

# Attachment 1: PHCC detailed responses - Submission on proposed listing of “Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain” as a critically endangered threatened ecological community under the EPBC Act

## A: PHCC responses in respect to “Questions to guide comments” with respect to the Draft Conservation Advice.

### Support for listing as “critically endangered”:

We strongly believe the Tuart woodlands merit listing as *critically endangered*.

If the still largely unknown causes for the rapid decline and large number of deaths within the Yalgorup tuart communities of the mid 1990s to mid 2000s (with some indications that decline is ongoing but at a slower rate) is repeated to the same extent and impact in other parts of their occurrence the TEC may well face extinction. Thus, it is important to reduce the known threats.

The impact of the extensive decline, including loss of innumerable mature trees and the values they provide such as hollows for the EPBC Act listed *endangered* Carnaby Cockatoo to breed (Attachment 4- Johnstone & Kirkby 2006) in the Lake Clifton/Yalgorup area, was exacerbated by the destruction of the January 2016 Waroona/Yarloop bushfire that burnt out a large portion of the Yalgorup National Park and surrounding State Forest and private land containing tuart communities. This fire was declared a natural disaster<sup>1</sup>. Immediately following the fire many burnt tuart trees on public and private land that were considered a safety risk were removed. This loss is ongoing. Indicative of the scale of loss is the current removal of 58 trees and the crown reduction of a further 316 trees (predominantly Tuarts; likely to include loss of hollows) in the Tuart communities alongside the Forrest Highway and Lakelands-Lake Clifton Road to ensure public road safety. [Please refer to the WANDRA reports in Attachments 2 (includes photos of impacts) and 3 (provides statistics of tree and crown losses).]

In their 2016 Black Cockatoo Research Project report Johnstone and Kirkby (WA Museum) state under the “Mortality” section with respect to “Fire” on page 20, “The January 2016 Waroona-Yarloop wildfire had a devastating impact on the flora and fauna of the area. The fire burnt an estimated 69,000 ha including extensive areas of Jarrah-Marri forest and road verges. This fire was extremely intense with the entire canopy, understorey and ground layers being burnt (Figure 16). The loss of about 80–90% of foraging habitat for the small resident flocks in that region means that these birds would have needed to forage well outside their normal home range to survive. The two resources most likely to limit their continual survival in the area are in the short term, the food supply and in the longer term, nest hollows.”

It is interesting to note whilst not directly relevant to the Tuart woodlands that they also state (p.19):

“The loss of nest trees through logging, fire (including prescribed burns) and post-fire clean up, and weather is of concern, especially fire. Fire is acknowledged as a significant factor in the fall of

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<sup>1</sup> <https://www.disasterassist.gov.au/Pages/disasters/current-disasters/Western-Australia/WA-Bushfires-in-the-Peel-and-South-West-regions-of-WA-6-January-2016.aspx>

hollow trees (Parnaby et al. 2010). Many veteran and stag Marri (the favoured nest tree) are particularly susceptible to fire. Most of these trees have only an outer living shell around rotten heartwood. A fire at the base of these trees quickly burns through the outer shell creating a chimney stack that destroys the tree.

The January 2005 Perth Hills fire for example, destroyed four out of five known nest trees with hollows leaving only a burnt stump or the tree completely burnt to ground.

In May 2011 another three out of five known nest trees in the Wungong catchment were destroyed during a controlled “biodiversity management burn” and it was noteworthy that these trees burnt from the top down indicating a fairly intense fire.”

Figure 15 of their report (p. 18) provides an overlay of the extent of the 2016 Waroona/Yarloop fire against their 2016 mapped locations of evidence of old and recent feeding by Carnaby’s Cockatoo. Note the start of this research coincided with the fire, on 6<sup>th</sup> January 2016.

Whilst the tuart communities in reserves are likely to recover from the fire through their natural processes it will take time for them to mature to the stage they provide feed sources and many decades to centuries of time for the trees to mature to the stage where numerous large hollows (the size Carnaby’s require) are present, as was the case prior to the mid 1990s. It is known to take 80 years for a tuart to start to develop hollows (G. Keighery pers. comm.). Consideration will need to be given to the installation of artificial nesting hollows to support the listed Black Cockatoos for which the tuart communities provide habitat in areas where food sources are sufficient..

