



Point Reyes Field Institute
Point Reyes National Seashore Association
Point Reyes Station, CA 94956
(415) 663. 1200 x373
www.ptreyes.org

California Naturalist

7-Day Training Immersive

November 9-15, 2015

Meeting days/times:

9:00 am – 6:00 pm, Monday, November 9 - Sunday, November 15.
Daily lectures and field seminars.

Classroom Location:

Clem Miller Environmental Education Center

Course Description:

The PRNSA California Naturalist training course will introduce you to the unique ecology and natural history of California and the Point Reyes Peninsula in Marin County. The 40-hour course combines science curriculum, guest lecturers, field trips and project-based learning focused on the natural world of California. Coursework and activities will engage students in the theory and practice of citizen science and direct stewardship. Participants earn the University of California's California Naturalist certificate for attending lectures, field seminars, taking field notes, and completing a Capstone Project.

Student Learning Outcomes:

By the end of this course, students should be able to:

1. Describe the role of the scientific method in understanding natural history.
2. Relate knowledge of natural history to becoming a naturalist and an environmental steward.
3. Integrate knowledge about the interconnectedness of abiotic and biotic factors (including human) and their influence on the natural history of the Point Reyes National Seashore.
4. Demonstrate skills in making and recording natural history observations in a field notebook.
5. Apply knowledge of the Point Reyes Peninsula ecosystem to local and global environmental issues.
6. Understand and communicate the role of citizen science in informing the natural resources management decision making processes.

Capstone Project & Oral Presentation:

As a requirement of the course, participants complete and present a Capstone Project. Participants can work individually or in teams to design and implement their Capstone Project. Before completion of the course, students give a 5-10 minute oral presentation of their Capstone Project. Capstone Project requirements can be satisfied in many ways, including stewardship, education, interpretation, citizen science and program support.

Naturalist Field Notebook:

Naturalists document their field observations with notes and sketches in a detailed Field Notebook. It is a course requirement to keep a Field Notebook during the course. Participants are also encouraged to record observations in an online field data collection and social networking tool called iNaturalist.

Service Volunteering

Participants participate in habitat restoration, citizen science, and non-profit conservation program support as part of the PRNSA California Naturalist course. California Naturalists are encouraged to complete 40 hours of volunteer service each year as part of being a California Naturalist. Each California Naturalist that logs 40 or more hours per year into the Volunteer Management system online receives a special lapel pin!

Participation and Attendance:

Attending class meetings and field trips and completing the Capstone Project and presentation is required to obtain the California Naturalist certificate. One absence from either a lecture or field seminar is allowable. Students with additional absences must arrange with the Instructor for opportunities to make-up missed meetings and field trips.

Required Text:

The California Naturalist Handbook, UC Press, 2013.

Additional Reading:

Natural History of the Point Reyes Peninsula, Jules Evens, UC Press, 2008.

PRNSA California Naturalist Training Course – Fall 2015**Course Syllabus*****Monday, November 9***

9:00am - 10:00am	Registration and Move-in
10:00am - 10:30pm	Welcome Circle and Orientation
10:30am - 11:00am	Course Requirements and Expectations
11:00am - 12:00pm	The State-wide California Naturalist Program, Brook Gamble, UC ANR
12:00pm - 1:00pm	Lunch break
1:00pm - 2:00pm	Lecture, Chapter 1
2:00pm - 2:30pm	Vanpool to Bear Valley Visitor Center
2:30pm - 3:45pm	Interpretation at NPS, John Dell'Osso, Point Reyes National Seashore
4:00pm - 5:30pm	iNaturalist Intro and Demo, Todd Plummer, Wild Marin Nature Tours
5:30pm - 6:00pm	Vanpool to Clem Miller
6:00pm - 7:00pm	Diner break
7:00pm - 8:00pm	Movie time: Geology Animations with John Karachewski

Intro to California's Natural Resources and the California Naturalist Program

Guest Expert: Brook Gamble, University of California

Reading: Chapter 1-Introduction to California Natural History and the World of Naturalists

Goals:

- To learn the benefits California Naturalist program and how the program works.
- To understand what is unique about California's natural history, human history, ecology and landscape.
- To understand what naturalists do and why it is important.
- To understand the scope and significance of the Point Reyes Peninsula.
- To understand the work of PRNSA and the Point Reyes National Seashore.
- To learn how to keep a naturalist's Field Notebook and journal.

