Report on the old-growth nomination within Boorara forest block - compartment 14

November 2016

Government of **Western Australia**
Conservation and Parks Commission

Summary

In March 2010, a request for a review of old-growth status over Boorara forest block-compartment 14 (Boorara 14) was made by the Northcliffe Environment Centre. Boorara 14 contains karri forest, jarrah forest, jarrah woodland and shrub herb and sedge lands.

Surveys were conducted by Conservation and Parks Commission (the Commission) staff from July through to August 2016. These surveys focused on field checking of mapped harvest records, forest type, karri forest age class and stump enumeration to determine areas uncut and areas cut over. The assessment yielded the following results:

The areas identified in Map 3 of this report demarcate a total area of 25 hectares of old-growth forest. These 25 hectares contain:

approximately 15 hectares of old-growth karri forest
approximately 5 hectares of old-growth jarrah forest
approximately 5 hectares of old-growth jarrah woodland

These areas have therefore been determined as unavailable for timber harvesting at this time.

Usually, dieback interpretation is required for the determination of the final status and boundaries of the areas of jarrah and karri old-growth forest identified in this report. Recovery of dieback indicator species after the 2015 fire will take about two years to inform dieback interpretation. The final boundaries for the old growth forest can therefore only be established once the dieback assessment has been finalised. These areas have a moratorium on harvesting until a final determination on their status can be made.

The remainder of the coupe (approximately 35 hectares) does not meet the requirements for old-growth forest and remains available for timber harvesting.

1.0 Background

As outlined in the Forest management plan 2014–2023 (FMP), the Commission is responsible for carrying out specific actions that relate to the management of old-growth forests. These actions were included in the FMP to address a high level of public concern about the reliability of old-growth forest mapping data. Therefore, in 2005, the then Conservation Commission developed a process to provide transparency to old-growth forest assessments (see Assessment criteria and process for the Conservation Commission review of old-growth amendments). This process involves full public consultation and reporting. It enables members of the public to request the Commission to assess whether areas on the indicative timber harvesting plan should be classified as old-growth forest.

1.1 Definition of old-growth forest

The National Forest Policy Statement (Commonwealth of Australia 1992) defines 'old-growth forest' as forest that is ecologically mature and has been subjected to negligible unnatural disturbance such as logging, roading and clearing. The definition focuses on forest in which the over-story is in a late mature or senescent growth stage. This definition implies that two conditions must be met for a stand to qualify as old-growth: (a) ecological maturity, and (b) minimal unnatural disturbance.

The Commission is guided by the definition of old-growth in the FMP, which is the same as that used in the National Forest Policy Statement. The FMP further details the criteria for inclusion of old-growth forest in the Department of Parks and Wildlife's (the Department) corporate database:

> *Areas greater than two hectares of ecologically mature forest, where the over-story is in a late mature to senescent growth stage, and where the effects of disturbance (e.g. dieback, timber production, grazing) are either absent or now negligible.*

For this assessment the criteria for karri forest, jarrah forest and jarrah woodland was applied.

Criteria for karri forest ~Karri and karri/tingle forest – uncut forest which is mature or senescent. In this report the descriptors of disturbance are generally the presence of stumps. For ecological maturity, stands must comprise a greater than 25% mature or senescent component in the canopy and meet a minimum size of 2 hectares.

Criteria for jarrah forest ~Jarrah and jarrah/tingle forest – uncut forest or forest subject to minimal disturbance which is not known to be affected by Phytophthora cinnamomi and meet a minimum size of 2 hectares.

Criteria for jarrah woodland ~Jarrah woodland – all uncut woodland which is not known to be affected by Phytophthora cinnamomi and meet a minimum size of 2 hectares.

2.0 Assessment

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

2.1 Public nomination of old-growth

As required in the FMP, there is a process for members of the public to request that the Commission assess whether areas on an indicative timber harvest plan should be classified as old-growth forest in the Department's corporate database. Such a request was received in March 2010 in relation to Boorara - compartment 14.

2.2 Site description

Boorara forest block is situated approximately 15 kilometers south east of the town of Northcliffe. Compartment 14 was burnt in the landscape scale bushfire that occurred during February 2015. The coupe area is 60 hectares and forms part of the Forest Products Commission's salvage operation plan following the 2015 bushfire.

2.3 Forest types and structure

The broad description of forest type is karri forest - south. Karri is the most common species forming the structure of the over-story. There are some areas to the east of the coup that are non-forest (associated with stream zones) jarrah woodland and jarrah forest south (Map 1). Some of the trees were damaged or had died as a result of the fire and wind throw of large crowns was also evident. Many of the standing trees showed signs of recovery with re-sprouting of foliage in the crowns as well as epicormic growth. There was evidence of understory recovery with zamia and xanthorrhea re-sprouting.

