

at Joshua Tree National Park

74485 National Park Dr. Twentynine Palms, CA 92277

Phone: 760-367-5539; e-mail: desertinstitute@joshuatree.org

Mosses in Motion: Desert Moss Ecology & Diversity

Information

Date/ Time: Saturday, March 14, 9 am – 5 pm

Sunday, March 15, 9 am – 4 pm

Meet at: [Oasis Visitor Center](#) (click on link for a map of the meeting site)

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Instructor: Theresa Clark, PhD, Biological Sciences

Overview

Moss in the desert? Why yes! Come learn the many important roles mosses play in desert ecosystems! This introductory course will introduce students to this mysterious and beautiful group of tiny, overlooked plants with the resiliency to survive most of the year dry and dormant! Lecture will cover this adaptation for “drying without dying” illustrating how they survive in desert ecosystems and how their specialized microhabitats help protect them from extreme desert climate. We will use microscopes to learn what features (macro & microscopic) define mosses evolutionarily and how to distinguish them from commonly confused lichens, algae, ferns, and low-lying herbs. A “Mosses in Motion” hydration activity will teach students the unique adaptive relationship of mosses to water and how this compares to the survival strategies of other desert plants. In the field, students will become keen “moss hunters” gaining first-hand experience with mosses on rock, soil, and riparian areas in the Mojave Desert. They will learn to differentiate moss from the “other tinies” encountered, such as lichens while characterizing the protective features of microhabitats and how they may help shelter mosses from the brunt of future climate change.

Saturday, March 14, 9 am – 5 pm

Oasis Visitor Center

- Lecture
- Lunch Break, **bring your own food**
- Lab Session with microscopes

Sunday, March 15, 9 am – 4 pm

Oasis Visitor Center

- Field session – exploring moss habitats in JTNP
- Lunch in the field, **bring your own food**
- Field session continued – field collecting tips & tricks

What to Bring to the Course

Optional Equipment

- Hiking Poles, knee pads, hand lens (but we will provide magnifying glasses)

The 10 Essentials: Every day in the Desert

- Day pack
- 4 quarts of water
- Hiking boots with traction soles
- Lunch and snacks
- Clothing layers
- Hat
- Sun glasses
- Sunscreen
- Notebook and pencil/pen
- Whistle

Fitness Requirements

Participants must be in good physical condition for courses/activities in a desert that may be hot, dry, windy, and sometimes surprisingly cold.

Hike Level

Easy (flat terrain on marked trails with the option to explore boulder fields)

Guidelines

- You are responsible for your safety.
- Park your car in designated areas only. Parking along the side of the road is dangerous to you and the environment.
- Rattlesnakes are present in the park. Avoid contact with wildlife. Put your hands and feet only where you can see.
- Stay with the group. If you get lost, stay put.
- Drink plenty of water. If you run out, notify the instructor or the Desert Institute Representative.
- Before leaving the class, check out with the Desert Institute Representative.

College Credit

1.0 unit BIOLOGY X412.28 credit through the University of California, Riverside Extension.

Instructor Biography

THERESA CLARK is a bryophyte ecologist from Maine, but much of her research has been in the American Southwest. She earned a M.S. at Northern Arizona University, studying the taxonomy and ecology of mosses in Grand Canyon National Park, AZ. Her PhD at the University of Nevada, Las Vegas, recently ended but her research on the ecophysiology of arid land moss survival in the face of a changing climate will continue. The heart of her dissertation seeks to predict the capacity for desert mosses to “hide” from climate change in protected microhabitats. In the coming year she will be finishing a moss flora of Grand Staircase Escalante National Monument, UT, and hopes to make a field guide for the general public to learn how to become observant and respectful “moss hunters”!

Suggested Readings

Mosses under the microscope guide: <https://store.cnps.org/products/california-mosses>

Moss Ecology “Bible”

Field guide with common soil mosses (biocrust):

Mosses of Grand Canyon:

* The Desert Institute staff/instructors will attempt to accommodate participant’s needs; however we reserve the right to deny a student participation in the course due to concerns regarding health and safety issues.

Moss gardening beginner’s guide: https://www.amazon.com/Magical-World-Moss-Gardening/dp/1604695609/ref=sr_1_1?crid=1GHTQRSVW422B&keywords=moss+gardening&qid=1570557954&srefix=moss+gardening%2Caps%2C182&sr=8-1

Beautiful field guide to mosses of the NW: <https://www.wildblueberrymedia.net/store/common-mosses-of-western-oregon-and-washington>