Tropical Wildlife Study Tour

Travel to Nicaragua and embark upon a study tour of tropical ecosystems and live on a shade-grown coffee plantation. See over 200 bird species and capture birds and bats in mist nets. Learn about shade-grown coffee, local cultures, and the importance of nature-based tourism. View wildlife during a sunset boat ride, search for nocturnal mammals, and climb the rim of an active volcano.

March 7 - March 16, 2014

Courses – 3 credits:
FW 405 – Tropical Wildlife Ecology in Nicaragua (undergraduates)
FW 595 – Tropical Wildlife Ecology in Nicaragua (graduate students)

Topics covered:
• Tropical wildlife
• Bird banding research
• Sustainable coffee production
• Nicaraguan culture
• Nature-based tourism

Estimated cost ($3200) includes:
• Airfare
• Food, lodging, and transportation in Nicaragua
• Course credits

FOR MORE INFORMATION:
Dr. Chris Moorman
NCSU Fisheries, Wildlife and Cons. Biology Program
(919) 515-5578
chris_moorman@ncsu.edu

John Connors
EcoQuest Travel
john.connors@ncdenr.gov

Apply Through Study Abroad Office
315 FYC Commons
919-515-2087
http://studyabroad.ncsu.edu

Scholarships Available

The University reserves the right to alter the program format and/or costs in case of conditions beyond its control. If the program is canceled or a student withdraws, a refund of program costs may not be available in all cases. Please refer to the Study Abroad office Refund Policy for details.
FW 405/FW 595 TROPICAL WILDLIFE ECOLOGY IN NICARAGUA
Spring 2014

INSTRUCTOR:
Dr. Chris Moorman
Turner House
Phone: (919) 515-5578
Email: chris_moorman@ncsu.edu
Office hours: by appointment

120-MINUTE CLASSROOM MEETING TIME: TBA
LOCATION: Biltmore Hall

COURSE PRE-REQUISITES/CO-REQUISITES: None
GENERAL EDUCATION COURSE: No

STUDENT LEARNING OUTCOMES:
1) Students are able to describe key processes and attributes of tropical ecosystems.
2) Students are able to identify primary threats to conservation of wildlife in Central American countries like Nicaragua.
3) Students are able to describe sustainable approaches to reduce or mitigate negative effects of human activities on tropical wildlife.
4) Students area able to characterize the role that the United States and other historical influences have played in shaping current Nicaraguan culture.

REQUIRED READINGS: At least nine research papers on topics related to tropical forest ecology (preferred emphasis on wildlife), sustainable agriculture, Nicaraguan culture and history, nature-based tourism (preferred emphasis on the developing countries), or other topics proposed by students and approved by the instructor.

TEXTBOOK: None required, but strongly recommended:

TRIP TO NICARAGUA
EcoQuest Travel handles all planning, arrangements, and payments for the Nicaragua trip from 7 March through 16 March, 2014. Estimated cost for the trip to Nicaragua is approximately $3,200 (includes airfare), plus cost of passport, immunizations, $5 arrival tax, personal purchases, and meals in airports. In Nicaragua, all meals, lodging, entry into national parks, and transportation will be provided at no additional cost. Scholarships through the NCSU Study Abroad Office, Department of Forestry and Environmental Resources, and College of Natural Resources will be available.

Nicaragua offers a unique destination for study of tropical wildlife. In fact, it contains the largest area of primary forest north of the Amazon and is home to 7% of the world’s biodiversity. Nicaragua is now officially the safest country in Central America and is tipped to pass neighboring Costa Rica as the choice destination for eco-tourists. Yet, the country is quite poor
and offers the chance to witness the conservation challenges posed and sustainable solutions possible when financial resources are limited.

**COURSE OVERVIEW**
The course addresses the challenges of natural resource conservation in a developing country and the sustainable approaches that may be used to conserve wildlife and other natural resources there. During a 10-day trip to Nicaragua, students will tour natural areas, discuss conservation strategies, and employ various wildlife sampling techniques, including use of mist nets in a long-term bird monitoring program in a shade-grown coffee plantation. A fee, which covers the cost of the trip to Nicaragua, will be required to participate in the course. A combination of pre-trip discussions and presentations, field activities and experiences in Nicaragua, and post-trip reports form an integral part of the course.

