

Timber Appraisal Report

Client,

Lots xxx, DP yyyyyy

Parish

Table of Contents

Name and address of consultant	2
Qualifications	2
Relevant experience.....	2
Scope of report	2
Instructions	2
Context	2
Property details	3
Process and methodology.....	3
<i>Inventory</i>	3
<i>Pricing</i>	4
Findings and observations.....	4
Conclusion	5
Exclusions and disclaimers	6
Table 1 – Inventory data.....	7
Table 2 –Pricing Profile.....	9
Appendix A - Techniques for Measuring Stand Basal Area	11
Appendix B – Plot Locations	12

Name and address of consultant

Steven Bruce Dobbys

Principal

Jamax Forest Solutions

ABN 44 673 162 360

PO Box 558

Wauchope NSW 2446

Qualifications

Bachelor of Science (Forestry) attained from the Australian National University, Canberra in 1987. Steve is currently completing a Diploma in Quality Auditing from the Investment Banking Institute.

Steve is a Registered Practicing Forester, member of the Institute of Foresters of Australia and past member of the Divisional Committee of the Institute of Foresters of Australia.

Relevant experience

Since graduating, Steve has gained extensive experience in public and private sector forest management, with:

- 24 years experience in native forest and plantation management;
- 20 years experience in planning and supervising harvesting operations;
- 18 years experience in sales and marketing on the NSW north coast;
- 12 years experience in harvesting and haulage contract management;
- 5 years experience in export log sales and marketing; and
- 2 years experience managing the Northern Regions Aerial Photography Interpretation Unit.

Scope of report

Instructions

Jamax Forest Solutions was engaged to undertake an estimate of the current and future gross stumpage value of the standing crop of timber.

Context

The client has entered into a joint venture or annuity (rental) payment agreement with Forests NSW, whereby the client provides the land and FNSW provide the majority of materials, plant, labour and management expertise.

The client has indicated that they wish to value the property and the plantation for the purposes of sale.

Due to the immature nature of the plantation, to undertake a formal valuation of the property and plantation in accordance with the Association of Consulting Foresters of *Australia's Australian Standard for Valuing Commercial Forests V2.0.1 – July 2007* would require the use of the Present Value method. This would involve predicting the future wood flows over time, market prices, rental

and the costs of managing the plantation, and then discounting the net revenue back to the date of the valuation. It would also require a clear understanding of the management intent and timelines for management activities, such as harvesting, outlined within the joint venture agreement between the parties.

The client indicates that the FNSW intend to thin the plantation within the next year or two.

It is Jamax Forests Solutions' understanding that the client intends to undertake their own valuation based on this estimate, the land value as advised by a real estate agent and their knowledge of anticipated costs and rental.

Property details

Location	
Lots	
Deposition Plan(s)	
Local Government Area	
Gross area	33.85 hectares, inclusive of 1.2 ha planted road reserve
Area of plantation	25.64 hectares
Species	<i>Eucalyptus grandis</i> (Flooded Gum): 16.61 hectares
	<i>Eucalyptus pilularis</i> (Blackbutt): 9.03 hectares

Process and methodology

Inventory

In homogenous stands, such as plantations, stand basal area can be used as a quick estimate of total forest volume using the formula:

$$\text{Standing Forest Volume (m}^3\text{/ha)} = \text{Stand Basal Area (m}^2\text{/ha)} \times \text{Dominant Height (m)}$$

Basal area (BA) is the cross-sectional area of a tree measured at breast height (1.3 metres) over bark. As this is an area measurement, the units are in metres squared. Stand basal area is the sum of the basal areas of all trees within the operational area expressed in metres squared per hectare. Imagine you cut down every tree in a 1 hectare area of land and that all the stumps were 1.3 metres high. The stand basal area is the total surface area of all of those cut stumps. Stand basal area was measured by angle count sampling, which is explained in detail in Appendix A. Plot locations are shown in Appendix B.

The plantation was stratified into Flooded Gum and Blackbutt plantation based on the map provided by the client and field verification.

