



Natural History Field Seminars, Workshops, and Courses at Eagle Hill on the Eastern Maine Coast

Lichens, Biofilms, and Gravestones

July 8 - 14, 2012

Lichens: the symbiotic intergrowth of a fungus with one or more algae and/or cyanobacteria.

Biofilms: algae, fungi, and bacteria cells held together in a polysaccharide gel.

Gravestones: blocks or slabs of stone used to mark a grave. The gravestones of Maine are made of local granite and also granite, marble, slate, and sandstone imported from other New England states and foreign countries.

In this seminar, we will study the physical, chemical, ecological, and aesthetic relationships between lichens, biofilms, and gravestones. The cemeteries in Maine's Hancock and Sullivan Counties are rich with a high diversity of lichen species and offer a prime opportunity for this study. The seminar will be structured with lectures, field trips, microscopy sessions, and laboratory studies.

Different lichen species grow on different stone types in different environments. Lichens are influenced by the condition of the stone, and of the microclimates created by gravestone orientation, carved inscriptions and decorative features, and paths created by rainwater run-off. Visual clues of former cleaning and repair campaigns present themselves in the lichens growing (or not growing) on gravestones. Biofilms also show diversity with their presence on different stone types and in different environments. What organisms make up a biofilm, how biofilms interact with lichen growth (or not), and to what extent lichens and biofilms protect or harm a gravestone are questions that will be discussed.

We will present lectures on basic lichen morphology and species identification; biofilm "morphology;" the role of lichens and biofilms in the environment; lichen frequency, rarity, and protection; the history of stone quarrying, finishing, and gravestone manufacture and assembly; gravestone protection; and cultural landscape preservation. Field trips are planned for a number of cemeteries. We will examine and identify lichens and biofilms in the field and in the laboratory. We will observe the effects of biocides on lichens and biofilms with laboratory tests. As a class project, participants will compile a checklist of the lichen species found during the visits to cemeteries.

We expect participants to represent a wide variety of disciplines and avocations; the pursuit of individual interests will be encouraged. While prior knowledge of lichens, biofilms, or gravestones will be useful for this seminar, it is not necessary.

Judy Jacob is a Senior Conservator with the National Park Service, Northeast Region, in the New York City Field Office. She works primarily on stone monuments and masonry buildings; her work in cemeteries includes preparation of preservation plans and execution of stabilization and repair treatments for gravestones.

Michaela Schull, PhD., is a lichenologist and the Research and Curatorial Associate at the Farlow Herbarium, Harvard University. Her research interests include lichen ecology, biodiversity, and systematics. She has taught classes in plant microscopy, plant identification, and lichens and air pollution.