#### **Criterion 1 Decline in geographic extent:**

Based on the evidence provided in the draft Advice Appendix E, Criterion1, which is predominantly reliant on mapping up to 2002 (Tuart Atlas, TRG, 2003), and includes the statement, “This estimate of loss is probably a conservative one, due to the likely poor condition of many of the mapped areas. Keighery et al (2002) noted that tuart communities are often over-mapped as a tuart canopy may be present without understorey,” plus the known increased loss of the community due to urban development and other activities such as sand mining and quarrying, plus the recent impacts of wildfire in the Yalgorup/Lake Preston area as detailed above, we contend that there is sufficient evidence to determine that it is highly likely (without up to date mapping being available) that the ecological community is considered to have undergone a very severe decline (at least 80%) in its geographic extent and is therefore eligible for listing as critically endangered under this criterion rather than the ‘endangered’ as per the draft Advice.

#### **Criterion 3 – Loss or decline of functionally important species**

The City of Mandurah have, in November 2017, undertaking a mapping exercise using the Environmental Planning tool (WALGA), over-laying the Tuart Atlas mapping (2003) with a current aerial photograph and measured the loss of approximately 200ha of tuart community within the City’s boundary since 2003 (Natalie Lees pers. comm.). This provides an indication of the loss of tuart, primarily to urban development, over the time period since the Tuart Atlas mapping. It is suggested that for this assessment this loss could be extrapolated across the metropolitan area to the north and in the Bunbury region and shows how significant the loss has been in the past two decades.

The draft Advice states, *“The loss of tuart trees has been severe across the ecological community’s range, and the ecological community is unlikely to be restored as a whole across its range within the near future so it is eligible for listing as ‘endangered’ under this criterion”* (Appendix E, p. 117).

We contend that given the high level of disturbances, many permanent from urban and agricultural development, (as evidenced by the City of Mandurah example) that the ecological community is unlikely to ‘ever’ be restored as a whole across its range.

We suggest the statement should be re-worded to, *“The loss of tuart trees has been severe across the ecological community’s range, and the ecological community is unlikely to **ever** be restored as a whole across its range”* (Appendix E, p. 117).

Given this we suggest that it meets eligibility for listing under this criterion as ‘critically endangered’ rather than the current statement in the draft Conservation Advice of “endangered”.

#### **Criterion 4 – Reduction in community integrity**

Please note that with respect to the statement on p.118, “Changes to the landscape may also have resulted in the local increase of some native species such as Western grey kangaroos, which may be limiting the regeneration of the understory,” the PHCC has direct documented experience in this regard. Tuart woodland restoration activities undertaken in Yalgorup National Park by PHCC and partners, during the Lake Clifton Recovery project “Restore habitat and manage threats to Lake Clifton’s listed thrombolites and species” (Caring for Our Country project OC12-00462; January 2012 to December 2013) included technical advice and monitoring provided by Dr Katinka Ruthrof, Murdoch University. The restoration exercise clearly demonstrated the grazing impact of western grey kangaroos on the natural recruitment and restoration of tuart forests and woodlands. This was indicated by the success of restoration, and natural recruitment, within the fenced areas which excluded kangaroos and rabbits as compared with the lack of restoration and recruitment success in those rehabilitation areas outside the fenced enclosures, where tree guards did not provide sufficient protection to planted seedlings to enable their survival from grazing and no observable natural recruitment occurred.



November 2016 Yalgorup National Park restoration – 4 years growth; within fenced area – M. Rogers



November 2016 Yalgorup National Park restoration – 4 years growth; within fenced area – L. O'Brien



November 2016 Yalgorup National Park restoration – 4 years growth; within & outside fenced area



November 2016 Yalgorup National Park restoration – 4 years on; limited success outside fenced area



November 2016 Yalgorup National Park restoration – 4 years on; limited success outside fenced area

#### Criterion 5 – Rate of continuing detrimental change

The footprint of clearing for urban development under the proposed Green Growth plan is indicative of the potential future rate of loss.

