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January 28, 2005

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Vol. 134 Iss. 14

Science & Tech

Gizmos and gadgets a plenty!

Secrets of Tree Rings Decoded in the MAD Lab

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Sci & Tech Editor

Last Friday afternoon there was an open house in Avarad Dixon at the Mount Allison Dendrochronology Lab, affectionately known as the MAD Lab. Dendrochronology is the study of tree rings, the alternating rings of light and dark regions inside a tree that are used to determine the age of the trees; tree rings are also a useful record of climactic changes and long-term environmental conditions. The open house showcased the success, talent and technology of Dr. Colin Laroque's research group, which includes colleague Dr. André Robichaud and students Lanna Campbell, Christine Robichaud, Lara West, Nigel Selig, Zach Vanthourmout, Monik Richard and Ben Phillips.

The lab is equipped with state of the art dendrochronology equipment including a Nikon SMZ800 continuous zoom sixty-three power microscope hooked to a monitor via a Nikon CoolPix 4500 digital camera, a WinDendro semi-automated ring measurement system and several new computers.

Sponsored by Eureka! and Leadership Mount Allison, and funded by NSERC and the Royal Canadian Geographical Society, the research group worked on five main projects this past summer. In pursuit of the trees they needed to sample, the group travelled across the country. They stopped in Newfoundland near Gros Morne National Park to study endangered pine marten habitat, Jasper National Park in Alberta to date old historical structures and perform a treeline migration study, and closer to home in Nova Scotia and New Brunswick to

study paleoclimates and wind energy effects on trees.

The collection of a tree ring sample is a standard procedure that does not harm the tree and involves using an increment borer to drill out two core samples from each tree, which are then mounted on boards and sanded to bring out the details for digital recording and analysis. Only occasionally are full tree slice samples required and usually these are from dead wood on the ground or wood that has been incorporated into a structure. These tree slices are affectionately termed "tree cookies" and are wrapped in duct tape for transportation to prevent splitting.

The most interesting part of the open house was the chance to speak with the student researchers about their experience and their research. Lanna Campbell, a third-year environmental studies student, was doing work on the habitat of the endangered Newfoundland pine marten. She evaluated the habitat by looking at the dead and dying components of the old growth forest, whose rich diversity is essential for the survival of the pine martens. Lanna, who was recently featured in Canadian Geographic magazine, said that she really enjoyed the chance to travel and work as part of an efficient and fun team that sampled two or three sites a day. Apparently it was quite a workout for everyone's biceps and legs, turning the increment borers all day and hiking in and out at all those sites.

Monik Richard, a Mount Allison alumni working on her master's degree at Acadia, has returned to Mt.

A to use the lab for her work with the endangered Blanding turtle. She plans to use the lab equipment to study the growth rings on the bellies of young turtles and to use that information, with the knowledge of recent climate conditions obtained from the tree-ring studies, to see if there is any correlation between the two.

Christine Robichaud, a third-year biology student, became interested in geography research while taking Colin Laroque's Natural Resource Management course last year. Christine designed her own research project, which involved a treeline assessment in Jasper National Park. Her project was inspired by the earliest photographs taken by one of the first female explorers of the Rockies, which led Christine to explore the growth rates of trees on the side of a mountain in the background of these photographs. Christine plans to incorporate historical data about the changing elevation of treelines, and compare her findings with global climate model forecasts. She was excited to find trees in her samples that were over one hundred years old with a diameter of only ten centimetres, because the conditions on the mountain were so harsh.

All of the students were excited to share their memories of their research experience and had quite a few adventures to talk about. They encourage others to look into the summer research experience because it is so much fun and the opportunity to gain hands-on, practical experience is priceless.