Five plots were randomly located within each stratum, giving a total of ten (10) plots. As a guide, in native forest stands where there is considerably more variability than within an even-aged plantation, 10 plots are sufficient to provide an accurate estimate of basal area.

At each plot the following stand characteristics were measured:

- latitude/longitude
- basal area
- initial spacing
- diameter of sample trees
- mortality/survival of sample trees
- dominant stand height
- species

The inventory data is presented in Table 1 below.

The total stand volume was calculated for the current timber crop and a merchantable volume determined for a first thinning operation based on the number of trees within the sample plot capable of making a log product at the time of harvest within the next two years.

Pricing

Current royalty rates were based on transactional data from recent 32 year old Blackbutt plantation clearfall data and several 2012 native harvesting operations. A pricing profile reflecting current residual stumpages for all products to a range of customers from the property is also attached (Table 2).

Future yield estimations were based on inventory data, actual merchantable volumes from recent NSW clearfall operations and my own experience.

Findings and observations

The Blackbutt plantation areas are outperforming the Flooded Gum and the stands have begun to self thin due to competition from other Blackbutt and weed species, such as privet. Stockings have reduced from the initial plantings of 1000 stems/ha to approximately 680 stems/ha.

In its natural state, Flooded Gum is generally confined to alluvial flats and thin ribbons along drainage features. In my opinion, much of the Flooded Gum plantation has been planted "off site", i.e. well up the slope from what I would consider its natural growing site, and has not performed as well as the Blackbutt, especially during the recent drought years. Having said that, individuals have continued to survive and the Flooded Gum has higher stocking levels than the Blackbutt, despite lower average diameters and volumes per hectare.

Much of the Flooded Gum is in a very immature state and the viability of a commercial thinning operation within the Flooded Gum is questionable. For the purpose of the estimate, I have assumed that the whole plantation will be thinned in the expected timeframe, i.e. the next two years.

Conclusion

It is my professional and considered opinion that the current timber crop will yield:

Year	Operation type	Est. Merch. Volume	Est. Gross Royalty ¹
2011-2012	1 st thinning	900-1200 tonnes	\$7,800-\$12,000
2029	Clearfall	3100-3480	\$110,300-\$124,300

This estimate is my considered opinion of the value of the subject timber crop as at the date of estimate. It does not purport to reflect any future trends, changes in value or changes to the property.

This estimate is for the use only of the party to whom it is addressed and for no other purpose. No responsibility is accepted to any third party who may use or rely on the whole or any part of the content of this estimate.

I hereby certify that I do not have any direct, indirect or financial interest in the property described herein.

STEVE DOBBYNS BSc (Forestry) M.I.F.A.

Jamax Forest Solutions

Phone: 0427 990 317

Fax: 02 6585 6293

Email: steve.jamax@bigpond.com

ABN 44 673 162 360

¹ Gross Royalty is presented as present value.

Exclusions and disclaimers

Jamax Forest Solutions has not been requested to nor have we undertaken a formal forest valuation in accordance with the Association of Consulting Foresters of *Australia's Australian Standard for Valuing Commercial Forests V2.0.1 – July 2007*. Such a valuation would require more information on the management intent of the joint venture partners and a detailed analysis of the costs involved in managing the plantation between valuation date and the time of harvest(s).

The estimate is current at the date of estimate. The value assessed herein may change significantly and unexpectedly over a relatively short period (including as a result of general market movements, environmental factors or factors specific to the particular property). We do not accept liability for losses arising from such subsequent changes in value. Without limiting the generality of the above comment, we do not assume any responsibility or accept any liability where this estimate is relied upon after the expiration of three months from the date of the estimate, or such earlier date if you become aware of any factors that have an effect on the estimate.

Whilst the land appears suitable for the existing use, no soil tests or environmental studies have been made available to Jamax Forest Solutions. This estimate is on the basis that the property is not affected by any hazardous or unsafe material or condition that adversely affects its existing utility or reduces its marketability. Should an environmental consultant's report indicate otherwise, then this estimate report is to be requisitioned for comment.

