Timber Measurement Society
Central Committee, Fall Meeting

MINUTES OF THE CENTRAL MEETING OF THE TIMBER MEASUREMENT SOCIETY OCTOBER 17-18, 2006, LONGVIEW, WASHINGTON, USA

The meeting was called to order at 8:15 AM, October 17 by Chairman, Jerry Youmans, with 70 people in attendance. This was the best turnout in many years, and the meeting attracted attendees from Europe, New Zealand, Canada, and the US. The following minutes will be somewhat brief as the presentations given by many of the speakers are available on the TMS website: http://www.timbermeasure.com/Longview_2007/Longview_2007.html

Automatic log scaling? Yes – and soon also automatic grading – Lars Björklund (Head of R&D; the Swedish Timber Measurement Council; Uppsala, Sweden)

Lars gave us the background on the Swedish timber measurement council, which is a third-party organization. Most scaling is done by manned scanners (scalers record defect, species, grade). New technology allows the measurement of bark thickness (most older systems require scaler input). Scanner scaling is done at high speeds (1,000 pieces per hour). The newer scanners see bumps, sweep, taper and differentiate butt-logs (quality) from second-cut-logs (less quality). New technology (photo imaging) is being developed to measure ring-count on an automated basis. X-ray technology is now being tested for grades and log sorts and this shows a great deal of promise. Rot can be found via image analysis and light beams can be used to measure slope of grain. Measuring MOE utilizing sound-wave travel through the log is also being researched.

Pulpwood measurement is generally done via a scaler with a stick cubing the load, but now lasers are being used to cube stacked loads on a drive through arch that measures the stacked volume on a truck. This system is still being tested in Sweden. New testing is underway to measure pulp via Photo imaging from cameras (sometimes mounted on the roof a moving vehicle).

Harvester measurement is very advanced and produces accurate volume and log dimension data. This system is often tied into the order file system of the purchasing mills and can cater the log dimensions produced and even keep track of quantity to allow the manufacture of the logs needed to produce the products which are desired.

Finally, bone dry content of chips is now measured via probes which can be hydraulically dropped into loads to get real time BD content and process the data into the payment system.

Log breakage study and automated scaling implementation – Bruce Moran (Scaling Supervisor, Interfor, Campbell River, B.C.)

Interfor studied why some contractors had consistently better results than others. Their assumption is that a faller needs to produce about 100 m^3 per day (20 mbf) and that 10% would be lost to breakage. What they found was a strong correlation with yarding tree-length logs and breakage, vs. yarding manufactured lengths and giving the fallers enough time "doing more and making more value by doing less". Determining cost of breakage vs. cost of decreased production was the key to finding the balance. Having fallers remove broken log sections in the woods reduced the breakage further by eliminating the chance that already broken pieces would increase in severity due to handling. They also had to track performance of logging contractors. Their philosophy is "people do what you inspect, not what you expect". Brad stressed that you need the support of management. Interfor's work on scaling via scanners is focused mainly on smaller second growth logs. Interfor is working with the ministry of forestry on approval and already has equipment in place. The system measures the log after debarking (so under bark measurement is not a factor).

It has the advantage of not requiring the removal of log bundles from water storage until needed (saving log handling costs and reducing the associated breakage). Log load information (boom and block identification) will be recorded during the dewatering and scanning process. It is commonly agreed that scanners are accurate for determining gross volumes, i.e., lengths are accurate to ½ inch over 60ft, diameters are accurate to approximately 1/8". Currently accepted methods of measuring diameters (rads) create less accurate volume results than scaling by scanner, which measures in very small increments. A log could be scanned 100 times and the result each time would be extremely consistent. Future challenges with the system includes the scanners inability to see rot and grade, however, these are small compared to benefits.