3.0 Sampling process

3.1 Analysis

The nomination area was reviewed and sample areas were selected using the following background information:

- digitized aerial photograph interpretation of karri forest maturity done by the Department in the southern section of the coupe (pre 2015 fire Map 2)
- the latest available records of harvesting, soil types and forest types—provided by the Department
- canopy sampling in areas of karri regrowth, mature karri and jarrah forest
- stump enumeration to confirm boundaries of harvested and uncut areas

3.2 Stratification

Departmental harvest records indicated the north and west sections of the coupe as harvested in 1990-99 and 1940-49 (Map 2). The eastern and southern section of the coupe is recorded as uncut with areas of uncut mature and uncut regrowth stands. An initial inspection revealed areas mapped as harvested showing no evidence of harvesting specifically in jarrah forest in the north east section of the coupe. Changes in forest types was well defined in the field with only a thin extent of transitional – mixed forest. Stump enumeration was undertaken to verify the boundaries of harvested forest and uncut forest based on the harvest records.

Plot 1 & Plot 2	- areas of karri forest mapped as harvested 1990-99 with regrowth
Plot 3	- areas of jarrah forest mapped as harvested 1940-1949
Plot 4 & Plot 5	- areas of karri forest within the age class photo interpretation

3.3 Data Collection

Sampling was completed using a compass, hip chain, densitometer (for canopy readings), diameter tape (for tree diameter readings) and a mobile device with ESRI collector GIS program. Plot 1 and Plot 2 were oriented east-west. Plot 3, Plot 4 and Plot 5 were orientated north-south. Sample points were spaced at 20m intervals and sample points were offset for adjacent sample strings.

3.4 Field results and discussion

The results of sampling are presented in Table 1 (below) and geographically represented in Map 1. The brown shaded row indicates sampling based on the criteria for jarrah forest. All other rows have been sampled according to the old-growth criteria for karri forest.

Table 1: Sampling results

Plot number	Estimated number of stumps per hectare	Total canopy cover	Estimated canopy cover of mature or senescent trees	Old-growth
1	>7	**86.8%**	12.1%	No
2	0	**78.1%**	8%	No
3	0	**75.8%**	48%	Yes
4	0	**81%**	29.4%	Yes
5	0	**76.5%**	42.6%	Yes

Evidence of harvesting was clear in sample plot 1, with forest tracks, snig tracks and stumps (>7 per ha) recorded along the transect line. The results indicate a highly modified forest structure as a result of timber harvesting with a mass stand of regrowth karri trees. These results do not meet the criteria for old-growth forest.

Results for sample plot 2 suggest a similar forest structure to plot 1, however no stumps were recorded along the transect and there was no evidence of timber harvesting. A mass stand of regrowth karri with no stumps suggests that some historical event such as fire may have removed the mature component in this section of the coupe. The mature component (8%) does not meet the minimum 25% requirement in karri to qualify as old-growth forest.

Transects in sample plot 3 were orientated north and south in jarrah forest and jarrah woodland. No stumps were recorded along these transect lines. Results for the diameter at breast height (DBH) indicate this jarrah forest and jarrah woodland to be of a small size class compared to the normal size class of southern jarrah forest. Previously mapped old-growth is adjacent to the north of this sample area and it is not known to be affected by Phytophthora cinnamomi. These areas of jarrah forest and jarrah woodland satisfy the criteria of old-growth forest.

Image 1: Jarrah forest along sample plot 3

The jarrah forest (pictured above) and jarrah woodland showed good signs of recovery post fire and were flush with spring growth.

Sample plot 3 and sample plot 4 were undertaken in areas of karri forest previously mapped remotely by the Department to assist in determining age class. (Map 3). This remote mapping was verified in the field. The results were generally consistent with the remote interpretation. This is demonstrated in Map 4 where the areas remotely mapped as 'mature' coincide with a sample point or cluster of points where mature trees were recorded on the ground. Conversely, areas mapped as regrowth are consistent with smaller tree DBH on the ground. The individual tree heads can be seen in the photo imagery alongside the corresponding DBH measurement from the field.

Image 3: Mature karri tree DBH 225cm with karri DBH 163cm directly behind stump monkey TH. The location of these trees can be seen in Map 4.

Some stumps were recorded on the western side of the coupe in these sample areas. These stumps were in clusters of 2 or 3 and did not appear to be part of a timber harvesting operation as the logs had been left behind.

