



Government of **Western Australia**
Department of the **Premier and Cabinet**

Perth and Peel Green Growth Plan for 3.5 million

Strategic Assessment of the Perth and Peel Regions

Draft Action Plan E: Harvesting of pines and post-harvesting land use

December 2015

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Abbreviations

Abbreviation	Description
BRM	Basic Raw Materials
CCW	Conservation Category Wetlands
CCWA	Conservation Commission of Western Australia
DER	Department of Environment Regulation
DMP	Department of Mines and Petroleum
DoP	Department of Planning
DoW	Department of Water
EPA	Environmental Protection Authority
EPBC	Environmental Protection and Biodiversity Conservation
FPC	Forest Products Commission
ha	hectares
LVL	Laminated Veneer Lumber
MNES	Matters of National Environmental Significance
Parks and Wildlife	Department of Parks and Wildlife
PECs	Priority Ecological Communities
TECs	Threatened Ecological Communities
OEPA	Office of the Environmental Protection Authority
WAPC	Western Australian Planning Commission

1 Introduction

1.1 OVERVIEW OF THIS ACTION PLAN

This Action Plan has been prepared in the context of the Strategic Assessment of the Perth and Peel Regions (Strategic Assessment) that has been undertaken by the Western Australian Government under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Strategic Assessment addresses the impacts on matters of national environmental significance (MNES) and State environmental values from future development of the Perth and Peel regions, including urban, industrial, rural residential and infrastructure development, harvesting of pines and basic raw materials (BRM) extraction.

This Action Plan provides guidance on the implementation of the Harvesting of Pines Class of Action. It describes the future land uses for the Gngangara, Pinjar and Yanchep pine plantations situated over the Gngangara Mound within State Forest 65 and the on-going land use and management of the area post-harvest. It also describes the enabling legislative and planning framework which will ensure that development occurs in a sustainable way whilst supporting future growth. Where necessary, regulation, policies and processes will be revised or developed in order to implement this Action Plan and facilitate effective delivery of the objectives and commitments set out in *Strategic Conservation Plan for the Perth and Peel Regions* (Strategic Conservation Plan). Until such time, existing regulatory and policy mechanisms will continue to apply.

The Action Plan will be reviewed every five years and updated to reflect any changes while continuing to deliver the objectives and commitments set out in the Strategic Conservation Plan.

1.2 RELATIONSHIP TO THE STRATEGIC CONSERVATION PLAN

A key output of the EPBC Act strategic assessment process is the endorsement of a “Plan, Program or Policy” by the Commonwealth Minister for the Environment. The “Plan, Program or Policy” is the document that sets out the commitments that the State will deliver to protect MNES in the Strategic Assessment Area and enable development to be approved.

As part of progressing the Strategic Assessment, a single plan has been developed that addresses both MNES and State environmental values – the Strategic Conservation Plan. The Plan includes:

- the conservation outcomes, objectives and commitments that will be endorsed, and the classes of action that will be approved, by the Commonwealth Minister for Environment under the EPBC Act strategic assessment process; and
- the commitments for State environmental values as relevant to the EPA’s advice under section 16(e) of the *Environmental Protection Act 1986* (EP Act).

As part of the Strategic Conservation Plan, a series of Action Plans have been developed to assist with implementation of the Strategic Conservation Plan. The Structure of the Strategic Conservation Plan and the supporting Action Plans are shown in Figure 1-1.

1.3 RELATIONSHIP TO STRATEGIC PLANNING FOR THE PERTH AND PEEL REGIONS

The Strategic Assessment has been progressed in consideration of major planning frameworks for the Perth and Peel regions.

Western Australia (WA) has a population of over 2.57 million people (Australian Bureau of Statistics 2014). Of this number, more than 2 million live in the Perth and Peel regions, which are located within one of the world's 35 biodiversity hotspots. As a strategic approach to long-term urban planning, the Department of Planning (DoP) and the Western Australian Planning Commission (WAPC) in 2010 released *Directions 2031 and Beyond – Metropolitan Planning Beyond the Horizon* (Directions 2031) which is a high level strategic plan and associated spatial framework to guide development policy and planning to accommodate an additional half a million people by 2031. It outlines a vision for future land uses and a more liveable, prosperous, connected and sustainable community.

To realise the vision encompassed in Directions 2031, the WAPC has developed a series of detailed draft sub-regional planning frameworks with a unified, long-term growth strategy for land use and infrastructure required to support a population of 3.5 million in the Perth and Peel regions. This series of draft planning frameworks, titled *Perth and Peel@3.5million*, was released for public consultation in May 2015 and includes:

- *Draft North-West Sub-regional Planning Framework.*
- *Draft North-East Sub-regional Planning Framework.*
- *Draft Central Sub-regional Planning Framework.*
- *Draft South Metropolitan Peel Sub-regional Planning Framework.*

It is intended that once finalised, these draft sub-regional planning frameworks will support the projected growth of the Perth and Peel regions in a sustainable manner.

The Strategic Conservation Plan is complementary to the draft sub-regional planning frameworks and provides alignment across government on a land use plan to support the growth of the Perth and Peel regions to 3.5 million people.

1.4 STRUCTURE OF THIS DOCUMENT

The structure of this document is as follows:

Sections 2 and 3 provide a detailed description of the harvesting of pines, post-harvest land use, implications for groundwater recharge, Carnaby's cockatoo habitat and BRM extraction.

Section 4 describes the management and uses of the Gngangara, Pinjar and Yanchep plantation areas, including a description of the legislative and planning framework that manages pines harvesting.

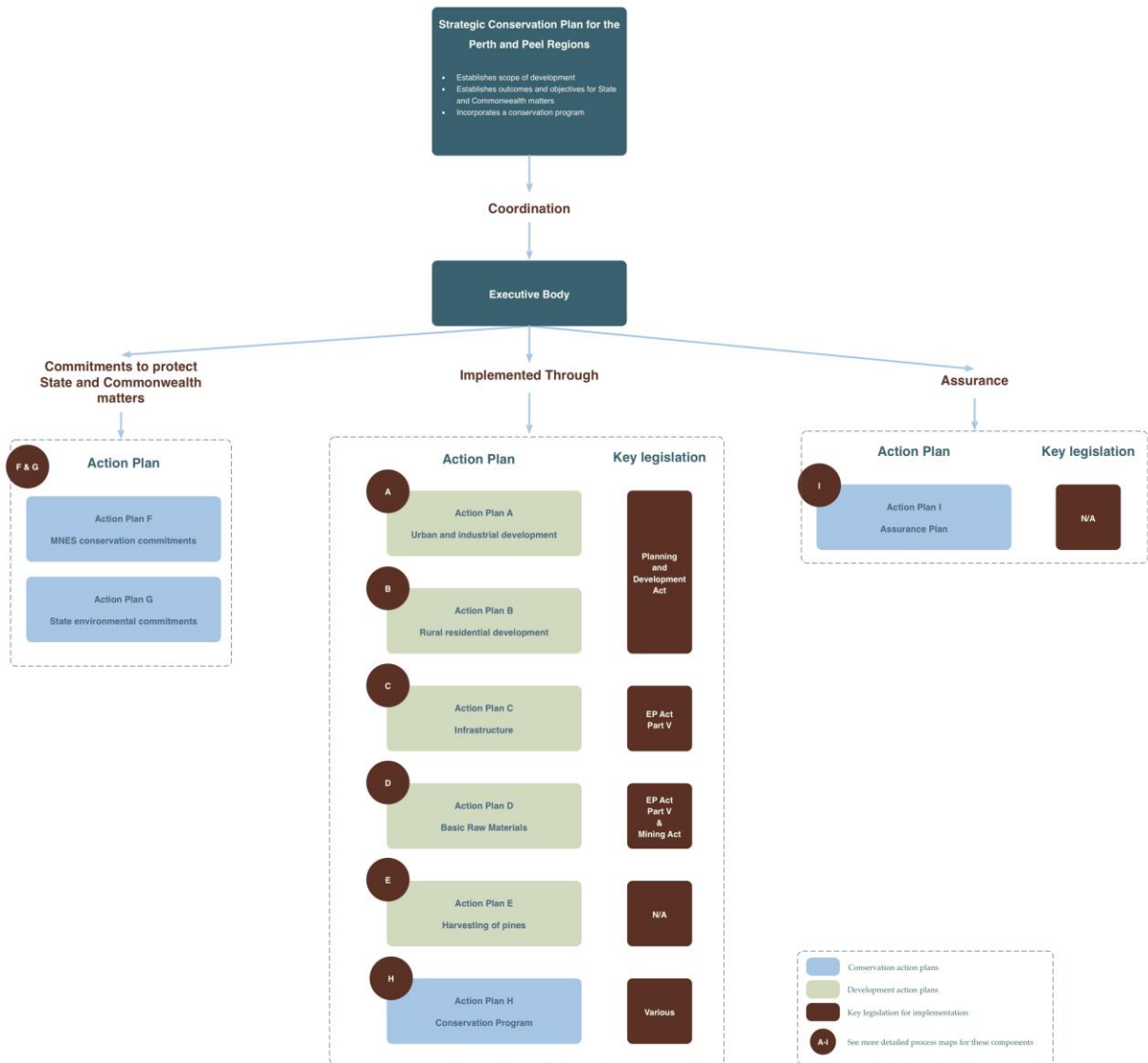


Figure 1-1: Structure of the Strategic Conservation Plan and the supporting action plans

2 Background to the development of this Action Plan

The Gnangara, Pinjar and Yanchep pine plantations occur within State Forest 65. They were established between 1932 and 1994 for the purpose of timber production.

The area is vested with the Conservation Commission of Western Australia (CCWA) and managed by the Department of Parks and Wildlife (Parks and Wildlife) on behalf of the CCWA. The Forest Products Commission (FPC) has harvesting rights to the land for the period that commercial pine is present.

In 1996, the State Government decided to remove up to 23,000 hectares (ha) of pines at the Gnangara, Pinjar and Yanchep plantations and not replace them in order to increase water recharge on the Gnangara Mound. Water recharge to the Gnangara Mound, and hence groundwater supply, is important for almost half of the public drinking water supply in Perth as well as for supporting groundwater dependent ecosystems. Removing the pines was one strategy to offset the impacts of the drying climate, helping to maintain the long term productivity of the water resource, particularly meeting water needs for a population of 3.5 million.

The Gnangara, Pinjar and Yanchep pine plantations are being progressively harvested from their original extent of 23,000 ha. By 1 January 2017 there will be approximately 8,000 to 8,500 ha of plantation remaining, most of which is scheduled to be harvested by the State prior to 2020 as part of the supply of softwood under a State Agreement.

Widespread clearing of Banksia woodlands, the predominant native food source for Carnaby's cockatoo, has accelerated since 1950. Pine plantations established from the 1920s have progressively replaced Banksia woodlands as a major food source for the cockatoos in the region, mitigating some of the loss of native habitat.

It is estimated that, before the commencement of the removal of the Gnangara, Pinjar and Yanchep pine plantations, these plantations provided approximately 57 percent of the total food resource available to Carnaby's cockatoo upon the Swan Coastal Plain portion of the Strategic Assessment area. In order to avoid some of the impacts of harvesting and provide a continuous food source for Carnaby's cockatoo, 5,000 ha of pines will be replanted in the Yanchep area. Replanting commenced in 2012 at a rate of 500 ha per year.

Following the initial decision to harvest the pines, significant opportunities have been identified for the extraction of BRM such as sand from strategic locations across the Gnangara Mound. In addition, new industrial areas have been identified on the Gnangara Mound in the Economic and Employment Lands Strategy (WAPC, April 2012) and new urban expansion areas have been identified.

Under the Strategic Conservation Plan a strategic approach to the future land use of the Gnangara, Pinjar and Yanchep pine plantations has been developed which balances a multitude of competing legal and policy objectives, including demands for groundwater for public drinking water, horticulture and public open space, timber supply and State Agreement obligations, BRM supply, urban and industrial land use, foraging and roosting habitat for Carnaby's cockatoo, and other environmental values including State significant wetlands and other Commonwealth MNES.

3 Description of the Future Land Use of the Gnangara, Pinjar and Yanchep Pine Plantations

A number of land uses have been identified for the Gnangara, Pinjar and Yanchep pine plantations. 1,175 ha has been identified for future urban and industrial development. Where access is permitted, BRM extraction will take place across the area, which can be managed through sequential land use and which offers the opportunity for post-mine remediation undertaken by proponents.

In order to avoid some of the impacts of harvesting and provide some replacement food source for Carnaby's cockatoo, 5,000 ha of pines will be replanted for the primary objective of providing foraging habitat. Following harvesting of the remaining pines, a total of 16,825 ha will be managed in order to maximise groundwater recharge.

3.1 PINE HARVESTING PROCESS

Harvesting of pines will continue to occur at a rate of 1,400 – 1,800 ha of clearfelling per year to meet the FPC's log supply commitments specified in a production contract with the company Wesbeam under the *Wood Processing (Wesbeam) Agreement Act 2002*. The FPC formulates an annual log plan taking into consideration the contractual obligations and the silvicultural requirements of the plantation.

An indicative five year harvest plan is created from which the annual log plan is formulated. The harvest plan can be subject to change depending on market fluctuations, Wesbeam's requirements or environmental impacts from fire and/or drought.

In preparing its harvest plan the FPC takes into consideration the protection of drinking water as specified in Water quality protection note no. 121: Plantations. The FPC is also required to adhere to the Code of Practice for Timber Plantations in WA (Forest Industries Federation (WA)), which includes a section that refers to plantations within public drinking water source areas, and the Contractor's timber harvesting manual – plantations (FPC). Details on the process of felling, sorting and transporting logs as well as requirements for access tracks and other aspects of timber plantations are included in these manuals as well as in the FPC's operational procedures for contractors undertaking harvesting operations.

3.2 LAND CONTINUED TO BE USED AS PLANTATION

As stated above, in order to avoid some of the impacts of harvesting and provide a continuous food source for Carnaby's cockatoo, 5,000 ha of pines will be replanted for the primary objective of providing foraging habitat.

Replanting of 5,000 ha of pines commenced in the Yanchep Plantation in 2012 at a rate of 500 ha per year. Approximately 500 ha was replanted in the Pinjar Plantation prior to the advice from the Department of Water (DoW) that it would be better for replanting to occur in the Yanchep Plantation so as to have the least impact on groundwater dependant ecosystems and groundwater users. The remainder of the 5,000 ha will therefore be replanted in the Yanchep plantation. Replanting of the remaining pines in the Yanchep Plantation will be balanced by bringing forward measures to reduce

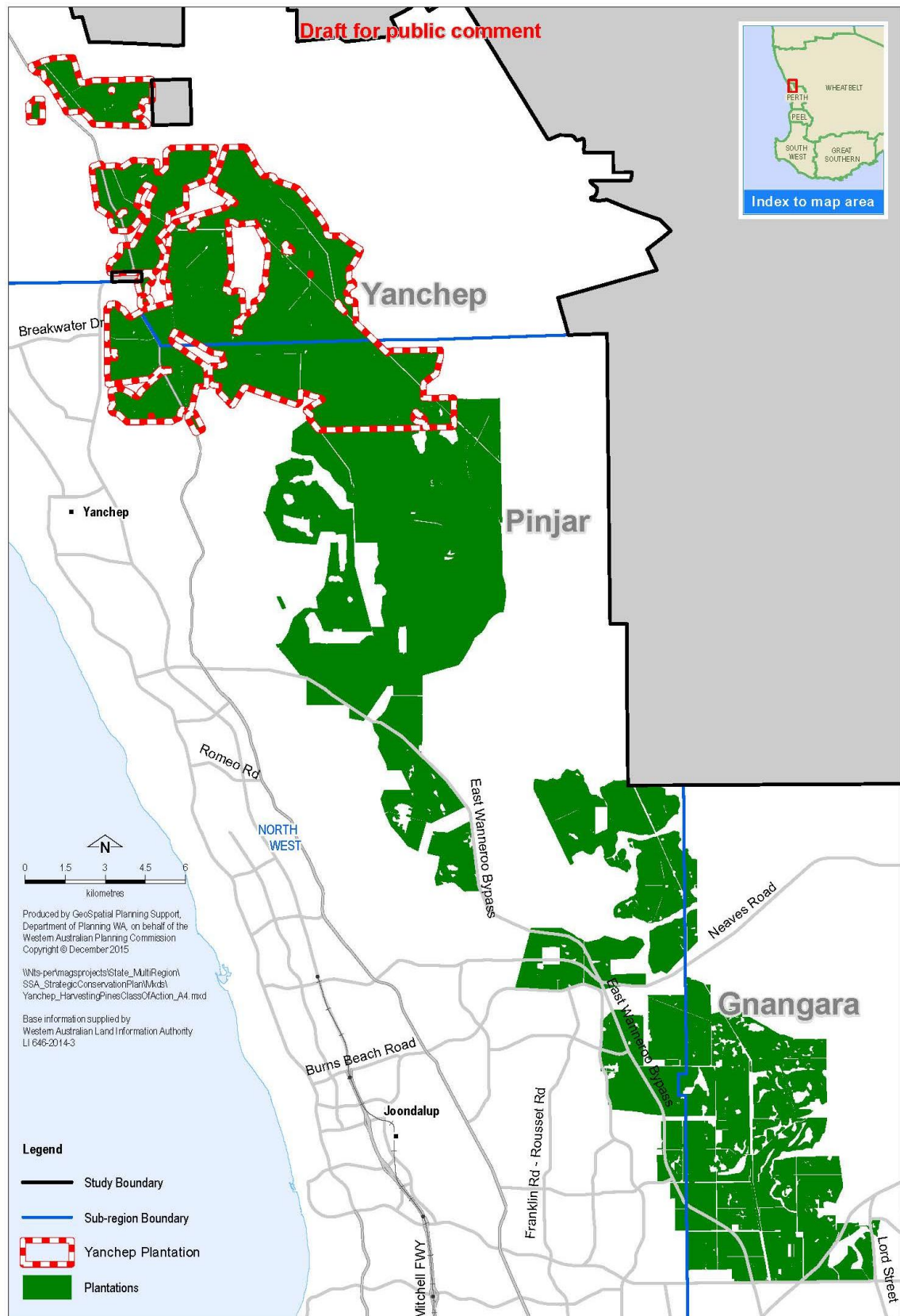
water use and may trigger the need for earlier development of new scheme water sources and alternative supplies for public amenity.

Yanchep is the most northern of the plantations on the Swan Coastal Plain and is located to the east of the Two Rocks suburb – see map at Figure 1.

With respect to the replanting process, following harvesting a controlled burn is carried out across the land to remove the majority of the tree debris that is left behind. This process reduces fuel loads and minimises the risk of fire affecting adjacent landholders. Material that does not burn away is then raked into heaps and windrows for burning to reduce the volume of harvesting debris as far as possible. The ground is subsequently scalped and young *Pinus pinaster* seedlings planted in the scalp lines at a suitable stem density. Pines begin producing food for Carnaby's cockatoo from approximately 10 years, reaching optimum levels at 45 years.

Considering that the prime objective of the 5,000 ha of pines is to provide food for Carnaby's cockatoo, the pines will not all be planted as a traditional plantation but some will be established over a wider area or in different arrangements so as to maximise the food resource while providing the same groundwater recharge.

Figure 1 - Yanchep Pine Plantation



3.3 LAND NOT CONTINUED TO BE USED AS PLANTATION

A large proportion (16,825 ha) of the land not used as pine plantation in the future will be retained as State forest tenure and managed in order to maximise groundwater recharge. A maximum 1,175 ha of land has been allocated for future urban and industrial development. This development may not occur for several years and in the interim this land will be retained as State forest tenure and managed in order to maximise groundwater recharge.

Areas of remaining plantation within the 16,825 ha that will no longer be used as plantation will be harvested as described in section 3.1 above. Ex-pine areas will be converted to grassland or low water use vegetation and maintained as such as described in section 3.3.1 below. The map at Figure 2 shows the areas allocated for urban and industrial development. The remaining areas will be converted to grassland or low water use vegetation.

The map at Figure 3 indicates the areas where BRM extraction is allowed to occur throughout the Gnangara, Pinjar and Yanchep plantation area, which totals 12,170 ha. Details of the approval processes for BRM extraction and post-extraction requirements are included in Action Plan D.

Figure 2 – Land allocated for urban and industrial expansion throughout the Gnangara, Pinjar and Yanchep pine plantations

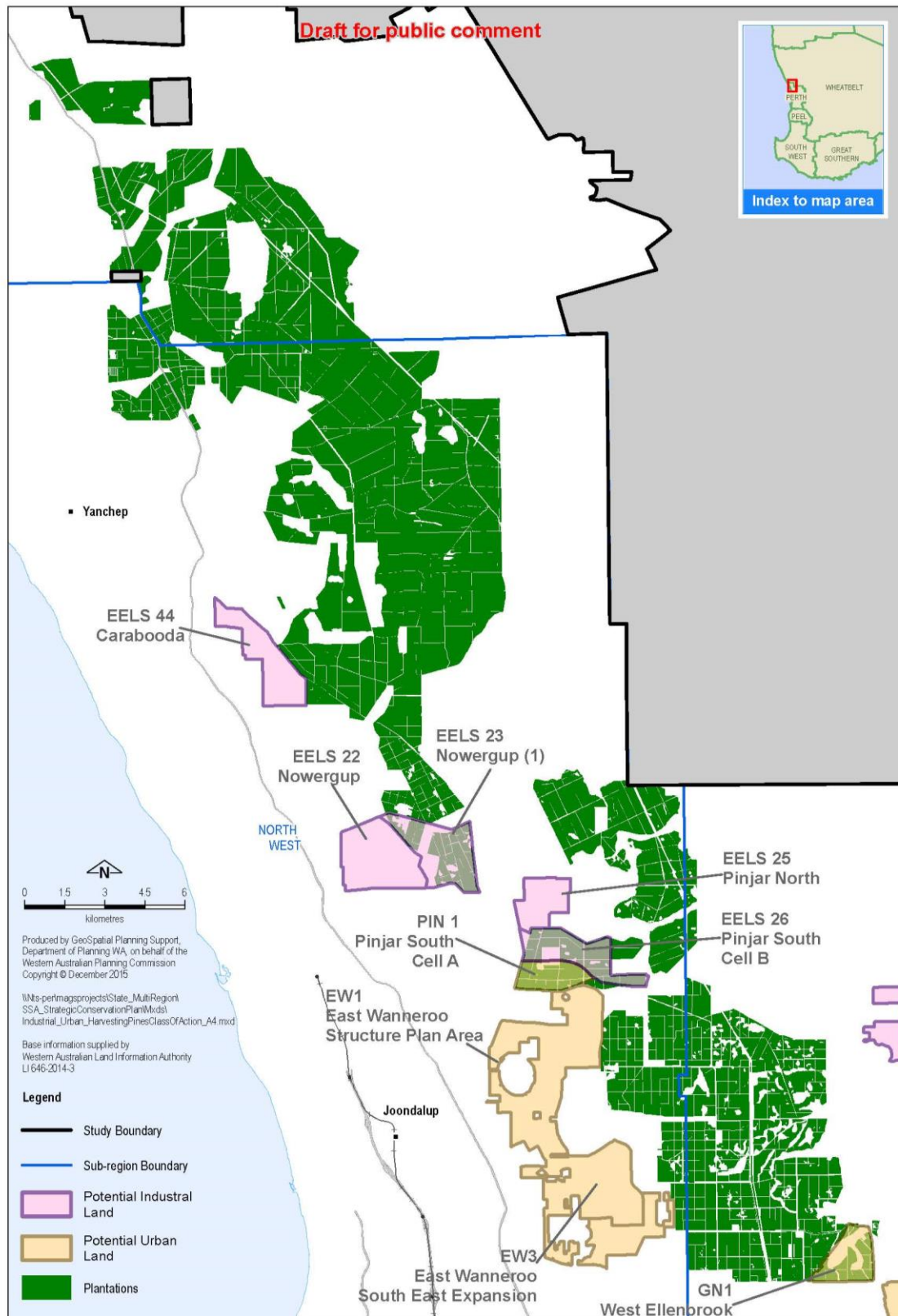
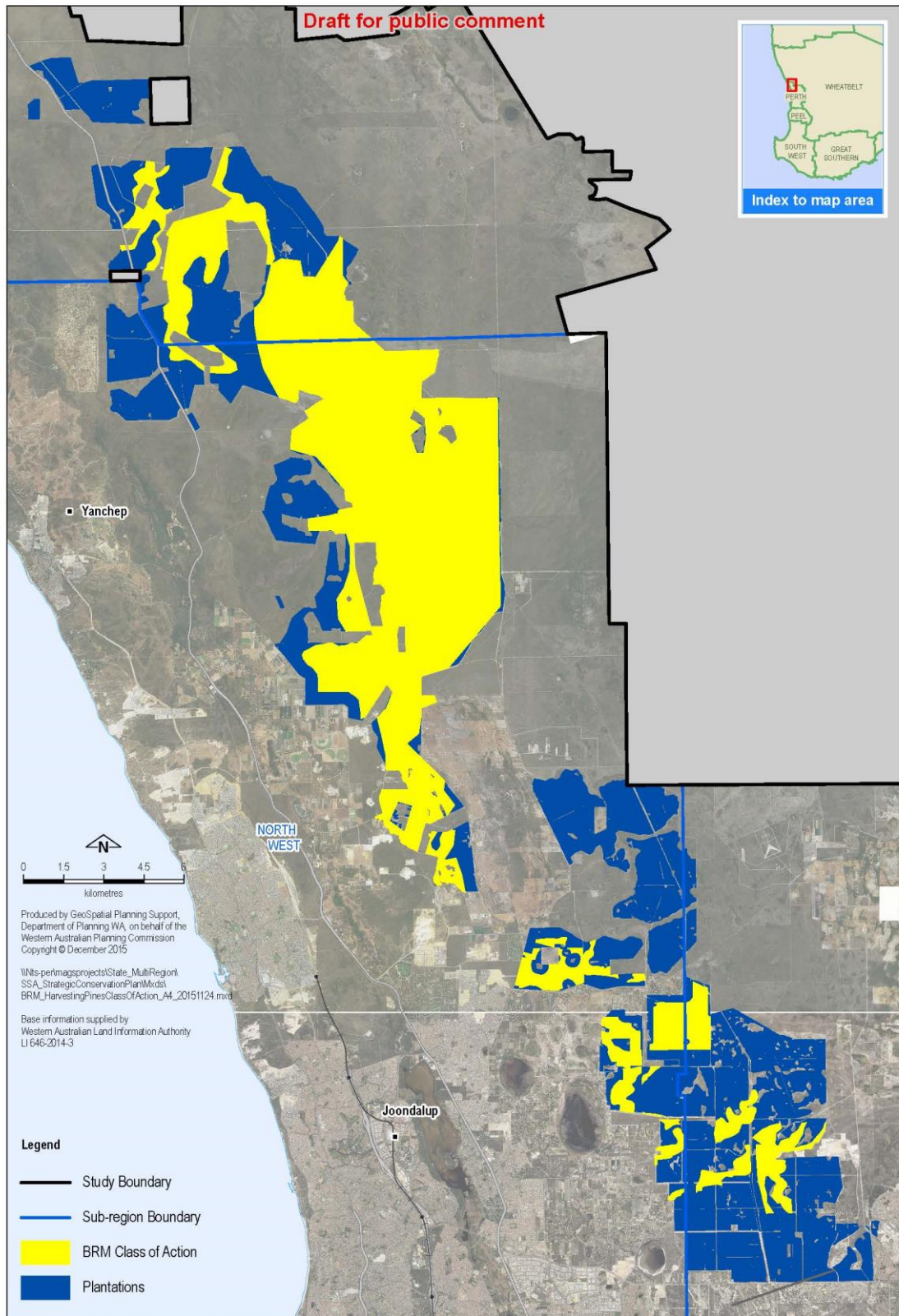


Figure 3 – BRM extraction allowed throughout the Gnangara, Pinjar and Yanchep pine plantations



3.3.1 Land to be retained as State forest but not used as plantation

The desired outcome for the land that is retained as State forest but not used as plantation will be to maximise groundwater recharge by minimising water interception and use by vegetation.

The land consists of areas that are still commercial plantations waiting for final harvesting, and areas of ex-plantation where final harvest has already occurred.

Commercial plantations waiting for final harvesting

Following harvesting, Parks and Wildlife will conduct a controlled burn across the land to remove the majority of the tree debris that is left behind. This process reduces fuel loads and minimises the risk of fire affecting adjacent landholders.

Subsequent management will aim at preventing establishment of perennial vegetation (pine wildings or native species regeneration) and focus on establishing and maintaining grassland or low water use vegetation cover in order to maximise groundwater recharge.

Areas of ex-plantation where harvest has already occurred at some time between 2000 and 2016

Before implementation of the Strategic Conservation Plan, following harvest and post-harvest “clean up” the land has essentially been left as is following harvesting and, apart from a few small areas of native re-vegetation trials being undertaken by Parks and Wildlife, has not been subject to any active revegetation or replanting. The area has experienced natural recruitment of native species that have persisted as soil stored seed or re-invaded. In addition, pine seeds left by the previous plantations have germinated providing various densities of pine wilding. Subsequently these ex-plantation areas have re-vegetated to form a vegetative cover that is a mix of native species shrublands, as well as pine wildings and introduced grasses and other weed species. The amount and density of the native species, pine wildings, and introduced grasses varies over the ex-plantation areas (dependent on time since harvest, post harvesting history and other factors).

To convert these areas that have perennial vegetation (native species shrublands and pine wildings) will require machine clearing and raking of dense wildings and vegetation followed by raking and burning in a similar manner to post pine harvesting. This treatment may need to be repeated in some areas and subsequent maintenance of grassland or low water use vegetation cover will be achieved by a mixture of frequent slashing/mowing and prescribed burning (timing and intensity to limit perennial vegetation).

Grassland

Grassland or low water use vegetation cover provides no habitat value for Carnaby’s cockatoo or habitat for other native species. The change in land use will lead to an increase in rainfall recharge into the groundwater and DoW through its water allocation planning will decide how much of this increased groundwater is allocated to the Yanchep caves, wetlands and other groundwater dependent ecosystems.

The grassland area is adjacent to residential, peri-urban, and industrial development and BRM extraction, and will have some recreational and other social uses that are compatible with the vegetation type and the requirement to protect the water source.

3.3.2 Land to be transferred to freehold for urban and industrial purposes

The draft sub-regional planning frameworks have identified a maximum of 1,175 ha of land within the area of the pine plantations for urban and industrial expansion. The term ‘expansion’ refers to land that has been identified for potential development in preceding planning studies, or represents the logical expansion of an existing developed area. The expectation therefore is that this land will be developed.

728 ha have been identified for industrial expansion and 447 ha identified for urban expansion, as shown in Figure 2 above.

The areas identified for urban and industrial expansion (Nowergup 1, Pinjar South and West Ellenbrook) have all been substantially harvested of pines, and as such are now suitable for transfer to a development land use following appropriate steps being taken to implement that transfer.

In terms of timing this land will still require amendments to both the Metropolitan Region Scheme (MRS) and applicable Local Planning Scheme (City of Wanneroo and City of Swan) to zone the land to Urban and Industrial, as the first stage in the statutory planning process. The South Pinjar and West Ellenbrook and part of Nowergup (1) sites are within Priority 1 (P1) areas of the Gngangara Underground Water Pollution Control Area (UWPCA), which means that risk to drinking water quality is a key consideration (see section 3.4).

Other factors to consider during the rezoning process will include any identified environmental values within each precinct, applicable State Planning Policies (particularly SPP 2.2), sequencing of land uses for any sites identified as having BRM potential, and the need for comprehensive structure planning prior to subdivision and development.

As a separate process, the land will also need to be converted from Crown land (as it currently stands) to freehold before it can be subdivided and developed. This process is governed by the *Land Administration Act 1997* (LAA) and administered by the Minister for Lands and the Department of Lands. The rezoning of the land to urban/industrial also needs to consider the options for irrigation of public open space areas if required, as availability of water is limited.

Until the development occurs, the land will be retained as State Forest tenure and managed in order to maximise groundwater recharge.

3.4 WATER IMPACTS

The South Pinjar and West Ellenbrook and part of Nowergup (1) sites are within P1 areas of the Gngangara Underground Water Pollution Control Area. DoW defines and manages P1 areas with the objective of ‘risk avoidance’, to ensure there is no degradation of the quality of the drinking water source¹. Development within these areas will increase the risk to the quality of the drinking water

¹ Areas are categorised as Priority 1, 2 or 3 depending on current zoning, land ownership, approved land uses and the strategic importance of the drinking water source supply:

source. However, as a strategic decision has been made to allow urban and industrial development in these P1 areas instead of being retained for drinking water source protection, DoW will need to either amend the boundary or change the priority areas to P3, following the MRS rezoning and review of State Planning Policy 2.2. – Gngangara Groundwater Protection (SPP 2.2) to allow the development. DoW's draft Gngangara groundwater protection area drinking water source protection review discusses these options.

Special requirements will apply in areas that are changed from P1 (or P2) to P3, to acknowledge the additional risk posed to drinking water quality by allowing development in these areas. The revised SPP 2.2 will refer to these special requirements, as will the updated Water Quality Protection Note 25: Land use compatibility tables for PDWSAs (DoW, 2016). Requirements may include residential-only type developments (i.e. no light industrial, service stations) and best management practices such as stormwater directed away from wellhead protection zones, alternatives to pesticide use (for example physical barriers such as termimesh), distribution of information to new homeowners about correct storage and use of chemicals and fertilisers etc. These requirements will be determined in consultation with DoW.

4 Implementation Framework

4.1. LAND CONTINUED TO BE USED AS PLANTATION

Harvesting of the remaining pines will occur in accordance with applicable regulation, policies and guidelines.

With respect to the 5,000ha of pines to be replanted at the Yanchep plantation, there will be limited market opportunities for the timber given that the State Agreement with Wesbeam will have expired before the timber resource reaches maturity. As the pines will be replanted primarily for the purpose of cockatoo foraging habitat it is not the intention to manage this area per standard silvicultural practices.

The 5,000 ha may not all be replanted as a single plantation in one location, rather the total area may be made up through a series of plantings across the entire plantation area.

Priority 1 (P1) areas: objective is no degradation and avoidance of risk to the quality of drinking water source supplies (risk avoidance). Compatible land uses have low risks to the drinking water source. P1 areas would typically include Crown land but may also include some private, primarily undeveloped, land.

Priority 2 (P2) areas: objective is to maintain or improve the quality of the drinking water source (risk minimisation). A compatible land use is low intensity rural. Conditions generally apply.

Priority 3 (P3) areas: objective is to manage the quality of the drinking water source (risk management) and risk of pollution through best management practices, guided or regulated land use activity. Residential land use is generally compatible with this priority. Reticulated sewage is generally required.

4.2 LAND NOT CONTINUED TO BE USED AS PLANTATION

4.2.1 Land to be retained as State forest but not used as plantation

This area will be retained as State forest tenure and managed under the *Conservation and Land Management Act 1984* (CALM Act). The CALM Act establishes the Conservation Commission of Western Australia (CCWA), as the vesting authority, and Parks and Wildlife as the managing agency for the State forest land vested in the CCWA.

The CALM Act, Forest Management Plan and departmental policies provide high level guidance for the management of the area. Subsequent to the identification of the specific land use in this Action Plan, the ongoing management of the area will be undertaken by the Swan Coastal District and Swan Region of Parks and Wildlife through the development of works programs that are determined annually and which consider State and departmental priorities, the works required to be delivered across the region as well as the resources provided.

4.2.2 Land to be transferred to freehold for urban and industrial purposes

The *Land Administration Act 1997* (LAA) is the State's legislation dealing with the disposition of Crown land. Part 6 of the LAA provides for the sale of Crown land, Part 9 for the acquisition and disposition of land for public works, and section 187 of Part 9 allows for the sale of such land where it is no longer required.

The Department of Lands is the responsible agency for the transfer of land from Crown to freehold under the LAA. Upon conversion, the sale and/or development of the land is generally managed by Landcorp, who may decide to develop the land themselves, sell the land to a private developer, or enter into an agreement with a private developer for the joint sale and development of the land.

A complicating factor, however, is that portions of land within the areas identified for urban and industrial expansion are also subject to extraction of BRM. In these instances it would be expected that the land will remain in State ownership as Crown land until the materials have been extracted. This will give greater control to the State in managing the staging and sequencing of the land from extraction through to development, by imposing conditions (such as time constraints) on lease agreements.

In instances where a mining tenement is in effect, however, the ability to impose conditions relating to staging or sequencing is more difficult. In these circumstances, the State will need to negotiate with the tenement holder and the Department of Mines and Petroleum (DMP) to try and effect a smooth transition from mining to development.

Further detail is provided in Action Plan A – Urban and industrial development and Action Plan D – Basic Raw Materials.

4.3 LEGISLATION AND POLICY

The various agencies and their role in implementing and regulating the future harvesting of pines, the future management of State Forest 65, the transfer of areas of State forest to freehold for future urban and industrial purposes and the regulation of BRM extraction are described below.

Department of Water (DoW)

- Water allocation and licensing is managed in accordance with the *Rights in Water and Irrigation Act 1914*.
- DoW is bound by Ministerial Statement 819 when managing water resources on the Gngangara mound under Part IV of the *Environmental Protection Act 1986*.
- Public drinking water source areas are managed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909*.
- “Water quality protection note no.25: Land use compatibility tables for public drinking water source areas” provides advice on appropriate land uses and activities within the different priority areas (P1, P2 and P3) within public drinking water source areas.

Office of the Environmental Protection Authority (OEPA)

- The OEPA monitors compliance with Ministerial Statement 819 under Part IV of the *Environmental Protection Act 1986*.

Forest Products Commission (FPC)

- The FPC’s functions, statutory powers and structure are defined by the *Forest Products Act 2000*.
- In as far as it relates to the provision of a Forest Management Plan, the FPC operates under the *Conservation and Land Management Act 1984*.
- General requirements relating to felling of trees in State forests and timber reserves, fire prevention and sale of forest produce by auction or tender are regulated under Forest Management Regulations 1993.
- Contractual obligations with Wesbeam are detailed in the *Wood Processing (Wesbeam) Agreement Act 2002*.

Department of Parks and Wildlife (Parks and Wildlife)

- Provisions and guides for the protection, use and management of land, flora and fauna are provided by the *Conservation and Land Management Act 1984* (CALM Act). The CALM Act establishes the CCWA as the vesting authority and Parks and Wildlife as the managing agency for the State forest land vested in the CCWA on their behalf.
- The CALM Act, Forest Management Plan and departmental policies provide high level guidance for the management of the vested lands.
- The *Wildlife Conservation Act 1950* has limited effect relating to harvesting of the pine plantations as this Act deals with protection of native flora and fauna species. Pines are not native flora, and while Carnaby’s cockatoo is a listed protected species, removal of pine habitat is not included in this Act.

Department of Planning (DoP)

- The DoP has a framework of policies related to the future use of the pine plantations. These policies are enabled by the *Planning and Development Act 2005*.
- The higher order policies of direct relevance are State Planning Policies which are prepared and adopted by Part 3 of the *Planning and Development Act 2005*.
- Some areas of the existing pine plantations will be utilised for BRM, industrial and urban development. Relevant State Planning Policies for these include:
 - *State Planning Policy 2.4 Basic Raw Materials*;
 - *State Planning Policy 4.1 State Industrial Buffer Policy*;
 - *State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region*; and

- A range of policies relating to urban development, including:
 - *State Planning Policy 3 Urban Growth and Settlement;*
 - *State Planning Policy 3.1 Residential Design Codes; and*
 - *State Planning Policy 3.6 Development Contributions for Infrastructure.*
- For matters relating to the long-term protection and management of groundwater quality and quantity for public drinking water supply both *State Planning Policy 2.2 – Gngangara Groundwater Protection* and *State Planning Policy 2.7 Public Drinking Water Source Policy* provide guidance relating to land uses within these areas.
- In support of these State Planning Policies, further planning information detailing intent, requirements and obligations are provided through Development Control Policies, Design Guidelines and Manuals, and other publications.

Department of Mines and Petroleum (DMP)

Extraction of basic raw materials and granting of mining tenements in the pine plantation area is covered by the following acts:

- *Mining Act 1978;*
- *Petroleum and Geothermal Energy Resources Act 1967;* and the
- *Mines Safety and Inspection Act 1994.*

4.4 CONTRACTUAL OBLIGATIONS

Following the 1996 Cabinet decision to remove up to 23,000 ha of pines, the State pursued a customer for the timber. Wesbeam was established to produce Laminated Veneer Lumber (LVL) products. The company invested in an LVL plant specifically for this harvesting program and the State made guarantees to Wesbeam about the volume and quality of timber resources that would be available through State managed plantations, including those at Gngangara, Pinjar and Yanchep.

Under the *Wood Processing (Wesbeam) Agreement Act 2002* the FPC has entered into a production contract that expires in 2029 and requires the FPC to make available certain volumes of timber in accordance with specifications and conditions agreed between the FPC and Wesbeam. The chosen land use scenario allows for a continuation of the harvesting of pines in order to fulfil as much as possible the contract obligations.

4.5 RELATIONSHIP TO IMPLEMENTATION OF OTHER ACTION PLANS

The implementation of this Action Plan is closely related to the implementation of a number of other Action Plans.

As stated above, the planning and approvals processes for urban and industrial development and BRM extraction are detailed in Action Plans A and D respectively.

As indicated in the sections below, the following Action Plans also contain elements that are relevant to the Pines Harvesting Class of Action:

Action Plan F - MNES conservation commitments

Action Plan G - Commitments for State environmental values

Action Plan H - Conservation Program

Monitoring and assurance mechanisms for this Class of Action will be developed in line with the broader Assurance Plan set out in Action Plan I.

Any changes in these Action Plans will automatically apply to the Pines Harvesting Class of Action, where relevant.

4.5.1 MNES conservation commitments

Carnaby's Black Cockatoo

The harvesting of pines in the Gnangara, Pinjar and Yanchep pine plantations is predicted to have a significant impact on Carnaby's cockatoo as a result of a large area of high value food resource for the species being lost from the Swan Coastal Plain. The predicted impacts of this Class of Action on the species are provided in the EPBC Act Strategic Impact Assessment Report for the Perth and Peel Regions.

The Gnangara, Pinjar and Yanchep pine plantations make up 23,000 ha of the total area of Carnaby's cockatoo feeding habitat affected by development identified in the Strategic Assessment area. This area also provides some of the most important roost sites for the species in the Strategic Assessment area.

As detailed in Action Plan F, the conservation objective for the Carnaby's cockatoo is the continued use of the Strategic Assessment area of the species through the maintenance of habitat and connectivity of habitat throughout and outside the region. The decision to replant 5,000 ha of pines in the northern part of the Yanchep plantation contributes towards this objective.

The impacts on the loss of habitat from pines harvesting will be partly compensated by the creation and enhanced management of reserves and the rehabilitation of habitat, as detailed in section 4.6.3 below.

Other MNES

Most MNES other than Carnaby's cockatoo occurring in or adjacent to the pine plantations are groundwater dependent, such as the aquatic root mat community present in the Yanchep caves. The harvesting of pines in the Gnangara, Pinjar and Yanchep plantations and post-harvesting land use identified under the Strategic Conservation Plan will increase the percentage of rainfall entering the Superficial aquifer as recharge and improve groundwater levels, relative to maintaining the pines on the Gnangara Mound. Depending on the amount of water allocated to the environment, MNES other than Carnaby's cockatoo are therefore likely to be positively impacted by this Class of Action, contributing to reaching the conservation objectives and commitments for these matters as listed in Action Plan F.

Future land use through the Strategic Conservation Plan will improve groundwater levels across significant areas of the Gnangara Mound, with the greatest groundwater level benefit in an area directly east of the Yanchep National Park. This will help protect MNES such as migratory shorebirds, threatened flora and Threatened Ecological Communities (TECs). For example, higher water levels in the Yanchep National Park will aid the recovery and support the viability of the Aquatic Root Mat TEC in Caves of the Swan Coastal Plain (Yanchep Caves).

4.5.2 Commitments for State environmental values

The majority of environmental values in the area of the pine plantations that are important to the State are also groundwater dependent, such as wetlands and their associated flora and fauna. Environmental objectives and commitments for these values are listed in Action Plan G.

Increased groundwater levels through the removal of pines will help contribute to conserving State environmental values such as non-federally listed TECs and Priority Ecological Communities, threatened or priority flora and fauna and other WA State values (Yanchep National Park, Bush Forever sites, Conservation Category Wetlands and karst values as well as significant social values of the lake system in and near Yanchep National Park). This will assist the State in rebalancing the effects of groundwater abstraction and environmental impact in the Gnangara aquifer system. The predicted water level benefits will also help protect the quantity and quality of water for use and the environment into the future and assist the DoW in managing groundwater abstraction to meet water level criteria set in Ministerial statement 819.

4.5.3 Conservation actions

5,000 ha of pines will be replanted in the Yanchep area in order to provide an ongoing food source and compensate for some of the impacts on Carnaby's cockatoo (see section 3.2 above). The remaining 18,000 ha will be managed in order to maximise groundwater recharge and to provide locations for urban and industrial development and extraction of BRM. The focus will be on sequential land use and, where appropriate, relevant areas will be rehabilitated or managed to maximise groundwater recharge following BRM extraction.

Despite the State Government's decision to replant 5,000 ha of pines as an ongoing food source, the residual impact on Carnaby's cockatoo from the removal of 18,000 ha of pines is predicted to be considerable.

The food value provided by pine plantations is very different to that provided by Banksia woodland. Pines are an introduced food source and on a per hectare basis they provide significantly higher food resource (as calorific value) compared to Banksia woodland. Offsetting the loss of pines through using a similarly high food density food source, not through replacement with Banksia woodland, is likely to be the most cost efficient approach and has the ability to replace the food resource lost from the removal of pines. However, such an approach would provide no benefits to other environmental values, including those requiring offsets under the Strategic Conservation Plan, nor provide broader benefits to the community compared to offsets involving new conservation areas and improvement in the condition of existing reserves.

Therefore the Strategic Conservation Plan will address the impacts on the Carnaby's cockatoo through actions that will focus primarily on protecting and restoring habitat, with a focus on achieving multiple community and environmental benefits.

Measures include the improved protection and management of existing areas of habitat through the establishment of reserves on Crown land within and outside the Strategic Assessment area, such as the expansion of Yanchep National Park and Moore River Nature Reserve and the creation of Seabird National Park and the reserve complex to form a Yeal to Moore River Conservation Corridor.

Measures also include improved environmental management of reserves, purchasing freehold land for reservation and management, the establishment of perpetual covenants for conservation, and the

rehabilitation and revegetation of Banksia woodland. Furthermore, additional research and monitoring will be undertaken that will contribute to the knowledge and conservation of the species and allow for an adaptive approach to measures supporting Carnaby's cockatoo.

A full package of measures, including those that address impacts on Carnaby's cockatoo from the other classes of action, is included in Action Plan H – Conservation Program.

4.6 FUNDING ARRANGEMENTS

No specific funding mechanisms need to be introduced to give effect to this Action Plan. The harvesting of pines will be subject to contractual arrangements under State Agreements. The establishment and management of the land that is to be retained as State forest post-harvesting will be funded by the State through the allocation of funding to the agencies responsible for the implementation of the conservation commitments.

Funding mechanisms relating to urban and industrial development and BRM extraction are detailed in Action Plans A and D respectively.

References

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Contractors' Timber Harvesting Manual – Plantations, FPC, 2005

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Economic and Employment Lands Strategy, WAPC, April 2012

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