**SPECIFIC TOPICS**
Avian ecology, tropical ecology, tropical wildlife, nature-based tourism, sustainable agriculture, shade-coffee production, avian sampling techniques, keystone tree species, national parks, land use change, Nicaraguan history, Nicaraguan biomes, cultural and language emersion experiences, taxonomic specific ecology

**GRADING SYSTEM**
Class Presentation ............................................................... 20%
Summary of Presentation Topic ........................................... 20%
Journal
   FW 405 ........................................................................... 40%
   FW 505 ........................................................................... 30%
Trip Summary Report ............................................................ 20%
Post-trip Presentation (FW 505 Only) .................................... 10%

**GRADE EQUIVALENTS**
All assignments and tests will be graded on a 0 to 100% scale. Final letter grades will be assigned based upon the grading system above as follows:

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<th>Grade</th>
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1. **Academic Integrity.** Students are required to complete their own work. However, that doesn’t mean students cannot talk to others about an assignment; in fact, I encourage interaction. However, a student cannot copy another person’s work and submit it as their own. In general, students should follow the Code of Conduct at [http://policies.ncsu.edu/policy/pol-11-35-0](http://policies.ncsu.edu/policy/pol-11-35-0) particularly the sections on Academic Integrity. I will refer violations to the Academic Integrity Board of the Office of Student Conduct. Violations can result in a failing grade for an assignment, or suspension from the University.

2. **Students with Disabilities.** Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information, see [http://policies.ncsu.edu/regulation/reg-02-20-01](http://policies.ncsu.edu/regulation/reg-02-20-01).

3. **Attendance.** Students must attend the trip to Nicaragua to receive credit for the course. Also, students are expected to attend all on-campus classes on time unless prior arrangements have been made. However, one unexcused absence is allowed. For specific information, see the NC State University attendance policy at [http://policies.ncsu.edu/regulation/reg-02-20-03](http://policies.ncsu.edu/regulation/reg-02-20-03).

   Note: Excuses for unanticipated absences must be reported to the instructor no more than one week after the return to class.

4. **Late Assignments.** Students are expected to turn in assignments during class on the scheduled day unless prior arrangements have been made or a valid excuse is presented ASAP but not more than one week after the return to class. Late assignments will be reduced a letter grade for every class period late.

5. **Credit Only.** Students electing to take this course for credit only (pass/fail) must complete all required activities and meet the attendance policy. A grade of 70 or higher will be considered passing. A grade of 69 or less will result in a U.

6. **Incomplete Grade:** An incomplete grade (IN) will be given in cases in which the student is unable to complete work, not due to his or her own negligence, in a course where the student's record in the course supports a projection that passing the course is possible upon completion of the work. Assignments must be made up before the end of the next regular semester in which the student is enrolled and in no case may be made up more than 12 months after the end of the semester in which the IN is awarded. Make up work is to be limited to accomplishing the work not completed.

7. **Statement on Safety or Risk Assumption:** Students will be advised regarding safety and risk why travelling to and within Nicaragua. While outdoors in Nicaragua, students will be expected to wear long pants and closed-toed shoes. A safety plan for the trip to Nicaragua will be filed with the NCSU Study Abroad Office.

8. **Non-discrimination Policy:** NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations...
covering discrimination, harassment, and retaliation may be accessed at http://policies.ncsu.edu/policy/pol-04-25-05 or http://www.ncsu.edu/equal_op/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

ASSIGNMENTS
1. Students will attend all class meetings before and after the trip (1 unexcused absence allowed). Students must attend the trip to Nicaragua.

2. Students will make a 20-30 minute presentation (Powerpoint presentations are encouraged) of their topic during a class period prior to the trip. A rubric, provided to students, will be used to grade presentations. Topics include:
   - Wildlife use of coffee plantations
   - Shade-grown coffee production
   - Nature-based tourism in Central American countries
   - Keystone tree species
   - Avian ecology or migration
   - Wildlife in tropical forests – focused on specific taxa
   - Nicaraguan history or foods
   - Basics of Spanish language
   - Biomes of Nicaragua
   - Other approved by instructor

3. Students must submit a summary (at least 3 pages double-spaced) of their presentation topic (due on date of presentation). The presentation summary should include a description of the topic or issue, a literature review, and relevance to the course. Additionally, each student also must choose a reading (e.g., journal article, popular article, report), related to their presentation topic, that will be assigned to the class the week before each presentation.

4. Students will participate in all activities during field study in Nicaragua.

5. Students will maintain a journal (supplemented with photos) during the entire study tour, making sure to record wildlife species, ecological relationships noted, role of humans in the environment, ideas on sustainable agriculture or nature-based tourism, personal thoughts, etc.