Objectives:

- Identify two important naturalists.
- Describe the characteristics of a good naturalist.
- Name three things that make California's ecology unique.
- Explain the Linnean classification system.

Interpretation and Communication at the National Park Service

Guest Expert: John A. Dell'Osso, Chief of Interpretation, Point Reyes National Seashore

Reading: Chapter 8-Interpretation, Communication, and Citizen Science Interpretation: Why, what and how

Goals:

- To understand the basic principles of nature interpretation.
- To learn techniques for presenting to and communicating with different kinds of audiences.
- To explore the advantages of citizen science for participants and the advancement of science.

Objectives:

- Describe three principles of successful interpretation.
- Define and develop a theme for an interpretive project.
- Describe how you would adapt a program for use with two different audiences.
- List two things to remember about speaking at a public meeting and three things that can help make a program more successful.

Citizen Science & iNaturalist

Guest expert: Todd Plummer, California Naturalist, Wild Marin Nature Tours

Session prep: create an iNaturalist account online prior to the class and bring mobile device (if available) to this session. Go to www.inaturalist.org

Goals:

- To learn the basics of the iNaturalist App as a naturalist tool
- To explore the advantages of citizen science for participants and the advancement of science

Objectives:

- Make and upload first iNaturalist Observation from PRNSA office WiFi
- Define citizen science and provide examples of ways to get involved

NOTES:

Tuesday, November 10

8:00am - 9:00am	Breakfast
9:00am - 10:00am	Lecture, Geology with John Karachewski
10:00am - 12:00am	Vanpool to Drakes Beach, Geology Field Seminar with John Karachewski
12:00pm - 12:30pm	Lunch break, picnic lunch
12:30pm - 3:00pm	Vanpool to Lighthouse, Geology Field Seminar with John Karachewski
3:00pm - 3:45pm	Vanpool back to Clem Miller Ed Center
4:00pm - 5:00pm	Lecture, Chapter 2
5:00pm - 6:00pm	Free Time
6:00pm - 7:00pm	Dinner

Geology, Soils and Climate

Reading: Chapter 2-Geology, Climate, and Soils

Guest expert: John Karachewski

Goals:

- To understand how the geologic history of California created the current landscape.
- To understand how the geologic history of Point Reyes created the current landscape.
- To understand how the landscape influences the ecology of California.
- To understand how the landscape influences the ecology of Point Reyes.
- To be aware of the role that nutrient cycles and soils play in shaping plant communities.

Objectives:

- Describe how the topography of California influences climate within the state.
- Discuss how the resulting climate and soil variations influence the ecology of California.
- Discuss how local climate and soil variations influence the ecology of Point Reyes.
- Name a soil type found locally and its impact on the local ecology.
- Draw the nitrogen cycle and explain its importance. Describe how agriculture has affected soils, water and land use in California.

NOTES:

Wednesday, November 11

8:00am - 8:30am	Breakfast
8:30am - 9:00am	Hike to Muddy Hollow trailhead
9:00am - 11:00am	Bird Banding with Lishka Arata, Point Blue Conservation Science
11:00am - 12:30pm	Field Seminar with David Wimpfheimer, hike to Limantour Beach
12:30pm - 1:00pm	Lunch break
1:00pm - 3:30pm	Field Seminar with Wimpfheimer, hike to Clem Miller
3:30pm - 4:30pm	Lecture, Chapter 3
4:30pm - 5:30pm	Lecture, Chapter 4
5:30pm - 6:00pm	Free Time
6:00pm - 7:00pm	Dinner

Water Resources

Reading: Chapter 3-Water

Goals:

- To understand the water cycle.
- To identify parts of a watershed.
- To describe the economic, ecological, and social functions of water resources.
- To become exposed to water management, water quality, and water distribution issues in California.
- To become exposed to water management, water quality, and water distribution issues in the Point Reyes Peninsula and surrounding communities.
- To explain the concept of hydrogeomorphology and the influence of water on landscape structure (stream order, stream classification, etc.).

