



**WILDLIFE RECOVERY AND REINTRODUCTION:
THE CALIFORNIA CHANNEL ISLANDS PROJECT**

July 2 - 16, 2017

**Meeting Place: Ventura, CA
5 quarter credits/3.35 semester credits**

FULL PROJECT DESCRIPTION

Thank you for your interest in our California Channel Islands Project: Wildlife Recovery and Reintroduction. Our course will take place on Santa Cruz Island, the largest and most diverse of the California Channel Islands. Santa Cruz Island is approximately three times the size of Manhattan and contains a wide array of landforms; our field studies will take us to rugged mountain ranges, deep canyons, vast sea caves, pristine tidepools, and expansive beaches. These landforms contain diverse plant communities such as grasslands, chaparral and pine forests, and support more than 450 native plants, and 150 land animals. In addition to the terrestrial species the island supports colonies of nesting seabirds, seals and sea lions, as well as migrating whales and resident dolphins. The island is also rich in cultural history, with over 9,000 years of American Indian habitation and over 150 years of European exploration and ranching.

Close to the mainland yet worlds apart, Santa Cruz Island is home to plants and animals that are found nowhere else on Earth. Like the Galapagos Islands of South America, the California Channel Islands have existed in relative isolation, allowing evolution to proceed independently, and fostering the development of 60 endemic species on Santa Cruz alone. Yet the persistence of these species to present day has not been without peril – the transition of the island from its natural state to a multifaceted working ranch resulted in severe impacts on native vegetation and indirectly drove some of its most iconic species towards extinction. With the end of the ranching era, the land managers of Santa Cruz Island aimed to restore the island to a more ecologically natural state. In the past few decades a number of large and controversial management decisions were made, resulting in a rebound of the island's native flora and fauna. The ecological restoration of Santa Cruz Island is an amazing success story which demonstrates the triumph of modern-day conservation science. Although the island continues to recover, there is still much work left to be done, and many evolutionary and ecological discoveries yet to be made.

Over the course of your time on-island, you will gain firsthand experience with ongoing restoration projects, such as bald eagle reintroduction or island fox restoration. You will come to know the island's various ecological communities, from the sun-drenched grasslands and rocky chaparral of the east to the foggy, forested west. Along the way you will learn about important, island-specific topics such as island biogeography, endemism, evolution, and invasive species management. Come join us this summer for an intimate window into one of the most inspiring and unique places on Earth, the California Channels Islands.

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I. Background Information

Throughout human history, islands have been magical and inspiring locations, and Santa Cruz Island is no exception. With its close proximity to the California mainland, yet isolated off the coast, the California Channel Islands have a unique assemblage of species and eventful human history. Santa Cruz Island, the largest and most diverse of the California Channel Islands, has been occupied by humans for more than 9000 years. The Native American Chumash were the original inhabitants, and many areas of the island still contain archeological evidence of their occupation. In 1822, the last of the Chumash left the island for the mainland and in 1839, Andres Castillero was granted the island by Mexico. Castillero initiated an era of sheep and cattle ranching on the island that was continued by subsequent owners until the 1980s. In the late 1980s and early 1990s, Santa Cruz Island traded hands and is now jointly owned by the National Park Service and The Nature Conservancy.

Throughout geological time, numerous plants and animals have naturally colonized Santa Cruz Island; due to their isolation from the mainland, many have evolved into endemic species. Currently more than 600 plant and 200 animal species inhabit Santa Cruz Island. More than 60 of these species exist nowhere else on Earth. The island's isolation from the mainland has driven their ecology in such a way that often leaves them vulnerable to the impacts of introduced species. Over the past two centuries of ranching on the island, many plants and animals have intentionally and unintentionally been introduced, some of which have had severe impacts on the native flora and fauna. Some of the most iconic species that have been affected are the Island fox and the bald eagle.

