

CONSERVATION COMMISSION OF WESTERN AUSTRALIA - REPORT ON THE OLD GROWTH NOMINATION WITHIN QUINDANNING FOREST BLOCK COMPARTMENT 03

Summary

In November 2008, a request for a review of old-growth forest status within Quindanning forest block compartment 03 was received from members of the public. The nominated area was approximately 2.5 hectares. Assessments undertaken by Conservation Commission audit staff revealed the following:

- Dieback interpretation designated the area as 'dieback free';
- Conservation Commission audit staff conducted a stump distribution survey for an area of approximately 18ha within and surrounding the nominated area;
- Further canopy sampling was conducted within a 4ha area determined to have less than 2 stumps per hectare. This sampling yielded the following results:

Table 1 Sample Results.

<i>Estimated total upper crown cover</i>	<i>Estimated upper crown proportion of mature or senescent trees</i>	<i>Estimated upper crown proportion of regrowth trees</i>	<i>Estimated number of stumps per hectare</i>
59%	48.6%	51.4%	1.5

- An area of 7.3 hectares was located within Quindanning block which meets the criteria for jarrah old-growth forest and is therefore unavailable for timber harvesting;
- The remainder of the 18 hectares assessed does not meet the criteria for old-growth forest and remains available for timber harvesting.

Background

This report summarises the Conservation Commission's findings based on its consideration of available records and inputs and field sampling undertaken by Conservation Commission audit staff.

The following old-growth definition applies for the forest type within the assessment area:

Jarrah and jarrah/tingle forest: "uncut forest or forest subject to minimal disturbance which is not known to be affected by *Phytophthora cinnamomi*".

According to the Conservation Commission's paper *Assessment criteria and process for the Conservation Commission review of old-growth amendments* the effects of disturbance are considered more than minimal where changes to the structure of the overstorey caused by these disturbances are still evident or where changes to the overstorey or understorey are irreversible.

Public nomination of old-growth

As required in the *Forest Management Plan 2004-2013* (FMP) and further detailed in the Conservation Commission's paper *Assessment criteria and process for the Conservation Commission review of old-growth amendments*, there is a process for persons to request the Conservation Commission to assess whether areas on an indicative timber harvest plan should be classified as old-growth forest in the Department of Environment and Conservation's (DEC) corporate database. Such a request was received on 21 November 2008 in relation to a portion of Quindanning block compartment 03.

Site Description

Quindanning 03 forest block is an area of 665ha located approximately 35km west of the town of Williams. The area is situated towards the eastern edge of state forest and is surrounded by farmland. The nomination area is approximately 2.5ha situated near the southeast boundary of the block adjacent to private land as indicated in Map 2. The nomination area lies in a gully that roughly follows the shape of the 325m isohyets line as seen in Map 1. Within this gully there is a comparatively small size class of mature trees as compared with other areas of Quindanning 03. There is also an apparent soil change within the gully which may have contributed to the small size class of the trees

Forest types

Jarrah dominant forest.

Sampling Process

Sampling incorporated the process outlined in the document *Assessment criteria and process for the Conservation Commission review of old-growth amendments*. The nomination area was reviewed and a sample area was defined using the following background information:-

Remote Analysis

The remote analysis assessed:

- Digitised aerial photos and data layers were used to confirm forest and non-forest structural boundaries and general observations in relation to forest structure;

- Maps with coordinates of the location of the nominated area as provided by the nominees;
- The latest available harvesting records, dieback mapping, soil types and vegetation types as provided by the Department of Environment and Conservation; and
- The latest available dieback sampling and mapping as provided by the DEC..

Field Checks

Conservation Commission audit staff conducted a stump distribution survey both inside and surrounding the nominated area. An area of approximately 18 hectares was surveyed for stumps both above the ridge line and within the gully. This stump data provided a general distribution of past harvesting intensity. Canopy sampling was undertaken at 20m intervals to provide data on the proportion of mature/senescent trees in the overstorey. This sampling was only undertaken in the gully where the stump distribution indicated a lower intensity of harvesting than above the ridge.

