Logs and Bogs

Trevor Bell, Colin P. Laroque and Amanda B. Young
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Mount Allison Dendrochronology Laboratory,
Department of Geography and Environment,
Mount Allison University

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Abstract

Introduction

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Field Methods

Sampling occurred during the summers of 2006-2009. The majority of samples collected occurred in 2008-2009. All samples were processed during 2008-2010. Sampling were collected both in the Red Wine mountains (Logs in Bogs) and along the rivers draining into Lake Melville (Logs in Rivers). Sampling methods differed between Logs in Bogs (LB) and Logs in Rivers (LR).

Logs in Bogs

Samples were collected in shallow ponds found above treeline in the Red Wine Mountains. To access these ponds helicopters were hired to fly out to these remote sites during the summers of 2008 and 2009. Maps were examined before flight to identify potential pond locations where logs could be extracted. Ponds were re-examined in the helicopters during a fly over, if logs were identifiable from the helicopter, then the pond would be sampled. If no logs were present from the helicopter we flew to the next pond. At each pond that was sampled two or more people waded through the ponds finding and extracting the submerged logs. Cross-sections from each log were labeled and taken using a chain saw. Sites were established by splitting the Red Wine Mountains geographically into the East , West and Central. Each of the three regions was sampled in 2008 (08ASD (East), 08ARD (Central), 08QRD (West)) while only the East (09HD) and West (09GD) were sampled in 2009 due to not finding samples in the ponds of the central region. Of these five sites examined logs were extracted from 25 ponds. Each site has two to seven ponds. The number of samples found in each pond varied from one to 39 logs. The portion of the logs that were not taken with us were returned to the water so that they would continue to be preserved, though they were piled up so that we would not return to the same pond twice.

Logs in Rivers

Samples were collected from the rivers draining into Lake Melville. The soil in this area is primarily composed of sand. The rivers running over the sandy soil are slowly carving out embankments, as the rivers carve through the sand they are exposing the stems of trees that grew in the different layers of soil. Along the river banks we extracted these buried trees by digging them up. Sites were established along the Crooked (08ACD), Goose (08AHD, 08AID, 08AJD, 08AKD) and Churchill Rivers (08AGD, 09KD, 09LD). At each site samples were collected by digging them up, labeling, and sawing a cross-section out with a bow saw. The location of each sample was GPS'd, additionally it was noted in what layer of soil the logs were found and how high above the river they were located. It was also noted if the logs were believed to have been part of a log jam or standing when buried. The number of samples dup up from each site varied from eleven to 42.

Lab Methods

Samples from the 2006 and 2007 field seasons were shipped to Memorial University, Newfoundland. Samples from the 2008 and 2009 field seasons were shipped to the Mount Allison University Dendrochronology Lab (MADLab), New Brunswick. All samples upon arrival were dried (air dried/ drying oven). Once dry samples were cut into 3-4cm cross sections and re-labeled. Samples that were not structurally sound were secured using duct tape and carpenters glue. After the samples were cut and glued they then processed using standard dendrochronological techniques. Samples were sanded using progressively finer sand paper (40-400 grit).

Results and Discussion

Conclusions

References

Logs in bogs and logs in rivers

About half the samples are measured (table 1), 75% of samples collected in 2007 and 2008 are measured, and about 10% of the samples collected in 2009. Remaining samples are currently being processed. Processing of the samples includes: taping, gluing, sawing, sanding, measuring and species identification.

No new cross-dating of the samples has occurred, rather time has been spent primarily in the processing the samples. This was done in order to have as many pieces of the cross-dating puzzle available before putting efforts in that arena. The higher number of years found in each sample increase the potential of cross-dating the sample (figure 1).

Species identification is important for the cross-dating aspects of the project. Each plot has the largest proportion of species as spruce and then in most firs and larch. Hardwoods were found in 4 of the sites, all part of Logs in Rivers (08ACD (Crooked River), 08AJD (Goose River), 08AGD and 09LD (Churchill River)). There are two species of hardwood found birch and aspen, birch is the more common of the two.

Structurally there are distinctions between the wood found in Logs in Bogs and those found in Rivers. The samples from the river sites are larger on par than the Red wines. Samples in the Red Wines are about 5cm in diameter while samples from the rivers can be up to 20cm. Samples from the Red Wines are more cracked and broken into numerous pieces compared to those from the rivers around Goose Bay. Due to the cracking and breaking of the Logs in Bogs those samples require more processing, especially gluing. Once glued and sanded the samples from the Red Wines are legible rings are able to be followed across cracks in order to get an accurate measurement.

The level of cracking and breaking in the samples from the Red Wines is potentially due to the age of the wood and how long ago the wood died. The average number of years in a piece of wood from the Red Wines is older than those from the rivers, as are the carbon dates.