#### Criterion 6 – Quantitative analysis showing probability of extinction

We suggest if an analysis were done, taking into account proposed urban expansion and replication of the Yalgorup decline throughout the community's extent, there would be sufficient information to determine likelihood of extinction against known threats if not controlled.

#### Description (in particular, the key diagnostic characteristics) of the ecological community.

In the northern Mandurah area (Meadow Springs) which is arguably part of the 'middle' of the extent of the community, the tuart woodland understory is dominated by *Spyridium globulosum* or basket Bush (RHAMNACEAE) (pers. comm. Mr Michael Schultz, PHCC Board Member). Whilst this species is noted in the species list, we suggested it is given higher recognition within the Advice in order to support the easier identification of the community in this region and any other areas where *Spyridium globulosum* is dominant within the understorey.

#### Patches descriptions and application of the condition classes to the ecological community.

PHCC feels the descriptions of patch size and their general characteristics appears suitable. However, we note that any surveys required to be undertaken will likely be time consuming and expensive, in order to engage ecologists with the appropriate skills.

Also, it is suggested to strengthen the Advice, and its application, there may be value in determining an actual "Sampling protocol" (p. 21) rather than indicating a few that may "provide guidance". This selection may present options to "exclude" rather than "include" patches as meeting the community criteria when undergoing assessment by a proponent.

#### Landscape context and the relationship with other ecological communities adequately described.

Yes.

#### Key threats currently affecting the ecological community, or threats likely to affect the community in the future, adequately identified.

Generally yes. However, resource extraction, for sand, lime and limestone is a threat beyond the greater Perth area.

Sand and limestone is in large demand by the urban development industry. Lime is in demand by the agriculture industry as the primary natural resource for addressing soil acidity, which affects productivity. Soil acidity is a natural feature of our ancient soils which is exacerbated by our farming practices, primarily the application of fertilisers.

As tuart is limited in extent to the calcareous soil types and over Tamala limestone, the demand for these products places the community under great threats given the "fill and terrace" to develop approach of the WA housing industry.

The high level of threat for extraction in the Lake Preston area is exemplified by the number of applications for Extractive Industries licences lodged with the Shire of Harvey. Please refer to Attachment 6.

The Strategic Assessment for the Perth and Peel Regions presents a potential related additional threat as Basic Raw Materials (sand including silica sand, but excluding mineral sand or garnet sand; Clay; Rock; Limestone all types, including metallurgical limestone) are a proposed “Class of Action”<sup>2</sup>. Please refer to the maps provided in the “Perth and Peel Green Growth Plan for 3.5 million, Government of Western Australia, Department of the Premier and Cabinet, Draft Action Plan D: Basic Raw Materials” (see footnote) and note the classification zonings of “Exclusion Area”, “Further Investigation Area” “Future resource Extraction Area”, in addition to the areas with existing licences. These provide an indicative footprint. However, it must be noted that these classifications don’t preclude applications from proponents owning land within the Green Growth Plan footprint but not classified against this class of action to seek approvals to undertake extractive industries. Thus, if allowed to be demand driven for sand and limestone, the threat is extensive.

### Suitability of the priority research and conservation actions to assist recovery of the ecological community.

#### 5.1. Principles and standards of protection and restoration

The second sentence of this section states, *“To meet the conservation objective, it is essential to maintain existing areas of the ecological community that are relatively intact and of high quality.”*

We suggest this should be re-worded to read, *“To meet the conservation objective, it is essential to maintain existing areas of the ecological community that meet categories A (Pristine- Excellent), B (Very Good- Good) or C (Degraded but retaining important identified habitat, regeneration or landscape features),”* (p.17). This is more precise and less open to challenge than, *“relatively intact and of high quality”*.

Further, we contend it is “always” preferable and more *“cost effective to retain relatively intact remnants than to allow their degradation and destruction with the intention of restoration of these or other remnants from a more degraded state”* (p.44). Thus, this statement should be re-worded to, *“It is always more successful and cost-effective to retain these relatively intact remnants than to allow their degradation and destruction with the intention of restoration of these or other remnants from a more degraded state”*.