The secrets to accurate acreage calculations – Jon Aschenbach (Vice-President of Sales, Atterbury Consultants, Inc., Beaverton, Oregon)

Jon suggests prioritizing the placement and number of timber cruise plots (don't give equal weighting to plots in a clearing as opposed to those within the more valuable timber stands). It is common for a 40 acre parcel to be off by as much as 3 acres with the dot grid method. With GPS the acreage of timber stands can be calculated with good accuracy. Some consumer grade GPS units ($70 to $400) are almost as accurate for acreage calculation as the $2,000 to $4,000 models. Jon recommends ArcPad software by ESRI for the recording and area calculation. Jon gave a live demonstration of the accuracy of this simple and inexpensive GPS system by showing the coordinates of the meeting room, tracking GPS satellites through the ceiling and roof of the building. Bottom line was that given the relative low cost of the new advanced GPS technology, data recording hardware, and data processing software, one can hardly afford to use the old manual methods given their lower levels of accuracy not to mention the efficiency issues.

Significance and recognition of exotic insect pests in standing and harvested timber – James LaBonte (Taxonomic and Survey Entomologist, Oregon Dept. of Agriculture, Salem, Oregon)

Jim brought us up to speed on the current exotic wood boring insect threats that are currently considered a threat, could come to North America, or are already here. Many are already permanently established in the US and Canada and are here to

stay (e.g., emerald ash borer). The number one way that primary means by which exotic wood boring insects come in are introduced is through solid wood packaging. Many are already established in the US and Canada and are here to stay (e.g., emerald ash borer). Imports are increasing and thus the incidence of exotic bark beetles wood borer introductions are as well. In the meantime the resources to inspect packaging, etc. and determine whether or not pests is are in fact something to worry about are shrinking. Just determining the species of insect can be very labor intensive and requires a trained taxonomist. Some insect species
can look very similar; with one being rather harmless and the other a serious threat. Unfortunately, the number of taxonomists is decreasing due to retirements and no few new taxonomists are in the pipeline. As a way to bridge this "taxonomic gap", Jim and his colleagues are using graphics and new imaging technology to develop guides so "lay-people" can identify the threatening insects. Jim brought us up to speed on the exotic insect threats that are currently considered a threat, could come to North America, or are already here.

Scaling deductions for logs with frost seams and grading logs with large knots based on Northwest Log Rules Advisory Group (NWLRAG) – Tom St. Laurent (Manager, Yamhill Scaling Bureau; and Secretary, Northwest Log Rules Advisory Group, Forest Grove, Oregon

Tom brought us up to speed on the developing NWLRAG rules for reducing volume and grade for oversize knots and reduction of volume due to frost cracks (primarily in western hemlock. Mill studies had determined that the current #2 sawmill grade, which has an allowance of a 2 1/2" knot, was discovered to be too lenient given the 65% construction grade lumber requirement, however, by including the knot collar in young growth logs brought the grade back into line. The current guidelines have improved the situation quite a bit. Scaler variation is always a concern as knots characteristics have many different degrees: size, density, placement, etc.
Frost seams have been an ongoing problem in Hemlock. Generally scalers take a 1" deduction for straight checks and pie-cut the spiral checks. This has helped in the area of consistency, but more work needs to be done to determine proper deduction, which is difficult to assess as all volume outside the scaling cylinder is not to be considered when using Scribner scale. Bottom-line is that things are better and more study is ongoing.

An overview of log scaling in New Zealand, and some details of export (JAS) and domestic (3D) scaling.– John Ellis (Group Technical Manager, Toll Owens Logistics; and Managing Director of Scaling Research International, Mount Maunganui, New Zealand)

John brought us up to speed on the overall status of the forest products industry in New Zealand. Some of the problems that the industry is facing are the eroding value of the US dollar and increased transportation costs. Export logs in New Zealand are scaled with JAS (Japanese Agricultural Standard), while most domestic logs are scaled via weight and the New Zealand 3-D method. Accuracy standards are + or – 3%, scalers should agree on diameters with the check scaler 62.5% of the time and 95% of the log diameters should be within 2 cm. John showed the tracking tools they use to monitor scaler accuracy at their facilities (using the check scaler as the basis). He gave an overview of the scaling procedures and methodologies for both JAS and 3D, which utilizes a unique formula for modifying stem form based on taper.