Image 2: Cluster of 3 stumps with felled logs left behind

4.0 Finding

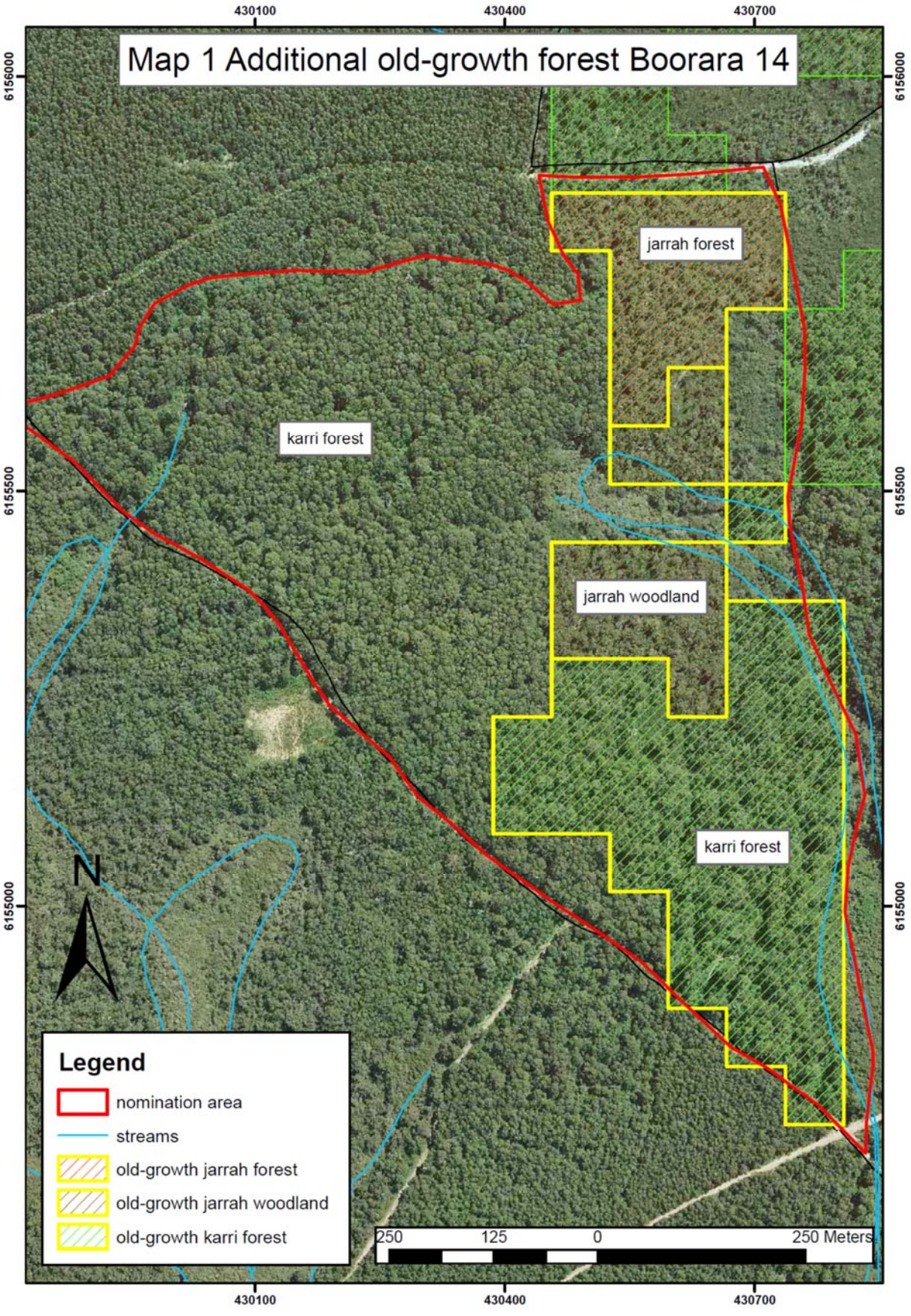
Results from this assessment

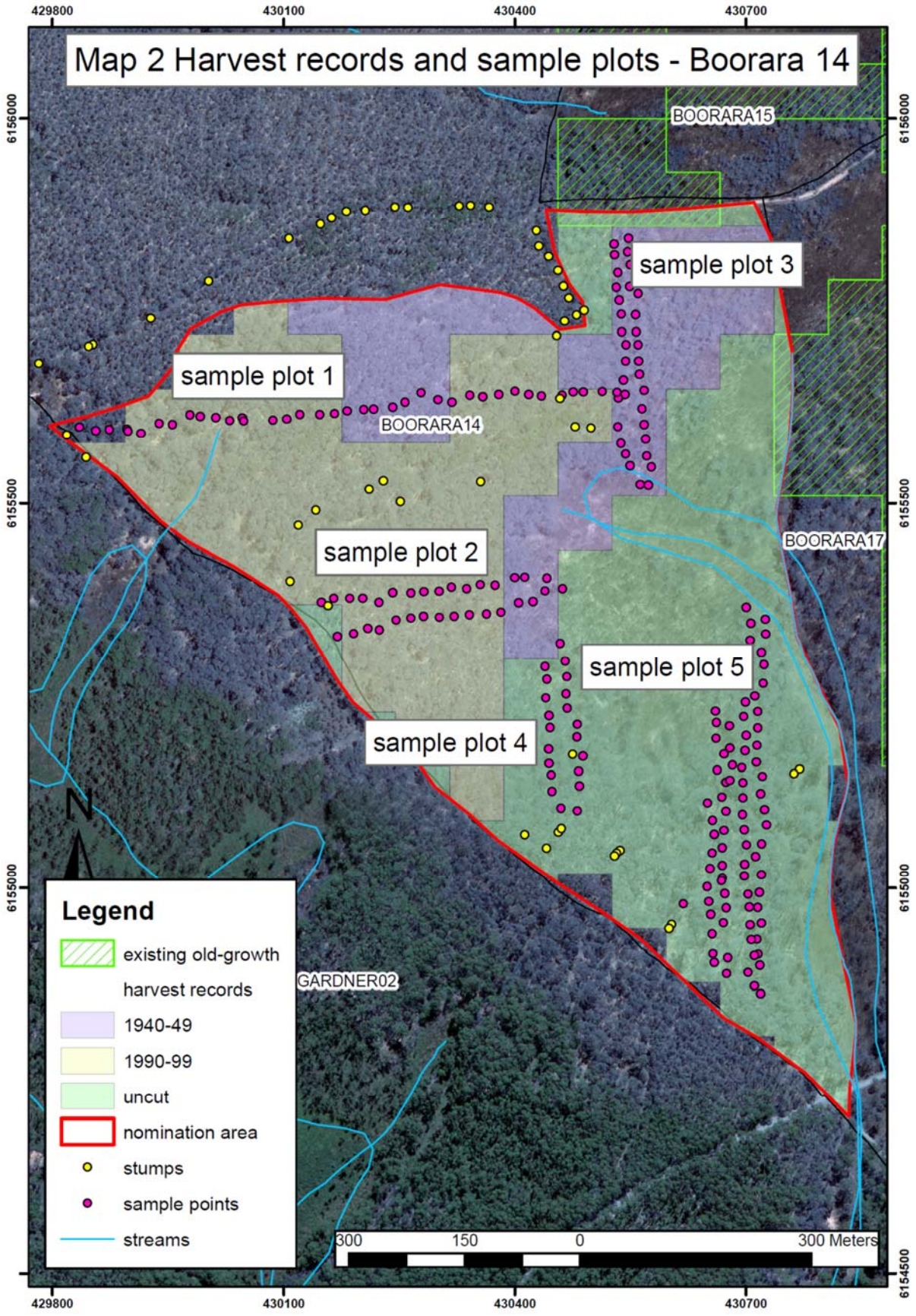
The 25 hectares identified as additional old-growth forest (Map 1) will be added to the old-growth forest layer and will not be available for timber harvesting.