Other observations were made in relation to soils, slope, tree sizes and general forest health.

Finding

Harvesting records indicated Qunidanning 03 had been harvested in the period 1960-1969. The most recent dieback samples taken within Quindanning 03 indicate the area to be free of dieback.

As a result of the field analysis it was concluded that the area below the ridge line as indicated on Map 1 were not as intensively harvested. The reasons for this were most likely because:

1. the area below the ridge line was not easily accessible; and
2. the timber available below the ridge line was smaller and of poorer quality to timber from above the ridge line

Ground evidence of disturbance is clear from the presence of stumps and indicates that harvesting activity was focused on the more accessible areas on top of the ridge. The presence of stumps is also greater near the track adjacent to private property. The harvesting intensity above the ridge equates to greater than 10 stumps per hectare where the disturbance was considered more than minimal and where changes to the structure of the overstorey caused by these disturbances did not warrant further sampling. ***The area above the ridge was therefore determined to be non old-growth and will remain available for timber harvesting.***

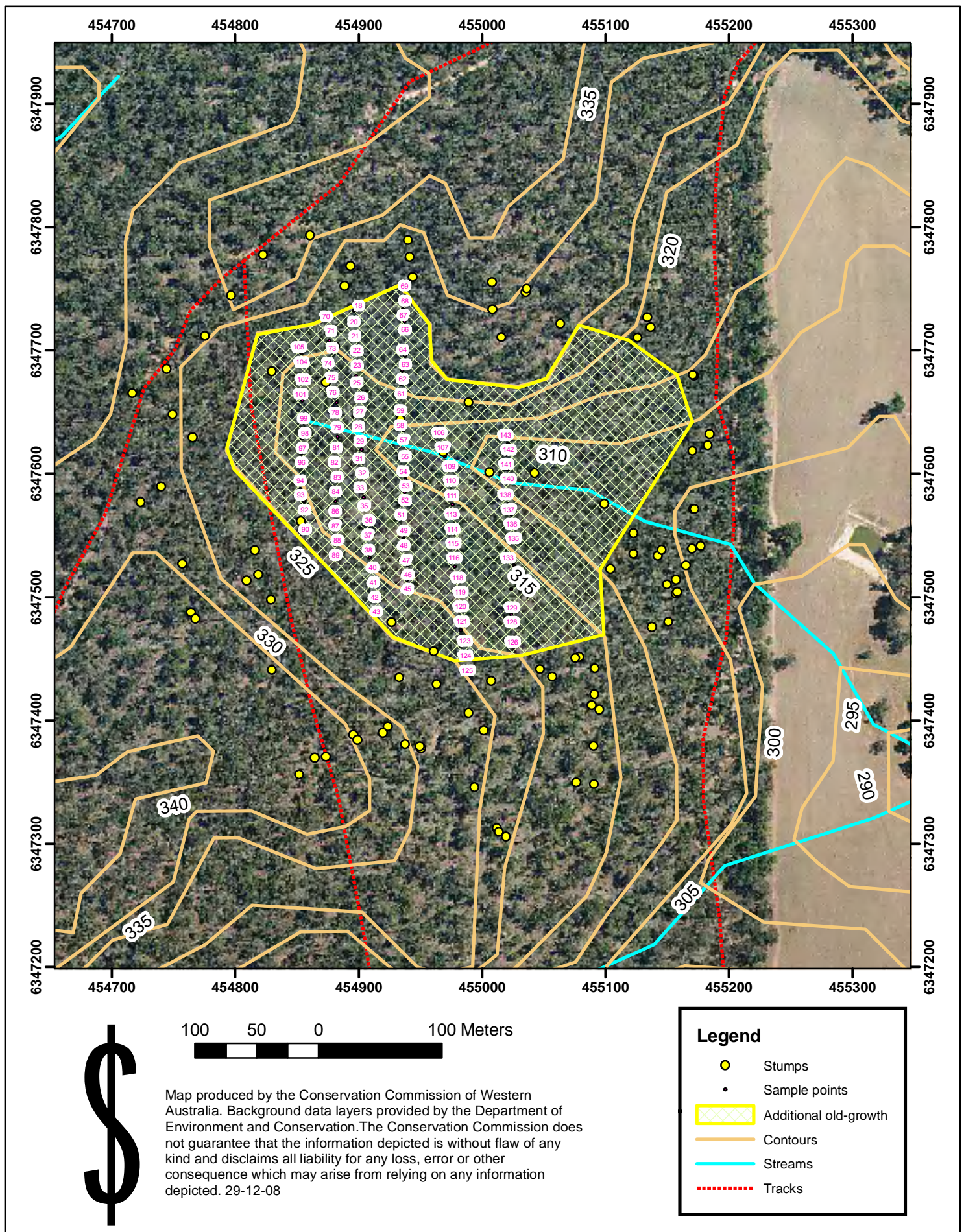
The stumps within the area of additional old-growth indicated in Map 1 are mostly located along the line of the stream. These stumps are likely the result of a low intensity harvesting operation where a selection of mature trees was removed from the stream section of the gully, where the slope is less severe. The harvesting intensity of this area equates to between 0 and 2 stumps per hectare.

