



Gondwana Link: Manypeaks Conservation Action Plan (ID: 1807)

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Basic

Project Information

Contact Name: Mark Waud

Contact Organization: Oyster Harbour Catchment Group

Data Effective Date: January 31, 2013

Hectares:210,000

Sharing Status:

Ecoregion(s):

- Mediterranean Woodlands And Forests

Operational Unit(s):

- Non-TNC

Country(ies):

- Australia

Associated Initiative(s): None

Project Description:

Following scoping meetings in October 2011, a workshop on 20 December 2011 launched the Manypeaks Conservation Action Plan (CAP) which was initiated by a number of interest groups including the Oyster Harbour Catchment Group (OHCG, <http://www.ohcg.org.au/>), Department of Environment and Conservation (DEC, <http://www.dec.wa.gov.au/>) facilitated by Barry Heydenrych of Greening Australia (www.greeningaustralia.org.au/) who was seconded to Gondwana Link (www.gondwanalink.org) to develop a conservation plan for the area between the Two Peoples Bay Nature Reserve/Mount Manypeaks Nature Reserve/Waychinicup National Park, the Stirling Range National Park and the Porongurup National Parks. Over the following year a number of meetings, workshops and field trips were organised to develop the CAP further which was uploaded to the ConPro Website (<http://conpro.tnc.org/>) in July 2012 with restricted access and reloaded in January 2013 with public access. Although there were a number of members that attended and contributed to the CAP, the core committee comprised the following people: Mark Waud (Oyster Harbour Catchment Group), Sarah Comer & Deon Utber (Department of Environment & Conservation), Anne Bondin (Albany Bird Group), Doug Russel (Beef Farmer), (Greening Australia/Gondwana Link), Wendy Bradshaw (previously of South Coast NRM), Murray Anning & Leanne Tomlinson (Australian Bluegum Plantations), Geoff Rolland (Albany Plantation Forestry Company), Peter Merry & Bob Edwards (Gunns), Mark Ford (City of Albany), Karl Hansom (South Coast NRM) and Barry Heydenrych (Greening Australia/Gondwana Link).

Other people who have contributed to this plan include: Ross Davies (Farmer - Manypeaks), Sylvia Leighton (Land for Wildlife Program), Alan Danks (Private - ex. DEC), Chandell Cummings (Landholder & South Coast NRM), Keith Bradby & Amanda Keesing (Gondwana Link).

Site/Scope Description:

What's at stake - the bigger context.

Gondwana Link is one of the largest and most ambitious ecological programs in Australian history. Designed to protect and restore ecological resilience within one of the world's biodiversity hotspots, the completed Gondwana Link will stretch for 1000 kilometres across south western Australia, from the wet karri forests of the far south west to the mallee and woodland on the edge of the Nullarbor plain to the east.

The Manypeaks landscape which straddles the Two Peoples Bay Nature Reserve/Mount Manypeaks Nature Reserve/Waychinicup National Park, the Stirling Range National Park and the Porongurup National Parks is a very important landscape in the Gondwana Link pathway. The traditional custodians of the area are the Mineng and Goreng groups of the South West's Noongar Aboriginal people, who have recently rekindled some of their ties to important cultural sites with which they have had an ongoing connection with for at least 12,000 years. The coastal reserves and national parks of the Manypeaks landscape protect mature coastal vegetation, the type of habitat required by a range of fauna including the noisy scrub bird, western bristlebird, Australasian bittern, western ringtail possum, quokka and Gilbert's potoroo, all of which are threatened species but which used to occur across the broader Manypeaks landscape prior to European settlement. A number of wetlands and their associated fauna and flora are found along the coast and inland of the large coastal bushland reserves and national parks, and together with remnant vegetation provide potential connective linkages through land that is now largely cleared for agriculture to the important inland national parks of the Stirling Ranges and Porongurup. The Stirling Range National Park contains more than 1500 plant species (more than the British Isles), including 87 found nowhere else, and at least 138 orchid species or 38% of Western Australia's total. The nearby Porongurup National Park, although much smaller in extent is also ecologically very valuable. It is the largest inland remnant of native vegetation between the Stirling Ranges and the coast and contains a disjunct flora association of the karri (*Eucalyptus diversicolor*) forest community - considered a relic of several thousand years ago when karri covered a larger area of the south west of Australia. The combination of raised hills and granite soils of the Porongurup National Park supports a range of plant communities and associated fauna, from tall open karri forest to low herblands. Over 700 native species of vascular plants have been recorded in the Porongurup National Park to date (one of the richest concentrations of plant species in Australia) and the area has been recognised as a separate vegetation system in its own right. A few small outliers of Karri, the eastern most extent of this forest type occur near the coast to the south of the Manypeaks landscape.

The Manypeaks landscape

The Manypeaks landscape has both threats (degrading natural values in a fragmented landscape) and opportunities (improving functional ecological connectivity) that need to be addressed. Apart from the connection and opportunities that the rivers, in particular the Kalgan River provide, important linkage areas that could function as "macro-corridors" along north-south and east-west axes have been identified by the Department of Conservation and South Coast Natural Resource Management.

The area shown below, is the Manypeaks landscape, covering approximately 200,000 hectares in size and is the focus of this plan. There is approximately 35% remnant vegetation in this landscape, which is primarily concentrated in large areas at the coast and managed by the Department of Conservation and Land Management. The area lies within the local government jurisdiction of the City of Albany, and falls largely within the Oyster Harbour Catchment which includes parts of the catchment of the Kalgan and King Rivers. To the east the Manypeaks landscape forms part of a shallow, internally-draining coastal system, and to the south there are a number of important river catchments including the Moats/Goodga/Angove system, the King Creek and the Norman and Waychinicup Rivers. The Manypeaks landscape has wide rainfall gradient ranging from 950 mm on the coast to 450 mm just south of the Stirling Ranges. Soil systems are extremely varied with areas of heavily dissected landscapes incorporating soils derived from granitic material in the south with large areas of tertiary sediments overlaying granitic bedrock to the north. These areas are often low lying stagnant flats and gently undulating slopes and are most at risk of secondary salinity and waterlogging.

Farming in the northern part of the Manypeaks landscape is mixed cropping (mainly canola, wheat and barley) and sheep production with a change to cattle farming the higher rainfall areas to the south, where extensive areas of blue gum plantations have been established and there are small pockets of intensive horticulture.

The Manypeaks landscape has high conservation values for a number of reasons including:

- the meeting place of a number of eco-zones, which have been characterised primarily by physical (mainly soils) and floristic criteria (McQuoid, 2009),
- a high plant species richness and a high level of narrow range endemism resulting from a history of isolated evolution in ancient but diverse landscapes and nutrient deficient soils (Hopper & Gioia, 2004),
- the highest concentrations of threatened fauna in the South Coast Region of Western Australia (Gilfillan et. al, 2009),
- a number regionally (and nationally and internationally) significant wetlands (Hopkinson, 2005),
- internationally-recognised important bird areas, i.e. Oyster Harbour for shorebird conservation (Taylor, 2012) and Two Peoples Bay & Mount Manypeaks (Birdlife International, 2012)
- the last stronghold for a range of species and has very high conservation value for corridor linkages (Wilkins et. al. 2006).

Threats that affect the biodiversity of the Manypeaks landscape are many and include altered hydrology, various dieback diseases, introduced predators, inappropriate fire regimes, human recreation, historical and current clearing causing habitat fragmentation, weeds and grazing.

Project Goal Comment:

To protect, enhance and extend the natural habitat of the area for the benefit of all biodiversity, and in particular the unique fauna, to enable rare species to become common again.

Team Info:

Full Team Compliment:

Keith Bradby; Gondwana Link; Team Member

Barry Heydenrych; Greening Australia; Process Facilitator, Team Member

Deon Utber; Department of Environment and Conservation; Team Member

Sarah Comer; Department of Environment and Conservation; Team Member

Mark Waud; Oyster Harbour Catchment Group; Team Contact, Leader/Manager, Team Member

Amanda Keesing; Gondwana Link; Team Member

Peter Merry; Gunns; Team Member

Murray Anning; Australian Bluegum Plantations; Team Member

Leanne Tomlinson; Australian Bluegum Plantations; Team Member

Geoff Rolland; Albany Plantation Forestry Company; Team Member

Amanda Keesing; Gondwana Link; Team Member

Anne Bondin; Albany Bird Group; Team Member

Bob Edwards; Gunns; Team Member

Keith Bradby; Gondwana Link; Team Member

Chandell Cummings; Indigenous Landholder & South Coast NRM; Project Advisor, Team Member

Wendy Bradshaw; Private Contractor; Project Advisor, Team Member

Doug Russel; Farmer - Manypeaks; Team Member

Mark Ford; City of Albany; Team Member

Sylvia Leighton; Land for Wildlife Program; Project Advisor, Team Member

Action Plan:

- 1.0 KARRI FORESTS : BROAD GOAL: ALL KARRI FOREST OUTLIERS TO BE FENCED FROM STOCK AND WHERE NECESSARY UNDERSTOREY SPECIES ESTABLISHED BY 2017. : (Target = 1) Karri forests)
 - 1.1. Karri forests : Ensure the remaining 2 or 3 patches of karri outliers are fenced by 2013
 - 1.2 Karri forests : Revegetate degraded Karri areas with understorey species where natural regeneration is not feasible by 2013
 - 1.3 Karri forests : Investigate possibility of further linkage of karri patches with landholders by 2013.
 - 1.6 Karri forests & proteaceous dominant communities & Jarrah Associated Communities : Initially prioritise & map large, important remnants in the South Stirlings Link (and in close proximity to the Stirling Range National Park) and Porongurup-Two Peoples Bay Link by 2013 in order to guide implementation of remnant protection by 2014
- 2.0 FRESHWATER SYSTEMS : BROAD GOAL: DEVELOP KEY STRATEGIC INTERVENTIONS BY 2013 IN ORDER TO MAINTAIN WETLAND HEALTH AT CURRENT LEVELS THROUGH TO 2020 AND BEYOND. : (Target = 2) Freshwater systems)
 - 2.1 Freshwater systems : Ensure private land managers know where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015. : This is a broad objective for a number of vegetation types. For wetlands in particular land managers should exclude fires from wetlands, and the timeframe for this could be from the next fire season.
 - 2.10 Freshwater systems : Encourage Murdoch Uni to undertake radio interview and write article for the local press on the importance of native fish species and threat issues such as feral fish during late 2012/early 2013.
 - 2.11 Freshwater systems, Proteaceous-dominant communities, Jarrah Associated Communities : Following identification of key strategic areas with landholders by the Oyster Harbour Catchment Group in 2012, implement a fox baiting trial and monitoring program during 2013 to 2015.
 - 2.12 Freshwater Systems, Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities, Black Cockatoos : Following the development of a detailed brief in late 2012, submit a funding application for a new vegetation map for the Manypeaks landscape area by early 2013, . : There is mapping (Sandiford & Barrett, 2010) for the southern sections of the Manypeaks landscape, and mapping that has been done in the Angove and in other areas by Libby Sandiford, including on plantations. There is a need to update the vegetation map for the area, and Libby Sandiford is well placed to undertake that exercise.
 - 2.2 Freshwater systems, Proteaceous dominant communities, Jarrah Associated Communities : Obtain information on current status of contraceptive & other innovative control methods for kangaroos by late 2012/early 2013 for consideration of future projects at key sites by mid-late 2013.
 - 2.3 Freshwater systems : Identify key areas in which bitterns are known to occur (especially in the Porongurup-Two Peoples Bay link) for on-ground activities by 2013.
 - 2.4 Freshwater systems : Ensure ongoing integration of current weed action plans between Oyster Harbour Catchment Group and the City of Albany.
 - 2.5 Freshwater systems : Identify key wetlands from relevant reports and maps; and undertake a simple audit on status and current management (e.g. wetlands in DEC reserves) by early 2013, in order to develop a strategic action plan by mid/late 2013.
 - 2.6 Freshwater systems : Following a desktop survey and collation of key information from stakeholders in early 2013 , identify initial cost effective priority projects for weed action in late 2013.
 - 2.7 Freshwater systems : Following consultation with landholders by Oyster Harbour Catchment Group, DEC & other stakeholders during 2012, identify engagement and practical restoration projects for freshwater system protection by 2015.
 - 2.8 Freshwater systems : During late 2012 and early 2013 identify key wetlands where Australasian Bittern are known or likely to occur as targets for fox baiting funds from 2013-2015
 - 2.9 Freshwater systems, Healthy Habitat Fauna, Proteaceous dominant communities, Jarrah Associated Communities : Following consultation with key stakeholders in late 2012/ early 2013 develop outline of integrated feral control strategy by late 2013
- 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna)
 - 3.1 Healthy Habitat Fauna : Design survey strategy for key healthy habitat sensitive fauna by late 2012 for implementation during 2013.
 - 3.2 Healthy Habitat Fauna : Compile fauna distribution maps from records of key healthy-habitat-dependent fauna species across the broader landscape by late 2012/early 2013.
 - 3.3.1 Healthy Habitat Fauna : Develop a range of strategies and actions (including funding applications) for enhancing healthy-habitat-sensitive fauna by late 2013, for initial implementation in early 2014.
 - 3.3.2 Healthy Habitat Fauna : Ensure the Manypeaks strategic actions for healthy-habitat-dependant species are in line with any recovery action planning for these species.
 - 3.4 Healthy Habitat Fauna, Proteaceous-dominant communities & Jarrah Associated Communities : Ensure ongoing dieback information and services/programs are available for private landholders
 - 3.5.1 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Evaluate, prioritise, and if necessary reword the 20 general recommendations and guidelines from Barrett et al. 2009 by early 2013 in order to apply for funding sources in late 2013 with implementation by 2014.