Objectives:

- Describe the water cycle and three ways that humans have altered it in California and within the Point Reyes Peninsula.
- Pick a water resource (wetland, stream, lake, etc.) and identify three of its important functions.
- Name three creeks near your home.
- Name three creeks on the Point Reyes Peninsula and surrounding watersheds.
- Explain the difference between non-point source and point-source pollution and give an example of each.
- Name three uses of the primary water source in your area and discuss any conflicts that arise over these uses.

Plants and Plant Communities

Reading: Chapter 4-Plants

Goals:

- To become familiar with the plants and plant communities of the Point Reyes Peninsula.
- To understand how plants function, reproduce and adapt.
- To understand differences among native, non-native, invasive, and noxious plants.
- To understand impact of human and natural disturbance on plant communities.

Objectives:

- List and identify by sight ten plants that are common in the Point Reyes Peninsula by their common names and learn their scientific names.

- List three plant community types in the Point Reyes Peninsula.
 - Pick one plant in each of the local community types listed above and describe its adaptations to its environment.
 - Sketch the parts of a flowering plant and explain how it reproduces.
 - Define and describe the effects of native, non-native, invasive, and noxious plants.
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NOTES:

Thursday, November 12

8:00am - 9:00am	Breakfast
9:00am - 9:30am	Vanpool to Giacomini Wetlands
9:30am - 11:00am	Field Seminar with David Wimpfheimer
11:00am - 12:00pm	Plants Field Seminar with Amelia Ryan, National Park Service
12:00pm - 1:00pm	Lunch break
1:00pm - 3:00pm	Giacomini Wetlands Service Project with Amelia Ryan, National Park Service
3:00pm - 3:30pm	Vanpool to Clem Miller
3:30pm - 4:30pm	Lecture, Chapter 5
4:30pm - 5:30pm	Lecture, Chapter 6
5:30pm - 6:00pm	Free time for Capstone Projects and Field Notebooks
6:00pm - 7:00pm	Dinner

Forests and Range Management

Reading: Chapter 5-Forest, Woodland, Range Resources and Management

Goals:

- To appreciate the ecological and economic value of forests.
- To understand forest structure.
- To understand the role of fire in forest regeneration.
- To understand the various benefits that forests provide.
- To understand the types of forests in the Point Reyes Peninsula.
- To understand the challenges of balancing society's conflicting desires for forests.

Objectives:

- Name 10 local trees and 10 local shrubs.
- Describe the forest types common to California.
- Describe at least four benefits that forests provide to society, two economic and two ecological, and discuss how forest fragmentation affects these benefits.

Wildlife in the Point Reyes Peninsula

Reading: Chapter 6-Animals

Goals:

- To recognize the energy and evolutionary relationships among animals.
- To understand how animals are adapted to their environments.
- To understand the concepts of food webs, predator/prey relationships and trophic levels.
- To identify the economic and social importance of wildlife species in your area.

Objectives:

- List and identify by sight 10 vertebrates and invertebrates that are common in your biome, three by their common and scientific names.
- Pick an animal in your area and describe three ways it's adapted to the local environment.
- Describe a food web and identify the predators and prey.
- List five wildlife species of economic and social importance in your area, at least two of which must be invertebrates, and describe their current status.

