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A Taxonomic Study of the Lichen Genus Rimelia in the Great Smoky Mountains National Park

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Poster Presentation P10

A TAXONOMIC STUDY OF THE LICHEN GENUS RIMELIA IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK

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A lichen is a fungus that grows in a symbiotic relationship with a photosynthetic green alga or cyanobacterium. Rimelia species are broad-lobed, foliose lichens that have been recently segregated from Parmotrema. Distinctively, the former s lobes are strongly maculate (spotted) in a reticulate pattern (and are often cracked) and they produce rhizines on their lower cortex all the way to the lobe margins.

The 1997 National Park Service checklist of lichen species in the Great Smoky Mountains National Park (GSMNP) included only two Rimelia species (R. reticulata and R. subisidiosa). Field and laboratory work by Jonathan Dey and Illinois Wesleyan University undergraduate students (Rebecca Rincker and Holly Grey in 1998; Jana Rose and Adrianne Gagnon in 2000; Emily Richter and Sarah Mick in 2003) pointed to the presence of additional species of Rimelia in the GSMNP. As a result, we have undertaken an examination of all Rimelia specimens previously collected in the GSMNP and deposited in the lichen herbarium at Illinois Wesleyan University in order to update the species list for the Park and to produce an identification key and descriptions to all species of Rimelia in the GSMNP.

As a result of this study, five species of Rimelia are now known to occur in the GSMNP. Rimelia cetrata, R. commensurata, and R. simulans are newly reported in the Park to go with the previously known R. reticulata and R. subisidiosa. Rimelia diffractaica occurs in the southern Appalachian Mountain region but has not yet been found in the Park. The additional products of this study include an identification key to Rimelia species and species descriptions including morphology, secondary product chemistry, local ecology, general distribution, a list of specimens examined, and GSMNP distribution map.

This study is a part of the All Taxa Biodiversity Inventory (ATBI) of the GSMNP, a large endeavor where scientists and educators are working collaboratively to determine all the organisms that can be found in the park.

The work reported here is a portion of Erin Boente s Research Honor s Project in the Biology Department at IWU. She is also working on two other genera---Canoparmelia and Canomaculina---in the GSMNP.