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**Ramapo Undergraduates Part of Research Team Publishing Two Papers**  
*Genetic analysis of five moss species to appear in The Bryologist*

(MAHWAH, NJ) –Four Ramapo College students were part of a research team led by Professor Eric Karlin that has recently completed two research projects on peatmosses (*Sphagnum*). The outcomes of the research will be published in the premier North American scientific journal dedicated to the study of mosses and lichens.

The two projects employed microsatellite DNA technology to explore aspects of the evolution and taxonomy of five peatmoss species. The researchers discovered that each of the species studied appeared to have a history of hybridization followed by a doubling of all of the chromosomes present. Such organisms, called allopolyploids, have double the number of chromosomes of a typical peatmoss. Unlike most hybrids, allopolyploids are fertile and represent the rapid evolution of a new species (a process called reticulate evolution). Although allopolyploidy has played a significant role in the evolution of many flowering plants, it has been detected in only a few moss species.

The two papers will appear in 2010 in *The Bryologist*: “Allopolyploidy in *Sphagnum mendocinum* and *S. papillosum* (Sphagnaceae)” and “Microsatellite analysis of *Sphagnum centrale*, *S. henryense*, and *S. palustre* (Sphagnaceae). Seniors Graeme Gardner, of Point Pleasant Beach, and Katie Lukshis, of East Brunswick, are among the co-authors of the first paper; Melissa Giusti '09, of Old Bridge, and Rebecca Lake '09, of Budd Lake, are among the co-authors of the second paper.

“It’s wonderful to see undergraduates participate in research resulting in a peer reviewed publication,” said Karlin, a professor of Plant Ecology. “ It gives them a real taste of the world of science, an appreciation of the value of teamwork, and strong encouragement to pursue a robust career in the sciences.”

The research was done in collaboration with Sandra Boles and Professor Jonathan Shaw, both at Duke University. The genetic lab work was performed at the Duke Bryology Laboratory in the spring of 2008; subsequent analysis of the microsatellite DNA data occurred at Ramapo College in the summer and fall of 2008. The project was supported in part by a faculty/student grant from Ramapo College and by a National Science Foundation grant to Jonathan Shaw (DEB 0515749).

Professor Karlin is currently developing grant proposals that will allow for a continuation and expansion of his genetic study of peatmosses. The proposed research is structured so

that undergraduates may participate at several levels and it will provide the opportunity for future publications with students as co-authors.

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