Further canopy sampling determined the area within the gully to have a 48.6% mature/senescent component to the overstorey. As detailed in the Conservation Commission's paper *Assessment criteria and process for the Conservation Commission review of old-growth amendments*, an interim overall guideline of 50% mature and senescent relative upper crown cover provides guidance for north-eastern jarrah. The figure of 48.6% is a sampling estimate

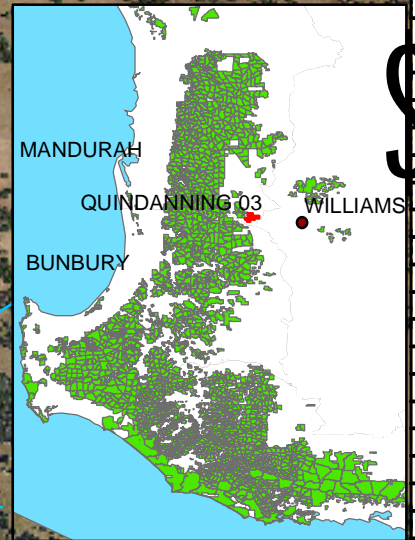
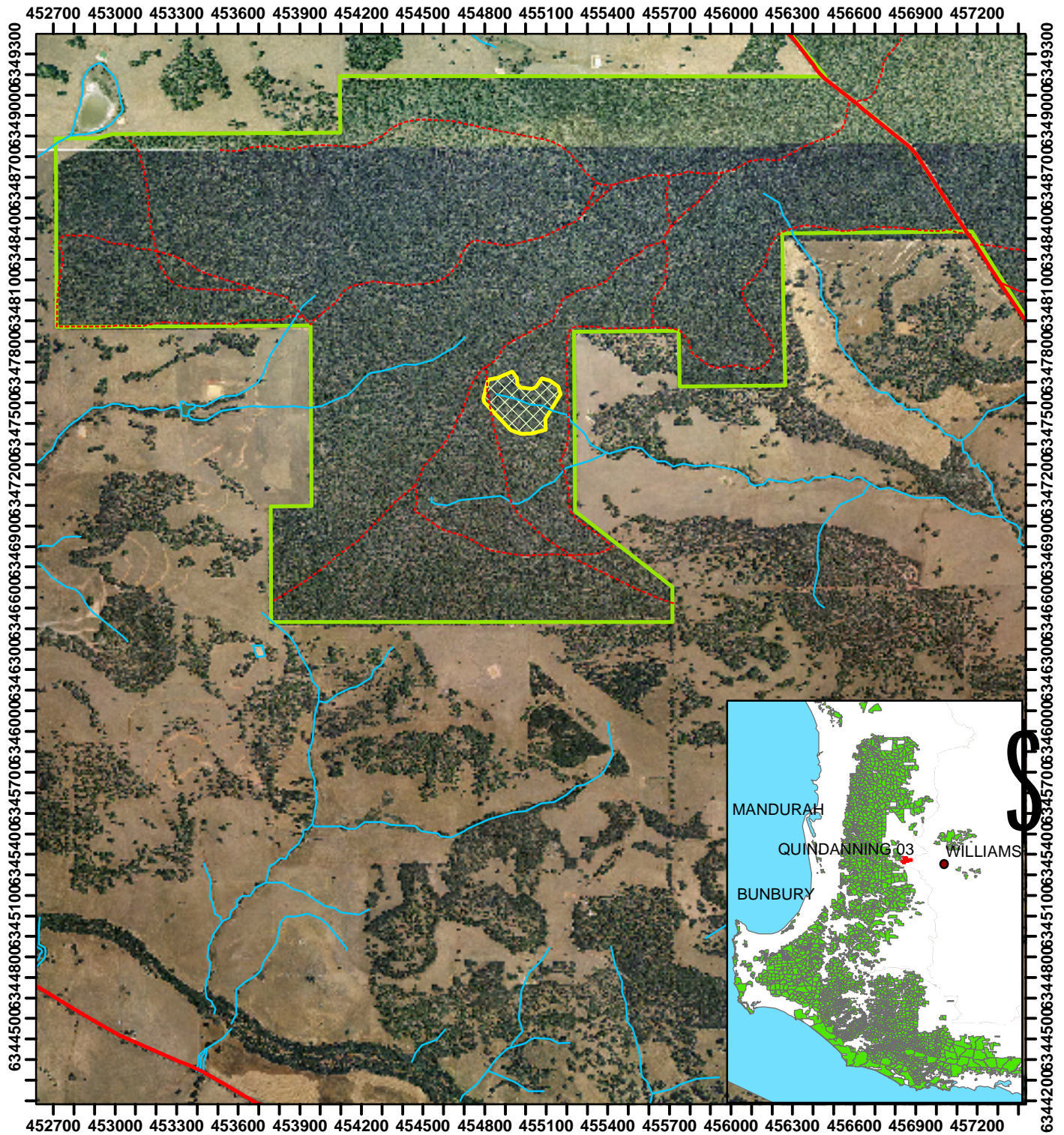
which is considered to be within the sampling error range of the 50% threshold and therefore the area is considered to be consistent with jarrah old-growth forest.