Scaling study with artificial lights: can logs be scaled and graded accurately under lights? .– Peter Dyson (Researcher, FPInnovations-Feric Division, Vancouver, B.C.)

FPInnovations-Feric undertook a study to determine if logs could be scaled accurately under artificial light conditions. It was assumed that the standard would be that volume and value had to stay within a 3% tolerance. As a starting point, they used 50 lux for young growth and 75 lux for old growth. The results were within 0.5% excepting that the bigger more valuable grades, as a component, were outside the tolerance. They then increased the lighting to 120 lux and the results improved. Recommendations: lights should be 100 lux and not less than 70 lux: illumination should be uniform: should be metal halide to give good color rendering; lights should be positioned to minimize shadows; scalers should utilize flashlights for illuminating areas under shadow; and finally scalers need to adapt to the differences (it takes time to get used to scaling under artificial light). Lights in B.C. are mainly used to extend the day during the winter months; not used as a full night shift.

The "Quick Cruise" Option for the Idaho Department of Lands – Steve Fairweather (Mason Bruce & Girard, Portland, Oregon)

This was a project done by Steve for the Idaho Department of Lands (IDL), and called the "quick cruise". The pilot project was done on 848 stands covering 70,000 acres. The IDL wanted to use a "stand based" inventory but found that it was too costly to do it the conventional way. The system uses stratification, tallies tries by species or dbh (no heights, no defects). Quite simply, this system takes advantage of the relationship between basal area and volume. Uses Vq/Vs = BAq/BAs. So far the IDL is very happy with the results and expanding this method across their timber land ownership.

Automated log merchandiser/scaler to measure and buck for most value – Andy Dick (Director, Logjiztix, Whangaparaoa, New Zealand)

Logjiztix purchased a prototype machine that merchandizes stems by scanning a tree length stem and then cross-cuts it into the most valuable log lengths. This system evolved from a manual "caliper and tape" based system, which showed a lot of promise, but was too heavily reliant on a workforce that had limited technical ability. This processor does 70 loads (2,200 tons) of logs a day. The machine scans length and diameter and bucks stems into logs lengths that maximize value and gives detailed production data in real-time. The benefits include smaller landings, reduced field staff, reduced truck time, reduced harvest cost, improved safety, better on time deliveries, platform for further technology (x-ray, more scanners, MOE testing), and improved log value recovery. The system has been thoroughly tested and has shown that it can dramatically increase profits.

Recovery from simulated sawn logs with Sweep – Robert Monserud (Team Leader – Forestry Science Lab, USFS Pacific Northwest Research Station, Portland, Oregon)

Robert and his colleague, Christine Todoroki wanted to assess loss from sweep (assuming straight sawing in a sawmill) and if in fact there was loss from ovality in a sawmill. For the sweep test, real logs were mapped and then simulated with increasing amounts of sweep (and crook). This approach was chosen instead of actual empirical log tests because logs are too variable and thus results would never

be conclusive as opposed to measuring and mapping a log and then simulating (via an optimizer program, Autosaw) the same log over and over again with increasing amounts of sweep. On average, recovery dropped 2.4% for each 1" of sweep (determined "bow string" method) for 16' logs. Whether the sweep was constant (sweep), or 4' from the end (crook) the results of the study did not change.

In addition to the sweep study, Robert and Christine studied the effects of ovality of species and ran simulations of various degrees of ovality, both in terms of comparison with round logs of the same size and in terms of rotation. On average recovery was best when sawing parallel to the major axis and contrary to many older references was a bit better than that of a round log with the same volume.

