

RYAN FOREST MANAGEMENT PLAN

DEPARTMENT of WATER

Plan prepared by Rose and Bending Forest Services

October 2010

The Department of Water manages a number of land parcels in key water catchments throughout the State.

Ryan Forest is part of this estate. The management objectives for these blocks is to preserve, protect and, where practical, enhance water resource values associated with the land for potential future water source utilisation, and where compatible with this objective, to manage native vegetation and plantations in an ecologically sustainable manner to provide forest and timber produce to help to offset land management costs.

GENERAL

Ryan Forest is a predominantly high quality Jarrah, Marri and Blackbutt regrowth forest, situated approximately one kilometre east of the Palgarup townsite, being approximately 180 hectares in size.

It is bisected by the Wilgarup River, which flows approximately NE to SW through the property. A major powerline easement runs N to S through the eastern portion of the forest. There are no other internal access roads, and external boundary access is overgrown and not trafficable.

The backwaters of a large irrigation dam on the Wilgarup River directly downstream of the property have encroached for a considerable distance into Ryans, and several hectares of land is inundated.

The landform is undulating, with some steep, slopes adjacent to the Wilgarup. These areas are generally south facing, have granite outcrops and shallow soils, which are drought prone.

The remainder comprises well structured gravel loam soils, which are suited to the development of predominantly high quality Jarrah and Blackbutt forests.

The forest appears largely free of Dieback (*phytophthora cinnamomi*).

There are several areas where invasive feral species are present, including Blackberry, *Acacia* sp and *pinus* sp.

The property has a varied fire history, with a mosaic of age classes, but generally the majority of the forest appears to have burnt less than ten years ago.

FOREST DESCRIPTION

The forest growing on Ryan is predominantly a regrowth stand, having developed from past harvesting operations, probably as early as the 1920's, and with some more recent, localised tree removal, particularly in the SE corner, as late as the 1970's. There is no evidence in the form of stumps, access roads or snig tracks of broader scale harvesting during the last 50 -60 years.

Forest composition is largely defined by soil types. The majority of the site comprises well structured gravel loam soils, with good moisture retention characteristics. On these soil types species include Jarrah (*E marginata*), Blackbutt (*E patens*), with some Marri (*C callophylla*).

Heavier loam soils adjacent to watercourses support a greater incidence of Blackbutt and Marri, including some areas where large mature trees are present.

Immediately adjacent to watercourses species include Flooded gum (*E rudis*) and banksia sp (*littoralis*, *grandis*).

Forest structure is largely medium density regrowth stands, with scattered overstorey of larger dominants, particularly on lower slopes associated with heavy soils, where large trees of lesser commercial value (over mature blackbutt and Marri) exist.

Jarrah is the dominant species over the majority of the site, and although it exists in pure stands, it is mostly associated with blackbutt.

There are large areas where the forest supports trees of a commercially viable size for use as sawlogs.

The forest is generally of high quality and healthy.

ACCESS

The site has generally poor access, with boundary tracks largely overgrown, and no internal tracks. Access to various parts of the site can be reached via neighbouring properties. A large powerline crosses the site in the eastern portion, running NS and access along this transect is good.

In order to facilitate ongoing management, particularly prescribed burning, invasive weed management and timber harvesting, access development is required. (see attached Silvics plan).

INVASIVE WEEDS

There are a number of invasive weed species present on site, including Blackberry (Declared noxious weed), Acacia and pine sp.

Blackberry is present along most watercourses, and the creation of access will allow a form of spread control to be implemented.

Acacia (most probably *A mearnsii*) is present over a wide area, and appears, given the large size of some individual trees to have been introduced several decades ago. This species can become quite invasive, responds to gap creation and disturbance, and is relatively resistant to fire. Any planned operations where overstorey will be altered / reduced (harvesting, burning) has the potential to allow this species to develop into a dominance, which will affect native species regrowth.

Attempts to control this species using cut stump / herbicide application measures should be considered with any operational planning.

Pinus sp (mostly *radiata*) is present in areas, particularly the eastern portion, in scattered groups. *Pinus* can be invasive, but is easily controlled using cut stump / herbicide application, and is generally susceptible to even mild fires.

FIRE

The site has had sporadic prescribed burning carried out during the last 10 years. Given the lack of internal access, most burning has been simply attempted from adjoining farmland, and allowed to burn into the interior, with generally useful results, from a fuel reduction perspective.

There were no significant areas of heavy fuel loading noted.

The creation of internal access will allow the site to be broken into manageable portions which will allow prescribed burns to be conducted in a more timely and controlled fashion.

Plans for fuel reduction burning should be considered in conjunction with any planned harvest operations to allow debris reduction and promote regrowth post harvesting. (See attached Silvics plan).

RARE FLORA

There is no Declared Rare Flora on the register for this or adjoining areas. However a thorough search of potential rare species that could be present on site should be undertaken. If the potential for species to be present is identified, a field survey should be undertaken prior to any planned operations, including access upgrade, harvesting and burning.

DIEBACK MANAGEMENT

Jarrah Dieback (*phytophthora cinnamomi*) is a soil borne fungal disease, readily spread by the movement of moist soil adhering to vehicles and machinery. Once present it can adversely affect plant communities, by infecting feeder root systems, resulting in the death of the plant. On some sites it will also affect overstorey species, including Jarrah.

Often presence of the disease on site can be noted and mapped by the incidence of deaths among some susceptible understorey species.

Introduction of the disease onto the site can be controlled by adopting hygiene measures to reduce the threat of introduction, primarily via vehicles.

Control measures can include vehicle washdown points, access control and dry soil only entry. Alignment of internal roads low in the topographical profile will limit spread in the event of introduction, as the disease is spread downslope with soil moisture. Hygiene practices in harvesting and roading operations are well understood and practised in WA, and should be implemented.

At present the site appears dieback free, and a thorough search to identify the presence of the disease should be undertaken prior to any planned operation.

SILVICULTURE MANAGEMENT PLAN

The forest type and structure present on Ryan is generally Jarrah, Marri and Blackbutt regrowth, resulting from past harvesting operations, mainly during the 1920 's.

Some areas of large individual trees are present, mainly blackbutt and Marri, where these trees were considered not to be commercially valuable at the time of last harvest.

Regrowth areas contain stands of pure Jarrah, and pure blackbutt in smaller areas, with generally a mix of both species.

There are considerable volumes of timber available for harvest that meet current sawlog standards.

An estimate, based on visual assessment only suggests available volumes approximating 30 m³ / ha of combined sawlog species.

With the exception of two steep slope areas, both on the North bank of the Wilgarup, and exclusion zones along the river and watercourses, the forest is generally available for harvesting.

The areas north of the Wilgarup, without significant road construction will need to be accessed via adjoining private property, with the balance accessible via adjacent in forest and shire roads that already exist.

HARVEST OPERATION TYPE

The forest can be broadly separated into three main classes, that can be treated differently in terms of harvest and regeneration.

1. Jarrah / Blackbutt / Marri regrowth (pole) stands. The stands are typically some of the highest quality present, and contain well stocked stands of pole type trees, exhibiting good form and vigour.
Height ranges for co dominant stems is 30 – 40 m, with standing basal areas ranges of 35 to 50 m² / ha.
Harvesting on these stands will aim to retain 18 m² / ha of future crop trees exhibiting dominant or co dominant status, good form and vigour and crown structure.
These trees will be identified prior to harvest to ensure protection from damage.
A post harvest burn of low intensity will aim to remove harvest debris, whilst aiming to minimise potential damage to retained crop trees.
2. Jarrah / Blackbutt / Marri regrowth stands, displaying considerable variability in individual stem sizes, with some larger stems present.
These stands contain perhaps the highest standing yields of sawlogs currently available.
Height class ranges from 30 – 45 m, with basal areas of 28 – 40 m² / ha.
These stands are often associated with well drained gravel / loam soils, and appear to have healthy levels of lignotuber stockings present, which will ensure successful regeneration post harvest.
Harvest type on these stands will aim to retain groups and individual trees exhibiting good form, vigour and crown development, as future crop trees. A retained basal area of 15 m² / ha of crop trees will be identified, and protected during harvest.
Gap creation, by removing merchantable trees during the harvest operation, will allow for the development of lignotubers, and seedlings to develop post harvest.
A moderate intensity post harvest burn will remove debris levels, and enhance regrowth.

3. Marri / blackbutt / jarrah massed stands. These areas, largely on moisture gaining sites, adjacent to watercourses, have a range of tree sizes, with some large individual stems. It would appear that some large trees were retained during previous operations as they were not commercially viable at that time. Given that some of these stems are over mature, and exhibit defects, along with Marri, which is generally not saleable, these trees remain of no commercial value for timber today.

These stands contain trees with heights to 40 – 45 m, and are currently stocked with basal area ranges from 28 – 40 m² / ha.

The remaining large stems are important refuges for fauna, and as a source of seed for any gaps created by harvesting. Generally these sites are associated with heavier loams and lignotuber stocking (jarrah) is not as prevalent.

Harvest operations should aim to retain 15m² / ha of tree cover, and where possible stems that have value as seed trees to facilitate restocking of gaps.

A post harvest burn of moderate intensity will aim to remove post harvest debris, and encourage seed drop.

Common to each silvicultural prescription will be the retention of suitable trees for fauna habitat value. These trees will be retained at five trees per hectare, and protected from damage during the harvest and post harvest burn process.

DIEBACK HYGIENE

Any planned harvest / roading operation will need to carefully consider the prevention of introduction, or prevention of spread if present, of dieback.

Affected soil transported by vehicles and machinery will be the most likely source of introduction, and control measures will need to include; Dry soil only operations (probably the most effective).

Machinery cleandowns (necessary for preventing soil adhering to earthmoving plant).

Micro catchment hygiene management, to ensure that spread can be limited within confined areas.

Ensuring affected areas are harvested separately.

Hygiene barriers at landings and harvest cell / road interface.

Prior to any operations occurring, a thorough dieback mapping exercise must be conducted to identify affected areas, and allow planning of roading / harvesting to suit.

ROADING

Construction of access roads should be planned to allow for cost effective removal of log timber, but also to facilitate future management, including burning, protection of sensitive areas, and reduce impact of accidental introduction of dieback.

Construction of roads to unsealed forest track status (4 -5 m width) will allow intended operations, if planned for dry soil (summer).

Consideration should be given to controlling access into Ryans on these roads to prevent dieback introduction by gates or physical barriers.

Appendices.

1. Site Map, Ryan Forest.

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RYANS DOW

1. J / Bbt REGROWTH STAND

2. J / M / Bbt STAND

3. J / M / Bbt MASSES STAND

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Proposed Access Tracks.

Steep Slopes

Widgeeup and First Order Streams

Ryan bush block

97712955
0408941236

LOT 27 IN PARCEL 15077
LOCAL GOVERNMENT DISTRICT OF
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LOCAL GOVERNMENT DISTRICT OF

access