The report is not to be relied upon by any other party for any other purpose. Jamax Forest Solutions accept no liability to other parties nor do we contemplate that this report will be relied upon by other parties. Other parties who may come into possession of this report are invited to seek our written consent to them relying on this report. We reserve the right to withhold consent or to review the contents of this report in the event that our consent is sought. In summary, this estimate report is for the use of and may be relied upon only by the parties to whom it is addressed. No other party is entitled to use or rely upon it without our specific written consent and Jamax Forest Solutions shall have no liability to any party who does so.

In accordance with a condition of our Professional Indemnity Insurance Policy, it is advised that this is an informal estimate of the value of the timber and not a Valuation Report.

Neither the whole nor any part of this report, nor any reference thereto, may be included in any document, circular or statement, without written approval from Jamax Forest Solutions of the form and context in which it will appear.

It is confirmed that Jamax Forest Solutions have no pecuniary interest that could conflict with the estimate of this property.

Table 1 – Inventory data

		Plot No.												
		1	2	3	4	5	6	7	8	9	10	Average	BBT Average	FG average
Northing		31.6698	31.6694	31.6709	31.6713	31.6701	31.6725	31.6721	31.6723	31.6722	31.6687		9.03	16.61
Easting		152.6351	152.6341	152.6353	152.6335	152.6315	152.6323	152.6327	152.6348	152.6355	152.6331		hectares	
Species		BBT	BBT	BBT	FG	FG	BBT	FG	FG	BBT	FG			
Basal area (m²/hectare)		30	32	24	23	24	25	23	33	36	25	27.5	29.4	25.6
Spacing	between rows	4	4	4	4	4	4	4	4	4	4	4	4	4
	between trees	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	Initial spacing	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Diameter @ Breast Height (cm) [DBH]		18	29	23	23	x	21	20	17	10	20			
		29	x	31	17	21	1	10	10	28	10			
		x	x	x	12	x	25	20	21	31	24			
		31	29	x	12	21	x	15	15	27	7			
		24	22	x	19	9	24	20	23	x	6			
		27	x	22	25	10	x	15	17	24	22			
		23	x	26	6	23	19	18	x	x	14			
		17	16	x	11	x	25	16	17	28	21			
		28	23	x	19	26	x	20	17	x	x			
		18	28	23	10		9	20	12	x	19			
		24	21				19	10		4	9			
		19	28							x	22			
										32				
	Average DBH	23.5	24.5	25.0	15.4	18.3	17.9	16.7	16.6	23.0	15.8	19.7	22.8	16.6
	Annual increment	2.1	2.2	2.3	1.4	1.7	1.6	1.5	1.5	2.1	1.4	1.8	2.1	1.5
Stocking	Mortality	1	4	5	0	3	3	0	1	5	1	2.3	3.6	1
	Survivors	11	8	5	10	6	8	11	9	7	11	8.6	7.8	9.4
	Mortality	8%	33%	50%	0%	33%	27%	0%	10%	42%	8%	21%	32%	10%
	Stocking	917	667	500	1000	667	727	1000	900	583	917	788	679	897
Stand height (metres)		30	30.5	28.5	26	28.5	24	24	29	29	26	27.55	28.4	26.7

Table 2 –Pricing Profile

Product	Prod code	DC (t)	DC (m³)	Haulage distance TOT	Haul \$/tonne	Haul Cost (\$/m³)	Harv Cost	Cost of delivery	Stumpage \$	Landowner	Jamax	Comment
Girders (m³)	G	0.00	250.00	57.0	12.75	14.66	42.51	57.17	\$192.83	\$173.54	\$19.28	Durable girders >40cm
	G	0.00	200.00	57.0	12.75	14.66	42.51	57.17	\$142.83	\$128.54	\$14.28	BBT girders >40cm & durable girders <40cm
Poles (m³)	1P	0.00	250.00	281.0	36.34	41.79	68.00	109.79	\$140.21	\$126.19	\$14.02	
	2P	0.00	225.00	281.0	36.34	41.79	65.00	106.79	\$118.21	\$106.39	\$11.82	
	3P	0.00	195.00	281.0	36.34	41.79	62.00	103.79	\$91.21	\$82.09	\$9.12	
Quota (m³)	HQL	0.00	155.00	72.0	15.44	17.76	38.95	56.71	\$98.29	\$88.46	\$9.83	
	HQL	0.00	156.04	136.0	24.43	28.09	38.95	67.04	\$89.00	\$80.10	\$8.90	
	HQL	0.00	154.49	122.0	23.08	26.54	38.95	65.49	\$89.00	\$80.10	\$8.90	
HQL1	HQL1	0.00	210.00	407.0	43.45	49.97	38.95	88.92	\$121.08	\$108.97	\$12.11	BBT, SG, BBX and IBK only
	HQL1	0.00	160.00	57.0	12.75	14.66	38.95	53.61	\$106.39	\$95.75	\$10.64	BBT & better
	HQL1	0.00	165.00	86.0	17.71	20.37	38.95	59.32	\$105.68	\$95.12	\$10.57	BBT only
	HQL1	0.00	143.00	15.0	8.12	9.34	38.95	48.29	\$94.71	\$85.24	\$9.47	BBT
	HQL2	0.00	190.00	407.0	43.45	49.97	38.95	88.92	\$101.08	\$90.97	\$10.11	BG, WM, TRP and TWD only
HQL2	0.00	130.00	15.0	8.12	9.34	38.95	48.29	\$81.71	\$73.54	\$8.17	Other species	
Smalls	HQS	0.00	125.00	72.0	15.44	17.76	38.95	56.71	\$68.29	\$61.46	\$6.83	
	HQS	0.00	132.04	136.0	24.43	28.09	38.95	67.04	\$65.00	\$58.50	\$6.50	
	HQS	0.00	130.49	122.0	23.08	26.54	38.95	65.49	\$65.00	\$58.50	\$6.50	
	HQS	0.00	149.00	253.0	33.98	39.08	38.95	78.03	\$70.97	\$63.88	\$7.10	
HQS1	HQS1	0.00	160.00	407.0	43.45	49.97	38.95	88.92	\$71.08	\$63.97	\$7.11	BBT, SG, BBX and IBK only
	HQS1	0.00	110.00	57.0	12.75	14.66	38.95	53.61	\$56.39	\$50.75	\$5.64	BBT & better
	HQS1	0.00	110.00	86.0	17.71	20.37	38.95	59.32	\$50.68	\$45.62	\$5.07	BBT only
	HQS1	0.00	96.00	15.0	8.12	9.34	38.95	48.29	\$47.71	\$42.94	\$4.77	BBT
	HQS2	0.00	150.00	407.0	43.45	49.97	38.95	88.92	\$61.08	\$54.97	\$6.11	BG, WM, TRP and TWD only
HQS2	0.00	90.00	15.0	8.12	9.34	38.95	48.29	\$41.71	\$37.54	\$4.17	Other species	
Salvage (t)	S	69.57	0.00	57.0	12.75	12.75	30.00	42.75	\$26.82	\$24.13	\$2.68	Only to top up loads
	S	65.08	0.00	122.0	23.08	23.08	30.00	53.08	\$12.00	\$10.80	\$1.20	
	S	66.43	0.00	136.0	24.43	24.43	30.00	54.43	\$12.00	\$10.80	\$1.20	
	S	80.00	0.00	253.0	33.98	33.98	30.00	63.98	\$16.02	\$14.42	\$1.60	
	S	70.00	0.00	86.0	17.71	17.71	30.00	47.71	\$22.29	\$20.06	\$2.23	BBT only
Pulp (t)	P	51.03	0.00	136.0	24.43	24.43	20.60	45.03	\$6.00	\$5.40	\$0.60	
	P	56.00	0.00	157.0	26.70	26.70	20.60	47.30	\$8.70	\$7.83	\$0.87	Market has currently collapsed
Dom Pulp (t)	P1	45.00	0.00	196.0	30.27	30.27	20.60	50.87	-\$5.87	-\$5.28	-\$0.59	
Misc (t)	F1	93.00	0.00	244.4	33.98	33.98	33.87	67.85	\$25.15	\$22.64	\$2.52	
	F1	93.00	0.00	253.0	33.98	33.98	33.87	67.85	\$25.15	\$22.64	\$2.52	
	F3	83.00	0.00	244.4	33.98	33.98	33.87	67.85	\$15.15	\$13.64	\$1.52	
	F3	83.00	0.00	253.0	33.98	33.98	33.87	67.85	\$15.15	\$13.64	\$1.52	
	F4	0.00	0.00	244.4	33.98	33.98	20.60	54.58				
	F4	62.00	0.00	253.0	33.98	33.98	20.60	54.58	\$7.42	\$6.68	\$0.74	
	F4	48.68	0.00	122.0	23.08	23.08	20.60	43.68	\$5.00	\$4.50	\$0.50	
	F4	50.03	0.00	136.0	24.43	24.43	20.60	45.03	\$5.00	\$4.50	\$0.50	
Piles (m³)	TRP<13	0.00	#N/A	#VALUE!	#VALUE!	#VALUE!	94.92	#VALUE!	#N/A	#N/A	#N/A	
	TRP>12	0.00	#N/A	#VALUE!	#VALUE!	#VALUE!	94.92	#VALUE!	#N/A	#N/A	#N/A	