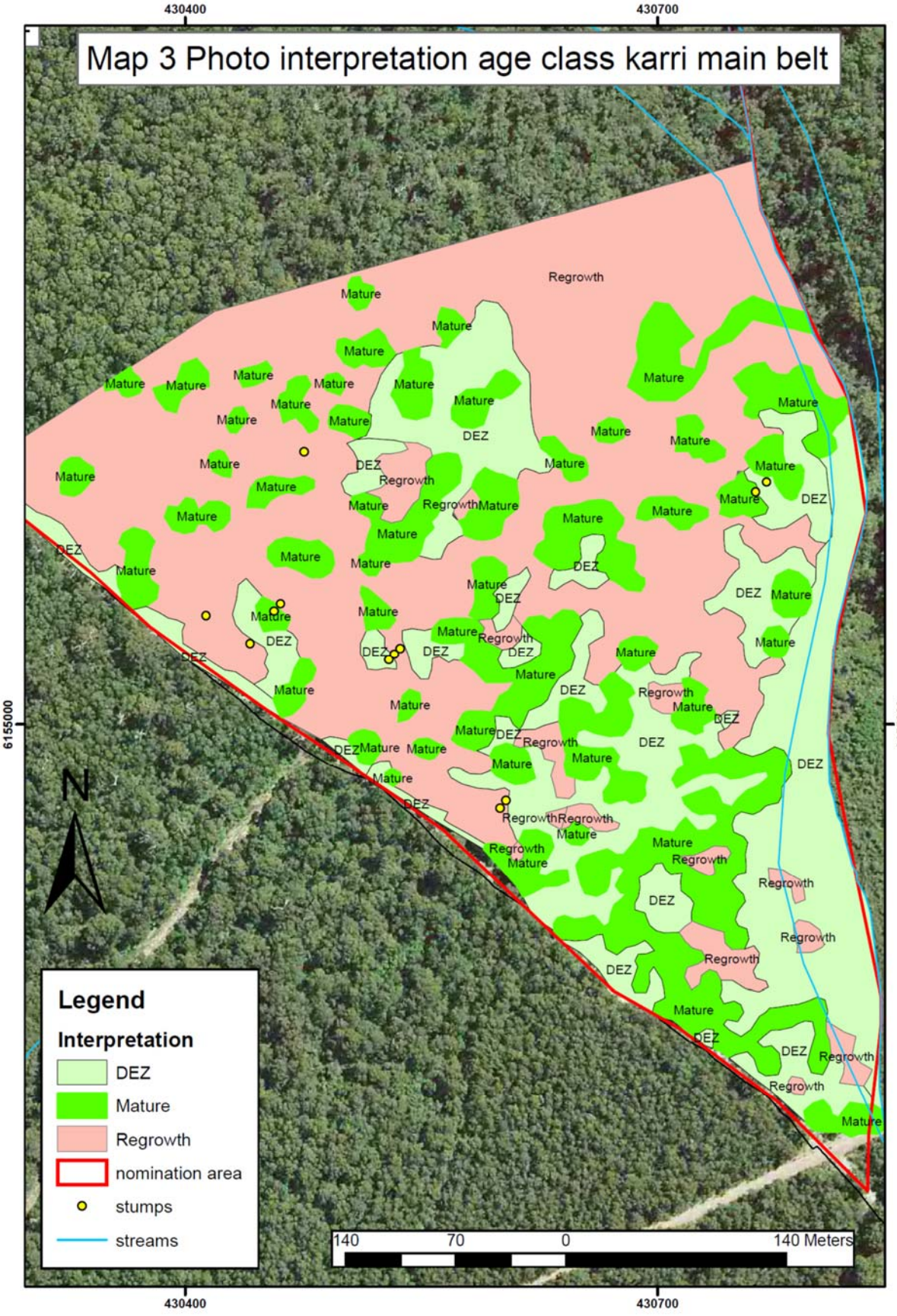
The breakdown of old-growth by forest type is as follows:

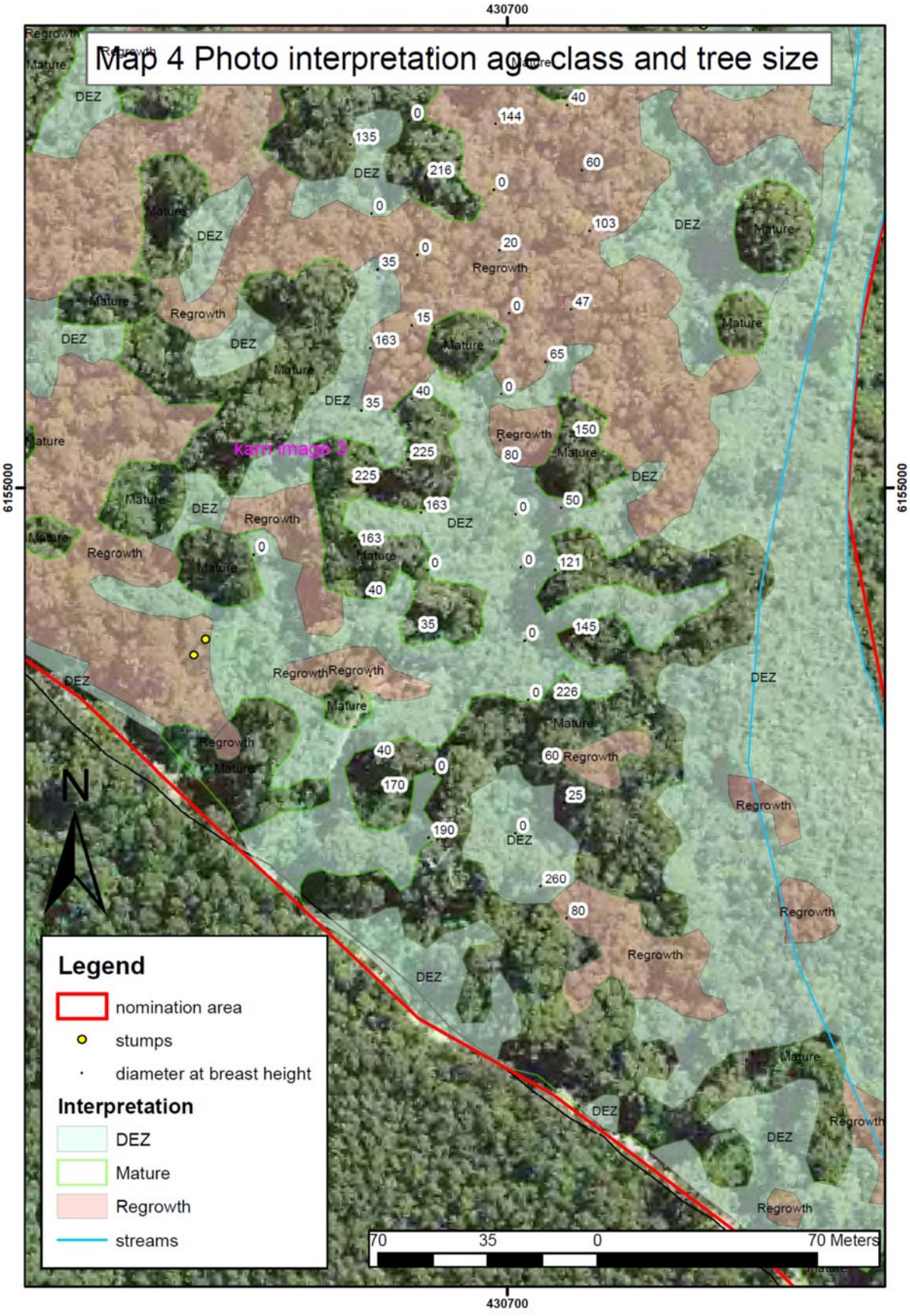
- Approximately 5 hectares of old-growth jarrah forest
- Approximately 5 hectares of old-growth jarrah woodland
- Approximately 15 hectares of old-growth karri forest

This leaves a remainder - approximately 35 hectares within the coupe that does not meet the criteria for old-growth forest and will remain available for timber harvesting. The area of old-growth has been mapped using a half-hectare grid however the actual old-growth boundary (on the ground) will need to be demarcated in the field prior to any disturbance operation.