It is also suggested the detail under “Buffer zone” on page 20 is replicated under “PROTECT, Highest Priorities” (p. 46), and anywhere else in the document buffers are referred to.

We suggest, the statement on p. 48 under, “Other priorities” to *“Ensure stock do not carry weeds into patches of the ecological community (for example, hold stock in other weed-free paddocks for an appropriate time prior to introduction)”*, be changed to read, *“Stock should wherever possible be permanently excluded from the critically endangered Tuart woodland and forest TEC. If fuel loads are required to be reduced, alternative methods to grazing by stock, should be applied. If stocking is the only viable alternative in a high-risk fire situation a detailed “crash-stocking” management plan will need to be submitted under the EPBC Act for approval as an appropriate management method for the site. This plan will need to address the potential for the stock to bring weeds on site along with the size of the stock and period of grazing to ensure the condition of the TEC is not negatively impacted by the grazing”*

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<sup>2</sup> <https://www.dpc.wa.gov.au/Consultation/StrategicAssessment/Documents/06-01-Action-Plan-D-BRM.pdf>



Under “RESTORE” we suggest an addition that reads, “*where practical fencing to remove kangaroo and rabbit grazing pressures is likely to enable natural regeneration to take place with little or no other human interference, provided there are good seed stores in the soil. Regardless, removal of these grazing pressures contributes significantly to effective restoration outcomes.*”

#### 5.2. Priority conservation actions.

We suggest an additional action of “Promote”. Namely, “PROMOTE the values and functions of the ecological community to the wider community to engender wider ‘stewardship’ of the Tuart community by the general population and to ‘recruit’ more community members and others for whom their “*efforts in its protection and recovery*” of the tuart community may be “*encouraged*” (p. 45).

Additional target audiences for the actions are suggested to include Commonwealth, State and Local Governments who manage lands, i.e.:

*This list of actions has been included to provide guidance for*

- *planning, management and restoration of the ecological community by landholders (including Commonwealth, State and Local Governments) or NRM and community groups*

Under PROTECT (p. 46) it is again suggested that wherever the phrase “*high quality remnants*” occurs it is replaced with “*areas of the ecological community that meet categories A (Pristine- Excellent), B (Very Good- Good) or C (Degraded but retaining important identified habitat, regeneration or landscape features)*”

With respect to, 5.3. *Research and monitoring priorities* p.54 against “*Research the effects of fire on floristics and structure of vegetation, native fauna and invasive species in patches and across the broader landscape*” include references to Dr Katinka Ruthrof’s work on fire and its role in restoring tuart communities.

With respect to 5.5 *Offsets*, the PHCC does not generally support the application of offsets to this highly endemic, landscape specific, range restricted, highly disturbed and fragmented community. The primary species is tuart which takes twenty years to reach maturity and many decades to hundreds of years to form hollows. The loss of these portions of the community cannot be “offset”. Further fragmentation cannot be supported. Any offset being considered would need to address fully funded, long term restoration efforts, including the replacement of hollows, understorey, and feeding habitat for affected species such as Carnaby’s Cockatoo, prior to any loss of the Tuart community being permitted under an offset arrangement.

#### **Accuracy and sufficiency of the noted plants and animals likely to be associated with the ecological community.**

Additional information:

- With regard to fauna, the importance of Tuarts for bird roosting and nesting should receive more prominence; anecdotally locally there appears much competition to Western Ring Neck, Regent parrots and Carnaby’s Cockatoos by Western Corellas and Galahs for limited nesting hollows in Tuarts. Further, many of these hollows have been lost in the Yalgorup region over the past two decades due to “*tuart decline*” and bushfire both directly, and indirectly due to the follow up removal of dead trees and crowns due to public safety hazards.

- Also, the tall dead tuarts are known roosts for Ospreys. Two examples are the tree on the south eastern verge of Mount John Rd just north of the Clifton Downs Rd intersection and also in the paddock alongside Newnham Road, both at Lake Clifton (K. Wilson personal observations).
- Listed as vulnerable under the EPBC Act, the Western Ringtail Possums (*Pseudocheirus occidentalis*) were successfully translocated back into Yalgorup National Park in the early 2000s. They have expanded their range beyond the Park (personal observations K. Wilson).