The Island fox is a Channel Island endemic species that has lived and evolved in relative isolation for approximately 10,000 years. In the mid to late 1990's non-native golden eagles began colonizing the islands and preying upon the naïve Island foxes, resulting in a \geq than 90% population decline across the northern Channel Islands. Historically, bald eagles lived on the Channel Islands and are thought to territorially exclude golden eagles from colonizing. But the heavy use of DDT and other pesticides drove the bald eagles to local extinction. The absence of bald eagles, in concert with an abundant prey base of feral piglets, allowed golden eagles to colonize and thrive.

To save many important species and significant archeological sites, the National Park Service and The Nature Conservancy embarked upon a multi-year program to restore Santa Cruz Island. The program involved a number of large management decisions such as the removal of feral sheep, feral pigs and all livestock from the island; the initiation of an Island fox captive breeding program; the translocation of all golden eagles back to the mainland; and the reintroduction of bald eagles to the Channel Islands. Throughout this course we will

evaluate the impacts that non-native species have had on the native flora and fauna, as well as explore the current status of wildlife and island recovery by taking part in on-going recovery and reintroduction projects. We will also gain hands-on experience as we join current research projects aimed at wildlife recovery.

II. Project Goals and Activities

Santa Cruz Island contains a variety of vegetation communities that change markedly from east to west. During the course, we will traverse the length of the island. To better learn and understand the different ecological communities and species interactions across the island, each student will record their observations of the landscape and ecology in field journals. Each student will also be assigned a taxonomic animal and taxonomic plant family that will highlight 2 or 3 specific species (e.g., Island fox, Island scrub jay, Santa Cruz Island ironwood, giant coreopsis). Each student will be the “class expert” on these species, teaching other students how to identify them, as well as teaching the group about their ecological niche and interactions with other species. Combined, these exercises will hone the students’ skills and knowledge of species identification, ecological interactions, and subtle landscape changes through space. It will also provide an ecological foundation for other aspects of the course.

Please note that previous field research experience is not required. All necessary skills will be taught onsite in the Channel Islands.

Island Ecology

Throughout our explorations across Santa Cruz Island, we will examine general concepts of island ecology, such as island biogeography, endemism, insular evolution, gigantism, dwarfism, and niche shifts. We will read seminal scientific articles on these topics and explore how these topics pertain to Santa Cruz Island.

Invasive Species

Over the past two centuries, a number of plants and animals have been introduced to Santa Cruz Island, many of which have negatively impacted native species. We will explore the topic of invasive species and the impacts they can have on native species and ecosystems as well as specific impacts that non-native species have had on Santa Cruz Island.

Wildlife Recovery and Reintroduction

The decline of the Island foxes in the 1990’s prompted the National Park Service and The Nature Conservancy to restore the natural ecology of Santa Cruz Island. This began with a number of complex and costly management decisions and the implementation of research and monitoring programs. We will discuss the ecological impacts of these management decisions and explore firsthand how they have positively impacted the native species on Santa Cruz. We will also have guest lecturers from the National Park Service, The Nature Conservancy, and academic institutions discussing the current work and research being conducted, and the future direction of restoration on the island.

Review of Current Research Projects

Students will gain field experience by reviewing current research and recovery projects. Researchers will discuss the current goals of their projects and the field work and methodologies involved. The following are some of the possible research projects:

Insular Carnivore Recovery and Population Dynamics:

After golden eagles were relocated to the mainland, bald eagles were reintroduced, feral pigs were eradicated, and all captive Island foxes were released back into the wild. A long-term monitoring program

for the Island fox and Island spotted skunk was initiated. The goals of this monitoring program are to estimate the annual population size and annual survival of Island foxes and Island spotted skunks. This research project involves systematic trapping, handling and processing of Island foxes and Island spotted skunks.