Business Meeting

- Election of new officers: Chairman – Matt Fonseca; Vice Chairman – Dennis Moore; Secretary Treasurer – Thelma Alsup.
- Next year's meeting location and date: Reno Nevada, October 8-9 tentatively (dependent on meeting date coordination with NWLRAG).
- Treasurers report: beginning balance, XXX.XX; Longview meeting costs, XXXX,XX; ending balance, XXXX.XX (will be updated).
- Chapter report and chapter meetings: The intermountain chapter is very active and held their Spring meeting in Coeur d'Alene on April 2-3, Idaho with 71 people in attendance.
- Instructions for day-two of the meeting: Mike Hays of Weyerhaeuser gave everybody instructions for the mext day's rollout and Jon Aschenbach gave instructions for the afternoon cruising session.

At 5:15 PM the meeting was closed and most of the participants reconvened at Highlander's for an evening of pizza, beverage and discussion.

October 18, Weyerhaeuser log yard

At 8:00 AM, most of the participants boarded a bus which transported them to the Weyerhaeuser log yard in Longview, which is right on the Columbia River. Mike Hayes (Scaling Supervisor, Weyerhaeuser, Lonview) gave us a tour of their export log yard operation. We then proceeded on to the log roll-out. There were 30 logs for us to scale, many with frost cracks and oversize knots. The normal procedure at the TMS rollouts is to have everybody who wants, scale the logs and record their volumes, followed by a log by log review where a "school book" answer is developed (for each method of scaling used, which in this case was Scribner long and short log; cubic NWLRAG and USFS). Given the limited time that we had at this meeting, we simply did not have time to review the logs, however, the median volumes for the logs were:

	Scribner SL	Scribner LL	ft^3 (USFS)	*M^3 (BCFW)
Gross	20,890	17,980	2,887	85.424
Net	18,760	15,720	2,652	83.214

*Approximated

Despite the not so pleasant weather (at least it did not rain), everybody had plenty of discussion over the logs. At 11:40 AM we boarded the bus, and returned to the Red Lion for Lunch.

At 1:00 PM, the meeting reconvened at the Rotary Park (a small forested park near the Red Lion) for the cruising session, which was given by Paul Wagner and Jon Aschenbach (Atterbury Consultants, Portland, Oregon). Paul and John demonstrated their newest products for cruising timber, allowed the membership to try it and gave measurement advise. At 3:45 PM the Fall meeting of the Timber Measurements Society was officially over.

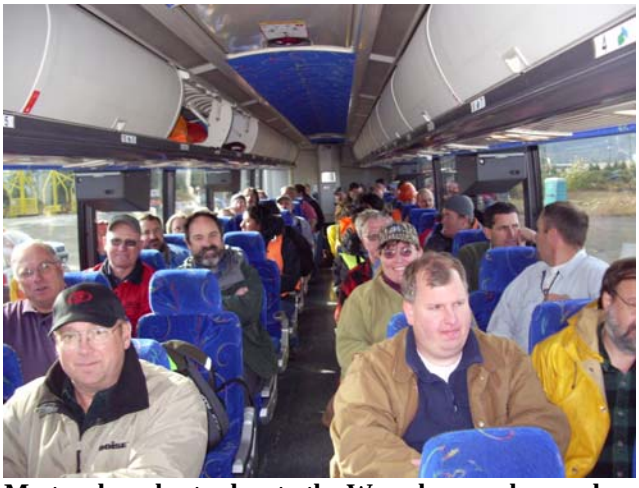
List of attendees at the Timber Measurement Society Meeting in Medford Oregon, October 18-19, 2006 (draft list, will be updated)

