the course, and respond in writing how they will prepare for these. Priority for admission into the course will go first to University of Maine students in programs that require or strongly recommend such a field course, next to other qualified University of Maine students, and then faculty, students from other campuses, and qualified non-students applying through CED will be considered.

INT 475 Syllabus and Itinerary for 2005

Five or six pre-trip classes will be held prior to departure, covering the basic itinerary, selected ecological topics to be covered more on the trip, packing and other logistical planning. Pre-trip class meetings are required. They will be on Mondays in late January and February 2005, at 5 PM in Nutting Hall.

Flights:

26 Feb	AA 4505	dep Bangor 8:50am	arr Boston 9:45am
26 Feb	AA 1535	dep Boston 11:33am	arr Miami 3pm
26 Feb	AA 917	dep Miami 4:43pm	arr Lima 10:22pm
01 Mar	LanPeru 131	dep Lima 9:40am	arr Cusco 10:50am
11 Mar	LanPeru 123	dep Juliaca 5:25pm,	stop Arequipa, arr Lima 7pm
11 Mar	AA 918	dep Lima 11:30pm,	to Miami, connecting through Boston, arriving in Bangor 4:40pm March 12

Land Itinerary

Feb 26: Morning departure from Bangor. After clearing customs in Lima Airport, Edda Chumbiauca of Amazonia Expeditions will meet our group and escort us to the Hotel Oscar for our overnight stay there.

Feb 27: Edda will meet us in the hotel lobby at 7am; she will have a private bus for transport along the coast south of Lima to the Paracas Peninsula. The driving time to Paracas is about 4 hours. Afternoon activities will include exploration of desert coastal ecology in Paracas National Park. Peru's coastal desert has one of the lowest annual rainfalls in the world and vegetation is very sparse. Yet, many migrant shorebirds frequent its coast, and many land birds congregate at the few oases with water sources. We will visit the park museum and Paracas Lagoon, home to Chilean flamingoes. Overnight at Paracas Hotel. B, L

Feb 28: Morning cruise to Ballestas Islands, also known as the mini-Galapagos of South America, famous for its abundance of marine birds and sea lions that depend on the rich Humboldt Current just offshore. It is considered one of the most important reserves of marine life in the world. In February and March we may also see the largest soaring birds of the Americas, Andean Condors, which come to feed on the carcasses of sea lions. Bus return to Lima. Overnight in Lima, Hotel Oscar. B,L

March 1: Edda will transfer us to the airport for our 9:40 am flight to Cusco. Upon arriving in Cusco Airport, we meet our guide Santiago Carrasco, who will take us to our hotel, the Hostal Imperial San Blas, for two hours to acclimate to the high altitude. Afternoon guided tour of Sacsahuaman National Park. Sacsahuaman is on a hill overlooking the city of Cusco. It is built from massive granite blocks, weighing up to 130 tons each, which fit together like a giant puzzle. It is considered the finest example of Inca masonry. Hostal Imperial San Blas. B

Mar 2: Full day guided exploration of Huacarpay Lake and nearby Piquillacta ruins. Huacarpay is one of the best places in the region to see many of the unique birds of the High Andes,

including waterfowl, and wading birds. Piquillacta was constructed by the Wari, a pre-Inca empire. Like most Wari ruins, it features impressive fortress walls. En route we will also observe local agriculture and land use patterns. Hostal Imperial San Blas B,L

Mar 3: Morning transfer to train station for backpacker train to Machu Picchu. (Luggage not required at Machu Picchu can be left at the hostel.) Guided tour of the ruins. This lost city of the Inca is truly one of the most spectacular sights in the world, and photographs cannot do justice to its panoramic beauty. In the afternoon we will climb up Huayna Picchu, the imposing steep massif which towers over the ruins. With luck, we may see an Andean Condor, a Black-and-chestnut Eagle, or a Mountain Vizcacha. Overnight at Hostal Machu Picchu. B, L

Mar 4: Morning exploration along the Urubamba River. Meaning noisy water in the ancient language of the Inca, this raging white water river drains from the Andes down to the Amazon basin. Along the shore we will encounter dense vegetation as well as animals of the cloud forest, a region known by the natives as "the eyebrow of the jungle." Evening train return to Cusco Hostal Imperial San Blas. B,L