NOTES:

Friday, November 13

8:00am - 9:00am	Breakfast
9:00am - 10:00am	Lecture, Supplemental handout
10:00am - 11:00am	Lecture on Marine Mammals, Sarah Allen, National Park Service
11:00am - 11:30am	Vanpool to Chimney Rock
11:30am - 12:00pm	Marine Mammals Field Seminar with Sarah Allen
12:00pm - 12:30pm	Lunch break
12:30pm - 1:00pm	Vanpool to Point Reyes Headlands
1:00pm - 3:00pm	Marine Mammals Field Seminar with Sarah Allen
3:00pm - 3:45pm	Vanpool to Clem Miller
3:45pm - 5:00pm	Free time for Capstone Projects and Field Notebooks
5:00pm - 6:00pm	Lecture, Chapter 7
6:00pm - 7:00pm	Dinner

The California Current Marine Ecosystem

Supplemental handout

Goals:

- To recognize offshore ocean circulation and relationships among marine animals.
- To understand how marine animals are adapted to their environments.
- To understand the California Current Ecosystem food webs, predator/prey relationships and trophic levels.
- To be able to identify the economic and social importance of wildlife species in the California Current Ecosystem.

Objectives:

- List and identify by sight 10 marine vertebrates and invertebrates that are common in the California Current Ecosystem, three by their common and scientific names.
- Pick a marine species native to your area and describe three ways in which it is adapted to the local environment.
- Describe a marine food web and identify the predators and prey.
- List five marine species of economic and social importance in your area, at least two of which must be invertebrates, and describe their current status

Energy and Global Environmental Challenges

Reading: Chapter 7-Energy and Global Environmental Challenges

Goals:

- To become familiar with the sources and kinds of energy.
- To understand how plants and animals use energy.
- To explore agricultural issues and their relationship with the environment.
- To consider how human activities and resource use affect the global environment.

Objectives:

- Draw a diagram illustrating the two primary sources of energy on Earth.
- List three sources of renewable and three sources of non-renewable energy.
- Pick one pressing global environmental issue and describe two different ways to resolve it.
- Explain the relationship between population growth and resource use.

NOTES:

Saturday, November 14

8:00am - 9:00am	Breakfast
9:00am - 9:45am	Vanpool to Abbotts Lagoon
9:45am - 12:00pm	Field Seminar with Jules Evens at Abbotts Lagoon
12:00pm -12:30pm	Lunch
12:30pm - 3:00pm	Field Seminar with Jules Evens at Abbotts Lagoon
3:00pm - 3:40pm	Vanpool to Clem Miller
3:40pm - 5:00pm	Free time for Capstone Projects and Field Notebooks
5:00pm - 6:00pm	Lecture, Chapter 8
6:00pm - 7:00pm	Dinner Party! Eat, drink, and be merry.

Interpretation, Communication, and Citizen Science Interpretation: Why, what and how

Reading: Chapter 8

Goals:

- To understand the basic principles of nature interpretation.
- To learn techniques for presenting to and communicating with different kinds of audiences.
- To explore the advantages of citizen science for participants and the advancement of science.

Objectives:

- Describe three principles of successful interpretation.
- Define and develop a theme for an interpretive project.
- Describe how you would adapt a program for use with two different audiences.
- List two things to remember about speaking at a public meeting and three things that can help make a program more successful.
- Define citizen science and provide examples of ways to get involved.

NOTES:

Sunday, November 15

8:00am - 9:00am	Breakfast
9:00am - 12:00pm	Capstone Project Presentations – part 1
12:00pm -1:00pm	Lunch
1:00pm - 2:00pm	Capstone Project Presentations – part 2
2:00pm - 2:30pm	Graduation Ceremony – Closing Circle
2:30pm - 3:00pm	Clean Cabins and shared spaces throughout Clem Miller
3:00pm - 3:30pm	Final Checkout, Pack-up, and Good-Bye

Presentation of Capstone Projects

Goals:

- To wrap-up the class and answer final questions about class content, volunteer hours and any other aspects of the California Naturalist program.
- To provide time for student presentation of Capstone Projects.
- To complete the end of class evaluation and assessment.

NOTES: