

NATIVE FOREST PROPERTY MANAGEMENT PLAN

Prepared December 2015

AMENDED SEPTEMBER 2017 – see Appendix 1

Thomas and Joy Muir

Lot 9990 and 9991 on Deposited Plan 203138

Boorara Road

Northcliffe WA 6262

1. Property Location

- 1.1. The property is located 12kilometres east of the Northcliffe town site on Lot 9990 and 9991 on Deposited Plan 203138, Boorara Road, Northcliffe WA.

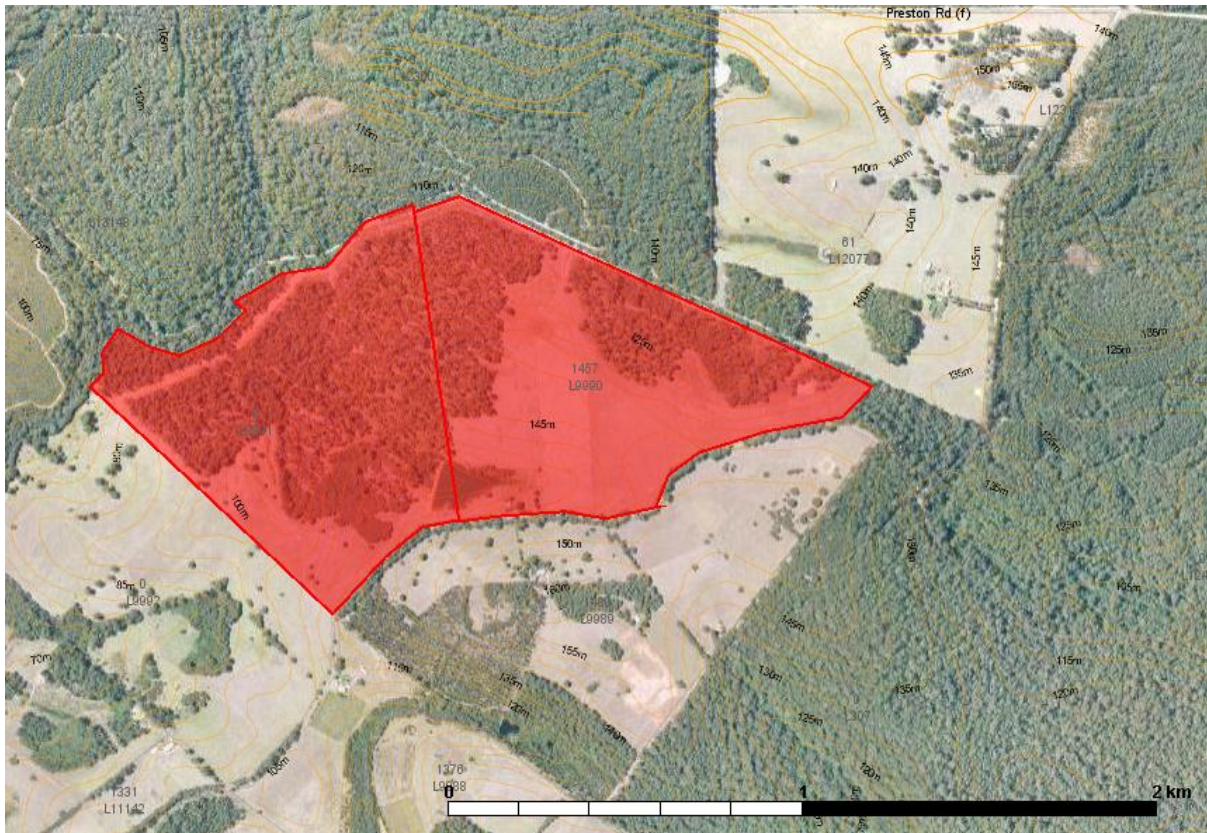
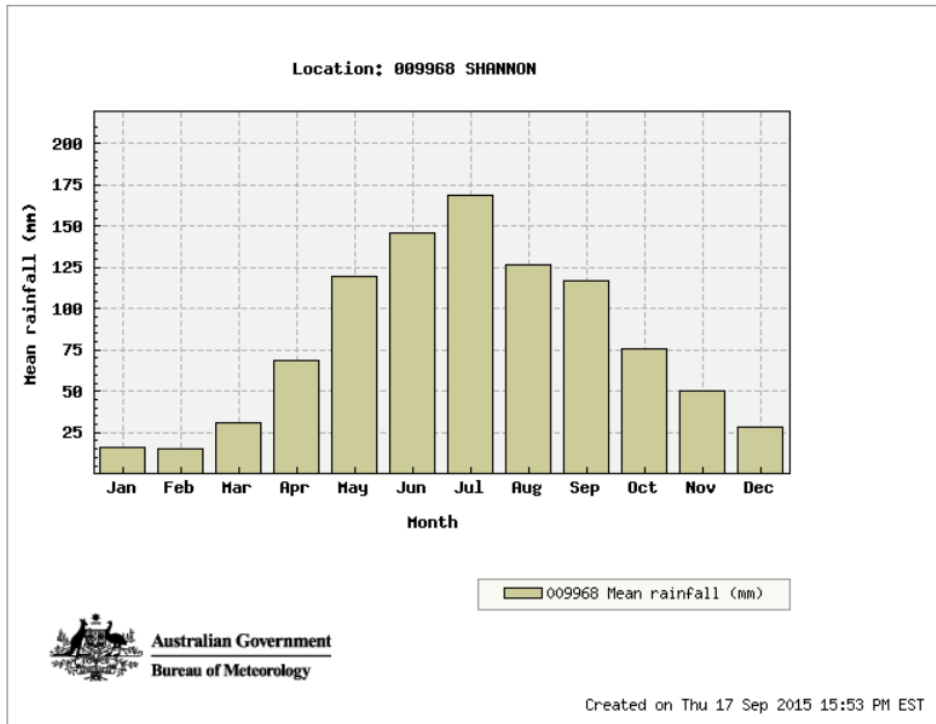


Figure 1. Aerial view of site.

2. Climate

- 2.1. The site experiences a Mediterranean type climate with a mean annual rainfall above 950 mm.



Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean rainfall (mm) for years 1996 to 2015	16.3	15.1	31.3	68.2	119.9	145.7	168.7	126.3	116.8	75.7	50.4	28.1	974.1

Table 1. Rainfall data for Shannon weather station (Bureau of Meteorology, Australian Government 2015)

3. Property Vegetation Field Assessment

The property was visited on 1/10/2015 and 22/10/15 to determine the condition and species composition of the vegetation and if high conservation values were present.

3.1. Vegetation Description and Photos

Site Description	Time Spent (minutes)	Habitat Quality
Tall open karri forest with areas of sheoak. Severely burnt 8 months ago. Up to 80% of trees with scorched canopy and epicormic shoots present. Shrub layer currently dead/absent. Regeneration of understorey species occurring, currently isolated to scattered, with <i>Lepidosperma</i> , bracken and <i>Trymalium</i> dominant. Some areas of pasture weeds and thistles, some tree ferns in creekline but no major weed issues noted at this stage.	80	Good - Degraded

Keighery Vegetation Condition Scale

Good – Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it.

Degraded I – Basic vegetation structure severely impacted by disturbance. Scope for regeneration only with intensive management. Scarce or no regeneration.

Degraded II (Very Degraded) – Structure no longer intact, Almost completely without native species. “Parkland cleared”, weeds or crops with isolated native trees or shrubs, no regeneration

Completely Degraded / Alienated – Complete absence of native plant species

From Casson et al (2009)







3.2. Threatened Species Assessment

The following potential threatened species were identified by a desktop search from both the Protected Matters Search Tool and within a 5km radius by NatureMap.

	Class	Scientific Name	Common Name	Observed (Y/N)	Likelihood of Occurrence within the plantation
1	Bird	<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	N	Transient
2	Bird	<i>Calyptorhynchus latirostris</i>	Carnaby's Black Cockatoo	N	Transient
3	Bird	<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black Cockatoo	N	Transient
4	Bird	<i>Botaurus poiciloptilus</i>	Australasian bittern	N	Nil
5	Bird	<i>Ardea alba</i>	Great Egret/White Egret	N	Transient
6	Bird	<i>Ardea ibis</i>	Cattle Egret	N	Transient
7	Bird	<i>Apus pacificus</i>	Fork-tail Swift	N	Transient
8	Bird	<i>Merops ornatus</i>	Rainbow Bee-eater	N	Transient
9	Bird	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	N	Transient
10	Bird	<i>Motacilla cinerea</i>	Grey Wagtail	N	Nil
11	Bird	<i>Pandion haliaetus</i>	Osprey	N	Transient
12	Fish	<i>Nannatherina balstoni</i>	Balston's Pygmy Perch	N	Nil
13	Mammal	<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	N	Transient
14	Mammal	<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	N	Transient
15	Mammal	<i>Setonix brachyurus</i>	Quokka	N	Transient
16	Fish	<i>Galaxiella munda</i>	Western Mud Minnow	N	Nil
17	Fish	<i>Nannatherina balstoni</i>	Balston's Pygmy Perch	N	Nil

18	Plant	<i>Kennedia glabrata</i>	Northcliffe Kennedia	N	Nil
19	Plant	<i>Sphenotoma drummondii</i>	Mountain Paper-heath	N	Nil
20	Plant	<i>Drakaea micrantha</i>	Dwarf Hammer Orchid	N	Nil
21	Plant	<i>Caladenia winfieldii</i>	Majestic Spider Orchid	N	Nil
22	Plant	<i>Myriophyllum trifidum</i>		N	Nil
23	Plant	<i>Kennedia glabrata</i>	Northcliffe Kennedia	N	Nil
24	Plant	<i>Actinotus repens</i>		N	Low
25	Plant	<i>Gonocarpus simplex</i>		N	Low
26	Plant	<i>Lomandra ordii</i>		N	Low

High – Areas of suitable habitat within DFA; Good connectivity to more areas of suitable habitat; A number of recent (<20years) records of species in area

Moderate – Some areas of suitable habitat; Suitable habitat in vicinity of property; Some recent records of species in area

Low – No or very little suitable habitat within DFA; Suitable habitat may occur in vicinity of property; Very few or old records of species in area

Nil – No suitable habitat within DFA in any case; No recent records of species in immediate area

Transient – Areas in DFA not suitable for permanent residence, however species may spend some there in activities such as foraging.

3.3. List of Flora

	Family	Scientific Name	Common Name	Conservation Status
Trees				
1	Casuarinaceae	<i>Allocasuarina decussata</i>	Karri Sheoak	Not Threatened
2	Myrtaceae	<i>Agonis flexuosa</i>	Peppermint	Not Threatened
3	Myrtaceae	<i>Corymbia calophylla</i>	Marri	Not Threatened
4	Myrtaceae	<i>Eucalyptus diversicolor</i>	Karri	Not Threatened
5	Myrtaceae	<i>Eucalyptus patens</i>	Swan River Blackbutt	Not Threatened
Shrubs				
6	Cyatheaceae	<i>Cyathea cooperi</i>	Rough Tree Fern	Alien
7	Dilleniaceae	<i>Hibbertia cuneiformis</i>	Cutleaf Hibbertia	Not Threatened
8	Elaeocarpaceae	<i>Tremandra stelligera</i>		Not Threatened
9	Fabaceae	<i>Bossiaea aquifolium</i>	Water Bush	Not Threatened
10	Fabaceae	<i>Genista monspessulana</i>	Montpellier Broom	Alien
11	Fabaceae	<i>Hovea elliptica</i>	Tree Hovea	Not Threatened
12	Rhamnaceae	<i>Trymalium odoratissimum ssp. trifidum</i>	Karri Hazel	Not Threatened
13	Rubiaceae	<i>Opercularia hispidula</i>	Hispid Stinkweed	Not Threatened
14	Thymelaeaceae	<i>Pimelea clavata</i>		Not Threatened
15	Zamiaceae	<i>Macrozamia riedlei</i>	Zamia	Not Threatened
Herbs, Sedges, Grasses, Climbers				
16	Apiaceae	<i>Xanthosia candida</i>		Not Threatened
17	Apocynaceae	<i>Vinca major</i>	Blue Periwinkle	Alien
18	Asteraceae	<i>Arctotheca calendula</i>	Capeweed	Alien
19	Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle, Scotch Thistle	Alien
20	Asteraceae	<i>Lagenophora huegelii</i>	Coarse Lagenophora	Not Threatened
21	Asteraceae	<i>Senecio minimus</i>	Toothed Fireweed	Not Threatened
22	Asteraceae	<i>Taraxacum officinale</i>	Dandelion	Alien
23	Campanulaceae	<i>Lobelia anceps</i>	Angled Lobelia	Not Threatened
24	Caryophyllaceae	<i>Petrorhagia dubia</i>	Velvet Pink	Alien
25	Cyperaceae	<i>Lepidosperma effusum</i>	Spreading Sword Sedge	Not Threatened
26	Cyperaceae	<i>Lepidosperma tetraquetrum</i>	Square Sedge	Not Threatened
27	Dennstaedtiaceae	<i>Hypolepis rugosula</i>		Fern
28	Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken	Not Threatened
29	Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	Not Threatened

30	Fabaceae	<i>Hardenbergia comptoniana</i>	Native Wisteria	Not Threatened
31	Fabaceae	<i>Lotus uliginosus</i>	Greater Lotus	Alien
32	Fabaceae	<i>Trifolium sp.</i>	Clover	Alien
33	Goodeniaceae	<i>Scaevola calliptera</i>	Royal Robe	Not Threatened
34	Haemodoraceae	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw	Not Threatened
35	Orchidaceae	<i>Disa bracteata</i>	South African Orchid	Alien
36	Orobanchaceae	<i>Orobanche minor</i>	Lesser Broomrape	Alien
37	Oxalidaceae	<i>Oxalis corniculata</i>	Yellow Wood Sorrel	Alien
38	Poaceae	<i>Avena barbata</i>	Bearded Oat	Alien
39	Poaceae	<i>Briza minor</i>	Shivery Grass	Alien
40	Poaceae	<i>Poa annua</i>	Wintergrass	Alien
41	Primulaceae	<i>Lysimachia arvensis</i>	Pimpernel	Alien
42	Ranunculaceae	<i>Ranunculus colonorum</i>	Common Buttercup	Not Threatened
43	Stylidiaceae	<i>Levenhookia pusilla</i>	Midget Stylewort	Not Threatened
44	Stylidiaceae	<i>Stylidium rhynchocarpum</i>	Black-beaked Triggerplant	Not Threatened
45	Violaceae	<i>Hybanthus debilissimus</i>		Not Threatened

Conservation Status (Western Australia) from Florabase

3.4. List of Fauna

	Class	Scientific Name	Common Name	Conservation Status
1	Bird	<i>Anthochaera carunculata</i>	Red Wattlebird	Not Threatened
2	Bird	<i>Barnardius zonarius</i>	Australian Ringneck (Twenty-eight Parrot)	Not Threatened
3	Bird	<i>Corvus coronoides</i>	Australian Raven	Not Threatened
4	Bird	<i>Gerygone fusca</i>	Western Gerygone	Not Threatened
5	Bird	<i>Gymnorhina tibicen</i>	Australian Magpie	Not Threatened
6	Bird	<i>Platycercus icterotis</i>	Western Rosella	Not Threatened
7	Bird	<i>Pomatostomus superciliosus ashbyi</i>	White-browed Babbler	Not Threatened
8	Bird	<i>Rhipidura albiscapa</i>	Grey Fantail	Not Threatened

4. Management History

- 4.1. Overstorey vegetation consists predominantly of mature thinned *Eucalyptus diversicolor* (karri) regrowth forest with some areas of *Eucalyptus marginata* (jarrah) and *Corymbia calophylla*.
- 4.2. The forest was thinned in the 1990's. The Northcliffe Fire of 2015 has considerably damaged the standing trees. Many have completely denuded crowns, some crowns are partially destroyed, others have epicormic growth from the crown and bole.
- 4.3. Grazing has generally been excluded from the forest area, however, the understorey is almost non-existent after the fire, although it is expected to recover.
- 4.4. There is no evidence of weed invasion.

5. Owner's Management Objectives

- 5.1. To thin live healthy standing trees.
- 5.2. To remove fire damaged trees with little to no crown foliage to allow the karri forest to regenerate without impacting nature conservation values.
- 5.3. To remove a section of peppermint thicket and replant to karri.

- 5.4. To maintain wildlife habitat and water quality.
- 5.5. Retain more mature trees as a rate of two per hectare where present for habitat retention.

6. Silvicultural Thinning Prescription

- 6.1. The proposed area for thinning is approximately 10 ha.
 - 6.1.1. Thin from below, retaining trees in the dominant to co-dominant class, for potential future sawlogs.
 - 6.1.2. Retain approximately 14-16 m²/ha basal area where thinning is possible.
- 6.2. Clear areas for natural karri forest regeneration where fire damage is present, for example denuded crowns and epicormic growth.
- 6.3. Retain habitat trees at a rate of 2 trees per hectare where present.
- 6.4. Current tree height approximately 40 metres.

7. Harvesting

- 7.1. All harvesting equipment is to be cleaned of soil and vegetation prior to entering and leaving the area to be harvested.
- 7.2. Harvesting operations to be conducted during dry soil conditions to avoid soil compaction and rutting, and the movement of soil in wet conditions.
- 7.3. Restrict the movement of machines and other vehicles to the areas to be harvested.
- 7.4. Exclude all stock from the area of the harvesting operation.
- 7.5. Avoid damage to retained crop trees and remove tops debris from the around the base of retained trees.
- 7.6. Following the completion of harvest, water off shoot drains to be constructed as required across extraction tracks at the following spacing;

Spacing of drains	Slope of Land
100m	3.5°
50m	6° - 10°
30m	11° - 20°
15m	over 20°

- 7.7. Landing sites to be ripped to allow natural regeneration
- 7.8. All boundaries and water courses captured using GPS
- 7.9. No harvesting within 30 m of the riparian vegetation of any watercourse or wetland.

8. Fire Management

- 8.1. A post-harvest burn may be required to remove some of the debris resulting from harvesting. The Northcliffe Fire has already removed accumulated forest fuels.

9. Monitoring and Record Keeping

- 9.1. Records kept to demonstrate minimum basal area retention;
- 9.2. Visual monitoring of soil damage;
- 9.3. Records kept to demonstrate tops disposal from the base of retained stems;
- 9.4. Habitat trees retained and with GPS location recorded;
- 9.5. GPS mapping of the clearing and thinning boundary and location of habitat trees, including regular sampling of retained basal areas will be carried out either during or at the completion of the operation.
- 9.6. Records of utilisation of forest produce.
- 9.7. Determine the species composition, structure and density of the understorey of areas subject to thinning within twelve months of the completion of the harvesting operation

10. Permit/Licence Applications

- 10.1. Permits and Licences required from the Department of Parks and Wildlife;
 - Clearing Permit
 - Commercial Producer's Licence
 - Application for an Owner's Identification Code.

11. Appendix 1 - Photos September 2017

Appendix 1 – Photos September 2017

