Ecology on the Rocks: Cliff and Rock Outcrop Communities

June 8–12, 2026 – Highlands Biological Station
2 Credit Hours

Instructors

Dr. Laura Boggess, Mars Hill University – lboggess@mhu.edu
Mr. Gary Kauffman, USDA Forest Service (Emeritus) – geumrad@gmail.com

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Course Description

Rock outcrop and cliff communities make up a small fraction of land area in the Southern Appalachians but contain over 100 rare and uncommon plant species, 200 lichens, and at least 20 distinct community types. In this field-based course, we will explore a broad range of cliff and rock-outcrop habitats through hands-on field excursions, lectures, and guided discussions.

Students will gain both organismal and ecological perspectives on the diversity, natural history, and conservation value of these distinctive ecosystems. We will also examine the emerging field of cliff ecology and consider how humans interact with and impact these landscapes.

Required & Recommended Readings

Text (Optional):
Cliff Ecology: Pattern and Process in Cliff Ecosystems (2000), Larson et al.
(*Instructor copy available*)

Articles (PDFs provided):

- March-Salas et al., 2023. *Cliffs as priority ecosystems*
- Kuntz & Larson, 2006. *Microtopographic control of vascular plant, bryophyte, and lichen communities on cliff faces*
- Wiser et al., 1996. *High-elevation rock outcrop vegetation of the Southern Appalachian Mountains*

We will also use **Michael Schafale's *Guide to the Natural Communities of North Carolina, Fourth Approximation (2024)*** to determine natural community types.

Methods & Course Structure

The course will include two required daytime sessions and one optional evening session per day.

- **Morning:** Field excursions to local cliffs and outcrops (at least one full-day trip)
- **Afternoon:** Lectures, paper discussions, and data synthesis
- **Evening (optional):** Lab identification sessions or field visits

Students will have the opportunity to rappel and observe cliff-face communities (participation optional).

Attendance

You are responsible for all information covered in lectures, field trips, and assigned readings. If you must miss a session, please speak with Laura or Gary to arrange ways to cover missed material.

Field Sites (Tentative)

- Sunset/Sunrise Rock
- Whitesides Mountain
- Dry Falls
- Nine Times Preserve
- Chandler Preserve
- Possibly Laurel Knob or additional regional sites

Tentative Schedule

(Subject to change based on weather and class priorities)

Day	Morning	Afternoon	Evening
Mon 6/8	9:00 AM – Introductions & Intentions (HBS Boulders) Lunch – 1:00 PM	2:00 PM – *A Brief History of Cliff Ecology* (Laura) Break *Community Types Overview* (Gary) Paper assignments	After dinner: *Sunset Rock field trip*
Tue 6/9	9:00 AM – Depart for *Nine Times Preserve* (bring lunch)	Continue at *Nine Times* and *Chandler Preserve*	After dinner: Reading time / lab open for ID
Wed 6/10	9:00 AM – Spray Cliffs, *Dry Falls* Lunch – 1:00 PM	*Cliff Flora & Fauna Overview* *Human Impacts & Species Diversity* Paper discussion	After dinner: Reading time / lab open for ID
Thu 6/11	9:00 AM – *Whitesides Mountain* (bring lunch)	Optional rappelling	After dinner: Paper discussion (possibly off-site)
Fri 6/12	9:00 AM – *Take-home messages* and final exam (for credit students)	12:00 PM – Potluck lunch (*rock tripe soup anyone?*) & closing circle	—