It was observed that jarrah forest below the ridge was of a smaller size class to jarrah forest above the ridge. This can be seen in data presented in Appendix 1. The largest mature trees recorded in the canopy sampling in the gully do not exceed 80cm DBH (diameter at breast height). Remnant mature trees on top of the ridge were well in excess of 100cm DBH. Some trees of 40cm DBH were also recorded as mature/senescent where the form of the tree suggested it had ceased growing and was in a state of senescence. The smaller size class was attributed to less fertile soils where a change in soils was observed between areas above the ridge and areas in the gully. The size of the stumps recorded along the stream line were no bigger than the largest mature trees recorded in the sample area, that is less than 80cm diameter suggesting there were no large trees in the gully at the time of harvesting. It was therefore determined that disturbance as a result of logging has resulted in minimal changes to the structure of the overstorey. ***The 7.3ha identified as additional old-growth will be added to the old growth layer and will not be available for timber harvesting.***

Map 1 Additional old-growth Quindanning 03



Map 2 Quindanning 03 forest block



690 345 0 690 Meters



Map produced by the Conservation Commission of Western Australia. Background data layers provided by the Department of Environment and Conservation. The Conservation Commission does not guarantee that the information depicted is without flaw of any kind and disclaims all liability for any loss, error or other consequence which may arise from relying on any information depicted. 29-12-08

