

PRESERVING CALIFORNIA ENVIRONMENTS: THE BIG SUR WILDLANDS PROJECT

Meeting Place: Santa Cruz, CA

July 29 – August 11, 2010

4 semester system units (equivalent to 6 quarter system units)

Program Fee \$1195 plus \$150 Application Fee

Team members will take part in onsite ecological investigations of the redwood forested canyons and rugged coastal environments that form California's famed Big Sur Wildlands. The Big Sur Coast is one of the most spectacular and dynamic stretches of coastline along the west coast of North America with elevation gains of over 5,000 feet, pristine streams with sensational waterfalls, and a rich shoreline home to thousands of marine mammals and some of the richest marine life along the central California coast. Our program will take place at the Landels-Hill Big Creek Reserve, part of the University of California Reserve System. This Reserve sets aside ecological sites for research and education. The Big Creek Reserve, connecting to the greater Ventana Wilderness, consists of over 4,000 acres of terrestrial wilderness comprised of dozens of different plant communities. The Big Creek marine reserve just offshore creates a continuum of protected habitats along the Big Creek watershed from the Santa Lucia mountain range into the Pacific Ocean. The Reserve is home to several rare and endangered species including mountain predators, sea otters, and many birds of prey, including the California Condor.

The geology of the region is just as breathtaking as the wildlife with hot springs, gem quality jade that can be beachcombed, and a tectonically dynamic history of oceanic subduction, uplift, and erosion creating one of the most spectacular landscapes in the world. The area is also culturally unique with a rich history of homesteaders and Native Americans making the Reserve their home. Middens there have been studied showing thousands of years of occupation by such tribes as the Essalen and Salinan Indians. Our team will use Redwood Camp as a home base, conducting day trips for our investigations. There will be a one to two night hiking field study towards the end of the program.

PROJECT GOALS & ACTIVITIES

Team members will participate in several field studies as part of Wildlands Studies' on-going investigations in the Reserve, where we have been collecting data for over 15 years. Participants will learn valuable field research techniques including stream/fish monitoring, marine mammal behavior/population census techniques, and habitat mapping. Data will add to a long-term database aimed at helping to manage Big Sur's wildlands. Participants will also have an opportunity to take part in independent studies aimed at enhancing their interest and knowledge of ecological systems. Together we will search for answers to important ecological questions as we assess how habitats and the wildlife populations they support develop and evolve over time with changing climatic conditions and large-scale events such as fire, flood and drought.



The tapestry of environments found in our Big Creek Reserve study area include famed marine mammal habitats; a complex intertidal zone bridging marine/terrestrial ecosystems; and clear streams flowing from spectacular coastal mountains. Together we will: 1) conduct fishery/stream habitat investigations; 2) assess the abundance and behavior of marine mammal populations including sea otters and seals; 3) survey/map plant and animal communities found in both the rich intertidal zone and on land; and 4) learn to take detailed field notes, make maps and keep field notebooks. Additional field explorations will be scheduled as well.

We will begin our project with a 'big picture' overview of the Landels Hill-Big Creek Reserve, becoming familiar with the complex geography, geology and abundant habitat types that form our study area. Here too we will learn about the principle ecosystems of Big Sur, and pressing conservation issues facing the region today. We will survey and map three reaches of the Big Creek stream system, conducting a visual census of steelhead and habitat assessments. Our marine mammal investigations will take us down the coast, along Highway One, adjacent to rugged Big Sur cliffs. Using the cliffs as a vantage point, team members will scan the near shore environment to locate, identify and census sea otters, seals and sea lions in their kelp forest habitats. Our primary focus will be on the endangered Southern Sea Otter. Our plant community surveys will look at diversity and dominance within and between plant communities in riparian corridors, oak woodlands and redwood forests.

A major component of our investigations and field studies will be hands-on surveys of the pristine Big Creek stream system that is at the heart of the region's terrestrial environment. Once abundant in California streams, sensitive fish species including steelhead and salmon are declining in the wake of a rapidly developing coastline. Today, steelhead are largely restricted to remaining pristine waterways such as those found in the Big Creek Reserve, and key questions remain: How do fish populations in pristine streams such as Big Creek compare with those in other, less protected streams? What are the natural fluctuations in population density over time? How are steelhead populations affected by natural cycles in the ecosystem such as flood, fire, and drought? Few regions provide an environment to address these questions where natural cycles can be examined free of anthropogenic activities—and the Big Creek Reserve is one of them.