6. Students will submit a 5-page summary (double-spaced) of the 10-day trip and their journal on the first day of class after the trip. Students should use their journal entries to guide writing of the summary report. Summary reports should describe trip activities, key observations or thoughts related to natural resources conservation, sustainable land use, or culture in Nicaragua, and constructive suggestions for course and trip improvement.

7. Students enrolled in FW 505 will lead a presentation to a public group (e.g., Conservation Ecology Group, Leopold Wildlife Club, Wake County Audubon Chapter). The presentation will include a summary of trip activities and experiences with a specific emphasis chosen by each participating student.

SCHEDULE (ALL CLASS SESSIONS ARE 120 MINUTES)

| Class 1 | Introductions and Bird Banding Project Overview |
| Class 2 | Trip Logistics and Forms; Nicaraguan History Overview |
| Class 3 | Student Presentations |
| Class 4 | Student Presentations |
| Class 5 | Student Presentations |
| Class 6 | Student Presentations |
DRAFT SCHEDULE FOR NICARAGUA TRIP

Day 1 – Raleigh to Managua, Nicaragua and on to Finca Esperanza Verde
An early morning flight from Raleigh takes us to either Houston or Miami for our connecting flight to Managua, Nicaragua. Please arrive at our departure gate for Managua no later than two hours prior to our scheduled departure time. After clearing immigration and customs and gathering our luggage in Managua, we will board our private bus for the three to four hour drive to Finca Esperanza Verde.

Day 2 – Finca Esperanza Verde – Birds and Other Wildlife
We will spend today exploring the forests in and around Finca Esperanza Verde. The area is beautiful and rich in wildlife, especially birds. Keel-billed toucans, swallow-tailed kites, parrots, and numerous tanagers can all be observed from the veranda prior to breakfast. Throughout the day we will hike some of the Finca’s trails in hopes of glimpsing mantled howler monkeys, leaf-cutter ants, and many more species of birds, such as trogons, motmots, and oropendolas. Various species of treefrogs may be out and about at night. We also will learn about shade grown coffee and its importance to wildlife conservation. After dinner we will enjoy an entertaining evening of traditional Nica folk music. The local villagers always look forward to this fiesta around the bonfire under the stars. It will be a memorable evening of music, dancing and great food – the perfect way to begin our time at the Finca.

Day 3 – Finca Esperanza Verde – Bird Banding
Under the direction of John Gerwin, Curator of Birds at the North Carolina Museum of Natural Sciences, we will open up a series of mist-net stations that form the foundation of a permanent bird banding station at the Finca. We will open up the nets early in the morning and begin banding birds before taking a break for breakfast. After breakfast we will continue to bird band until it gets too hot. After lunch, we will learn how to make tortillas and hike more of the local trails. In the evening, students will set camera traps and Sherman live traps in hopes of detecting the nocturnal wildlife (e.g., agoutis, opossums, and various species of small mammals) of the Nicaraguan tropics. Traps will be checked early the following morning.

Day 4 – Finca Bird Banding, General Nestor’s Farm and San Ramon
After an early breakfast this morning we will travel from the Finca to General Nestor’s farm. This farm is located in a much drier habitat and the river that cuts through it is home to many species of birds, numerous reptiles and even a few mammals. Especially common are several species of hummingbirds, white-throated magpie jays, Inca doves, orange-fronted and orange-chinned parakeets, common tody-flycatchers, and scrub euphonias. Basilisk lizards are frequently seen on the river and may even run across the surface of the water as we approach. Mantled howler monkeys and both two-toed and three-toed sloths are frequently seen among the trees along the river. We will have a chance to swim in the river and have a picnic lunch before we travel to the community centers of San Ramon – the library and the artisan center. There, we will hear from community leaders and students about the importance of eco-tourism to the local
The youth of San Ramon will perform several traditional dances and art students will be available to sell their artwork. During the evening, we will have dinner at the San Ramon bakery, owned by two sisters. We will learn how to make the national dish of Nicaragua – Nacatamales! After a full day we will return to the Finca.

Day 5 – Finca Bird Banding and on to Santa Maria de Ostuma
Throughout the morning we will continue our bird banding efforts at the Finca. In the mid-afternoon we will pack up, say our goodbyes to the Finca staff and transfer to Santa Maria de Ostuma. Ostuma is a coffee plantation and eco-lodge located close to our destination for tomorrow – Selva Negra. The gardens surrounding the beautiful lodge are a haven for higher altitude birds including blue-hooded euphonia, bay-headed tanager, and orange-billed nightingale-thrush. We will have dinner and stay overnight at Santa Maria de Ostuma.

Day 6 – Selva Negra and Santa Maria de Ostuma
Today we will travel from the Ostuma to Selva Negra. This spectacular primary forest is home to many species that are difficult to see elsewhere including the incredible resplendent quetzal, three-wattled bellbird, collared forest falcon, bushy-crested jay, and hopefully some of the antbirds that follow army ant swarms. The forest is also a great place for mammals and we could see agouti or ringtails, and troops of mantled howler monkeys are common. We will have a picnic lunch before we return to Santa Maria de Ostuma. This afternoon we will have another chance to explore the forests and gardens of Ostuma searching for birds and other wildlife. After dinner the owner of Ostuma, Marcia Salazar, will talk about her perspectives on Nicaraguan history. We will overnight once again at Ostuma.

Day 7 – Las Playitas, Granada and Volcan Mombacho
We will depart very early this morning for the colonial city of Granada. Along the way we will stop to bird Las Playitas (a shallow wetland area) in hopes of viewing fulvous whistling ducks, least grebes, northern jacanas, and numerous herons. After a brief stop at the Playitas, we will continue on to Granada and our accommodations at the Hotel Alhambra. The Hotel Alhambra is a beautiful old hotel located directly across from the main plaza. After settling into our rooms we will have a couple of hours to explore Granada and do some shopping. We will have lunch at our hotel before we travel to the slopes of Volcan Mombacho and transfer to one of the Park’s trucks for the steep climb to the summit. Once we reach the summit, we will hike the caldera trail and explore the diverse cloud forests that make Volcan Mombacho so special. These high altitude forests are a haven for plants and animals. A wide variety of bromeliads and orchids festoon the tree branches and some of the orchid species grow only on the slopes of Mombacho. The dormant volcano is also home to an endemic salamander and many higher elevation birds such as mountain elaenia and purple-throated mountain gem. If not obscured by clouds, the views of Lake Nicaragua from the summit are fabulous. As the sun sets we will descend Mombacho, return to Granada for dinner.

Day 8 – Lake Nicaragua and Montibelli Private Reserve
This morning will begin just before dawn as we head to the shores of Lake Nicaragua for our early morning boat trip through Las Isletas. The 365-island archipelago of Las Isletas was formed 20,000 years ago when Volcan Mombacho erupted, hurling its top half into the lake and forming dozens of small islands. Today Las Isletas are covered in lush vegetation and provide a haven for birdlife. We will wind our way through the many meandering channels separating the islands and could see snail kites, pinnated bitterns, ringed kingfishers, bare-throated tiger herons,
and numerous other water birds. We will take a packed breakfast with us and will return to the boat dock by mid-morning. After we return to our hotel to retrieve our belongings and check-out we will travel to Montibelli Private Reserve arriving in time for lunch. Montibelli is a fantastic dry tropical forest reserve located fairly close to Managua. Situated in a remote valley, Montibelli is home to a huge variety of birds including many species we are not likely to see elsewhere, such as plain chachalaca, northern potoo, painted bunting, Pacific parakeet, rose-throated becard, dusky antbird, and yellow-billed cacique. After a late afternoon of birding the reserve we will have dinner and a night hike before settling into our bungalows for the night. Nocturnal mammals and birds are plentiful at Montibelli and could include several species of opossums, Pacific screech owls and pauraqués.

**Day 9 – Montibelli Private Reserve**
This morning we will have an early birding walk in Montibelli prior to breakfast. If possible we will set up some mist nets and see what we capture as a way of comparing species between the dry Pacific slope and our efforts in the highlands. We will be on the lookout for white-fronted parrots, orange-fronted parakeets, lesser ground cuckoo, blue-throated goldentail, collared aracari, violaceous and elegant trogons, turquoise-browed motmots, banded wrens, and hopefully lekking long-tailed manakins. After our walk we will have breakfast and have another chance to hike and bird before lunch and a chance to rest during the heat of the day. In the late afternoon we will have more time to explore before dinner. Bats are plentiful and diverse at Montibelli and after dinner we will have a chance to capture and identify some of the many species that are found in the dry forest. Bats are a critical component to most ecosystems and it will be a real privilege to see these keystone species up close and personal!

**Day 10 – Departure for the US**
This morning we should have some time to bird in Montibelli before breakfast and our departure. We will depart for the airport in the mid-morning in order to catch our flight to either Atlanta or Miami. Once in our gateway city we will transfer to our flight back to North Carolina.