GUIDANCE NOTE ON AGE ESTIMATING FROM CORES FOR NWDG TRAINED CORERS
Coralie Mills June 2010

Making a date with a tree: how to calculate tree age and derive an estimated calendrical date span from a prepared core sample, using 'Dendro Sample Form V3' as revised by CM.

The slightly revised sample record form, downloadable from this website, continues to be a 2-sided sheet, and each 2-sided sheet is a PER-TREE record, allowing for one or more cores to be taken from the same tree and recorded on the same form.

The record sheet was revised slightly after the 1st 2010 NWDG coring workshop, and before the 2nd workshop. The revised sheet (V3) now has an area on Side 1 where you can record and calculate the tree age from your prepared cores, using the method we went over in the workshop. Look at the downloadable PDF of the sample sheet on this website, at the bottom right hand corner of Side 1, in the dark outlined box. This is for working out the tree age back in the lab or at home, when your core has been dried, mounted and sanded in the manner demonstrated in the workshop. It summarises what CM was explaining when we worked with the prepared cores at the microscopes.

The outlined box continues on from the field record row for each core, so you don't have to write the core code or other per-core info twice.

The age estimating process to be entered in the heavy outlined box in bottom right corner of Side 1 of form is:

Column A - put your ring count of the core here, having marked it up in decades on the prepared core as I showed you.

In Column B, if you have Bark Edge (ie the outer ring of the tree is present on the sample), put 0 - or an estimated number of missing rings if the outer part of the core was lost. Put U if unknown.

In Column C - put the pith offset number, if your core did not reach centre (remember those concentric circle overlays? - A copy will be going on website).

In column D put the 'Fudge Factor', that is your estimated number of years it took for the tree to grow to sampling height. If in doubt use an estimate of 10 years for c 1m high cores, but it will vary from site to site.

And finally, add A+B+C+D to create an age estimate for your tree - put that sum in the final column.

If you entered a U for 'Unknown' in any column, then you are creating a minimum age estimate, and I suggest you record this as say 127+ if a close estimate wildly out, or 127++ if there may be many missing rings from the count.

To turn your age count into a calendrical date span, you need to know the calendar year of the outermost ring counted - so that is why recording the coring date is so important. If you are coring during or after the growing season, up to and including Dec, then the year of coring is the date of the final ring under the bark, but if you core in Jan, Feb or probably March, the new year's ring will not usually have yet begun to form so the final ring below the bark is the previous year.

So if you core a tree in Sept 2010, and you calculate an age estimate of 127 years, then the final ring under the bark is 2010 and the start date of your estimated calendrical date span is 2010-127+1=1884. You have to add the 1, because Ring 1 is 1884, Ring 7 is 1890, Ring 17 is 1900 ... and so on until Ring 127 is 2010. So its not quite a straightforward subtraction.

If a calendrical date span is based on pure ring counts (rather than synchronised dendrochronological techniques which eliminate any count errors) then we should call it an *estimated date span*. It is not a dendrochronological date which implies specialist statistical analysis and an absolutely correct attribution of the precise calendar year to each ring.