BlueChip **forest services** (c) 2009

Inventory for sustainable native forestry kiri@nor.com.au

–cheap, fast, accurate, simple
–records timber value & stand condition
–forest structure for sustainability and silvics
–data for EUCAMIX growth model

Trees counted "in" are allocated to a 15cm interval DBH class. A record contains

–3 letter species code
–The lower bound of the DBH class
–A count for "borderline" trees
–Crown vigour status
–Bole length BOL
–Product type & merchantability % of bole length (1,3,5,7,9)
–A Habitat score if signs of animal use (V notches, hollows, scats, bat roosts) are present

15cm class interval because

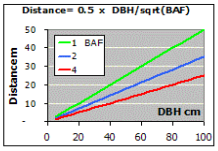
–facilitates ocular estimate
–Inclusion of very small trees will distort the sample results
–15cm covers the range of interest for "small logs" ie 25-40cm
–too many diameter classes adds to model computing time without providing much useful extra information

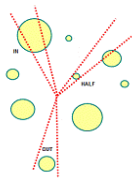
Minimal equipment

spp	dbh10-100	Half "in"	Crown	Bole (m)	Product	Merch	Habitat
twd	10		s	7	w	9	
twd	25	0.5	C	7	u	5	
gyg	85		D	12	hq	7	1
wmy	55		I	8	p	3	

Method

- plotless point sample
- wedge factor 2 to obtain 10-20 records
- 15-20 minutes/plot, GPS centre for verification





On the following pages data and results are shown for a single example stand in high quality Blackbutt forest near Bellingen NSW

Inventory data is obtained as above (15 minutes per plot)
and run in the EUCAMIX model, with selective harvests
in year 10 and 25 after inventory. The results show trees/ha, basal area, volume and value breakdown by tree size, species and product grade for both retained and harvested trees.

EUCAMIX projects growth under a range of harvest prescriptions & timing

EUCAMIX projections Bellingen: Blackbutt mixed species mixed age stand
STAND TABLES YEAR 1: Species, crown and grade by diameter class

Stand tables for year 10

Tip :To automatically display first harvest, you can create a normal Excel formula making cell E2 = C8

	Year	Silvics	Culls?	BA min	HBT	Silvics name	Plot & SQ	Source file
H1	10	2	1	18	10	TSI 1	K8	kalang.xls
H2	25	3	1	18		TSI 2	50	

In the tables below...
12 "Habitat marked" means those trees marked with '1' on original field sheet
10 "Habitat required" includes marked trees up to the requirement, plus any additional trees needed to make the specified number of HBT for retention.

TREES per HA

tpha — Alex Jay 20060003

		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
STANDING		540	112	61	44	6	2	1	767
Habitat marked		-	-	-	*4*	*6*	*2*	*1*	***13***
Habitat required		-	-	-	*4*	*6*	*2*	*1*	***13***
HARVEST & CULL		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
Unmerch	U	168	16	-	*22*	-	-	-	206
Woodchip	W	239	13	23	16	-	-	-	290
Salvage	Z	-	31	10	5	-	-	-	46
Quota	Q	-	-	-	-	-	-	-	-
Pole	P	-	-	-	-	-	-	-	-
Veneer	V	-	-	-	-	-	-	-	-
TOTAL merch trees		407	60	33	43	-	-	-	**15**
total culls		407	29	23	38	-	-	-	**528**
Habitat harvested		-	-	-	*3*	-	-	-	*3*
remaining after harvest		133	53	28	1	6	2	1	**224**
Habitat remaining		-	-	-	*1*	*6*	*2*	*1*	***10***

BASAL AREA

m2/ha — Alex Jay 20060003

STANDING		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
Dominant	D	-	-	3.4	10.9	1.4	1.4	1.1	18.2
Co-dom	C	-	-	5.4	2.7	1.4	-	-	9.5
Interm	I	2.1	3.6	1.2	-	-	-	-	6.9
Suppress	S	12.3	4.0	-	-	-	-	-	16.3
TOTAL		14.4	7.6	10.0	13.5	2.8	1.4	1.1	**50.9**
Habitat marked		-	-	-	*1.5*	*2.8*	*1.4*	*1.1*	***6.8***
Habitat required		-	-	-	*1.5*	*2.8*	*1.4*	*1.1*	***6.8***
HARVEST & CULL		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
Dominant	D	-	-	1.9	10.5	-	-	-	12.4
Co-dom	C	-	-	2.7	2.7	-	-	-	5.4
Interm	I	2.1	1.8	1.2	-	-	-	-	5.1
Suppress	S	9.0	2.1	-	-	-	-	-	11.2
TOTAL		11.2	3.9	5.8	13.2	-	-	-	**34.0**
Habitat harvested		-	-	-	-	-	-	-	-
remaining after harvest		3.3	3.7	4.2	0.4	2.8	1.4	1.1	**16.9**
Habitat remaining		-	-	-	*1.5*	*2.8*	*1.4*	*1.1*	***6.8***