Map 1 Additional old-growth forest Boorara 14
430100
430400
430700
6156000
6155500
6155000
jarrah forest
karri forest
jarrah woodland
karri forest
N
Legend
nomination area
streams
old-growth jarrah forest
old-growth jarrah woodland
old-growth karri forest
250
125
0
250 Meters


Map 2 Harvest records and sample plots - Boorara 14
429800
430100
430400
430700
6156000
6155500
6155000
6154500
BOORARA15
BOORARA14
BOORARA17
GARDNER02
sample plot 1
sample plot 2
sample plot 3
sample plot 4
sample plot 5
N
Legend
existing old-growth
harvest records
1940-49
1990-99
uncut
nomination area
stumps
sample points
streams
300
150
0
300 Meters


Map 3 Photo interpretation age class karri main belt
430400
430700
6155000
N
Legend
Interpretation
DEZ
Mature
Regrowth
nomination area
stumps
streams
140
70
0
140 Meters


Map 4 Photo interpretation age class and tree size
430700
6155000
karri image 3
N
Legend
nomination area
stumps
diameter at breast height
Interpretation
DEZ
Mature
Regrowth
streams
70 35 0 70 Meters

Plot 1

Sample number	Canopy	Development	Species	Diameter	Qualitative	Stumps	Disturbance	Comment
128	No	Gap	Gap	0	Gap	0		
141	Yes	Regrowth	Karri	60	Mixed	0		
127	No	Gap	Gap	0	Gap	0		
135	No	Gap	Gap	0	Gap	0	Tree head	
136	No	Gap	Gap	0	Gap	0		
140	No	Gap	Gap	0	Gap	0		
131	Yes	Mature	Karri	134	Gap	1		
130	Yes	Regrowth	Karri	35	Mixed	2		Many stumps outside plot
149	Yes	Regrowth	Karri	35	Mixed	0		
150	Yes	Regrowth	Karri	35	Mixed	0		
142	Yes	Regrowth	Karri	40	Mixed	1		
148	Yes	Regrowth	Karri	50	Mixed	0		
157	Yes	Regrowth	Karri	50	Mixed	0		Multiple pole cuts 15 30cm dbh
160	Yes	Regrowth	Karri	50	Mixed	0		
161	Yes	Regrowth	Karri	50	Mixed	0		Jarrah taking over
158	Yes	Regrowth	Karri	60	Mixed	1		Pole cutting
134	Yes	Regrowth	Karri	65	Mixed	0		
125	Yes	Regrowth	Karri	66	Mixed	0		
133	Yes	Regrowth	Karri	76	Mixed	0		
126	Yes	Senescent	Karri	223	Mixed	0		Thrown crown - dead
138	Yes	Regrowth	Karri	45	Mostly lower	0		Dead from fire
137	Yes	Regrowth	Karri	50	Mostly lower	0		Dead from fire
132	Yes	Regrowth	Karri	84	Mostly lower	1		
162	Yes	Mature	Jarrah	85	Mostly upper	0		Transitional veg jarrah dominant
156	Yes	Early mature	Karri	110	Mostly upper	0		
129	Yes	Mature	Karri	213	Mostly upper	0		
147	Yes	Regrowth	Karri	45	Mostly upper	1		
139	Yes	Regrowth	Karri	50	Mostly upper	0		
143	Yes	Regrowth	Karri	50	Mostly upper	0		
145	Yes	Regrowth	Karri	55	Mostly upper	1		
153	Yes	Regrowth	Karri	55	Mostly upper	2		Evidence of pole cuts 20cm dbh

144	Yes	Regrowth	Karri	60	Mostly upper	0		
159	Yes	Regrowth	Karri	60	Mostly upper	0		
152	Yes	Regrowth	Karri	65	Mostly upper	0		
155	Yes	Regrowth	Karri	65	Mostly upper	0		
151	Yes	Regrowth	Karri	67	Mostly upper	0		
146	Yes	Regrowth	Karri	75	Mostly upper	0		
154	Yes	Senescent	Karri	220	Mostly upper	0		

Plot 2

Sample number	Canopy	Development	Species	Diameter	Qualitative	Stumps	Disturbance	Comment
163	Yes	Regrowth	Karri	40	Mostly lower	1	0	
164	Yes	Early mature	Karri	115	Mostly upper	1	2	
165	Yes	Regrowth	Karri	50	Mostly upper	0	0	
166	Yes	Regrowth	Karri	50	Mostly upper	0	0	
167	Yes	Regrowth	Karri	50	Mixed	0	0	
168	Yes	Regrowth	Karri	45	Mixed	0	0	
169	Yes	Regrowth	Karri	55	Mostly upper	0	0	
170	Yes	Early mature	Karri	90	Mixed	0	0	
171	No	Gap	Gap	0	Gap	0	0	
172	Yes	Regrowth	Karri	40	Mixed	0	0	
173	Yes	Regrowth	Karri	45	Mostly upper	0	0	
174	Yes	Regrowth	Karri	60	Mixed	0	0	Marri jarrah coming in
175	Yes	Regrowth	Karri	55	Mixed	0	0	
176	Yes	Regrowth	Karri	35	Mostly lower	0	0	50/50 jm/k
177	Yes	Regrowth	Karri	40	Mostly lower	0	0	
178	Yes	Late mature	Marri	110	Mixed	0	0	Entering DEZ woodland
179	No	Gap	Gap	0	Mostly upper	0	0	
180	Yes	Regrowth	Karri	50	Mostly lower	0	0	
181	No	Gap	Gap	0	Gap	0	0	
182	Yes	Regrowth	Karri	45	Mixed	0	0	
183	No	Gap	Gap	0	Gap	0	0	
184	No	Gap	Gap	0	Gap	0	0	
185	No	Gap	Gap	0	Mostly upper	0	0	