Bald Eagle Reintroduction:

Historically, bald eagles bred on the California Channel Islands but populations declined precipitously during the first half of the 20th century. Eventually the use of DDT and other pesticides drove bald eagles to local extinction. Between 2002 and 2006, over 60 juvenile bald eagles were reintroduced to the northern Channel Islands, and in 2006, the first successful nest was recorded in over 50 years. Currently, bald eagles are monitored annually to determine population size and nest success.

Argentine Ant Eradication:

In 2013, The Nature Conservancy began an Argentine Ant eradication program. Argentine ants are an invasive species that aggressively attack other ant species and can severely impact pollinator and insect diversity. The eradication on Santa Cruz Island is the largest eradication ever conducted on Argentine Ants. We will talk with researchers leading the eradication effort.

III. Academic Credit

Students will receive 5 quarter credits/3.35 semester credits from Western Washington University. Our staff will be happy to explain the program in further detail to the applicant's advisor, if necessary. This field studies program gives credit in one course: ESCI 497T, Environmental Wildlands Studies: 5 quarter credits/3.35 semester credits.

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

IV. Team Logistics

We will spend our first night on the mainland, during which we will shop for groceries and prepare for our trip. The following morning we will take a boat across the Santa Barbara Channel, keeping our eyes peeled for dolphins, seals, sea lions, and migrating humpback and blue whales. In the afternoon, we will disembark on the eastern side of Santa Cruz Island at Scorpion Harbor. In Scorpion Canyon, we will learn about the human and animal history of the island, and conduct our field studies through day hikes and kayaking in the marine reserve. Next we will load up our backpacks and hike 10+ miles west to a second basecamp, Del Norte. This hike will begin our course-long transect of the island. After our study at Del Norte, we will travel further west and stay at the University of California at Santa Barbara's field station. We'll spend our days studying the canyons, ridgelines, and beaches or learning about a variety of research projects. In the evenings we will have guest lectures by researchers conducting scientific and restoration projects on the island. Upon leaving the UCSB field station, we will drive to the west coast of the island, where the vegetation changes from coastal scrub and chaparral to lichen-covered pine forests. Here we hope to spend a few days reviewing Island foxes and Island spotted skunks population monitoring and systematic trapping activities. Finally, on our last day, we will drive back to the pier and take our boat back to the mainland at Ventura.

The class will consist of one long day of backpacking 10+ miles and a number of days spent day-hiking and conducting field work. We will shop for all of the food we will need the first day of the class. The first week we will be camping and cooking using camp stoves. The second week will also entail camping but we will have access to a full kitchen, refrigerators, laundry and showers.

V. Accommodations

Primarily camping and backpacking.

VI. Official Documents/Visa

If you are a non-U.S. citizen, you will need a current passport that does not expire until after the end of the program. Please contact your country's Consulate Office to determine if you need a visa to enter the U.S.

VII. Language

This program is taught in English.

VIII. Pre-Program Mailings

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

IX. Project Leader

ADAM DILLON: M.S in Fisheries and Wildlife Conservation, Virginia Tech, 2005; Ph.D. Candidate in Ecology, Colorado State University. Adam is a wildlife ecologist and conservation scientist whose research interests lie in carnivore conservation, island ecology, population dynamics, and invasive species. His Master's research focused on the population trends and density of ocelots in the rainforests of Belize, and his Ph.D. research focuses on the population ecology of Island foxes and Island spotted skunks on the California Channel Islands. Adam has been teaching for Wildlands Studies since 2003 and has taught in Belize, New Zealand, the Pacific Northwest, and on Santa Cruz Island. He currently leads our New Zealand and California Channel Islands Projects.

X. Project Costs

Program Fee:	\$1900 plus \$150 Application Fee. Program fee due May 1, 2017. Enrollment on a space-available basis after the fee due date until the program is full.
Estimated On-site Expenses:	\$750 per person This includes transportation, fuel, food, camping, field activities/permits
Personal Spending Money:	\$100 (this varies according to taste - but don't be caught short)
Estimated Airfare:	\$350-600 (depending on your location)

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

XI. Contact Information

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