To answer these and other questions, team members will use a face mask, snorkel and wetsuit to conduct visual surveys in Big Creek to estimate steelhead density, size composition and bottom substrate. We will also document stream hydrology (flow rates, temperature, stream discharge, oxygen levels), and measure the physical dimensions of the stream (width, length, depth of riffles, runs, falls, and pools). During the intertidal and/or plant community component of the project, team members will conduct surveys and establish key transects for site characterization and analysis. In our hands-on investigations we will learn transect-quadrat field study methods and characterize unique communities.

While our itinerary will depend in part on ocean and weather conditions, by the end of the program each of us will gain a heightened awareness of Big Sur's fascinating ecology, and firsthand knowledge of key wildland habitats. **Please note that previous field experience is not required.** All necessary skills to conduct our marine mammal, intertidal, stream and terrestrial ecological studies will be taught onsite during the program.

ACADEMIC CREDIT

Students will receive 4 semester units (6 quarter units) awarded through California State University Monterey Bay Extended Education. While students usually encounter no difficulties in transferring credit to their home campus, applicants should check with their advisors prior to enrolling. Our staff will be happy to explain the program in further detail to the applicant's advisor, if necessary. The Big Sur field studies program gives credit in one course: ENV 370, Environmental Wildlands Studies (4 semester system units).

Team members wishing academic credit will be evaluated on the quality of fieldwork; discussion participation; a written analysis of field work; an oral presentation; and field notebooks. 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.

TEAM LOGISTICS

Santa Cruz, in California's Monterey Bay Area, will be the meeting place. Located approximately 100 miles south of San Francisco, Santa Cruz is accessible by air (Monterey, San Jose, San Francisco, Oakland Airports), bus and car. We encourage you to carpool to Santa Cruz. Travel to Big Sur will be by personal vehicles (carpools) with costs shared equally. Thus, at least 3-4 of you will need to bring vehicles to Santa Cruz.

We will buy all our food as a group and share the expense on the first day. **Do not** buy food ahead of time unless you have special dietary needs. (Being a vegetarian is **not** a special dietary need in this case.) Plan on spending about \$100 for food. NOTE: there are few stores in Big Sur, and access to 'shopping' for 'basic' items is extremely limited (and expensive). We purchase the bulk of food in Monterey before heading into Big Sur.

Hiking at Big Creek can be strenuous. Moderate hiking will be required to get to our campsites, and to access the Big Creek Reserve. Slightly more strenuous hiking will be required to access the upper reaches of Big Creek. Hiking will also be used to gain an overview of the Reserve, and to look at the effects of fire on stream and marine systems. We will be camping the entire time in campsites (primarily Redwood camp) within Big Creek. These sites are only available to researchers/students such as ourselves. In the remote Reserve, there are no laundry facilities, so participants are encouraged to plan accordingly with regard to clothes. We *may* have a chance to do a small laundry halfway through the project.

Like most of coastal California, the Reserve has a Mediterranean climate of cool wet winters and cool often foggy summers with warm dry conditions just a short distance inland from the coast. Summer fog keeps the immediate coastal area moist and cool year-round. Team members should be prepared for hot dry weather as well as cool moist conditions as we will be participating in activities on the coast and inland. Temperatures in the summer can range from 65-70 degrees F near the coast to 80's inland.

EQUIPMENT

All participants are requested to bring binoculars, calculator, and a field notebook. Spotting scopes will be very helpful if you can get your hands on one. The photographic opportunities are excellent on this program and we recommend you bring a camera. For the stream surveys you **will need** a 1/4" wetsuit with hood, and a mask and snorkel (a surf suit **will not** suffice). Wetsuits, mask and snorkels can be rented from the Dive Shop in town for a reasonable cost. Rental fees last year were \$45.00.



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PROJECT COSTS

Program Fee:	\$1195 plus \$150 Application Fee. Program fee due May 25, 2010 Enrollment on a space-available basis after the fee due date until the program is full.
Field supply and camping costs:	\$40 per person (plus approx. \$18.00 book cost)
Food for Big Sur:	Approx. \$125
Money for wetsuit (if needed)	Approx. \$45
Personal Spending Money:	\$150 (including carpool costs, this varies according to taste - but don't be caught short)

Students should inquire at the financial aid office of their home campus regarding the use of their loans or grants for this course. CSU Monterey Bay Extended Education/ Wildlands Studies are 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.

PRE-TRIP PLANNING

Detailed information regarding gear/food, meeting plans, and academic preparations will be sent to all team members in a subsequent logistics letter about 8-10 weeks before the project initiates. In this Logistics letter, we will communicate with you to plan for sharing camping equipment, transportation to the site, how to order the book, wetsuit reservations and planning any last minute logistics. Between now and summer, stay in good shape and prepare for a wildlands adventure second to none!

PROJECT LEADER

Nicole Crane, Wildlands Studies Field Ecologist, is a Biology instructor at Cabrillo College. She founded the WS Big Sur program in 1997.