VOLUME

m3/ha — Alex Jay 20060003

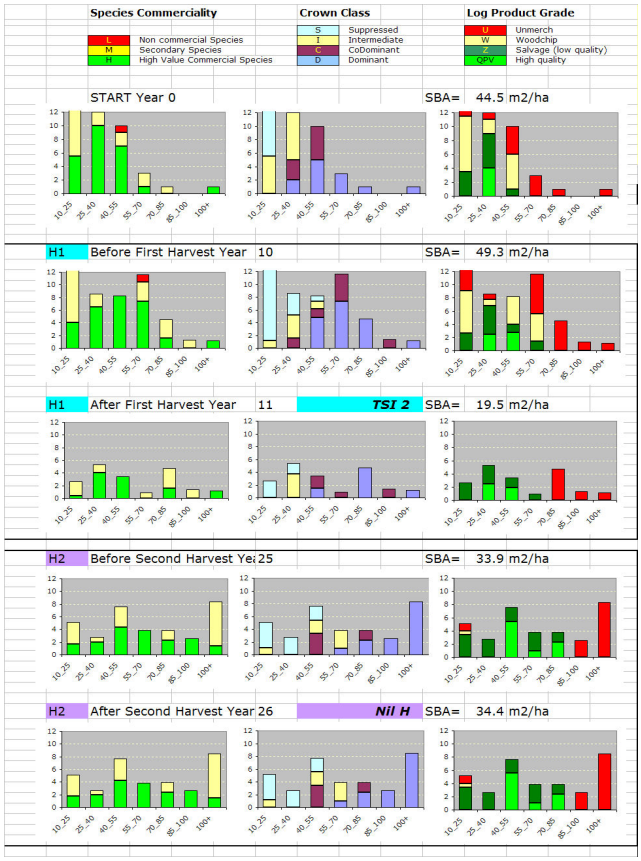
STANDING		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
Unmerch	U	21.1	8.8	-	45.0	17.3	8.4	9.2	109.7
Woodchip	W	30.2	4.6	36.1	29.9	-	-	-	100.7
Salvage	Z	9.8	25.4	20.6	8.2	-	-	-	64.0
Quota	Q	-	12.9	9.8	-	-	-	-	22.7
Pole	P	-	-	-	-	-	-	-	-
Veneer	V	-	-	10.5	-	-	-	-	10.5
TOTAL		61.1	51.6	77.1	83.1	17.3	8.4	9.2	**307.7**
Habitat marked					*10.1*	*17.3*	*8.4*	*9.2*	***44.9***
Habitat required		-	-	-	*10.1*	*17.3*	*8.4*	*9.2*	***44.9***
HARVEST & CULL		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL
Unmerch	U	19.8	8.8	-	42.5	-	-	-	71.1
Woodchip	W	28.3	4.6	36.1	29.9	-	-	-	98.9
Salvage	Z	-	12.5	10.8	8.2	-	-	-	31.5
Quota	Q	-	-	-	-	-	-	-	-
Pole	P	-	-	-	-	-	-	-	-
Veneer	V	-	-	-	-	-	-	-	-
TOTAL		48.1	25.8	46.9	80.6	-	-	-	**201.4**
Habitat harvested		-	-	-	*7.5*	-	-	-	***7.5***
remaining after harvest		12.9	25.8	30.2	2.5	17.3	8.4	9.2	**106.2**
Habitat remaining		-	-	-	*2.5*	*17.3*	*8.4*	*9.2*	***37.4***

VALUE

$/ha — Alex Jay 20060003

STANDING		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL NET
Unmerch	U	-$ 167	-$ 26	$ -	-$ 74	-$ 23	-$ 10	-$ 6	-$ 305
Woodchip	W	-$ 234	-$ 18	-$ 57	-$ 47	$ -	$ -	$ -	-$ 356
Salvage	Z	$ -	$ -	$ 413	$ 222	$ -	$ -	$ -	$ 635
Quota	Q	$ -	$ -	$ 687	$ -	$ -	$ -	$ -	$ 687
Pole	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Veneer	V	$ -	$ -	$ 527	$ -	$ -	$ -	$ -	$ 527
TOTAL MERCH		$ -	$ -	$ 1,628	$ 222	$ -	$ -	$ -	**$ 1,850**
total culls		-$ 400	-$ 44	-$ 57	-$ 121	-$ 23	-$ 10	-$ 6	**-$ 661**
Habitat marked		*$ -*	*$ -*	*$ -*	*-$ 14*	*-$ 23*	*-$ 10*	*-$ 6*	***-$ 52***
Habitat required		*$ -*	*$ -*	*$ -*	*-$ 10*	*$ -*	*$ -*	*$ -*	***-$ 10***
HARVEST & CULL		10-25cm	25-40cm	40-55cm	55-70cm	70-85cm	85-100cm	>100cm	TOTAL NET
Unmerch	U	-$ 156	-$ 26	$ -	-$ 71	$ -	$ -	$ -	-$ 253
Woodchip	W	-$ 219	-$ 18	-$ 57	-$ 47	$ -	$ -	$ -	-$ 341
Salvage	Z	$ -	$ -	$ 217	$ 222	$ -	$ -	$ -	$ 439
Quota	Q	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pole	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Veneer	V	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL MERCH		$ -	$ -	$ 217	$ 222	$ -	$ -	$ -	**$ 439**
total culls		-$ 375	-$ 44	-$ 57	-$ 118	$ -	$ -	$ -	**-$ 594**
Habitat harvested		*$ -*	*$ -*	*$ -*	*-$ 10*	*$ -*	*$ -*	*$ -*	***-$ 10***
remaining after harvest		$ -	$ -	$ 1,411	$ -	$ -	$ -	$ -	**$ 1,411**
Habitat (>$0)		*$ -*	*$ -*	*$ -*	*-$ 10*	*$ -*	*$ -*	*$ -*	***-$ 10***
culls retained		-$ 26	$ -	$ -	-$ 3	-$ 23	-$ 10	-$ 6	**-$ 68**

EUCAMIX projections Bellingen: Blackbutt mixed species mixed age stand
BASAL AREA CHARTS: Species, crown and grade by diameter class



EUCAMIX projections Bellingen: Blackbutt mixed species mixed age stand
VOLUME & VALUE: Grade by diameter class