SAP ROT 6

6.0 Sap Rot

In some scale settings, logs having sap rot for the full diameter and length of a log are scaled with the rot included in the gross scale, and the rot is deducted. This is the "gross-net" scale method. In others, the rotten sapwood, like the bark, is disregarded. This is the "net" scale method.

1. To obtain a net scale, simply measure the diameter of the sound core inside the rotten sapwood.

2. To obtain a gross-net scale, scale the outside diameter of the log, (the gross scale), scale the sound core of wood inside the rotten sapwood (the net scale). The difference between the gross scale of the outer scaling diameter and the net scale of the inner scaling diameter will be the deduction volume if no other defects are present.

3. If sap rot travels one half the length of a log, a diameter deduction may be taken at one end. If it travels the full length, a diameter deduction may be taken at both ends.

Figure 6.1 Sap rot encompassing 100% circumference of the outside collar

6.1 Sap Rot - Through Running

The essential measurements required to arrive at rot volumes are:

- The defect length in metres to the nearest tenth of a metre,
- The net top end diameter (inside the defect) in rads,
- The net butt end diameter (inside the defect) in rads.

This log was bucked from a windfall tree and has been lying on the ground long enough for fungi to have eaten into the sap wood 2 rads deep at the butt end and between 1 and 2 rads deep at the top end.

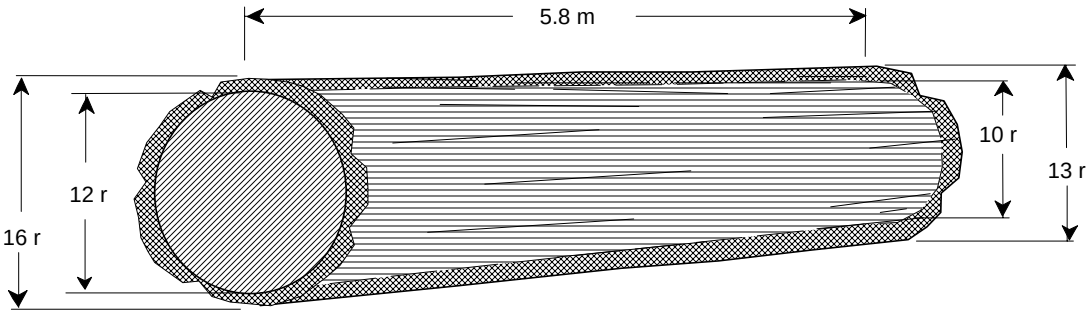

Figure 6.2 Example log with sap rot

Figure 6.3 Example of a log with blue stain which should not be confused with sap rot

6.2 Field Calculation - Diameter Deduction

This method simply ignores the sap rot and uses the diameters of the sound core of wood to find the net volume and recorded net dimensions. Although very simple to apply, it is a "net" method, and does not provide users of scale data with any information about the rot. Scalers using "gross-net" scale may use the length deduction method demonstrated next, to provide additional information on the gross dimensions and volume of the log, the volume of the rot, and the net dimensions and volume.

Using the diameters of the firm core inside the rot:
Calculate the half volume of the top net inner cylinder:

Half volume of 050/10	=	79 dm^3
Half volume of 008/10	=	+ 13 dm^3
Half volume of 058/10	=	92 dm^3

Calculate the half volume of the butt net inner cylinder:

Half volume of 05.0/12	=	113 dm^3
Half volume of 00.8/12	=	+ 18 dm^3
Half volume of 05.8/12	=	131 dm^3

Add the half volume of the top cylinder to the half volume of the butt cylinder:

92	+	131	=	223

Full volume of 05.8/10/12	=	223 dm^3
Net Volume	=	0.223 m^3 or 223 dm^3

Record the net dimensions as:

Length	Top	Butt
058	10	12

6.3 Field Calculation - Length Deduction

Although more difficult to apply, this method is a "gross-net" method, with the advantage of providing users of scale data with more information about the rot. Scalers using "gross-net" scale use this method, rather than the diameter deduction method described above, to provide additional information on the gross dimensions and volume of the log, the volume of the rot, and the net dimensions and volume. The volume of sap rot equals gross log volume minus volume of sound inner core. Apply the following:

Calculate the gross top half volume of the outer cylinder:

Half volume of 05.0/13	=	133 dm^3
Half volume of 00.8/13	=	+ 21 dm^3
Half volume of 05.8/13	=	154 dm^3

Calculate the gross butt half volume of the outer cylinder:

Half volume of 05.0/16	=	201 dm^3
Half volume of 00.8/16	=	+ 32 dm^3
Half volume of 05.8/16	=	233 dm^3

Add the half volumes to find the full volume of the outer cylinder:

Full volume of 058/13/16	=	387 dm^3
Less volume of sound inner core	=	– 223 dm^3
Equals the defect volume	=	164 dm^3

Find the average unit volume of the log using the gross diameters:

Unit volume 13	=	53 dm^3
Unit volume 16	=	+ 80 dm^3
Total	=	133 dm^3
Divide by 2	=	66 dm^3

Find the length deduction:

Divide the rot volume by unit volume =164÷66 = 2.484 rounded to 2.5
The gross length minus the length deduction equals the net length.

5.8 - 2.5	=	3.3 m
Net Volume	=	221 dm^3

Record the net dimensions as:

Length	Top	Butt
033	13	16