References

Techniques for Measuring Stand Basal Area, Private Native Forestry Code of Practice Guideline No. 5, Department of Environment and Climate Change, 2010.

Brack, C.L., (1999), *Online lectures notes, Forest Measurement and Modelling*, Department of Forestry, Australian National University. http://fennerschool-associated.anu.edu.au/mensuration/s_volume.htm

Appendix A - Techniques for Measuring Stand Basal Area



Private Native Forestry Code of Practice Guideline No. 5

Techniques for Measuring Stand Basal Area

Introduction

This document provides a guide to the measurement of stand basal area. The Private Native Forestry Code of Practice (the Code) uses the concept of basal area to set disturbance thresholds, or retention limits for single tree selection and thinning operations in private native forests. Basal area is a forest measurement that can help forest owners estimate tree volumes, and understand and manage stand density and competition.

It is the responsibility of landowners and forestry contractors and operators to comply with the Code.

For the purpose of this guideline, and for use in accordance with the Code, there are some important definitions which include the following.

- **Tree basal area:** the cross-sectional area of a tree trunk measured at breast height over bark. It can be thought of as the surface area of a cut stump at a height of 1.3 m (Figure 1).
- **Stand:** an area of forest that can be identified and mapped according to broad forest type and height class as listed in section 3.1 of the Code (section 3.2 in the Code for Cypress and Western Hardwood Forests).
- **Stand basal area:** the sum of the basal area of all live trees in a stand, is usually expressed in square metres per hectare (m²/ha).

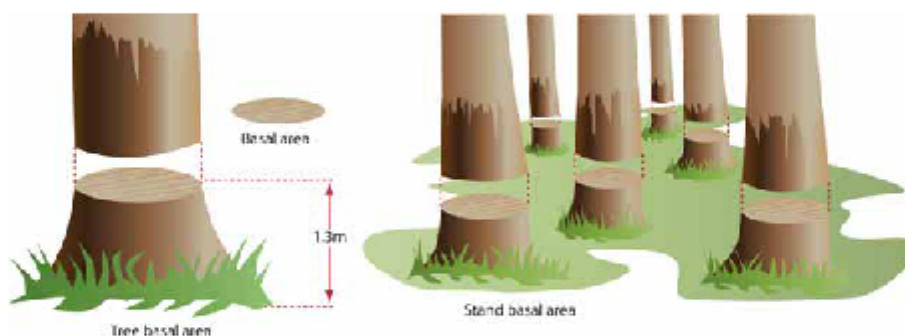


Figure 1: Tree basal area and stand basal area

Appendix B – Plot Locations