Legend

- Tracks
- Streams
- Additional old-growth
- Quindanning 03

APPENDIX 1 Quindanning 03 sample points

FID	CANOPY	SPECIES	DIAMETER	DEVELOPMENT	DISTURBANCE	QUALITATIVE	...
18	NO	GAP	0	GAP		MIXED	
19	YES	JARRAH	40	MATURE/SEN		MIXED	
20	YES	JARRAH	50	MATURE/SEN		MOSTLY UPPER	
21	NO	GAP	0	GAP		MIXED	
22	YES	JARRAH	35	REGROWTH		MIXED	
23	YES	JARRAH	65	MATURE/SEN		MOSTLY UPPER	
24	NO	GAP	0	GAP		MIXED	
25	NO	GAP	0	GAP		MIXED	
26	NO	GAP	0	GAP		MOSTLY UPPER	
27	NO	GAP	0	GAP		MIXED	
28	YES	JARRAH	35	REGROWTH		MOSTLY UPPER	
29	YES	JARRAH	25	REGROWTH		MOSTLY UPPER	
30	YES	JARRAH	40	MATURE/SEN		MOSTLY UPPER	
31	YES	JARRAH	40	MATURE/SEN		MIXED	
32	YES	JARRAH	40	REGROWTH		MIXED	
33	YES	JARRAH	20	REGROWTH		MIXED	
34	NO	GAP	0	GAP		MIXED	
35	NO	GAP	0	GAP		GAP	
36	NO	GAP	0	GAP		MIXED	
37	NO	GAP	0	GAP		GAP	
38	YES	MARRI	20	REGROWTH		MIXED	
39	YES	JARRAH	55	MATURE/SEN		MOSTLY UPPER	
40	NO	GAP	0	GAP		MOSTLY UPPER	
41	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
42	YES	JARRAH	80	MATURE/SEN		MIXED	
43	NO	GAP	0	GAP		GAP	
44	NO	GAP	0	GAP		MIXED	
45	YES	JARRAH	55	MATURE/SEN		MOSTLY UPPER	
46	YES	JARRAH	50	MATURE/SEN		MIXED	
47	YES	JARRAH	25	REGROWTH		MOSTLY LOWER	
48	NO	GAP	0	GAP		MOSTLY LOWER	
49	NO	GAP	0	GAP		GAP	
50	YES	JARRAH	20	REGROWTH		MOSTLY LOWER	
51	NO	GAP	0	GAP		GAP	
52	NO	GAP	0	GAP		MIXED	
53	YES	JARRAH	40	REGROWTH		MIXED	
54	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
55	YES	JARRAH	25	REGROWTH		MIXED	
56	NO	GAP	0	GAP		GAP	
57	NO	GAP	0	GAP		MOSTLY LOWER	
58	NO	GAP	0	GAP		GAP	
59	NO	GAP	0	GAP		GAP	
60	YES	JARRAH	55	MATURE/SEN		MIXED	
61	YES	JARRAH	50	MATURE/SEN		MOSTLY UPPER	
62	YES	JARRAH	35	REGROWTH		MIXED	
63	YES	JARRAH	30	REGROWTH		MIXED	
64	NO	GAP	0	GAP		MOSTLY LOWER	
65	NO	GAP	0	GAP		MIXED	
66	YES	MARRI	30	REGROWTH		MIXED	
67	YES	JARRAH	20	REGROWTH		MOSTLY LOWER	
68	YES	JARRAH	40	MATURE/SEN		MOSTLY UPPER	
69	YES	JARRAH	35	REGROWTH		MIXED	
70	NO	GAP	0	GAP		MIXED	
71	NO	GAP	0	GAP		MIXED	
72	YES	JARRAH	40	REGROWTH		MIXED	
73	YES	MARRI	20	REGROWTH		MIXED	
74	NO	GAP	0	GAP		MIXED	
75	NO	GAP	0	GAP		MOSTLY LOWER	
76	NO	GAP	0	GAP	X_CUT LOG	MOSTLY LOWER	
77	YES	JARRAH	30	REGROWTH		MIXED	
78	YES	JARRAH	30	REGROWTH		MIXED	
79	NO	GAP	0	GAP		MIXED	
80	YES	JARRAH	45	MATURE/SEN		MOSTLY UPPER	
81	YES	JARRAH	60	MATURE/SEN		MOSTLY UPPER	
82	YES	JARRAH	45	MATURE/SEN		MIXED	
83	NO	GAP	0	GAP		MIXED	
84	YES	JARRAH	50	MATURE/SEN		MOSTLY UPPER	
85	YES	JARRAH	40	MATURE/SEN		MIXED	
86	NO	GAP	0	GAP		MIXED	
87	NO	GAP	0	GAP		MIXED	
88	YES	JARRAH	75	MATURE/SEN		MOSTLY UPPER	