- 3.5.2 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015.
- 3.6 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Obtain existing SCNRM dieback projects (DIDMS etc.) by 2013 so an interpreter can map priority areas and identify large uninfested remnants by 2014
- 3.7 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure resource materials are available and training is offered/delivered to a wide range of landholders/stakeholders by 2013 to encourage the wider adoption of dieback hygiene protocols by 2014. : This is a project in itself - needs a extension service that currently does not exist
- 4.0 PROTEACEOUS DOMINANT COMMUNITIES : BROAD GOAL: IDENTIFY RESTORATION PRIORITIES FOR IMPROVING BIODIVERSITY CONSERVATION BY 2030 FOLLOWING THE MAPPING AND DEFINING OF PROTEACEOUS DOMINANT VEGETATION DURING 2017 : (Target = 4) Proteaceous - Dominant Communities including Mallee Heath)
- 4.1 Proteaceous-dominant communities : Submit funding proposal by late 2012 so funds are obtained at latest mid 2013. Accurately map and document fire sensitive ecosystems of the South Coast whilst encouraging landholder use of this tool by end of 2013.
- 4.2 Proteaceous-dominant communities : Develop a joint funding proposal between DEC, landholders, Australian Bush Heritage and Murdoch University for a trial burning and monitoring project of various aged, "scenescent" proteaceous dominant heathland by 2013 in order to identify various guidelines for practical implementation by 2015. : Studies of a similar nature have been undertaken for the Gngangara area (Wilson et. al. 2010, GUIDELINES FOR DEVELOPING ECOLOGICAL BURNING REGIMES FOR THE GNANGARA GROUNDWATER SYSTEM - in this case in Banskia woodlands, taking into account a range of fauna requirements including Honey Possums and Carnaby's black cockatoos, optimum burning regimes of 20-30 years (in a patchwork mosaic) were recommended).
- 4.3 Proteaceous-dominant communities & Black Cockatoos : Develop appropriate plant species lists to enhance feeding, breeding and roosting of all three black cockatoos by 2013 for implementation into revegetation plans by 2014.
- 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities)
- 5.1 Jarrah Associated Communities : Engage with seed collectors to ensure they are looking out for dieback resistant material by 2013.
- 5.2 Jarrah-associated communities : Identity targeted fauna (and flora) species requirements by mid 2013 to guide the development of a fauna (& flora) connectivity map and requirements for on ground works by late 2013 : Flora connectivity relates to exchange of genes and opportunities for future speciation/ evolution - Creating suitable habitat for key fauna species to allow for movement across the landscape
- 6.0 BLACK COCKATOOS : BROAD GOAL: NO LOSS OF FEEDING HABITAT AND BREEDING HOLLOWES BY 2020 AND A 10% INCREASE IN THIS BY 2030. : (Target = 6) Black Cockatoos)
- 6.1.1 Black Cockatoos : Establish through survey and known records where breeding of black cockatoos occurs by end of 2012 so appropriate actions can be implemented in 2013 and beyond.
- 6.1.2 Black Cockatoos : Develop a map of breeding records (with buffers for protecting nests from poachers if needed) of all three black cockatoos by early 2013 to assist with prioritisation and implementation of actions by mid 2013.
- 6.2 Black Cockatoos : Develop fire management guidelines for maintaining black cockatoo foraging habitat by 2013 for practical implementation from 2014 and beyond.
- 6.3 Black Cockatoos : Identify areas where swarms are a problem in tree hollows by early 2013 so contracted apiarists can remove swarms and monitor nesting success from end of 2013 to 2018
- 6.4.1 Black Cockatoos : Develop a strategic action plan to enhance black cockatoos by mid 2013, for implementation from late 2013.
- 6.4.2 Black Cockatoos : Ensure the Manypeaks strategic actions are in line with any recovery action planning for cockatoo species.
- 7.0 SHOREBIRD HABITAT : BROAD GOAL: ENSURE EXISTING SHOREBIRD HABITAT IS PROTECTED BY 2015 AND THERE IS NO FUTURE LOSS OF HABITAT. : (Target = 7) Shorebird Habitat)
- 7.1 Shorebird Habitat : Once DEC cat baiting trials have been completed, ensure that the program is rolled out in key shorebird habitat areas.
- 7.2 Shorebird Habitat : Ensure issues associated with Shorebird Conservation and recommendations from Taylor (2012) have been tabled with the City of Albany by early 2013 for integration into management and action plans by 2014.
- 7.3 Shorebird Habitat : Identify improved signage requirements during the summer of 2012/13, so a appropriate funds can be sourced for installation before the summer of 2013/2014.
- 7.4 Shorebird Habitat : Ensure presentations to groups that include conservation of shorebirds are ongoing.
- 7.5 Shorebird Habitat : Ensure information on international threats, issues and lobbying progress has been sought and a summary provided to the CAP committee by early 2013 for further consideration and action planning by mid 2013.

- 8.0 MANYPEAKS LANDSCAPE : 8) BROAD GOAL: ENABLING STRATEGIES (SPATIAL PRIORITISATION, FUNDING, CAPACITY BUILDING, AND COMMUNICATIONS) FOR THE MANYPEAKS LANDSCAPE SCOPED AND DEVELOPED BY EARLY 2013, IMPLEMENTED EFFECTIVELY FROM 2013 TO 2020 AND BEYOND.

- 8.1 Manypeaks Landscape : Brief for prioritisation process developed by early 2013, funding acquired by mid 2013 with initial map completed by end of 2013, final map & report by 2014.

- 8.2 Manypeaks Landscape : Develop core messages and identify audiences, key engagement events & action plans for implementation by end of 2013.

- 8.3 Manypeaks Landscape : By early 2013 incorporation of funding applications including training is in place, with funding for increased capacity for NRM groups to plan, implement, monitor and review conservation interventions by early 2014.

- 8.4 Manypeaks Landscape : Scope requirements for funding strategy by mid 2013, develop strategy by late 2013 for implementation by early 2014.

- By 2013 design and get funding for a project for DEC to map the fire sensitive vegetation described in Barret et al. 2009 so that management actions can be taken

- By 2015 private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies : (Threat = Inappropriate Fire Regime)

Targets

Focal Conservation Target	Target Type	Habitat Type
1) Karri forests ^{Target - 1}		
2) Freshwater systems ^{Target - 2}		
3) Healthy Habitat Fauna ^{Target - 3}		
4) Proteaceous - Dominant Communities including Mallee Heath		
5) Jarrah Associated Communities ^{Target - 5}		
6) Black Cockatoos		
7) Shorebird Habitat ^{Target - 7}		

Notes:

Target - 1 Description: This target has been described by Sandiford and Barrett (2010) as follows: Karri Forest is found in the southern and south western areas of the survey area with isolated pockets along the north-west boundary. It is distinguished by the dominance of *Eucalyptus diversicolor* (Karri) trees in the canopy. Coastal Karri Forest is found in a scattered band on the flats and lower slopes north of the coastal hills from Goode Beach to Torbay Townsite, with isolated pockets occurring south of Manypeaks. It often occurs on grey sand often overlying limestone and typically it is an open forest, occasionally reaching > 30 m in height. *Eucalyptus cornuta* is often a sub-dominant canopy species and *Agonis flexuosa* forms an open secondary tree stratum. The understorey shrubs vary from a closed tall scrub on very moist sites to a tall open scrub or open heath over open sedgeland. Common species include *Chorilaena quercifolia*, *Trymalium odoratissimum*, *Thomasia solanacea*, *Hibbertia furfuracea*, *Bossiaea linophylla*, *Tremandra stelligera*. *Lepidosperma effusum*, *Ficinia nodosa*, *Gahnia sclerioides* and *Desmocladius flexuosus*. The climbers *Hardenbergia comptoniana*, *Clematis pubescens* and *Billardiera variifolia* are frequently prominent. This sub-unit often grades into *Eucalyptus cornuta* Open Forest on drier sites.

Target - 2 Description: Mainly in the southern portion of Manypeaks area. Describes many different systems - wetlands, freshwater springs and basins Habitat for Australasian bittern (indicator of habitat - high order predators with high food requirements) Lake Pleasant View wetlands are regionally significant Western Trout minnow as a possible indicator Kalgan River is now included in focus area Specific wetland management plans for Two Peoples Bay. Lake Pleasant view etc. Greenskills Key Reference: Hopkinson, 2000 Wetland Conservation at Manypeaks WA. A report produced by Green Skills for the Natural Heritage Trust and the Water and Rivers Commission.

Target - 3 Description: A range of fauna species reliant on a number of key factors including: 1. Appropriate fire regimes 2. Control of predators 3. Relatively intact vegetation systems with good structural diversity Some examples of species in this category which occurred historically across this landscape include: Australasian Bittern, Dibbler, Western Whipbird, Gilbert's Potoroo, Quokka, Western ringtail possum, Western Ground Parrot & Noisy scrub bird. The Western Bristlebird also fits into this category, but its distribution was historically coastal. At present a number of these species are "Conservation dependent fauna species" occurring only in larger national parks and nature reserves. Most of these species not limited to one habitat or vegetation type.

Target - 5 Description: Includes associations with a number of other species including Marri, Sheoaks etc.

Target - 7 Description: A recent report Taylor 2012 describes this target as follows: Migratory shorebirds visit Australia via the East Asia-Australasia Flyway and spend their nonbreeding cycle here from October to March. Australia has an obligation to protect these birds and their habitats under a number of international treaties. Understanding the movement, behaviour and habitat requirements of shorebirds in Australia is thus paramount for their protection. Albany Harbours The Albany Harbours Shorebird Area is a complex of inlets and tidal estuaries and consists of a number of Count Areas, including mudflats at Emu Point, the Kalgan and King River estuaries in Oyster Harbour and Rushy Point on Princess Royal Harbour. Both these harbours are open to the ocean and are not subject to sandbar influences. However, river inflows can dramatically affect the area of inundation and water salinity in isolation of daily tides. Shorebird surveys have been undertaken in the Albany Harbours since 1984 and during that time 22 species of migratory shorebird have been recorded. The site is internationally significant because it regularly supports more than 1% of the Flyway population estimate of Red-necked Stint (3,250) and of Curlew Sandpiper (1,800). The maximum count recorded for Red-necked Stint was 4,742 in January 1995. For Curlew Sandpiper the maximum count recorded was 2,054 in January 1996.

By default the site automatically has National significance but also Regional significance because it supports 15 or more migratory species. Taylor (2012) reports that the total number of birds at the Albany Harbours site dropped from 811 to 443 from 2011 - 2012, and that this figure is worryingly low, being the lowest count since 1983 when records began, and is currently on a steep downward trajectory. One of the key factors impacting migratory birds involve overseas threats such as habitat destruction in South East Asia, a factor that needs to be addressed, in addition to the actions that can be implemented locally. There is a threat of altered hydrology is high in Oyster and Princess Royal Harbour from sea level rise - can it be measured - Planning Group - Harbours group - DOW? - Sarah to investigate research water level data.

Threats

Threat (<i>Common Taxonomy</i>)	Targets Threatened
Inappropriate Fire Regime (Natural System Modifications :: Fire & Fire Suppression)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos
Altered hydrology (Natural System Modifications :: Dams & Water Management/Use)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos • 7) Shorebird Habitat
Introduced Predators (Invasive & Other Problematic Species & Genes :: Invasive Non-Native/Alien Species)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos • 7) Shorebird Habitat
Phytophthora/ disease (Invasive & Other Problematic Species & Genes :: Invasive Non-Native/Alien Species)	<ul style="list-style-type: none"> • 1) Karri forests • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos
Weeds (Invasive & Other Problematic Species & Genes :: Invasive Non-Native/Alien Species)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos
Historical clearing causing habitat fragmentation (destruction) (Natural System Modifications :: Other Ecosystem Modifications)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos
Native/introduced fauna predators (Galah, Kookaburra) (Invasive & Other Problematic Species & Genes :: Problematic Native Species)	<ul style="list-style-type: none"> • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 6) Black Cockatoos
Human Recreation (Human Intrusions & Disturbance :: Recreational Activities)	<ul style="list-style-type: none"> • 4) Proteaceous - Dominant Communities including Mallee Heath • 7) Shorebird Habitat
Clearing by machine (current) (Natural System Modifications :: Other Ecosystem Modifications)	<ul style="list-style-type: none"> • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos

Threat (<i>Common Taxonomy</i>)	Targets Threatened
Grazing (stock, roos & rabbits) (Agriculture & Aquaculture :: Livestock Farming & Ranching)	<ul style="list-style-type: none"> • 1) Karri forests • 2) Freshwater systems • 3) Healthy Habitat Fauna • 4) Proteaceous - Dominant Communities including Mallee Heath • 5) Jarrah Associated Communities • 6) Black Cockatoos

Strategies

Strategy (<i>Common Taxonomy</i>)	Threats Addressed
1.1 Karri forests : Fence off all karri patches from stock <i>Land/Water Management :: Habitat & Natural Process Restoration</i>	-
1.2 Karri forests : Undertake strategic revegetation, in particular to improve understorey <i>Land/Water Management :: Habitat & Natural Process Restoration</i>	-
1.3 Karri forests : Investigate through discussion with landholders the possibility of linking these karri outliers with adjacent remnants and how this relates to their long term vision <i>Land/Water Management :: Habitat & Natural Process Restoration</i> <ul style="list-style-type: none"> • Comment: Possibly longer term and tricky in terms of landholders current perceptions 	-
1.6 Karri forests & proteaceous dominant communities & Jarrah Associated Communities : Identify and protect remnants in good condition : Protect what's there before it is too late <i>Land/Water Management :: Habitat & Natural Process Restoration</i>	-
2.1 Freshwater systems : Keep fires out of wetlands : DEC has a policy to not burn wetlands - South Coast Regional Fire Management Plan (DEC, 2010). Key reference: Barrett et al. (2009) Numerous reasons to keep fires out of wetlands, including Dominant serotinous seeders are vulnerable to frequent fire, intense fires removes organic soil, interaction of fire and phytophthora, altered hydrology, weeds, feral animals, grazing. Shedley (2007) notes that wetland vegetation will burn if sufficiently dry, but often contains flora species that are sensitive to fire and should generally be protected. Fringing vegetation also provides important refuge, feeding and breeding sites for birds and frogs which feed on aquatic invertebrates. <i>Land/Water Management :: Site/Area Management</i>	-
2.10 Freshwater systems : Publicity needed around feral fish and native species : There is an opportunity to get the Murdoch Uni project in the Goodga creek to help with broader publicity issues around native and feral fish. <i>Education & Awareness :: Awareness & Communications</i>	-
2.11 Freshwater systems, Proteaceous-dominant communities, Jarrah Associated Communities : Use new funding from SCNRM for landholders to assist with baiting. : There is a current opportunity and Mark Waud contact potential landholders in this regard. <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
2.12 Freshwater Systems, Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities, Black Cockatoos : Develop a funding application for an updated, landscape-wide vegetation map. <i>Land/Water Management :: Site/Area Management</i>	-
2.2 Freshwater systems, Proteaceous dominant communities, Jarrah Associated Communities : Explore innovative ways of dealing with roos - e.g, contraceptives in feed <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-

Strategy (<i>Common Taxonomy</i>)	Threats Addressed
2.3 Freshwater systems : Fence and revegetate key sites with appropriate fringing vegetation. <i>Land/Water Management :: Habitat & Natural Process Restoration</i>	-
2.4 Freshwater systems : Keep implementing and expanding strategic weed actions across the Manypeaks landscape. : Sydney golden wattle is one of the worst weeds in the area. <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
2.5 Freshwater systems : Collate existing research on wetlands and build baselines : There are some reports on wetland in terms priority, quality for bittern habitat (Sandiford 2012), areas of past, current and potential bittern habitat (e.g. Robin Pickering information). <i>Education & Awareness :: Awareness & Communications</i>	-
2.6 Freshwater systems : Identify key high value, salvageable wetlands which are in need of strategic weed actions : High value, but low infestations - but will get worse in future - buffer etc. <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
2.7 Freshwater systems : In conjunction with Murdoch Uni conduct a pilot project to survey instream barriers and stream flow for key native fish species in the Goodga Catchment. : Happening 2012 - Dec in the Goodga Catchment that flows into key wetlands of the Two People's Bay Nature Reserve (Moates Lake) <i>Species Management :: Species Management</i>	-
2.8 Freshwater systems : Implement fox control in key wetland areas - e.g, reduce pressures on bitterns and other key species <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
2.9 Freshwater systems, Healthy Habitat Fauna, Proteaceous dominant communities, Jarrah Associated Communities : Develop and implement landscape-scale integrated feral control programs. : Department of Agriculture have data on who's baiting and how often - Colin Parry at AG - Mark Waud. DEC - South Coast Integrated Fauna Management Program - wildlife management & conservation (feral predators - cat baiting etc.) - 2nd phase of DEC Biodiversity Fund application - roll out to broader public Possible roll out of shooting of foxes by roo shooters. Need to develop map of areas currently baited - DEC and Ag areas, identify gaps and work out strategically best areas for implementing future baiting programs. This includes a range of feral animals -use results from Bush Heritage Australia pilot project at Chereninup Reserve. Integrate with South Coast NRM invasive species startegy (Matt Kinnewell). <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
3.1 Healthy Habitat Fauna : Undertake community survey for ring tailed possums etc. : Can use cameras - Albany Bird Group - South Stirling Forestry Companies to assist with survey work, LFW properties Dibbler on Ross property a few years ago - had been electrocuted! Mark Waud to undertake survey to get information on a range of fauna species <i>Education & Awareness :: Awareness & Communications</i>	-
3.2 Healthy Habitat Fauna : Obtain historical and current distribution information on a range of species for this region and smaller reserves across the landscape from DEC. <i>Education & Awareness :: Awareness & Communications</i>	-

Strategy (<i>Common Taxonomy</i>)	Threats Addressed
<p>3.3 Healthy Habitat Fauna : Following surveys and mapping of healthy-habitat-sensitive fauna, develop a range of strategies and actions to enhance these species across the Manypeaks landscape. : A range of strategies and actions for these fauna species exist, primarily in DEC reserves. Some of these are identified in reports such as Gilfillan et al., (2009) South Coast Threatened Species & Ecological Communities Regional Strategic Management Plan, Department of Environment & Conservation, Albany, which are recommended as a guide for development of strategies and actions across the Manypeaks landscape. (Many strategies for this conservation target are likely to be overlap with those developed for other targets in this conservation action plan).</p> <p><i>Species Management :: Species Recovery</i></p>	-
<p>3.4 Healthy Habitat Fauna, Proteaceous-dominant communities & Jarrah Associated Communities : DEC/ South Coast NRM to expand the (Pc Dieback) green card training to the broader community</p> <p><i>Land/Water Management :: Invasive/Problematic Species Control</i></p>	-
<p>3.5. Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Implement strategies for fire management - from Barrett et. al. 2009 : General recommendations and guidelines - 2 pages - need to look at that (written from a conservation perspective - need to include fire safety as well)</p> <p><i>Land/Water Management :: Site/Area Management</i></p>	-
<p>3.6 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Improve mapping to clarify which areas do and do not have dieback : Need interpretation - expensive Then signage in future Forestry - FSC precautionary principle</p> <p><i>Land/Water Management :: Invasive/Problematic Species Control</i></p>	-
<p>3.7 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Implement good hygiene and quarantine across the landscape : DEC green card e.g. bush fire brigades</p> <p><i>Land/Water Management :: Invasive/Problematic Species Control</i></p>	-
<p>4.1 Proteaceous-dominant communities : Lobby for funds for mapping the fire sensitive vegetation systems described in Barrett et. al. 2009</p> <p><i>External Capacity Building :: Conservation Finance</i></p>	-
<p>4.2 Proteaceous-dominant communities : Research needed to establish maximum age that burning can be left until : Need practical guidelines - e.g. at what stage you can determine whether the area is "ready to burn" At what stage - number of cones with viable seed - (Wendy Bradshaw) Trials - small scale with monitoring (Bush Heritage)</p> <p><i>Land/Water Management :: Site/Area Management</i></p>	-
<p>4.3 Proteaceous-dominant communities & Black Cockatoos : Include cockatoo habitat species on appropriate soil types in key revegetation projects.</p> <p><i>Land/Water Management :: Habitat & Natural Process Restoration</i></p>	-
<p>5.1 Jarrah Associated Communities : Include dieback resistant provenances in revegetation : as per Peter Luscombe. Seed collectors to collect from resistant looking populations/ individuals Relies on local knowledge</p> <p><i>Undefined :: Undefined</i></p>	-
<p>5.2 Jarrah-associated communities : Increase and enhance connectivity of Jarrah and other vegetation across the landscape through fencing and revegetation</p> <p><i>Undefined :: Undefined</i></p> <ul style="list-style-type: none"> • Comment: Includes connectivity for all the fauna & other biodiversity associated with this target 	-
<p>6.1 Black Cockatoos : Undertake surveys of black cockatoos to determine nesting locations. : Anne Bondin to get available data on all three black cockatoos and talk to Ray Garstone about getting data. There is data as to where the birds occur.</p> <p><i>Species Management :: Species Management</i></p>	-

Strategy (<i>Common Taxonomy</i>)	Threats Addressed
6.2 Black Cockatoos : Implement fire strategy to ensure Black Cockatoo foraging habitat is maintained : Intervals long enough to support the obligate proteaceous veg - at least 7 + years for some species No fire sensitive nesting trees - mild fire will not affect marri, jarrah etc. <i>Land/Water Management :: Habitat & Natural Process Restoration</i>	-
6.3 Black Cockatoos : Implement a feral bee control program for nesting hollows : As per Ranges Link area. 10-15 apiarists visits per year for 5 years while monitoring nesting success <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
6.4 Black Cockatoos : Following surveys and mapping of the three species, develop a strategic action plan for black cockatoos across the Manypeaks landscape. : Carnaby's cockatoo recovery plan recently released (October 2012). Baudins & Red tail still current. Sarah Comer is on the recovery teams and can assist with detail. <i>Species Management :: Species Recovery</i>	-
7.1 Shorebird Habitat : Implement DEC cat baiting program : Although this strategy has the potential to assist with minimising the impact of cats on shorebirds, it is not yet ready to be rolled out more widely and there are problems associated with baiting near urban areas. <i>Land/Water Management :: Invasive/Problematic Species Control</i>	-
7.2 Shorebird Habitat : Investigate and where possible change Albany City legislation & incorporate key management actions into plans. : City of Albany currently looking at including information on shorebird areas in management plans. Can dogs be banned from certain area? Action steps - consult appropriate management plans which address actions to protect the birds, talk to staff involved with Nature Conservation Management. There are legal requirements in this regard. <i>Law & Policy :: Legislation</i>	-
7.3 Shorebird Habitat : Install appropriate signage : Note that signage to help minimize human disturbance is the key strategy for these species as per the Peter Taylor (2012) report to Green Skills & South Coast NRM. Signage can potentially assist with the protection of both locally-breeding as well as migratory shorebird species. <i>Education & Awareness :: Awareness & Communications</i>	-
7.4 Shorebird Habitat : Undertake presentations and talks to groups about conservation of shorebird habitat : The Albany Bird Club is in regular contact with a range of groups that it shares information with about bird conservation in general including shorebird conservation. <i>Education & Awareness :: Awareness & Communications</i>	-
7.5 Shorebird Habitat : Lobbying by Birdlife Australia governments of China, Korea etc. : There are ongoing issues to protect overseas wetlands etc. Jamba and other international treaties - trying to lobby for other areas <i>Law & Policy :: Compliance & Enforcement</i>	-
8.1 Manypeaks Landscape : Initiate Spatial Prioritisation Process for the Manypeaks CAP area <i>Land/Water Management :: Site/Area Management</i>	-
8.2 Manypeaks Landscape : Develop and implement an effective community engagement strategy (Demonstrating multiple benefits of programs to the landholders and community) : One of the issues is overcoming the issue of landholders perceived idea that funding = a caveat, title restriction etc. Guidelines - and methods - peers, Ranges Link, Wendy Bradshaw method, Land for Wildlife, schools programs, guidelines from other CAP process. Need to understand landholders point of view first, is there anybody that really does not care? Also information on baiting programs <i>Education & Awareness :: Awareness & Communications</i>	-

Strategy (<i>Common Taxonomy</i>)	Threats Addressed
8.3 Manypeaks Landscape : Increase the capacity of natural resource management groups to plan, implement, monitor and review conservation interventions in the Manypeaks Landscape. <i>Education & Awareness :: Training</i>	-
8.4 Manypeaks Landscape : Develop and implement long term funding strategy : Get together - with a range of groups <i>External Capacity Building :: Conservation Finance</i>	-
Developing key messages <i>Undefined :: Undefined</i>	-
Map areas of fire sensitive vegetation communities in Manypeaks landscape as described in Barret et al. 2009 <i>Undefined :: Undefined</i>	-

Viability Summary

Conservation Targets		Landscape Context		Condition		Size		Viability Rank
		Grade	Weight	Grade	Weight	Grade	Weight	
1	1) Karri forests	Good	1.0	Fair	1.0	-	1.0	Good
2	2) Freshwater systems	-	1.0	Fair	1.0	-	1.0	Fair
3	3) Healthy Habitat Fauna	-	1.0	Fair	1.0	Fair	1.0	Fair
4	4) Proteaceous - Dominant Communities including Mallee Heath	-	1.0	Fair	1.0	-	1.0	Fair
5	5) Jarrah Associated Communities	Fair	1.0	Fair	1.0	Fair	1.0	Fair
6	6) Black Cockatoos	-	1.0	Fair	1.0	Poor	1.0	Fair
7	7) Shorebird Habitat	-	1.0	-	1.0	Fair	1.0	Fair
Project Biodiversity Health Rank								Fair

Threat Summary

Project-specific Threats (Common Taxonomy *)	1) Karri forests	2) Freshwater systems	3) Healthy Habitat Fauna	4) Proteaceous - Dominant Communities including Mallee Heath	5) Jarrah Associated Communities	6) Black Cockatoos	7) Shorebird Habitat	Overall Threat Rank
Inappropriate Fire Regime (Fire & Fire Suppression)	High	High	Very High	High	Medium	Medium	-	Very High
Altered hydrology (Dams & Water Management/Use)	Medium	Very High	Low	Medium	Medium	Low	Very High	Very High
Introduced Predators (Invasive Non-Native/Alien Species)	Low	Medium	Very High	High	Medium	Low	High	High
Phytophthora/disease (Invasive Non-Native/Alien Species)	Low	-	Medium	Very High	High	Medium	-	High
Weeds (Invasive Non-Native/Alien Species)	Medium	Very High	High	Medium	Medium	Low	-	High
Historical clearing causing habitat fragmentation (destruction) (Other Ecosystem Modifications)	Medium	Medium	High	Medium	Medium	High	-	High
Native/introduced fauna predators (Galah, Kookaburra) (Problematic Native Species)	-	Medium	Low	High	-	High	-	High
Human Recreation (Recreational Activities)	-	-	-	High	-	-	Very High	High
Clearing by machine (current) (Other Ecosystem Modifications)	-	Low	Low	Medium	Medium	Medium	-	Medium
Grazing (stock, roos & rabbits) (Livestock Farming & Ranching)	Medium	Medium	Medium	Medium	Low	Low	-	Medium

Project-specific Threats (Common Taxonomy *)	1) Karri forests	2) Freshwater systems	3) Healthy Habitat Fauna	4) Proteaceous - Dominant Communities including Mallee Heath	5) Jarrah Associated Communities	6) Black Cockatoos	7) Shorebird Habitat	Overall Threat Rank
Threat Status for Targets and Project	Medium	Very High	Very High	Very High	High	High	Very High	Very High

Action Plan

Objective: 1.0 KARRI FORESTS : BROAD GOAL: ALL KARRI FOREST OUTLIERS TO BE FENCED FROM STOCK AND WHERE NECESSARY UNDERSTOREY SPECIES ESTABLISHED BY 2017. : (Target = 1) Karri forests)

Objective: 1.1. Karri forests : Ensure the remaining 2 or 3 patches of karri outliers are fenced by 2013

- **Strategic Action:** 1.1 Karri forests: Fence off all karri patches from stock

Objective: 1.2 Karri forests : Revegetate degraded Karri areas with understorey species where natural regeneration is not feasible by 2013

- **Strategic Action:** 1.2 Karri forests: Undertake strategic revegetation, in particular to improve understorey

Objective: 1.3 Karri forests : Investigate possibility of further linkage of karri patches with landholders by 2013.

- **Strategic Action:** 1.3 Karri forests: Investigate through discussion with landholders the possibility of linking these karri outliers with adjacent remnants and how this relates to their long term vision

Objective: 1.6 Karri forests & proteaceous dominant communities & Jarrah Associated Communities : Initially prioritise & map large, important remnants in the South Stirlings Link (and in close proximity to the Stirling Range National Park) and Porongurup-Two Peoples Bay Link by 2013 in order to guide implementation of remnant protection by 2014

Strategic Action: 1.6 Karri forests & proteaceous dominant communities & Jarrah Associated Communities: Identify and protect remnants in good condition: Protect what's there before it is too late

- **Action Step:** Examine larger areas

Objective: 2.0 FRESHWATER SYSTEMS : BROAD GOAL: DEVELOP KEY STRATEGIC INTERVENTIONS BY 2013 IN ORDER TO MAINTAIN WETLAND HEALTH AT CURRENT LEVELS THROUGH TO 2020 AND BEYOND. : (Target = 2) Freshwater systems)

Objective: 2.1 Freshwater systems : Ensure private land managers know where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015. : This is a broad objective for a number of vegetation types. For wetlands in particular land managers should exclude fires from wetlands, and the timeframe for this could be from the next fire season.

- **Strategic Action:** 2.1 Freshwater systems: Keep fires out of wetlands: DEC has a policy to not burn wetlands - South Coast Regional Fire Management Plan (DEC, 2010). Key reference: Barrett et al. (2009) Numerous reasons to keep fires out of wetlands, including Dominant serotinous seeders are vulnerable to frequent fire, intense fires removes organic soil, interaction of fire and phytophthora, altered hydrology, weeds, feral animals, grazing. Shedley (2007) notes that wetland vegetation will burn if sufficiently dry, but often contains flora species that are sensitive to fire and should generally be protected. Fringing vegetation also provides important refuge, feeding and breeding sites for birds and frogs which feed on aquatic invertebrates.

Objective: 2.10 Freshwater systems : Encourage Murdoch Uni to undertake radio interview and write article for the local press on the importance of native fish species and threat issues such as feral fish during late 2012/early 2013.

- **Strategic Action:** 2.10 Freshwater systems: Publicity needed around feral fish and native species: There is an opportunity to get the Murdoch Uni project in the Goodga creek to help with broader publicity issues around native and feral fish.

Objective: 2.11 Freshwater systems, Proteaceous-dominant communities, Jarrah Associated Communities : Following identification of key strategic areas with landholders by the Oyster Harbour Catchment Group in 2012, implement a fox baiting trial and monitoring program during 2013 to 2015.

- **Strategic Action:** 2.11 Freshwater systems, Proteaceous-dominant communities, Jarrah Associated Communities: Use new funding from SCNRM for landholders to assist with baiting.: There is a current opportunity and Mark Waud contact potential landholders in this regard.

Objective: 2.12 Freshwater Systems, Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities, Black Cockatoos : Following the development of a detailed brief in late 2012, submit a funding application for a new vegetation map for the Manypeaks landscape area by early 2013, . : There is mapping (Sandiford & Barrett, 2010) for the southern sections of the Manypeaks landscape, and mapping that has been done in the Angove and in other areas

by Libby Sandiford, including on plantations. There is a need to update the vegetation map for the area, and Libby Sandiford is well placed to undertake that exercise.

- **Strategic Action:** 2.12 Freshwater Systems, Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities, Black Cockatoos: Develop a funding application for an updated, landscape-wide vegetation map.

Objective: 2.2 Freshwater systems, Proteaceous dominant communities, Jarrah Associated Communities : Obtain information on current status of contraceptive & other innovative control methods for kangaroos by late 2012/early 2013 for consideration of future projects at key sites by mid-late 2013.

- **Strategic Action:** 2.2 Freshwater systems, Proteaceous dominant communities, Jarrah Associated Communities : Explore innovative ways of dealing with roos - e.g, contraceptives in feed

Objective: 2.3 Freshwater systems : Identify key areas in which bitterns are known to occur (especially in the Porongurup-Two Peoples Bay link) for on-ground activities by 2013.

- **Strategic Action:** 2.3 Freshwater systems: Fence and revegetate key sites with appropriate fringing vegetation.

Objective: 2.4 Freshwater systems : Ensure ongoing integration of current weed action plans between Oyster Harbour Catchment Group and the City of Albany.

- **Strategic Action:** 2.4 Freshwater systems: Keep implementing and expanding strategic weed actions across the Manypeaks landscape.: Sydney golden wattle is one of the worst weeds in the area.

Objective: 2.5 Freshwater systems : Identify key wetlands from relevant reports and maps; and undertake a simple audit on status and current management (e.g. wetlands in DEC reserves) by early 2013, in order to develop a strategic action plan by mid/late 2013.

- **Strategic Action:** 2.5 Freshwater systems: Collate existing research on wetlands and build baselines: There are some reports on wetland in terms priority, quality for bittern habitat (Sandiford 2012), areas of past, current and potential bittern habitat (e.g. Robin Pickering information).

Objective: 2.6 Freshwater systems : Following a desktop survey and collation of key information from stakeholders in early 2013 , identify initial cost effective priority projects for weed action in late 2013.

- **Strategic Action:** 2.6 Freshwater systems: Identify key high value, salvageable wetlands which are in need of strategic weed actions: High value, but low infestations - but will get worse in future - buffer etc.

Objective: 2.7 Freshwater systems : Following consultation with landholders by Oyster Harbour Catchment Group, DEC & other stakeholders during 2012, identify engagement and practical restoration projects for freshwater system protection by 2015.

- **Strategic Action:** 2.7 Freshwater systems: In conjunction with Murdoch Uni conduct a pilot project to survey instream barriers and stream flow for key native fish species in the Goodga Catchment.: Happening 2012 - Dec in the Goodga Catchment that flows into key wetlands of the Two People's Bay Nature Reserve (Moates Lake)

Objective: 2.8 Freshwater systems : During late 2012 and early 2013 identify key wetlands where Australasian Bittern are known or likely to occur as targets for fox baiting funds from 2013-2015

- **Strategic Action:** 2.8 Freshwater systems: Implement fox control in key wetland areas - e.g, reduce pressures on bitterns and other key species

Objective: 2.9 Freshwater systems, Healthy Habitat Fauna, Proteaceous dominant communities, Jarrah Associated Communities : Following consultation with key stakeholders in late 2012/ early 2013 develop outline of integrated feral control strategy by late 2013

- **Strategic Action:** 2.9 Freshwater systems, Healthy Habitat Fauna, Proteaceous dominant communities, Jarrah Associated Communities : Develop and implement landscape-scale integrated feral control programs.: Department of Agriculture have data on who's baiting and how often - Colin Parry at AG - Mark Waud. DEC - South Coast Integrated Fauna Management Program - wildlife management & conservation (feral predators - cat baiting etc.) - 2nd phase of DEC Biodiversity Fund application - roll out to broader public Possible roll out of shooting of foxes by roo shooters. Need to develop map of areas currently baited - DEC and Ag areas, identify gaps and work out strategically best areas for implementing future baiting programs. This includes a range of feral animals -use results from Bush Heritage Australia pilot project at Chereninup Reserve. Integrate with South Coast NRM invasive species strategy (Matt Kinnewell).

Objective: 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna)

Objective: 3.1 Healthy Habitat Fauna : Design survey strategy for key healthy habitat sensitive fauna by late 2012 for implementation during 2013.

- **Strategic Action:** 3.1 Healthy Habitat Fauna: Undertake community survey for ring tailed possums etc.: Can use cameras - Albany Bird Group - South Stirling Forestry Companies to assist with survey work, LFW properties Dibbler on Ross property a few years ago - had been electrocuted! Mark Waud to undertake survey to get information on a range of fauna species

Objective: 3.2 Healthy Habitat Fauna : Compile fauna distribution maps from records of key healthy-habitat-dependent fauna species across the broader landscape by late 2012/early 2013.

- **Strategic Action:** 3.2 Healthy Habitat Fauna: Obtain historical and current distribution information on a range of species for this region and smaller reserves across the landscape from DEC.

Objective: 3.3.1 Healthy Habitat Fauna : Develop a range of strategies and actions (including funding applications) for enhancing healthy-habitat-sensitive fauna by late 2013, for initial implementation in early 2014.

- **Strategic Action:** 3.3 Healthy Habitat Fauna: Following surveys and mapping of healthy-habitat-sensitive fauna, develop a range of strategies and actions to enhance these species across the Manypeaks landscape.: A range of strategies and actions for these fauna species exist, primarily in DEC reserves. Some of these are identified in reports such as Gilfillan et al., (2009) South Coast Threatened Species & Ecological Communities Regional Strategic Management Plan, Department of Environment & Conservation, Albany, which are recommended as a guide for development of strategies and actions across the Manypeaks landscape. (Many strategies for this conservation target are likely to be overlap with those developed for other targets in this conservation action plan).

Objective: 3.3.2 Healthy Habitat Fauna : Ensure the Manypeaks strategic actions for healthy-habitat-dependant species are in line with any recovery action planning for these species.

- **Strategic Action:** 3.3 Healthy Habitat Fauna: Following surveys and mapping of healthy-habitat-sensitive fauna, develop a range of strategies and actions to enhance these species across the Manypeaks landscape.: A range of strategies and actions for these fauna species exist, primarily in DEC reserves. Some of these are identified in reports such as Gilfillan et al., (2009) South Coast Threatened Species & Ecological Communities Regional Strategic Management Plan, Department of Environment & Conservation, Albany, which are recommended as a guide for development of strategies and actions across the Manypeaks landscape. (Many strategies for this conservation target are likely to be overlap with those developed for other targets in this conservation action plan).

Objective: 3.4 Healthy Habitat Fauna, Proteaceous-dominant communities & Jarrah Associated Communities : Ensure ongoing dieback information and services/programs are available for private landholders

- **Strategic Action:** 3.4 Healthy Habitat Fauna, Proteaceous-dominant communities & Jarrah Associated Communities: DEC/ South Coast NRM to expand the (Pc Dieback) green card training to the broader community

Objective: 3.5.1 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Evaluate, prioritise, and if necessary reword the 20 general recommendations and guidelines from Barrett et al. 2009 by early 2013 in order to apply for funding sources in late 2013 with implementation by 2014.

Strategic Action: 3.5. Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities: Implement strategies for fire management - from Barrett et. al. 2009: General recommendations and guidelines - 2 pages - need to look at that (written from a conservation perspective - need to include fire safety as well)

- **Action Step:** Accurately map the fire-sensitive ecosystems of the South Coast as identified in Barret et al. 2009

Objective: 3.5.2 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015.

Strategic Action: 3.5. Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities: Implement strategies for fire management - from Barrett et. al. 2009: General recommendations and guidelines - 2 pages - need to look at that (written from a conservation perspective - need to include fire safety as well)

- **Action Step:** Accurately map the fire-sensitive ecosystems of the South Coast as identified in Barret et al. 2009

Objective: 3.6 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Obtain existing SCNRM dieback projects (DIDMS etc.) by 2013 so an interpreter can map priority areas and identify large uninfested remnants by 2014

- **Strategic Action:** 3.6 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities: Improve mapping to clarify which areas do and do not have dieback : Need interpretation - expensive Then signage in future Forestry - FSC precautionary principle

Objective: 3.7 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure resource materials are available and training is offered/delivered to a wide range of landholders/stakeholders by 2013 to encourage the wider adoption of dieback hygiene protocols by 2014. : This is a project in itself - needs a extension service that currently does not exist

- **Strategic Action:** 3.7 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities: Implement good hygiene and quarantine across the landscape: DEC green card e.g. bush fire brigades

Objective: 4.0 PROTEACEOUS DOMINANT COMMUNITIES : BROAD GOAL: IDENTIFY RESTORATION PRIORITIES FOR IMPROVING BIODIVERSITY CONSERVATION BY 2030 FOLLOWING THE MAPPING AND DEFINING OF PROTEACEOUS DOMINANT VEGETATION DURING 2017 : (Target = 4) Proteaceous - Dominant Communities including Mallee Heath)

Objective: 4.1 Proteaceous-dominant communities : Submit funding proposal by late 2012 so funds are obtained at latest mid 2013. Accurately map and document fire sensitive ecosystems of the South Coast whilst encouraging landholder use of this tool by end of 2013.

- **Strategic Action:** 4.1 Proteaceous-dominant communities: Lobby for funds for mapping the fire sensitive vegetation systems described in Barrett et. al. 2009

Objective: 4.2 Proteaceous-dominant communities : Develop a joint funding proposal between DEC, landholders, Australian Bush Heritage and Murdoch University for a trial burning and monitoring project of various aged, "scenescant" proteaceous dominant heathland by 2013 in order to identify various guidelines for practical implementation by 2015. : Studies of a similar nature have been undertaken for the Gngangara area (Wilson et. al. 2010, GUIDELINES FOR DEVELOPING ECOLOGICAL BURNING REGIMES FOR THE GNANGARA GROUNDWATER SYSTEM - in this case in Banskia woodlands, taking into account a range of fauna requirements including Honey Possums and Carnaby's black cockatoos, optimum burning regimes of 20-30 years (in a patchwork mosaic) were recommended).

- **Strategic Action:** 4.1 Proteaceous-dominant communities: Lobby for funds for mapping the fire sensitive vegetation systems described in Barrett et. al. 2009
- **Strategic Action:** 4.2 Proteaceous-dominant communities: Research needed to establish maximum age that burning can be left until: Need practical guidelines - e.g. at what stage you can determine whether the area is "ready to burn" At what stage - number of cones with viable seed - (Wendy Bradshaw) Trials - small scale with monitoring (Bush Heritage)

Objective: 4.3 Proteaceous-dominant communities & Black Cockatoos : Develop appropriate plant species lists to enhance feeding, breeding and roosting of all three black cockatoos by 2013 for implementation into revegetation plans by 2014.

- **Strategic Action:** 4.3 Proteaceous-dominant communities & Black Cockatoos: Include cockatoo habitat species on appropriate soil types in key revegetation projects.

Objective: 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities)

Objective: 5.1 Jarrah Associated Communities : Engage with seed collectors to ensure they are looking out for dieback resistant material by 2013.

- **Strategic Action:** 5.1 Jarrah Associated Communities: Include dieback resistant provenances in revegetation: as per Peter Luscombe. Seed collectors to collect from resistant looking populations/ individuals Relies on local knowledge

Objective: 5.2 Jarrah-associated communities : Identity targeted fauna (and flora) species requirements by mid 2013 to guide the development of a fauna (& flora) connectivity map and requirements for on ground works by late 2013 : Flora connectivity relates to exchange of genes and opportunities for future speciation/ evolution - Creating suitable habitat for key fauna species to allow for movement across the landscape

- **Strategic Action:** 5.2 Jarrah-associated communities: Increase and enhance connectivity of Jarrah and other vegetation across the landscape through fencing and revegetation

Objective: 6.0 BLACK COCKATOOS : BROAD GOAL: NO LOSS OF FEEDING HABITAT AND BREEDING HOLLOWES BY 2020 AND A 10% INCREASE IN THIS BY 2030. : (Target = 6) Black Cockatoos)

Objective: 6.1.1 Black Cockatoos : Establish through survey and known records where breeding of black cockatoos occurs by end of 2012 so appropriate actions can be implemented in 2013 and beyond.

- **Strategic Action:** 6.1 Black Cockatoos: Undertake surveys of black cockatoos to determine nesting locations.: Anne Bondin to get available data on all three black cockatoos and talk to Ray Garstone about getting data. There is data as to where the birds occur.

Objective: 6.1.2 Black Cockatoos : Develop a map of breeding records (with buffers for protecting nests from poachers if needed) of all three black cockatoos by early 2013 to assist with prioritisation and implementation of actions by mid 2013.

- **Strategic Action:** 6.1 Black Cockatoos: Undertake surveys of black cockatoos to determine nesting locations.: Anne Bondin to get available data on all three black cockatoos and talk to Ray Garstone about getting data. There is data as to where the birds occur.

Objective: 6.2 Black Cockatoos : Develop fire management guidelines for maintaining black cockatoo foraging habitat by 2013 for practical implementation from 2014 and beyond.

- **Strategic Action:** 6.2 Black Cockatoos: Implement fire strategy to ensure Black Cockatoo foraging habitat is maintained : Intervals long enough to support the obligate proteaceous veg - at least 7 + years for some species No fire sensitive nesting trees - mild fire will not affect marri, jarrah etc.

Objective: 6.3 Black Cockatoos : Identify areas where swarms are a problem in tree hollows by early 2013 so contracted apiarists can remove swarms and monitor nesting success from end of 2013 to 2018

- **Strategic Action:** 6.3 Black Cockatoos: Implement a feral bee control program for nesting hollows: As per Ranges Link area. 10-15 apiarists visits per year for 5 years while monitoring nesting success

Objective: 6.4.1 Black Cockatoos : Develop a strategic action plan to enhance black cockatoos by mid 2013, for implementation from late 2013.

- **Strategic Action:** 6.4 Black Cockatoos: Following surveys and mapping of the three species, develop a strategic action plan for black cockatoos across the Manypeaks landscape.: Carnaby's cockatoo recovery plan recently released (October 2012). Baudins & Red tail still current. Sarah Comer is on the recovery teams and can assist with detail.

Objective: 6.4.2 Black Cockatoos : Ensure the Manypeaks strategic actions are in line with any recovery action planning for cockatoo species.

- **Strategic Action:** 6.4 Black Cockatoos: Following surveys and mapping of the three species, develop a strategic action plan for black cockatoos across the Manypeaks landscape.: Carnaby's cockatoo recovery plan recently released (October 2012). Baudins & Red tail still current. Sarah Comer is on the recovery teams and can assist with detail.

Objective: 7.0 SHOREBIRD HABITAT : BROAD GOAL: ENSURE EXISTING SHOREBIRD HABITAT IS PROTECTED BY 2015 AND THERE IS NO FUTURE LOSS OF HABITAT. : (Target = 7) Shorebird Habitat)

Objective: 7.1 Shorebird Habitat : Once DEC cat baiting trials have been completed, ensure that the program is rolled out in key shorebird habitat areas.

- **Strategic Action:** 7.1 Shorebird Habitat: Implement DEC cat baiting program: Although this strategy has the potential to assist with minimising the impact of cats on shorebirds, it is not yet ready to be rolled out more widely and there are problems associated with baiting near urban areas.

Objective: 7.2 Shorebird Habitat : Ensure issues associated with Shorebird Conservation and recommendations from Taylor (2012) have been tabled with the City of Albany by early 2013 for integration into management and action plans by 2014.

- **Strategic Action:** 7.2 Shorebird Habitat: Investigate and where possible change Albany City legislation & incorporate key management actions into plans.: City of Albany currently looking at including information on shorebird areas in management plans. Can dogs be banned from certain area? Action steps - consult appropriate management plans which address actions to protect the birds, talk to staff involved with Nature Conservation Management. There are

legal requirements in this regard.

Objective: 7.3 Shorebird Habitat : Identify improved signage requirements during the summer of 2012/13, so a appropriate funds can be sourced for installation before the summer of 2013/2014.

- **Strategic Action:** 7.3 Shorebird Habitat: Install appropriate signage: Note that signage to help minimize human disturbance is the key strategy for these species as per the Peter Taylor (2012) report to Green Skills & South Coast NRM. Signage can potentially assist with the protection of both locally-breeding as well as migratory shorebird species.

Objective: 7.4 Shorebird Habitat : Ensure presentations to groups that include conservation of shorebirds are ongoing.

- **Strategic Action:** 7.4 Shorebird Habitat: Undertake presentations and talks to groups about conservation of shorebird habitat: The Albany Bird Club is in regular contact with a range of groups that it shares information with about bird conservation in general including shorebird conservation.

Objective: 7.5 Shorebird Habitat : Ensure information on international threats, issues and lobbying progress has been sought and a summary provided to the CAP committee by early 2013 for further consideration and action planning by mid 2013.

- **Strategic Action:** 7.5 Shorebird Habitat: Lobbying by Birdlife Australia governments of China, Korea etc.: There are ongoing issues to protect overseas wetlands etc. Jamba and other international treaties - trying to lobby for other areas

Objective: 8.0 MANYPEAKS LANDSCAPE : 8) BROAD GOAL: ENABLING STRATEGIES (SPATIAL PRIORITISATION, FUNDING, CAPACITY BUILDING, AND COMMUNICATIONS) FOR THE MANYPEAKS LANDSCAPE SCOPED AND DEVELOPED BY EARLY 2013, IMPLEMENTED EFFECTIVELY FROM 2013 TO 2020 AND BEYOND.

Objective: 8.1 Manypeaks Landscape : Brief for prioritisation process developed by early 2013, funding acquired by mid 2013 with initial map completed by end of 2013, final map & report by 2014.

- **Strategic Action:** 8.1 Manypeaks Landscape: Initiate Spatial Prioritisation Process for the Manypeaks CAP area

Objective: 8.2 Manypeaks Landscape : Develop core messages and identify audiences, key engagement events & action plans for implementation by end of 2013.

- **Strategic Action:** Developing key messages

Strategic Action: 8.2 Manypeaks Landscape: Develop and implement an effective community engagement strategy (Demonstrating multiple benefits of programs to the landholders and community): One of the issues is overcoming the issue of landholders perceived idea that funding = a caveat, title restriction etc. Guidelines - and methods - peers, Ranges Link, Wendy Bradshaw method, Land for Wildlife, schools programs, guidelines from other CAP process. Need to understand landholders point of view first, is there anybody that really does not care? Also information on baiting programs

- **Action Step:** Media releases
- **Action Step:** Personal contact and engagement

Objective: 8.3 Manypeaks Landscape : By early 2013 incorporation of funding applications including training is in place, with funding for increased capacity for NRM groups to plan, implement, monitor and review conservation interventions by early 2014.

- **Strategic Action:** 8.3 Manypeaks Landscape: Increase the capacity of natural resource management groups to plan, implement, monitor and review conservation interventions in the Manypeaks Landscape.

Objective: 8.4 Manypeaks Landscape : Scope requirements for funding strategy by mid 2013, develop strategy by late 2013 for implementation by early 2014.

- **Strategic Action:** 8.4 Manypeaks Landscape: Develop and implement long term funding strategy: Get together - with a range of groups

Objective: By 2013 design and get funding for a project for DEC to map the fire sensitive vegetation described in Barret et al. 2009 so that management actions can be taken

Strategic Action: Map areas of fire sensitive vegetation communities in Manypeaks landscape as described in Barret et al. 2009

- **Action Step:** Develop a project brief and budget
- **Action Step:** Submit a project application to the appropriate funding body
- **Action Step:** Undertake the project

Objective: By 2015 private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies :
(Threat = Inappropriate Fire Regime)

All Monitoring Indicators

Methods	Objectives	Key Indicator References by Target (w/Current Indicator Measurement)	Threat References by Target (w/Current Indicator Measurement)
Indicator: "Appropriate" intensity, interval and scale			
-	<ul style="list-style-type: none"> 4.0 PROTEACEOUS DOMINANT COMMUNITIES : BROAD GOAL: IDENTIFY RESTORATION PRIORITIES FOR IMPROVING BIODIVERSITY CONSERVATION BY 2030 FOLLOWING THE MAPPING AND DEFINING OF PROTEACEOUS DOMINANT VEGETATION DURING 2017 : (Target = 4) Proteaceous - Dominant Communities including Mallee Heath) 	4) Proteaceous - Dominant Communities including Mallee Heath <ul style="list-style-type: none"> Condition: Fire regime 	
Indicator: Appropriate intensity, interval and scale			
-	<ul style="list-style-type: none"> 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna) 	3) Healthy Habitat Fauna <ul style="list-style-type: none"> Condition: Fire Regime 	
Indicator: Australasian bittern/and or sensitive macroinvertebrates			
-	<ul style="list-style-type: none"> 2.0 FRESHWATER SYSTEMS : BROAD GOAL: DEVELOP KEY STRATEGIC INTERVENTIONS BY 2013 IN ORDER TO MAINTAIN WETLAND HEALTH AT CURRENT LEVELS THROUGH TO 2020 AND BEYOND. : (Target = 2) Freshwater systems) 	2) Freshwater systems <ul style="list-style-type: none"> Condition: Aquatic and fringing vegetation 	
Indicator: Availability of hollows for breeding and nearby food sources			
-	<ul style="list-style-type: none"> 6.0 BLACK COCKATOOS : BROAD GOAL: NO LOSS OF FEEDING HABITAT AND BREEDING HOLLOWES BY 2020 AND A 10% INCREASE IN THIS BY 2030. : (Target = 6) Black Cockatoos) 	6) Black Cockatoos <ul style="list-style-type: none"> Size: Population recruitment 	
Indicator: Canker effects in Marri/Banksia			
-	<ul style="list-style-type: none"> 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities) 	5) Jarrah Associated Communities <ul style="list-style-type: none"> Condition: Tree health 	
Indicator: Crown Cover			
-	<ul style="list-style-type: none"> 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities) 	5) Jarrah Associated Communities <ul style="list-style-type: none"> Condition: Tree health 	
Indicator: Demographics			

Methods	Objectives	Key Indicator References by Target (w/Current Indicator Measurement)	Threat References by Target (w/Current Indicator Measurement)
-	<ul style="list-style-type: none"> 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna) 	3) Healthy Habitat Fauna <ul style="list-style-type: none"> Size: Population viability 	
Indicator: Density of bird pollinators			
-	<ul style="list-style-type: none"> 4.0 PROTEACEOUS DOMINANT COMMUNITIES : BROAD GOAL: IDENTIFY RESTORATION PRIORITIES FOR IMPROVING BIODIVERSITY CONSERVATION BY 2030 FOLLOWING THE MAPPING AND DEFINING OF PROTEACEOUS DOMINANT VEGETATION DURING 2017 : (Target = 4) Proteaceous - Dominant Communities including Mallee Heath) By 2015 private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies : (Threat = Inappropriate Fire Regime) 	4) Proteaceous - Dominant Communities including Mallee Heath <ul style="list-style-type: none"> Condition: Pollination 	
Indicator: Good quality (proteaceous) rich veg within critical distance of breeding (Carnaby's)			
-	<ul style="list-style-type: none"> 6.0 BLACK COCKATOOS : BROAD GOAL: NO LOSS OF FEEDING HABITAT AND BREEDING HOLLOWYS BY 2020 AND A 10% INCREASE IN THIS BY 2030. : (Target = 6) Black Cockatoos) 	6) Black Cockatoos <ul style="list-style-type: none"> Condition: Abundance of food resources 	
Indicator: ha and distances between patches			
-	<ul style="list-style-type: none"> 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities) 	5) Jarrah Associated Communities <ul style="list-style-type: none"> Size: Patch size & shape 	
Indicator: Mixed aged classes and strata			
-	<ul style="list-style-type: none"> 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities) 	5) Jarrah Associated Communities <ul style="list-style-type: none"> Landscape Context: Population structure & recruitment 	
Indicator: Organic matter			
-	<ul style="list-style-type: none"> 1.0 KARRI FORESTS : BROAD GOAL: ALL KARRI FOREST OUTLIERS TO BE FENCED FROM STOCK AND WHERE NECESSARY UNDERSTOREY SPECIES ESTABLISHED BY 2017. : (Target = 1) Karri forests) 	1) Karri forests <ul style="list-style-type: none"> Condition: Tree health (canopy) & associated herbaceous and shrubby understorey 	
Indicator: Presence of birds			
-	<ul style="list-style-type: none"> 7.0 SHOREBIRD HABITAT : BROAD GOAL: ENSURE EXISTING SHOREBIRD HABITAT IS PROTECTED BY 2015 AND THERE IS NO FUTURE LOSS OF HABITAT. : (Target = 7) Shorebird Habitat) 	7) Shorebird Habitat <ul style="list-style-type: none"> Size: Feeding Habitat 	

Methods	Objectives	Key Indicator References by Target (w/Current Indicator Measurement)	Threat References by Target (w/Current Indicator Measurement)
Indicator: Recruitment of seedlings			
-	<ul style="list-style-type: none"> 1.0 KARRI FORESTS : BROAD GOAL: ALL KARRI FOREST OUTLIERS TO BE FENCED FROM STOCK AND WHERE NECESSARY UNDERSTOREY SPECIES ESTABLISHED BY 2017. : (Target = 1) Karri forests) 	1) Karri forests <ul style="list-style-type: none"> Landscape Context: Population structure & recruitment 	
Indicator: Vegetation assessment			
-	<ul style="list-style-type: none"> 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna) 	3) Healthy Habitat Fauna <ul style="list-style-type: none"> Condition: Structure, complexity and diversity of habitat 	
Indicator: Water quality			
-	<ul style="list-style-type: none"> 2.0 FRESHWATER SYSTEMS : BROAD GOAL: DEVELOP KEY STRATEGIC INTERVENTIONS BY 2013 IN ORDER TO MAINTAIN WETLAND HEALTH AT CURRENT LEVELS THROUGH TO 2020 AND BEYOND. : (Target = 2) Freshwater systems) 	2) Freshwater systems <ul style="list-style-type: none"> Condition: Fresh Water 	

Project Resources

There is not enough information to produce this report.

Assessment of Target Viability

Conservation Target	Key Attribute (Category)	Indicator	Current Indicator Measurement	Rating Comments: (Poor, Fair Good Very Good)	Current Rating and Date	Desired Rating and Date
1) Karri forests	Tree health (canopy) & associated herbaceous and shrubby understorey ¹ (Condition)	Organic matter ²	Leaf litter & woody debris	Poor: low organic matter Fair: some organic matter Good: medium organic matter Very Good: high organic matter	Fair ³	Fair
1) Karri forests	Population structure & recruitment ⁴ (Landscape Context)	Recruitment of seedlings	Mix of age classes	Poor: - Fair: - Good: - Very Good: -	Good	-
2) Freshwater systems	Aquatic and fringing vegetation ⁵ (Condition)	Australasian bittern/and or sensitive macroinvertebrates ⁶	Number of bittern sites occupied in any season	Poor: tbd Fair: tbd Good: 10-15 individuals Very Good: tbd	Fair ⁷	Good
2) Freshwater systems	Fresh Water ⁸ (Condition)	Water quality	Water sampling - pH, Salinity, macro-invertebrates and depth to measure quantity	Poor: permanently dry Fair: - Good: - Very Good: -	Good ⁹	Good
3) Healthy Habitat Fauna	Fire Regime ¹⁰ (Condition)	Appropriate intensity, interval and scale	Temporal/spatial patterning (Patchiness)	Poor: - Fair: - Good: - Very Good: -	Good ¹¹	Good
3) Healthy Habitat Fauna	Structure, complexity and diversity of habitat (Condition)	Vegetation assessment	Keighery Type Scale	Poor: - Fair: - Good: - Very Good: -	Fair ¹²	Good
3) Healthy Habitat Fauna	Population viability ¹³ (Size)	Demographics ¹⁴	Number of animals	Poor: <250 individuals Fair: 250 - 2,500 Good: 2,500 - 10,000 Very Good: >10,000 individuals	Fair ¹⁵	Good
4) Proteaceous - Dominant Communities including Mallee Heath	Fire regime ¹⁶ (Condition)	"Appropriate" intensity, interval and scale	Patchiness	Poor: - Fair: - Good: - Very Good: -	Fair ¹⁷	-
4) Proteaceous - Dominant Communities including Mallee Heath	Pollination ¹⁸ (Condition)	Density of bird pollinators ¹⁹	Bird activity index	Poor: 1-1.5 Fair: 1.6-3.0 Good: 3.1-4.5 Very Good: >4.6	Good ²⁰	-
5) Jarrah Associated Communities	Tree health ²¹ (Condition)	Canker effects in Marri/Banksia	Need to look at measurements like number of trees dying	Poor: - Fair: - Good: - Very Good: -	-	-
5) Jarrah Associated Communities	Tree health ²² (Condition)	Crown Cover	Modify from Wandoo crown condition as follows:C1, (75-100% crown cover), C2 (45 - 65% crown cover), C3 (20-30%), C4 (10% crown cover)	Poor: C4 (10% crown cover) Fair: C3 (20-30% crown cover) Good: C2 (45 - 65% crown cover) Very Good: C1 (75-100% crown cover)	Fair	Good
5) Jarrah Associated Communities	Population structure & recruitment ²³ (Landscape Context)	Mixed aged classes and strata	Flora surveys - various techniques	Poor: only old trees Fair: - Good: mix of age classes Very Good: -	Fair	Good
5) Jarrah Associated Communities	Patch size & shape ²⁴ (Size)	ha and distances between patches	Hectares & perimeter to area ratio	Poor: - Fair: - Good: - Very Good: -	Fair	Good
6) Black Cockatoos	Abundance of food resources ²⁵ (Condition)	Good quality (proteaceous) rich veg within critical distance of breeding (Carnaby's)	Area (ha) of good quality feeding habitat	Poor: - Fair: - Good: - Very Good: -	Fair	Good

Conservation Target	Key Attribute (Category)	Indicator	Current Indicator Measurement	Rating Comments: (Poor, Fair Good Very Good)	Current Rating and Date	Desired Rating and Date
6) Black Cockatoos	Population recruitment ²⁶ (Size)	Availability of hollows for breeding and nearby food sources	Successful recruitment	Poor: few hollows Fair: some hollows Good: many Very Good: lots of hollows within critical distance of food resources	Poor ²⁷	Fair
7) Shorebird Habitat	Feeding Habitat ²⁸ (Size)	Presence of birds ²⁹	Number of birds	Poor: <250 birds Fair: 250 - 1000 birds Good: 1000 - 3000 birds Very Good: >3000 birds	Fair ³⁰	Fair

COMMENTS:

1. Detail from Lindsay Link CAP - in and on the soil
2. Values to be determined - concept developed during Lindsay Link CAP (2011-2012)
3. Doug Russel and Ross Davies good quality Karri, but some other not so good - on others
4. Capacity for regeneration of new seedlings
5. The Australasian bittern is an indicator that the wetland is in good condition with adequate food - which in turn is an indicator of a healthy system, freshwater, cover, size, vegetation structure especially fringing vegetation such as rushes etc. i.e a surrogate for a range of biodiversity values in these freshwater wetlands. (a small wetland may be in healthy condition but could be too small for a bittern) Need freshwater - Anne has good idea of suitable bittern habitat in the area - can assist landholders (question - paperbarks as indicators - cuticularis vs raphiophylla?) Bitterns may not occur naturally everywhere - may need other indicator spp such as mayflies/ fish etc.
6. Problems with birds moving, - rather use - number of known bittern areas occupied (using suveys) every year - automated recording units (aru) Birdlife - recently mapped - these wetland habitats - report due soon
7. Overall ranking=FAIR , Good at Pleasant view (10-15 individuals in project area), Cheynes Wetland Suite, decreasing but unclear how much b/c monitoring only in last 3 years
8. Physio-chemical Parameters, Kevin Hopkinson study on mayflies as indicator of water quality
9. Comment from group 20 December 2011 - at the lower end of good Lake Pleasant and Cheyens have permanent depth loggers and one at Stirling Range
10. There are different fire regimes appropriate for different vegetation types and in addition there are other considerations such as fuel reduction burns that are carried out to protect key areas. The term appropriate is therefore used as there is no one regime that will fit all areas, but the appropriate regime will need to be applied on a site by site basis
11. The whole issue of fire management is on track with good strategies and implementation including protective burns etc. - Sarah Comer, South Coast Regional Ecologist, DEC, 28 Feb 2012, pers. comm.
12. The ranking was given as fair here as two values can not be selected, even though in the meeting of 28 February 2012 it was felt that the ranking should be fair-good. i.e. have been conservative in this estimation
13. Population size, distribution and density
14. This different for different species - certain trends in terms of numbers General criteria for threat catagories for small population size as threatening process (presumed here to be the inverse of viability) is given by Gillfillan et. al. (2009) in Threatened Species & Ecological Communities. Regional Strategic Management Plan, South Coast Region, Western Australia
15. Fair is a landscape-wide average - better in some areas and worse in others. Please noted that the flat trend is again an average for each species - should ideally be looked at for each species
16. See as per healthy habitat sensitive fauna. ie: There are different fire regimes appropriate for different vegetation types and in addition there are other considerations such as fuel reduction burns that are carried out to protect key areas. The term "appropriate" is therefore used as there is no one regime that will fit all areas, but the appropriate regime will need to be applied on a site by site basis
17. Rating estimated fair - good would apply to the regime in the national park areas focussed on fauna and habitat requirements - possibly that the ranking is on average "fair" across the proteaceous dominant communities
18. Measured by bird activity index - see Angela Sanders, unpublished data, 2011
19. The above is based on Angela Sanders, unpublished information, 2011, based on the 'bird minute' methodology carried out at key reference sites in the FitzStirling.
20. This status of good is an estimate. In a lanscape to the east, the FitzStirling, the following note is from Angela Sanders, 2011, unpublished: Current Status: Over the survey period (2006-2010) the Indicator has fluctuated between Fair to Very Good. Further analysis of each site may highlight areas of senescence. Correlation with VegMachine data per site also needs to be carried out.
21. Get info from CRC for Tree Health (Murdoch - Giles Hardy) - to get some idea of how to identify and measure
22. Comment from Ranges Link CAP: Similar to Wandoo Tree Decline - indicator ratings to be determined
23. Comment from Ranges Link CAP: Complex systems accross varying soils from sand to laterite. Phytophthora an issue

24. Comment from Ranges Link CAP (2010-2011): Probably needs rewording for Manypeaks landscape's vegetation This is the most prevalent vegetation in this system - in the southern half at least. i.e. remnants are the most prevalent - but may not have been the most prevalent vegetation in pre-European times, predominate vegetation would have been Wandoo and Mallee on siltones (clayloam) - the reason for most rem veg in Jarrah Marri today is less nutrients & poorer soils for agricultural and only started with clearing once the trace elements were introduced - 1960s- 1980s
25. These key ecological attributes and indicators were developed for Carnaby's Cockatoo for the Stirling to Porongurup CAP (2010-2011) with Raana Scott of Birds Australia. The assumptions for Carnaby's will need to be tested for the other two cockatoo species.
26. These key ecological attributes and indicators were developed for Carnaby's Cockatoo for the Stirling to Porongurup CAP (2010-2011) with Raana Scott of Birds Australia. The assumptions for Carnaby's will need to be tested for the other two cockatoo species.
27. Difficult to generalise across species - was rated poor for Carnaby's - does this hold for the other two species as well? There were comments at a meeting of 1 Nov 2010 with the Ranges Link group that Red Tailed black numbers were actually increasing at one property For the moment - leave the rating as per the Carnaby's assessment, assuming that the lack of hollows goes for all three species
28. Indicates the availability of benthic fauna
29. These records values have been updated June 2012 with input of results from the Peter Taylor survey report. There are good data sets from shorebird assessments. Recent survey noted 400 birds at Oyster Harbour and Princess Royal, but a benchmark from a few years ago was 1000s of birds. Anne - has the records from 1982 and can make available Fresh water in wet years - has destroyed some What about resident shorebirds - may be better indicators
30. Data is showing a strong decline in numbers - a very worrying trend

Strategy Effectiveness

Objective: 1.0 KARRI FORESTS : BROAD GOAL: ALL KARRI FOREST OUTLIERS TO BE FENCED FROM STOCK AND WHERE NECESSARY UNDERSTOREY SPECIES ESTABLISHED BY 2017. : (Target = 1) Karri forests) **Percent Complete: 0%**

Indicator: Organic matter

Measurement Report:

Measure	Date	Source	Trend	Comments
Leaf litter & woody debris	-	Not Specified	Flat	Doug Russel and Ross Davies good quality Karri, but some other not so good - on others

Indicator: Recruitment of seedlings

Measurement Report:

Measure	Date	Source	Trend	Comments
Mix of age classes	-	Not Specified	Not Specified	

Objective: 1.1. Karri forests : Ensure the remaining 2 or 3 patches of karri outliers are fenced by 2013

Percent Complete: 0%

Objective: 1.2 Karri forests : Revegetate degraded Karri areas with understorey species where natural regeneration is not feasible by 2013

Percent Complete: 0%

Objective: 1.3 Karri forests : Investigate possibility of further linkage of karri patches with landholders by 2013.

Percent Complete: 0%

Objective: 1.6 Karri forests & proteaceous dominant communities & Jarrah Associated Communities : Initially prioritise & map large, important remnants in the South Stirlings Link (and in close proximity to the Stirling Range National Park) and Porongurup-Two Peoples Bay Link by 2013 in order to guide implementation of remnant protection by 2014

Percent Complete: 0%

Objective: 2.0 FRESHWATER SYSTEMS : BROAD GOAL: DEVELOP KEY STRATEGIC INTERVENTIONS BY 2013 IN ORDER TO MAINTAIN WETLAND HEALTH AT CURRENT LEVELS THROUGH TO 2020 AND BEYOND. : (Target = 2) Freshwater systems)

Percent Complete: 0%

Indicator: Australasian bittern/and or sensitive macroinvertebrates

Measurement Report:

Measure	Date	Source	Trend	Comments
Number of bittern sites occupied in any season	-	Expert Knowledge	Mild Decrease	Overall ranking=FAIR , Good at Pleasant view (10-15 individuals in project area), Cheynes Wetland Suite, decreasing but unclear how much b/c monitoring only in last 3 years

Indicator: Water quality

Measurement Report:

Measure	Date	Source	Trend	Comments
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Water sampling - pH, Salinity, macro-invertebrates and depth to measure quantity	-	Expert Knowledge	Mild Decrease	Comment from group 20 December 2011 - at the lower end of good Lake Pleasant and Cheyens have permanent depth loggers and one at Stirling Range
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Objective: 2.1 Freshwater systems : Ensure private land managers know where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015. : This is a broad objective for a number of vegetation types. For wetlands in particular land managers should exclude fires from wetlands, and the timeframe for this could be from the next fire season.

Percent Complete: 0%

Objective: 2.10 Freshwater systems : Encourage Murdoch Uni to undertake radio interview and write article for the local press on the importance of native fish species and threat issues such as feral fish during late 2012/early 2013.

Percent Complete: 0%

Objective: 2.11 Freshwater systems, Proteaceous-dominant communities, Jarrah Associated Communities : Following identification of key strategic areas with landholders by the Oyster Harbour Catchment Group in 2012, implement a fox baiting trial and monitoring program during 2013 to 2015.

Percent Complete: 0%

Objective: 2.12 Freshwater Systems, Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities, Black Cockatoos : Following the development of a detailed brief in late 2012, submit a funding application for a new vegetation map for the Manypeaks landscape area by early 2013, . : There is mapping (Sandiford & Barrett, 2010) for the southern sections of the Manypeaks landscape, and mapping that has been done in the Angove and in other areas by Libby Sandiford, including on plantations. There is a need to update the vegetation map for the area, and Libby Sandiford is well placed to undertake that exercise.

Percent Complete: 0%

Objective: 2.2 Freshwater systems, Proteaceous dominant communities, Jarrah Associated Communities : Obtain information on current status of contraceptive & other innovative control methods for kangaroos by late 2012/early 2013 for consideration of future projects at key sites by mid-late 2013.

Percent Complete: 0%

Objective: 2.3 Freshwater systems : Identify key areas in which bitterns are known to occur (especially in the Porongurup-Two Peoples Bay link) for on-ground activities by 2013.

Percent Complete: 0%

Objective: 2.4 Freshwater systems : Ensure ongoing integration of current weed action plans between Oyster Harbour Catchment Group and the City of Albany.

Percent Complete: 0%

Objective: 2.5 Freshwater systems : Identify key wetlands from relevant reports and maps; and undertake a simple audit on status and current management (e.g. wetlands in DEC reserves) by early 2013, in order to develop a strategic action plan by mid/late 2013.

Percent Complete: 0%

Objective: 2.6 Freshwater systems : Following a desktop survey and collation of key information from stakeholders in early 2013 , identify initial cost effective priority projects for weed action in late 2013.

Percent Complete: 0%

Objective: 2.7 Freshwater systems : Following consultation with landholders by Oyster Harbour Catchment Group, DEC & other stakeholders during 2012, identify engagement and practical restoration projects for freshwater system protection by 2015.

Percent Complete: 0%

Objective: 2.8 Freshwater systems : During late 2012 and early 2013 identify key wetlands where Australasian Bittern are known or likely to occur as targets for fox baiting funds from 2013-2015 **Percent Complete: 0%**

Objective: 2.9 Freshwater systems, Healthy Habitat Fauna, Proteaceous dominant communities, Jarrah Associated Communities : Following consultation with key stakeholders in late 2012/ early 2013 develop outline of integrated feral control strategy by late 2013 **Percent Complete: 0%**

Objective: 3.0 HEALTHY HABITAT FAUNA : BROAD GOAL: ENSURE A SUITE OF HEALTHY HABITAT SENSITIVE FAUNA ARE FOUND ACROSS THE BROADER LANDSCAPE BETWEEN THE COAST AND THE PORONGURUP AND STIRLING RANGE NATIONAL PARKS BY 2050. : (Target = 3) Healthy Habitat Fauna **Percent Complete: 0%**

Indicator: Appropriate intensity, interval and scale

Measurement Report:

Measure	Date	Source	Trend	Comments
Temporal/spatial patterning (Patchiness)	-	Expert Knowledge	Strong Increase	The whole issue of fire management is on track with good strategies and implementation including protective burns etc. - Sarah Comer, South Coast Regional Ecologist, DEC, 28 Feb 2012, pers. comm.

Indicator: Demographics

Measurement Report:

Measure	Date	Source	Trend	Comments
Number of animals	-	Expert Knowledge	Flat	Fair is a landscape-wide average - better in some areas and worse in others. Please noted that the flat trend is again an average for each species - should ideally be looked at for each species

Indicator: Vegetation assessment

Measurement Report:

Measure	Date	Source	Trend	Comments
Keighery Type Scale	-	Expert Knowledge	Mild Increase	The ranking was given as fair here as two values can not be selected, even though in the meeting of 28 February 2012 it was felt that the ranking should be fair-good. i.e. have been conservative in this estimation

Progress Report:

Progress	Updated	Comments
Planned		

Objective: 3.1 Healthy Habitat Fauna : Design survey strategy for key healthy habitat sensitive fauna by late 2012 for implementation during 2013. **Percent Complete: 0%**

Objective: 3.2 Healthy Habitat Fauna : Compile fauna distribution maps from records of key healthy-habitat-dependent fauna species across the broader landscape by late 2012/early 2013. **Percent Complete: 0%**

Objective: 3.3.1 Healthy Habitat Fauna : Develop a range of strategies and actions (including funding applications) for enhancing healthy-habitat-sensitive fauna by late 2013, for initial implementation in early 2014. **Percent Complete: 0%**

Objective: 3.3.2 Healthy Habitat Fauna : Ensure the Manypeaks strategic actions for healthy-habitat-dependant species are in line with any recovery action planning for these species. **Percent Complete: 0%**

Objective: 3.4 Healthy Habitat Fauna, Proteaceous-dominant communities & Jarrah Associated Communities : Ensure ongoing dieback information and services/programs are available for private landholders **Percent Complete: 0%**

Objective: 3.5.1 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Evaluate, prioritise, and if necessary reword the 20 general recommendations and guidelines from Barrett et al. 2009 by early 2013 in order to apply for funding sources in late 2013 with implementation by 2014. **Percent Complete: 0%**

Objective: 3.5.2 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies by 2015. **Percent Complete: 0%**

Objective: 3.6 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Obtain existing SCNRM dieback projects (DIDMS etc.) by 2013 so an interpreter can map priority areas and identify large uninfested remnants by 2014 **Percent Complete: 0%**

Objective: 3.7 Healthy Habitat Fauna, Proteaceous-dominant communities, Jarrah Associated Communities : Ensure resource materials are available and training is offered/delivered to a wide range of landholders/stakeholders by 2013 to encourage the wider adoption of dieback hygiene protocols by 2014. : This is a project in itself - needs a extension service that currently does not exist **Percent Complete: 0%**

Objective: 4.0 PROTEACEOUS DOMINANT COMMUNITIES : BROAD GOAL: IDENTIFY RESTORATION PRIORITIES FOR IMPROVING BIODIVERSITY CONSERVATION BY 2030 FOLLOWING THE MAPPING AND DEFINING OF PROTEACEOUS DOMINANT VEGETATION DURING 2017 : (Target = 4) Proteaceous - Dominant Communities including Mallee Heath) **Percent Complete: 0%**

Indicator: "Appropriate" intensity, interval and scale

Measurement Report:

Measure	Date	Source	Trend	Comments
Patchiness	-	Not Specified	Unknown	Rating estimated fair - good would apply to the regime in the national park areas focussed on fauna and habitat requirements - possibly that the ranking is on average "fair" across the proteaceous dominant communities

Indicator: Density of bird pollinators

Measurement Report:

Measure	Date	Source	Trend	Comments
Bird activity index	-	Not Specified	Not Specified	This status of good is an estimate. In a lanscape to the east, the FitzStirling, the following note is from Angela Sanders, 2011, unpublished: Current Status: Over the survey period (2006-2010) the Indicator has fluctuated between Fair to Very Good. Further analysis of each site may highlight areas of senescence. Correlation with VegMachine data per site also needs to be carried out.

Objective: 4.1 Proteaceous-dominant communities : Submit funding proposal by late 2012 so funds are obtained at latest mid 2013. Accurately map and document fire sensitive ecosystems of the South Coast whilst encouraging landholder use of this tool by end of 2013.

Percent Complete: 0%

Objective: 4.2 Proteaceous-dominant communities : Develop a joint funding proposal between DEC, landholders, Australian Bush Heritage and Murdoch University for a trial burning and monitoring project of various aged, "scenescent" proteaceous dominant heathland by 2013 in order to identify various guidelines for practical implementation by 2015. : Studies of a similar nature have been undertaken for the Gngangara area (Wilson et. al. 2010, GUIDELINES FOR DEVELOPING ECOLOGICAL BURNING REGIMES FOR THE GNANGARA GROUNDWATER SYSTEM - in this case in Banksia woodlands, taking into account a range of fauna requirements including Honey Possums and Carnaby's black cockatoos, optimum burning regimes of 20-30 years (in a patchwork mosaic) were recommended).

Percent Complete: 0%

Objective: 4.3 Proteaceous-dominant communities & Black Cockatoos : Develop appropriate plant species lists to enhance feeding, breeding and roosting of all three black cockatoos by 2013 for implementation into revegetation plans by 2014.

Percent Complete: 0%

Objective: 5.0 JARRAH ASSOCIATED COMMUNITIES : BROAD GOAL: MAINTAIN EXISTING JARRAH COMMUNITIES THROUGH TO 2017 WITH THE AIM TO ENHANCE AND IMPROVE CONNECTIVITY OF THESE BY 2030. : (Target = 5) Jarrah Associated Communities)

Percent Complete: 0%

Indicator: Canker effects in Marri/Banksia

Measurement Report:

Measure	Date	Source	Trend	Comments
Need to look at measurements like number of trees dying	-	Not Specified	Not Specified	

Indicator: Crown Cover

Measurement Report:

Measure	Date	Source	Trend	Comments
Modify from Wandoo crown condition as follows:C1, (75-100% crown cover), C2 (45 - 65% crown cover), C3 (20-30%), C4 (10% crown cover)	-	Expert Knowledge	Mild Decrease	

Indicator: ha and distances between patches

Measurement Report:

Measure	Date	Source	Trend	Comments
Hectares & perimeter to area ratio	-	Not Specified	Flat	

Indicator: Mixed aged classes and strata

Measurement Report:

Measure	Date	Source	Trend	Comments
Flora surveys - various techniques	-	Not Specified	Mild Decrease	

Objective: 5.1 Jarrah Associated Communities : Engage with seed collectors to ensure they are looking out for dieback resistant material by 2013. **Percent Complete: 0%**

Objective: 5.2 Jarrah-associated communities : Identity targeted fauna (and flora) species requirements by mid 2013 to guide the development of a fauna (& flora) connectivity map and requirements for on ground works by late 2013 : Flora connectivity relates to exchange of genes and opportunities for future speciation/ evolution - Creating suitable habitat for key fauna species to allow for movement across the landscape **Percent Complete: 0%**

Objective: 6.0 BLACK COCKATOOS : BROAD GOAL: NO LOSS OF FEEDING HABITAT AND BREEDING HOLLOWS BY 2020 AND A 10% INCREASE IN THIS BY 2030. : (Target = 6) Black Cockatoos) **Percent Complete: 0%**

Indicator: Availability of hollows for breeding and nearby food sources

Measurement Report:

Measure	Date	Source	Trend	Comments
Successful recruitment	-	Not Specified	Flat	Difficult to generalise across species - was rated poor for carnaby's - does this hold for the other two species as well? There were comments at a meeting of 1 Nov 2010 with the Ranges Link group that Red Tailed black numbers were actually increasing at one property For the moment - leave the rating as per the carnaby's assessment, assuming that the lack of hollows goes for all three species

Indicator: Good quality (proteaceous) rich veg within critical distance of breeding (Carnaby's)

Measurement Report:

Measure	Date	Source	Trend	Comments
Area (ha) of good quality feeding habitat	-	Expert Knowledge	Flat	

Objective: 6.1.1 Black Cockatoos : Establish through survey and known records where breeding of black cockatoos occurs by end of 2012 so appropriate actions can be implemented in 2013 and beyond. **Percent Complete: 0%**

Objective: 6.1.2 Black Cockatoos : Develop a map of breeding records (with buffers for protecting nests from poachers if needed) of all three black cockatoos by early 2013 to assist with prioritisation and implementation of actions by mid 2013. **Percent Complete: 0%**

Objective: 6.2 Black Cockatoos : Develop fire management guidelines for maintaining black cockatoo foraging habitat by 2013 for practical implementation from 2014 and beyond. **Percent Complete: 0%**

Objective: 6.3 Black Cockatoos : Identify areas where swarms are a problem in tree hollows by early 2013 so contracted apiarists can remove swarms and monitor nesting success from end of 2013 to 2018 **Percent Complete: 0%**

Objective: 6.4.1 Black Cockatoos : Develop a strategic action plan to enhance black cockatoos by mid 2013, for implementation from late 2013.

Percent Complete: 0%

Objective: 6.4.2 Black Cockatoos : Ensure the Manypeaks strategic actions are in line with any recovery action planning for cockatoo species.

Percent Complete: 0%

Objective: 7.0 SHOREBIRD HABITAT : BROAD GOAL: ENSURE EXISTING SHOREBIRD HABITAT IS PROTECTED BY 2015 AND THERE IS NO FUTURE LOSS OF HABITAT. : (Target = 7) Shorebird Habitat)

Percent Complete: 0%

Indicator: Presence of birds

Measurement Report:

Measure	Date	Source	Trend	Comments
Number of birds	-	Not Specified	Strong Decrease	Data is showing a strong decline in numbers - a very worrying trend

Objective: 7.1 Shorebird Habitat : Once DEC cat baiting trials have been completed, ensure that the program is rolled out in key shorebird habitat areas.

Percent Complete: 0%

Objective: 7.2 Shorebird Habitat : Ensure issues associated with Shorebird Conservation and recommendations from Taylor (2012) have been tabled with the City of Albany by early 2013 for integration into management and action plans by 2014.

Percent Complete: 0%

Objective: 7.3 Shorebird Habitat : Identify improved signage requirements during the summer of 2012/13, so a appropriate funds can be sourced for installation before the summer of 2013/2014.

Percent Complete: 0%

Objective: 7.4 Shorebird Habitat : Ensure presentations to groups that include conservation of shorebirds are ongoing.

Percent Complete: 0%

Objective: 7.5 Shorebird Habitat : Ensure information on international threats, issues and lobbying progress has been sought and a summary provided to the CAP committee by early 2013 for further consideration and action planning by mid 2013.

Percent Complete: 0%

Objective: 8.0 MANYPEAKS LANDSCAPE : 8) BROAD GOAL: ENABLING STRATEGIES (SPATIAL PRIORITISATION, FUNDING, CAPACITY BUILDING, AND COMMUNICATIONS) FOR THE MANYPEAKS LANDSCAPE SCOPED AND DEVELOPED BY EARLY 2013, IMPLEMENTED EFFECTIVELY FROM 2013 TO 2020 AND BEYOND.

Percent Complete: 0%

Objective: 8.1 Manypeaks Landscape : Brief for prioritisation process developed by early 2013, funding acquired by mid 2013 with initial map completed by end of 2013, final map & report by 2014.

Percent Complete: 0%

Objective: 8.2 Manypeaks Landscape : Develop core messages and identify audiences, key engagement events & action plans for implementation by end of 2013.

Percent Complete: 0%

Objective: 8.3 Manypeaks Landscape : By early 2013 incorporation of funding applications including training is in place, with funding for increased capacity for NRM groups to plan, implement, monitor and review conservation interventions by early 2014. **Percent Complete: 0%**

Objective: 8.4 Manypeaks Landscape : Scope requirements for funding strategy by mid 2013, develop strategy by late 2013 for implementation by early 2014. **Percent Complete: 0%**

Objective: By 2013 design and get funding for a project for DEC to map the fire sensitive vegetation described in Barret et al. 2009 so that management actions can be taken **Percent Complete: 0%**

Objective: By 2015 private land managers are aware of where fire sensitive vegetation occurs and are implementing appropriate fire management strategies : (Threat = Inappropriate Fire Regime) **Percent Complete: 0%**

1. **Indicator:** Density of bird pollinators