186	Yes	Late mature	Karri	170	0	0	0	3 large trees 170+
187	Yes	Regrowth	Karri	35	Mixed	0	0	
188	Yes	Regrowth	Karri	50	Mostly upper	0	0	
189	Yes	Early mature	Karri	120	Mostly upper	0	0	Again 3 early mature in clump
190	No	Gap	Gap	0	Gap	0	0	
191	Yes	Regrowth	Karri	60	Mixed	0	0	
192	Yes	Early mature	Karri	125	Mostly upper	0	0	
193	Yes	Regrowth	Karri	40	Mixed	0	0	
194	Yes	Regrowth	Karri	45	Mixed	0	0	

Plot 3

Sample number	Canopy	Development	Species	Diameter	Qualitative	Stumps	Disturbance	Comment
91	No	Gap	Gap	0	Mostly lower	0	0	
92	No	Gap	Gap	0	Gap	0	0	
93	Yes	Regrowth	Jarrah	56	Mixed	0	0	
94	No	Gap	Gap	0	Mostly upper	0	0	Jarrah edge of karri regrowth
95	Yes	Regrowth	Karri	44	Mostly upper	0	0	
96	Yes	Regrowth	Karri	68	Mixed	0	0	
97	No	Gap	Gap	0	Gap	0	0	
98	Yes	Regrowth	Jarrah	43	Mixed	0	0	
99	Yes	Mature	Jarrah	81	Mostly upper	0	0	
100	Yes	Mature	Marri	76	Mostly upper	0	0	
101	Yes	Mature	Blackbutt	96	Mixed	0	0	
102	No	Gap	Gap	0	Mixed	0	0	
103	Yes	Mature	Jarrah	75	Mixed	0	0	
104	Yes	Mature	Jarrah	71	Mixed	0	0	
105	Yes	Regrowth	Jarrah	53	Mostly lower	0	0	
106	No	Gap	Gap	0	Gap	0	0	
107	Yes	Regrowth	Jarrah	43	Mostly lower	0	0	DEZ jarrah woodland here
108	No	Gap	Gap	0	Mixed	0	0	
109	No	Gap	Gap	0	Gap	0	0	
110	Yes	Regrowth	Marri	22	Mostly lower	0	0	
111	Yes	Mature	Jarrah	87	Mixed	0	0	

112	Yes	Mature	Jarrah	73	Mostly upper	0	0	
113	Yes	Regrowth	Marri	48	Mixed	0	0	
114	No	Gap	Gap	0	Gap	0	0	
115	Yes	Regrowth	Jarrah	58	Mostly upper	0	0	
116	Yes	Senescent	Marri	144	Mixed	0	0	Thrown crown alive at base
117	Yes	Mature	Jarrah	94	Mostly upper	0	0	large gnarled jarrah/marri
118	Yes	Mature	Marri	126	Mostly upper	0	0	
119	Yes	Regrowth	Jarrah	39	Mostly upper	0	0	
120	Yes	Mature	Jarrah	76	Mostly upper	0	0	
121	Yes	Mature	Jarrah	112	Mostly upper	0	0	
122	Yes	Regrowth	Marri	20	Mixed	0	0	
123	Yes	Regrowth	Jarrah	63	Mixed	0	0	
124	Yes	Regrowth	Jarrah	57	Mixed	0	0	

Plot 4

Sample number	Canopy	Development	Species	Diameter	Qualitative	Stumps	Disturbance	Comment
209	Yes	Mature	Marri	110	Mostly upper	0	0	
196	No	Gap	Gap	0	Gap	0	0	
204	No	Gap	Gap	0	Gap	0	0	
206	No	Gap	Gap	0	Gap	0	0	
200	Yes	Regrowth	Karri	30	Mixed	0	0	
207	Yes	Regrowth	Karri	35	Mixed	0	0	
210	Yes	Regrowth	Karri	50	Mixed	0	0	
203	Yes	Regrowth	Karri	65	Mixed	0	0	Mixed forest
201	Yes	Regrowth	Karri	70	Mixed	0	0	Lots wind throw many marri
202	Yes	Regrowth	Karri	90	Mixed	0	0	
199	Yes	Regrowth	Marri	35	Mostly lower	0	0	
198	Yes	Regrowth	Karri	35	Mostly lower	0	0	
205	Yes	Regrowth	Karri	45	Mostly lower	0	0	
211	No	Gap	Gap	0	Mostly upper	0	0	
214	Yes	Late mature	Marri	176	Mostly upper	0	0	
197	Yes	Late mature	Karri	138	Mostly upper	0	0	
195	Yes	Late mature	Karri	148	Mostly upper	0	0	

215	Yes	Late mature	Karri	166	Mostly upper	0	0	
213	Yes	Regrowth	Karri	45	Mostly upper	0	0	
208	Yes	Regrowth	Karri	50	Mostly upper	0	0	
212	Yes	Regrowth	Karri	70	Mostly upper	0	0	