Mar 5: Amazonia owner Dolly Beaver will join guide Santiago Carrasco for the remainder of the trip. A private bus will take us from Cusco across Paucartambo pass, which is the beginning point of Manu cloud forest. Declared a "World Biosphere Reserve" by UNESCO, the huge Manu National Park harbors the greatest diversity of life recorded in the Amazon and is one of the most significant rainforest reserves in the world. The flora and fauna will vary greatly as we descend in altitude. We will make stops in tropical alpine grassland and the cold, humid dwarf forest, before arriving at our lodge located in cloud forest. Paradise Cloud Forest Lodge. B,L,D

Mar 6: Exploration of the cloud forest, including the habitat of the spectacular Andean Cock-of-the-Rock, with its stunning displays on leks, its traditional mating sites. In the afternoon we will explore other habitats in the cloud forest, and examine epiphytic orchids and bromeliads and a garden of medicinal plants. Along the many fast-moving streams we will watch for unusual birds such as Torrent Ducks, Torrent Tyrannulets and White-capped Dippers. Paradise Cloud Forest Lodge. B,L,D

Mar 7: Exploration in cloud forest to lower altitude, which is the transition between high cloud forest and the lower forests of the Amazon Basin. Here we see a diverse landscape with rich flora and fauna, including capuchin and woolly monkeys, toucans, and parrots. Paradise Cloud Forest Lodge. B,L,D

Mar 8: We return by bus to Cusco, by way of cloud forest and puna habitats. Hostal Imperial San Blas. B,L

Mar 9: Full day on our private bus across Peru's altiplano, observing spectacular mountain scenery, llama and alpaca herds and local agriculture. Wildlife species to watch for include *cui* (wild relatives of guinea pigs), flamingos, and large raptors. Stops at the Raqchi archaeological site, Sicuani, and for lunch in La Raya. Overnight in Hostal Taypikala in Puno. B,L

Mar 10: Led by Dolly and a local guide. Morning hike around Lake Titicaca, sightseeing and birdwatching (including a search for the Short-winged Grebe, a rare flightless bird restricted to the Titicaca Basin). Afternoon boat to Uros Island, an artificial island made from totora reeds, where the "reed people" still live a traditional lifestyle, little changed over hundreds of years. Hostal Taypikala. B,L

Mar 11: Morning guided visit to the Sillustani ruins and Lake Umayo Reserve, which has wild vicunas and some of the unusual birds of the altiplano, like the giant coot. Transfer to airport in afternoon; fly to Lima. Overnight flight to the US (returning to Bangor March 12). B, L

Cost per student is approximately \$2400, which includes all airfare, transfers, lodging, meals as noted above, guided excursions, entrance fees, and comprehensive travel insurance. This fee does not include Peru airport taxes of \$5 for each of 2 domestic flights and \$28 for the international flight from Lima (these cannot be prepaid, and must be paid by each participant just before each flight). Additional money will be needed for some meals (see itinerary), tips, and optional purchases such as souvenirs. US currency is good for all of that, but make sure your bills are in virtually new or mint condition.

Documents: The only document required is a valid US passport. Please bring five photocopies of your passport picture page, for help in reconfirming flights and as entrance requirement for the reserves. No visa is required. No vaccination certificate is required.

Trip Preparation: We will provide recommendations for health precautions and packing for the trip to all participants after they register. Some Basic Information: Coastal Peru will be dry and warm, but the highlands will be much cooler. Be prepared to dress in layers there, as the temperature can quickly change from 50°-80° F; and evenings can get down to freezing in some highland sites. Good windbreaker; good hiking shoes; sunglasses are advised. Other recommended items include sunblock (you are close to the equator where there is less atmospheric protection from UV); insect repellent (for cloud forest); canteen or water bottle; personal toiletries; daypack or small backpack. For the Andes we suggest that you talk to a physician about a prescription for diamox to help with altitude adjustment.

Amazonia Expeditions guarantees all land services. Amazonia waives responsibility for any problems caused by air travel, including but not limited to problems caused by flight delays, cancellations, lost luggage, etc. Once air portion is purchased it is non-refundable. [The next statements need to be replaced with a summary of the insurance package to be purchased with the course fee?] For protection against problems caused by air travel we recommend the purchase of a travel insurance policy such as ProtectAssist, offered by Travel Guard. For more information or to purchase insurance, click onto the Travel Guard icon at the bottom of the credentials page of our website <http://www.perujungle.com>

Required Reading: J. Kricher. A Neotropical Companion. (selected chapters).

Recommended reading: Cusco and the Sacred Valley of the Inca .

D. Pearson & L. Beletsky. Peru: Ecotraveller's Wildlife Guide.