APPENDIX 1 Quindanning 03 sample points

FID	CANOPY	SPECIES	DIAMETER	DEVELOPMENT	DISTURBANCE	QUALITATIVE	...
89	YES	JARRAH	30	REGROWTH		MIXED	
90	NO	GAP	0	GAP		MIXED	
91	NO	GAP	0	GAP	X_CUT LOG	MIXED	
92	YES	JARRAH	35	REGROWTH		MIXED	
93	YES	JARRAH	40	REGROWTH		MIXED	
94	NO	GAP	0	GAP		MIXED	
95	YES	JARRAH	35	REGROWTH		MIXED	
96	NO	GAP	0	GAP		MIXED	
97	YES	JARRAH	30	REGROWTH		MIXED	
98	NO	GAP	0	GAP		MIXED	
99	NO	GAP	0	GAP		MIXED	
100	NO	GAP	0	GAP		MIXED	
101	NO	GAP	0	GAP		MIXED	
102	YES	MARRI	65	MATURE/SEN		MIXED	
103	YES	MARRI	65	MATURE/SEN		MOSTLY UPPER	
104	NO	GAP	0	GAP		MIXED	
105	NO	GAP	0	GAP		MOSTLY LOWER	
106	NO	GAP	0	GAP		GAP	
107	NO	GAP	0	GAP		GAP	
108	NO	GAP	0	GAP		MOSTLY UPPER	
109	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
110	YES	JARRAH	30	REGROWTH		MOSTLY UPPER	
111	YES	JARRAH	40	MATURE/SEN		MOSTLY UPPER	
112	YES	JARRAH	60	MATURE/SEN		MOSTLY UPPER	
113	YES	JARRAH	20	REGROWTH		MIXED	
114	YES	JARRAH	40	REGROWTH		MIXED	
115	NO	GAP	0	GAP		GAP	
116	YES	JARRAH	30	REGROWTH		MIXED	
117	NO	GAP	0	GAP		MIXED	
118	YES	JARRAH	30	REGROWTH		MIXED	
119	YES	JARRAH	40	MATURE/SEN		MIXED	
120	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
121	YES	JARRAH	55	MATURE/SEN		MIXED	
122	YES	JARRAH	20	REGROWTH		MIXED	
123	YES	JARRAH	30	REGROWTH		MIXED	
124	NO	GAP	0	GAP		MOSTLY UPPER	
125	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
126	NO	GAP	0	GAP		MIXED	
127	YES	JARRAH	40	MATURE/SEN		MOSTLY UPPER	
128	YES	JARRAH	70	MATURE/SEN		MOSTLY UPPER	
129	YES	JARRAH	40	REGROWTH		MIXED	
130	YES	JARRAH	30	REGROWTH		MOSTLY LOWER	
131	YES	JARRAH	40	REGROWTH		MIXED	
132	YES	JARRAH	30	REGROWTH		MIXED	
133	YES	JARRAH	30	REGROWTH		MIXED	
134	YES	JARRAH	30	REGROWTH		MIXED	
135	YES	JARRAH	20	REGROWTH		MIXED	
136	YES	JARRAH	60	MATURE/SEN		MIXED	
137	NO	GAP	0	GAP		MIXED	
138	YES	JARRAH	60	MATURE/SEN		MOSTLY UPPER	
139	YES	JARRAH	40	MATURE/SEN		MIXED	
140	NO	GAP	0	GAP		MIXED	
141	YES	JARRAH	80	MATURE/SEN		MOSTLY UPPER	
142	YES	MARRI	30	REGROWTH		MIXED	
143	YES	JARRAH	70	MATURE/SEN		MIXED	