## B: Additional comments

For ease of review, in our comments below we have endeavoured to reflect the order of information as presented in the Draft Conservation Advice and to reference the Advice's section numbers and/or page numbers.

### CONSERVATION OBJECTIVE:

The PHCC in general supports the *CONSERVATION OBJECTIVE: To mitigate the risk of extinction of the Tuart (Eucalyptus gomphocephala) woodlands and forests ecological community...*

However, we suggest the Conservation Objective be re-worded to strengthen it to, "*To **eliminate** the risk of extinction of the Tuart (Eucalyptus gomphocephala) woodlands and forests ecological community...*". We feel that to merely "mitigate" the risk under-scores the role and importance of the EPBC Act and its importance in protecting this critically endangered TEC for its long term survival so as to prevent its extinction per se, which is a valid risk, given its critically endangered status.

### 3.2.5. Tree dieback and pathogens

With regard to the statement, "...While there was some recovery through epicormic growth, repeated dieback of this growth eventually exhausted the reserves of the trees and was followed in some cases by their death." We suggest "*in some cases by their death*" needs to be re-worded as "*in many cases*". The majority of trees in many areas suffered decline and deaths. The "Status report Tuart Conservation and Protection 2002" (Attachment 8) indicates the extent of loss including up to 80% in some areas, as noted in the report's Appendix 4. This loss is also presented visually in the vegetation decline maps from the Peel-Harvey's Biodiversity Decision Support System (see Figs 1, 2 and 3):

Many of the dead tuarts were removed from private and public land due to public safety concerns. All tuarts within the Martins Tank Camp Site were removed. Hence, their ecological values as stags and to provide nesting hollows were also lost.

"However the high rate of death and rapid spread of the problem have caused substantial concern..." (p.37). This concern was emphasised by Drew Haswell, Executive Officer of the Tuart Response Group who declared the tuart woodlands to be a "collapsed ecosystem" with respect to the decline within the Yalgorup region. It is important that the impact of this decline is not lost with the passage of time. The PHCC's DSS maps emphasise the extent of the decline. (See Figures 1, 2 and 3).

"The causes are not well understood but there is a possible combination of factors including insect damage...". In addition to the potential causes listed, a severe frost in 1998 occurred in the Yalgorup

area, affecting many of the Peppermint trees as observed when driving along Old Coast Road. It was considered that the frost may have placed an extra stress on the tuarts, leaving them more susceptible to attack and ring-barking by the longicorn beetles, that are in turn preyed on by the Carnaby's Cockatoo. This scenario was discussed during a site visit on 30 March 2000, attended by Kim Wilson (PHCC Program Manager), and including representatives from Conservation and Land Management (now the Department of Biodiversity, Conservation and Attractions) and Dr Giles Hardy from Murdoch University, amongst others. This site meeting pre-dated the Tuart Response Group's formation.

The huge impact of the tuart decline within the Dawesville to Myalup region must not be lost in undertaking this Conservation Assessment. The extent of references within the draft Conservation Advice in and around 2002 reflect the huge focus on the decline, its severity and extent, at the time; as does the response by the Minister of the day, Dr Judy Edwards.

The number of attendees to a community meeting in on Monday 22 October, 2001, is also indicative of the concern and extent of the decline. As noted in a funding application "the Lake Clifton Landcare group held a "Troubled Tuarts" evening with a presentation by David Mitchell (CALM). The initial intent was to inform the Lake Clifton residents of the current knowledge in regard to the tuart decline. However, word spread and it was indicative of the widespread community concern that it was standing room only in the Progress Association's shed with over 50 people in attendance from as far south as Busselton and including three State politicians with an apology from a fourth," (Attachment 7: 2001 Community Conservation Grant application, 'Assisting Tuart Reafforestation in Lake Clifton', Lake Clifton Progress and Sporting Association Inc.).

Drew Haswell, Executive Officer of the Tuart Response Group, in response to the decline suffered by the to the tuart woodlands and forests of the Yalgorup and Mandurah region in the late 1990s and 2000s as a "collapsed ecosystem" (pers. comm. KI. Wilson). Numerous mature Tuart trees died during this period. Many were then removed by private landholders, local governments and the now Department of BCA as the trees and their limbs were seen as falling hazards for human and car safety. Every tuart in the Martins Tank camp site was removed. Numerous trees, along with their hollows, were removed along the roads of Yalgorup National Park including the road into Martins Tank.

As previously discussed, currently, due to the January 2016 Waroona/Yarloop bushfire along the highways many of the burnt trees within the Tuart community that present a potential traffic safety hazard are being removed or having their crowns reduced.

Figure 1 Northern Yalgorup Vegetation Decline 1991 to 2013

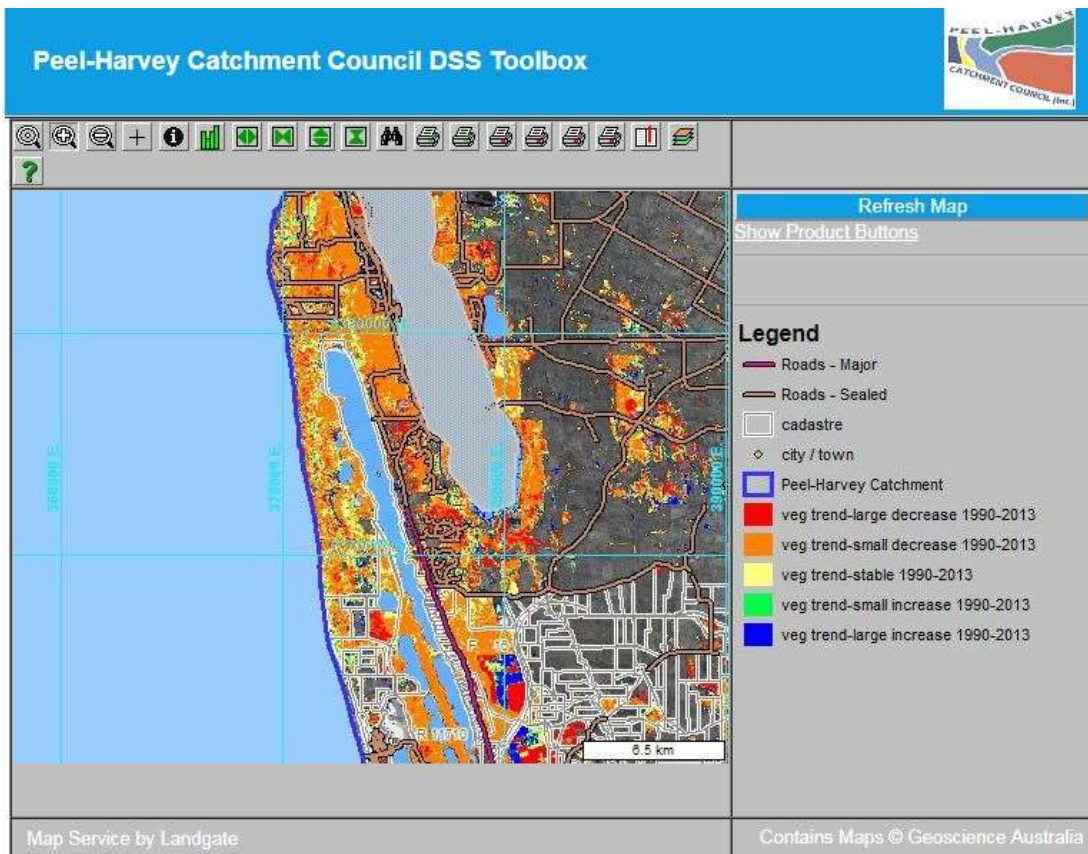


Figure 2 Mid Yalgorup Vegetation Decline 1991 to 2013

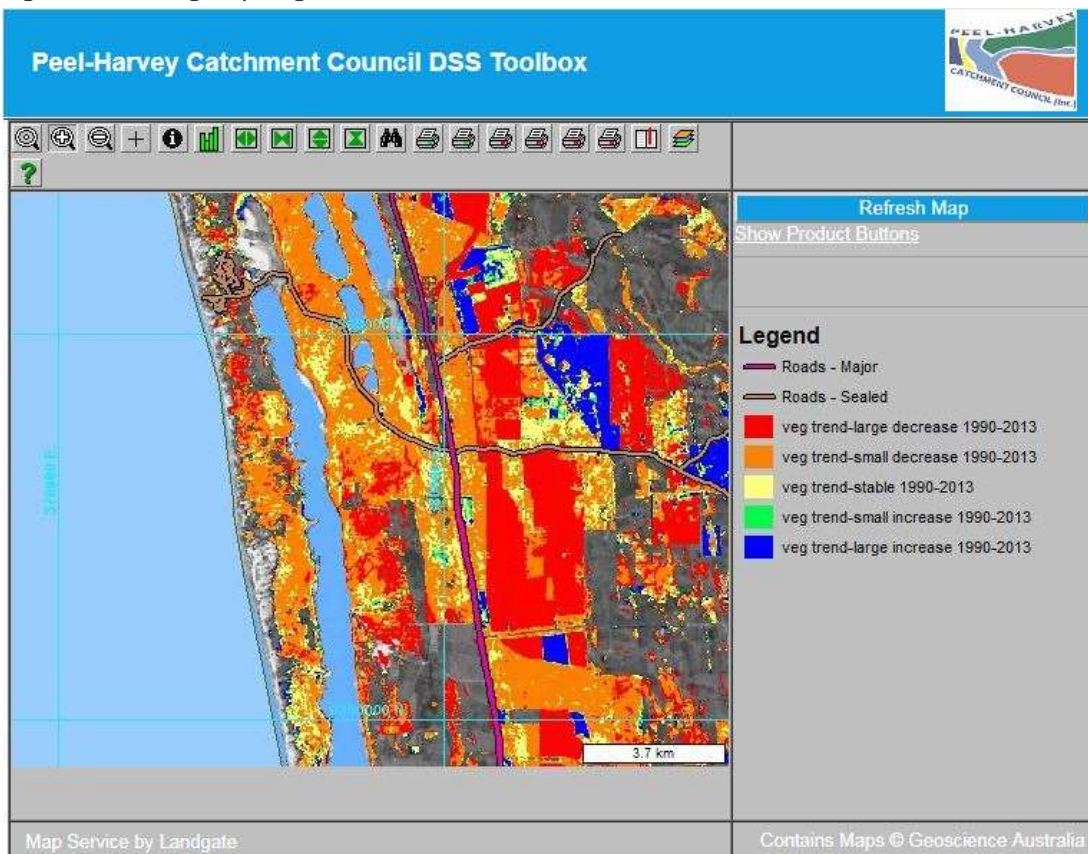
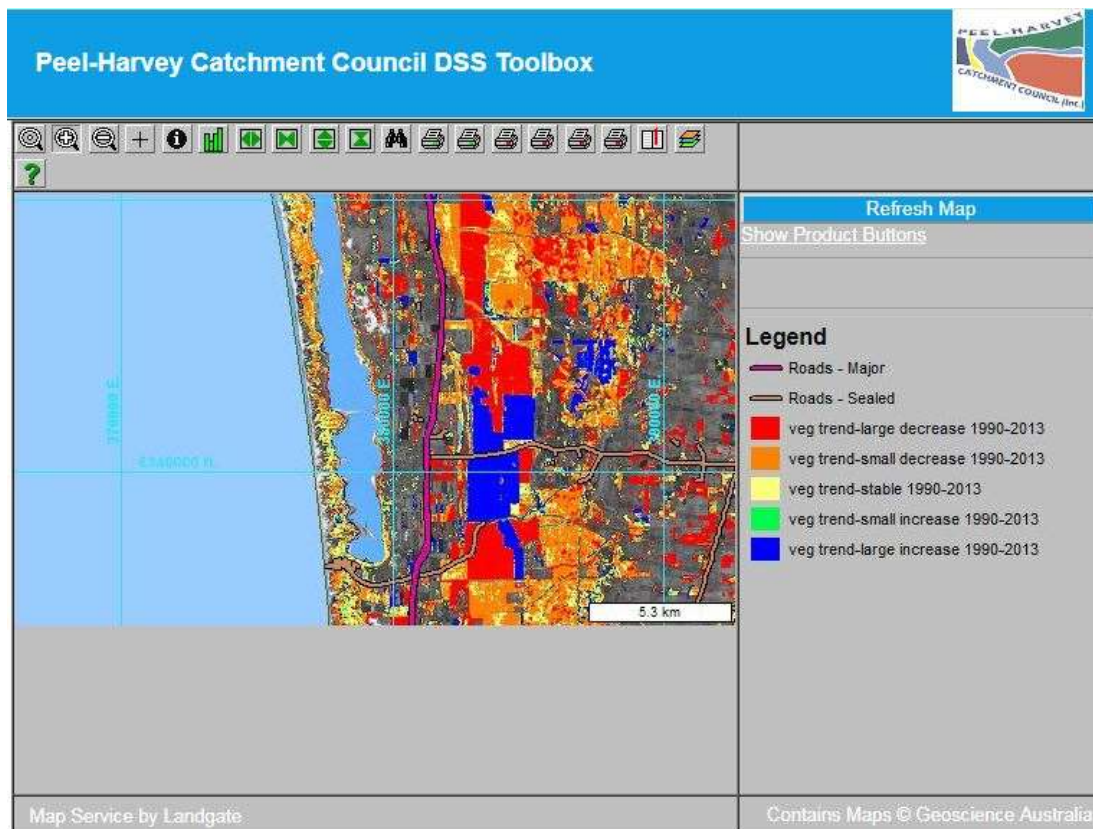


Figure 3 Southern Yalgorup Vegetation Decline 1991 to 2013



### 3.3. Key Threatening Processes –

It is noted that the Key Threatening Processes as listed relate to those as defined at the national level under the EPBC Act. However, it is suggested key threatening processes missing from this list include *increased/changed fire regimes*; and *“pathogens of unknown source leading to severe decline”* (as opposed to the listed *Phytophthora cinnamomi*).

#### Appendix B acknowledgement that the ecological community also has cultural importance, particularly to Nyoongar people.

Following further consultation by PHCC with local Noongar Elder Mr Harry Nannup following the release of the draft Advice, in regard to Appendix D, on Mr Nannup’s behalf, we request the following changes:

Please adjust (p.96), *“Nyoongar elder Uncle Harry Nannup tells of how when hunting for lizards as a young person he always had a pocket full of berries to eat, but these are now harder to find”*, to read:

*“Nyoongar Elder Harry Nannup tells of how when hunting for lizards as a young person he always had a pocket full of berries to eat, but these are now harder to find.”* (Please capitalise Elder and delete “Uncle”).

On page 94, would you please present the local spelling in brackets for Bindjarep (i.e. *Binjareb*) as is the case in the report for Yuat (Yued),

Page 98 reads, *“Lake Joondalup is another location where the ecological community occurs that was a favoured camping area where waterfowl and Yargun buyi (long-necked tortoise) were hunted*

(O'Connor et al 1989)". Please add, "Mr Harry Nannup also recalled camping on the Serpentine River as a child under the large tuart trees there".

Page 98 also reads, "Before going walkabout, old people camped at the top end of Lake Preston to take the mineral water there and gain strength (Harry Nannup pers. comm.)." Would you please re-word this to:

"Before moving on with the change of seasons, old people camped at the top end of Lake Preston to take (soak in) the mineral water there and gain strength (Harry Nannup pers. comm.)."

#### **Appendix C - Further information on existing protection and management within reserve tenure.**

Following the first paragraph of this section, we suggest the following be added:

"State Forest is subject to mining. There is a previous example of State Forest containing this community having a mining application placed over it for the purpose of limestone extraction". This means the application does not pass through the Local Government Extractive industries licencing process but it is handled by the Department of Mines and Petroleum.

As this represents a threat to the tuart community it should be noted as such against Threats.

#### **Appendix D – additional Information on threats.**

We refer you to this recent media article that discusses the threat posed by Arum Lily (*Zantedeschia aethiopic*) to our bushland - <http://www.abc.net.au/news/2017-11-12/funeral-flower-causing-death-of-native-plants-in-wa-south-west/9129312>