Thelma Alsup, BIA, Warm Springs, OR, US
Craig Anderson, BLM, Eugene, OR, US
Jon Aschenbach, Atterbury Consultants, Inc., Portland, OR, US
Gary Baylous, Pacific Log Scalers, Lacey, WA, US
Lars Björklund, Swedish Timber Measurement Council, Sundsvall, SE
Al Blankenship, Northwest Log Scalers, Cove, OR, US
Terry Blankenship, Forest Capital Partners, Summerville, OR, US
John Bolles, Plum Creek Timber, Columbia Falls, MT, US
Ernie Booth, IBSP, Athol, ID, US
Sonny Brudevold, Confederated Tribes of the Colville Reservation, Nespelem, WA, US
Matt Carson, Wrights Scaling Services, Townsend, MT, US
Dave Chafin, Columbia River Scaling Bureau, Eugene, OR, US
Ryan Crans, Green Diamond Resource Company, Korbel, CA, US
Gary Curtis, Columbia River Scaling Bureau, Eugene, OR, US
David Dean, Electronic Data Solutions, Jerome, ID, US
Andy Dick, Logjiztix Limited, Whangaparaoa, NZ
Scott Dodson, Vaagen Bros., Colville, WA, US
Frank Duran, USFS, Portland, OR, US
Peter Dyson, Feric, Vancouver, BC, CA
John Ellis, Toll Owens Log Exports, Mount Maunganui, NZ
Steve Fairweather, Mason, Bruce and Girard, Beaverton, OR, US
Matt Fonseca, UNECE, Geneva, CH
Chuck Gambill, Forest Capital Partners, La Grande, OR, US
Steve Hagen, BLM, Salem, OR, US
Dewey Hall, Forest Capital Partners, LLC, Coeur d'Alene, ID, US
Mike Hallinan, BLM, Eugene, OR, US
Fredrik Hansson, VMF Qbera Wood Measurement Association, Falun, SE
Chris Haubrich, BLM, Eugene, OR, US
Mike Hayes, Weyerhaeuser, Longview, WA, US
Jeff Hedlund, Boise Building, Dallas, OR, US
Russ Hogan, IBSP, Worley, ID, US
David Horrax, Columbia Helicopter, Portland, OR, US
Larry Imhoff, Plum Creek Timber, Kalispell, MT, US
Frank Jaramillo, Northwest Log Scalers, Portland, OR, US
Keith Jones, Department of Natural Resources, Castle Rock, WA, US
Karen A. Jones, USFS Klamath N.F., Yreka, CA, US
Audrey Karpe, USFS Boise National Forest, Boise, ID, US
Scott Ketchum, Forest Capital Partners, Monmouth, OR, US
Larry Knecht, USFS Retired, Juneau, AK, US
Jim Labonte, Oregon Dept. of Agriculture, Salem, OR, US
Larry Larson, BLM, Eugene, OR, US
Cliff Lengstorf, Plum Creek Timber, Columbia Falls, MT, US
Raymond Lowley, Coeur d'Alene Tribal Forestry, Plummer, ID, US
Ken Lucas, Timber Stand Information, Fortuna, CA, US
Jim McCarty, Columbia River Forest Products LLC, Saint Helens, OR, US
Chad McEwan, Forest Capital Partners, LLC, Coeur d'Alene, ID, US
Robert Monserud, USFS PNW, Portland, OR, US
Dennis Moore, Northwest Log Scalers, Portland, OR, US
Bruce Moran, Interfor, Campbell R.iver, BC, CA
George Nuesse, Hancock Forest Management, Orting, WA, US
Jerri Patrick, Spokane Tribal/BIA Forestry, Wellpinit, WA, US
Denny Pomerleau, WPT, Payette, ID, US
Randy Queen, Yamhill Log Scaling & Grading Bureau, Oldtown, ID, US
Dave Richards, Washington Dept. of Natural Resources, Olympia, WA, US
Phil Rousseau, Simpson Timber Company, Shelton, WA, US
Dave Sabol, Southern Oregon Log Scaling Bureau, Roseberg, OR, US
Greg Scheid, BLM, Eugene, OR, US
Regina Seastrom, Colville Tribal Forestry, Inchelium, WA, US
Georgia Simpson, Colville Tribal Forestry, Inchelium, WA, US
Marty Sprinzl, Greenwood Timber LLC, Rainier, OR, US
Tom St. Laurent, Yamhill Log Scaling Bureau, Forest Grove, OR, US
Bruce Stevens, BLM, Eugene, OR, US
Lyle Thornton, Empire Forest Products, Orofino, ID, US
Kevin Tracy, Boise Building, LaGrande, Island City, OR, US
Paul Wagner, Atterbury Consultants, Inc., Darrington, WA, US
Carter Walton, Pacific Log Scalers, Portland, OR, US
Chris Westwood, WA State Dept. of Revenue, Tacoma, WA, US
Jonathan Wilder, BLM, Eugene, OR, US
Rich Wilfong, Hampton Tree Farms Inc, Salem, OR, US
Jerry Youmans, TMS, Lewiston, ID, US