Plot 5

Sample number	Canopy	Development	Species	Diameter	Qualitative	Stumps	Disturbance	Comment
0	Yes	Late mature	Karri	190	Mostly upper	0	0	
1	No	Gap	Gap	0	Mostly upper	0	0	
2	No	Gap	Gap	0	Gap	0	0	
3	Yes	Regrowth	Karri	35	Mixed	0	0	
4	No	Gap	Gap	0	Mixed	0	0	
5	Yes	Mature	Karri	163	Mostly upper	0	0	
6	Yes	Mature	Karri	163	Mostly upper	0	0	
7	Yes	Regrowth	Karri	40	Mosly lower	0	0	
8	Yes	Regrowth	Other	15	Mixed	0	0	
9	No	Gap	Gap	0	Gap	0	0	
10	Yes	Mature	Blackbutt	216	Mostly upper	0	0	Big Blackbutt!
11	No	Gap	Gap	0	Gap	0	0	
12	No	Gap	Gap	0	Mixed	0	0	
13	Yes	Mature	Marri	100	Mixed	0	0	
14	No	Gap	Gap	0	Mixed	0	0	
15	Yes	Mature	Karri	127	Mostly upper	0	0	
16	Yes	Regrowth	Other	25	Mosly lower	0	0	
17	Yes	Regrowth	Jarrah	30	Mixed	0	0	
18	Yes	Regrowth	Other	16	Mosly lower	0	0	
19	No	Gap	Gap	0	Gap	0	0	
20	Yes	Regrowth	Karri	87	Mixed	0	0	
21	Yes	Regrowth	Other	15	Mosly lower	0	0	
22	Yes	Mature	Karri	135	Mostly upper	0	0	
23	No	Gap	Gap	0	Mosly lower	0	0	
24	Yes	Regrowth	Karri	35	Mosly lower	0	0	
25	Yes	Mature	Karri	163	Mostly upper	0	0	

26	Yes	Early mature	Other	35	Mosly lower	0	0	
27	Yes	Late mature	Karri	225	Mostly upper	0	0	
28	Yes	Late mature	Karri	225	Mostly upper	0	0	
29	Yes	Mature	Karri	163	Mostly upper	0	0	
30	Yes	Early mature	Other	40	Mixed	0	0	
31	No	Gap	Gap	0	Gap	0	0	
32	Yes	Regrowth	Other	40	Mosly lower	0	0	
33	Yes	Mature	Karri	170	Mostly upper	0	0	
42	Yes	Regrowth	Karri	80	Mixed	0	0	
43	Yes	Regrowth	Karri	25	Mixed	0	0	
44	Yes	Regrowth	Karri	84	Mixed	0	0	
45	Yes	Late mature	Karri	226	Mixed	0	0	
46	Yes	Mature	Karri	145	Mixed	0	0	
47	Yes	Mature	Karri	121	Mostly upper	0	0	
48	Yes	Regrowth	Karri	50	Mixed	0	0	
49	Yes	Late mature	Karri	150	Mostly upper	0	0	
50	Yes	Regrowth	Karri	65	Mixed	0	0	
51	Yes	Regrowth	Karri	47	Mixed	0	0	
52	Yes	Early mature	Karri	103	Mostly upper	0	0	
53	Yes	Regrowth	Karri	60	Mixed	0	0	
54	Yes	Regrowth	Karri	40	Mixed	0	0	
55	No	Gap	Gap	0	Gap	0	0	
56	Yes	Early mature	Karri	90	Mostly upper	0	0	
57	Yes	Early mature	Karri	92	Mixed	0	0	
58	No	Gap	Gap	0	Gap	0	0	
59	Yes	Regrowth	Karri	72	Mixed	0	0	
60	Yes	Mature	Karri	131	Mostly upper	0	0	Dead or dying throughfire
61	Yes	Mature	Karri	108	Mixed	0	0	
62	Yes	Regrowth	Karri	76	Mostly upper	0	0	
63	Yes	Mature	Karri	135	Mixed	0	0	
64	Yes	Regrowth	Karri	89	Mixed	0	0	
65	No	Gap	Gap	0	Gap	0	0	
66	Yes	Mature	Jarrah	90	Mostly upper	0	0	

67	Yes	Regrowth	Karri	65	Mixed	0	0	
68	Yes	Regrowth	Karri	81	Mixed	0	0	
69	No	Gap	Gap	0	Gap	0	0	
70	Yes	Regrowth	Karri	81	Mixed	0	0	
71	Yes	Mature	Karri	132	Mixed	0	0	
72	Yes	Regrowth	Karri	70	Mostly upper	0	0	
73	Yes	Mature	Karri	131	Mostly upper	0	0	
74	Yes	Regrowth	Karri	25	Mixed	0	0	
75	Yes	Regrowth	Other	40	Mixed	0	0	
76	Yes	Mature	Marri	108	Mostly upper	0	0	
77	Yes	Mature	Marri	82	Mostly upper	0	0	
78	Yes	Mature	Marri	144	Mostly upper	0	0	Dead or dying from fire
79	No	Gap	Gap	0	Gap	0	0	
80	Yes	Regrowth	Karri	20	Mixed	0	0	
81	No	Gap	Gap	0	Gap	0	0	
82	No	Gap	Gap	0	Gap	0	0	
83	Yes	Regrowth	Karri	80	Mixed	0	0	
84	No	Gap	Gap	0	Gap	0	0	
85	No	Gap	Gap	0	Gap	0	0	
86	No	Gap	Gap	0	Gap	0	0	
87	No	Gap	Gap	0	Gap	0	0	
88	Yes	Regrowth	Karri	60	Mixed	0	0	
89	No	Gap	Gap	0	Gap	0	0	
90	Yes	Late mature	Karri	260	Mixed	0	0	