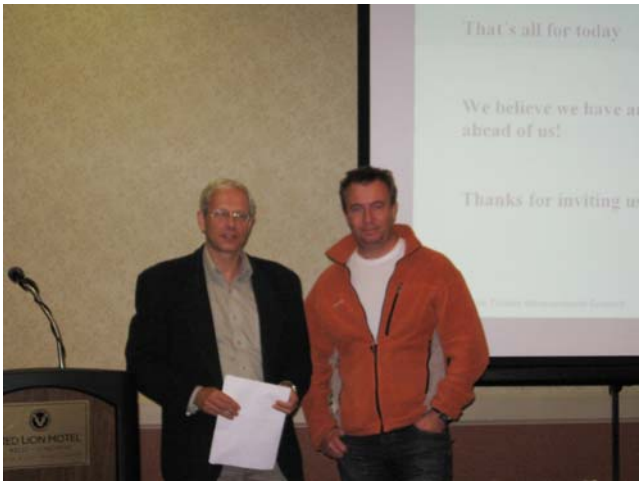
The 2006-2007 TMS officers; Thelma Alsup, Secretary-Treasurer; Jerry Youmans, Chairman; Matt Fonseca, Vice Chairman.

The conversations went long into the night under the Halloween decorations

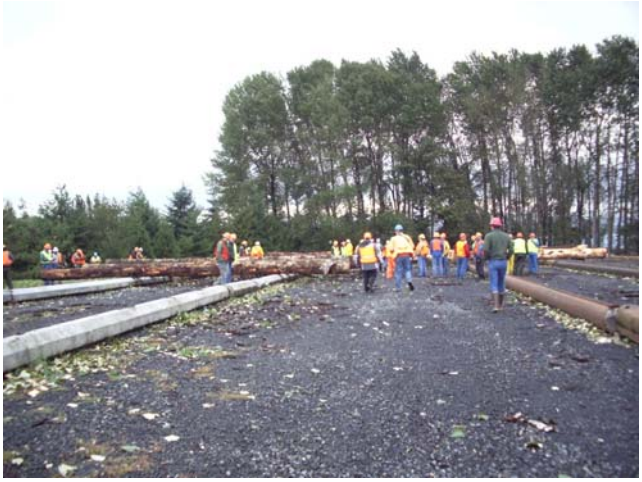
Meeting about to get underway at the Red Lion in Kelso/Longview.



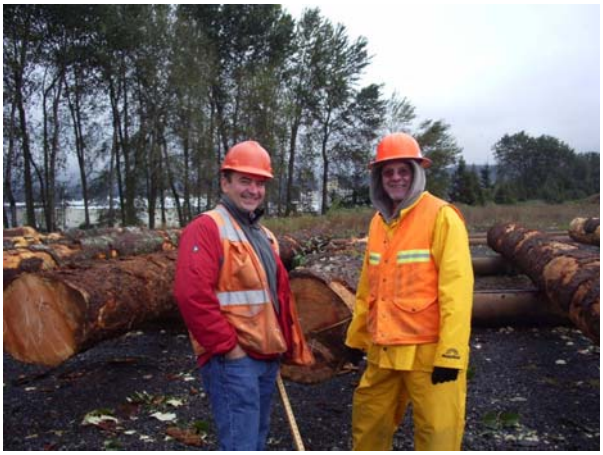
Most rode a charter bus to the Weyerhaeuser log yard where we toured the facility and scaled some logs.



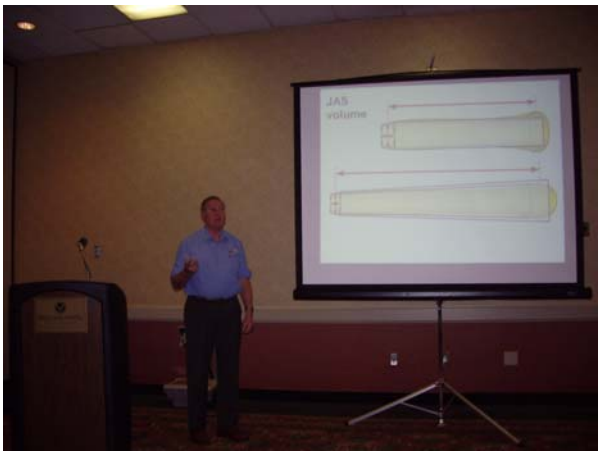
Lars Björklund and Fredrik Hansson.



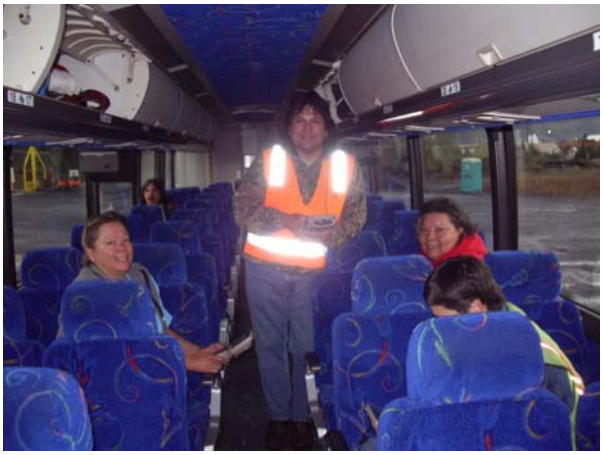
Mike Hayes and the crew at Weyerhaeuser had a nice assortment of logs for us, which provoked much discussion.



Gary Baylous and Mike Hayes.

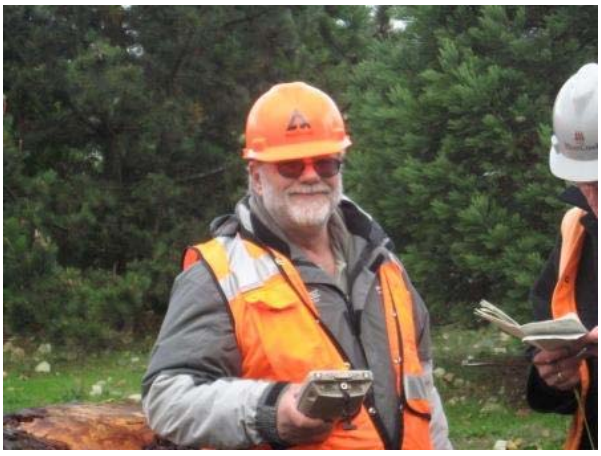


John Ellis giving a presentation on JAS.



Georgia Simpson, Sonny Brudevold, Regina Seastrom and Jeri Patrick; out of the wind to discuss the logs.

Andy Dick and Steve Fairweather having a chat after the meeting.



David Dean demonstrating his latest scaling software

Peter Dyson measures a tree height while Fredrik Hansson and Lars Björklund observe.

Many thanks to everyone who attended the meeting, and especially those who assisted in the organization of the meeting, gave a presentation and traveled long distance on our behalf.

Minutes submitted by Matt Fonseca on 4 November 2007.
Please send any needed revisions of the minutes to Matt Fonseca, by emailing him at: **matthew.fonseca@unece.org**