Environment & Development Approvals

July 2018

Environment and Heritage Tree Assessment Framework and Guidelines









Department of State Growth

Tasmanian Government

This document has been prepared by Leigh Knight and David Lenel of **pitt&sherry**, and Kirsty Kay, Anne Chuter and Amy Koch of the Forest Practices Authority for Environment and Development Approvals (EDA), Department State Growth. The document may only be used for the purposes for which it was commissioned.

Acknowledgements

State Growth would like to acknowledge Mark Wapstra from ECOtas for his contribution to this document.

Disclaimer

Background document 1: Project overview, key terms and legislation is a descriptive document intended to provide supporting information for this document.

Information contained within Background document 1 has been provided from the FPA from a range of sources. While the FPA has endeavoured to check the accuracy and completeness of this information, the FPA does not guarantee that this document is free from errors.

Citation

This report should be cited as Department of State Growth, 2018 'Environment and Heritage Tree Assessment Framework and Guideline', Department of State Growth, Hobart, Tasmania.

Contents

Acknowledgements i

Disclaimer i

Citation i

Contents ii

1. Background 1

1.1 Purpose of this document 1

1.2 Existing departmental procedures 2

Risk Based Tree Management Framework 2

2. Legislation 5

3. Exemptions 21

4. Natural values relevant to the State Road Network 28

4.1 Threatened tree and shrub species 29

Range boundaries of threatened tree and shrub species 35

Planted species 35

4.2 Location of Threatened tree and shrub species 35

4.3 Threatened vegetation communities 37

Tasmanian Nature Conservation Act 2002 37

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 37

4.4 Location of Threatened vegetation Communities 39

4.5 Threatened fauna habitat 42

Range boundaries 42

Habitat descriptions 43

Evaluating habitat for threatened tree-dependent fauna 43

Swift parrot 44

Masked owl 46

Forty-spotted pardalote 47

Wedge-tailed eagle and white-bellied sea eagle 48

Grey goshawk 49

Known nests 50

4.6 Non-threatened fauna habitat 50

4.7 Natural values with restricted distributions 51

King Island 51

Mt Field and Cradle Mountain national parks 51
5. Approval pathways 52
6. Decision making tool 54
7. Opportunities for improvement 60
8. Stakeholder engagement 61
9. References 62

Appendices

Appendix 1 Definitions associated with environmental legislation
Appendix 2 List of NCA threatened vegetation communities unlikely to intersect with the State Road Reserve
Appendix 3 Accessing the FPA BVD database and NVA for fauna range boundaries
Appendix 4 Potential habitat for threatened fauna species

List of Figures

Figure 1: Risk Based Tree Management Framework 3
Figure 2: Map identifying maintenance categories across the State Growth road network 4
Figure 3: Map of roadside conservation areas managed by State Growth under the 2017-19 program 20
Figure 4: An estimated distribution of threatened tree species that overlap with the State Growth road network, as determined by spatial analysis 36
Figure 5: Map of NCA-listed threatened vegetation communities with potential to be impacted by road maintenance activities 41
Figure 6: Swift Parrot core and potential range 45
Figure 7: Masked Owl Range Boundaries 46
Figure 8: Forty-spotted Pardalote Range Boundaries 47
Figure 9: Sections of the southern State Road Network with Eucalyptus viminalis within a 30m buffer of either side of the road within the core and potential ranges of 40 spotted pardalote 48
Figure 10: Grey Goshawk range boundaries 49
Figure 11: Flow chart of Federal, State and Local approval and exception pathways 53

List of Tables

Table 1: Timeframe for maintenance works 5

Table 2: Effect of legislation on vegetation works through routine maintenance 7
Table 3: Exemptions available for vegetation disturbance 22
Table 4: Threatened tree and tree-like shrub species with potential to occur within State Road Reserve..... 30
Table 5: Threatened tree and shrub species that have not been included in the spatial files for the Tree Assessment Guideline 34
Table 6: List of NCA threatened vegetation communities with potential to intersect with the State road reserve, according to spatial analysis. 39
Table 7: Tree-dependent threatened fauna species thought to have the potential to be affected by maintenance and works on state roads 42
Table 8: Key habitat trees important to threatened tree-dependent fauna that have the potential to occur within the reserve system of State roads 43

1. Background

The Department of State Growth (State Growth) is responsible for the design, construction and management of the state's road network. This includes the maintenance and improvement of existing roads and the co-ordination and delivery of new road projects. Safety of road users and protection of environmental values are key considerations in both of these aspects of State Growth's operations.

To assist with the ongoing management of road user safety, State Growth has developed a strategic framework for the assessment of risks associated with roadside vegetation on existing roads, specifically trees and limbs that may pose a danger to passing motorists and other roads users.

The Risk Based Tree Management Framework developed for Maintenance Services contains procedures for assessment of risk and practical field applications for dealing with:

- trees growing in the State Road reservation that may impact on road users or private property; and
- trees growing on private property which may impact on road users.

To complement this risk based framework, State Growth has prepared this guidance document which directs assessment of environmental and heritage values that may need to be taken into account in these maintenance assessments. This environment and heritage tree assessment framework and guidelines will provide more rigor, consistency and transparency for this aspect of the decision-making process.

The current legislation related to the management of native vegetation makes little or no distinction between trees and other forms of vegetation (understorey, grasses, etc.). The significance of native vegetation is related to ecological/biodiversity values based on its remaining intact extent, i.e. how threatened, rare or endangered it is or its role in providing habitat for threatened fauna species. It can also relate to the cultural or scenic importance placed on it, linked to the human attachment to the vegetation and the role it plays in formal, man-made settings or as part of a landscape.

Trees are a more conspicuous element of the landscape and more frequently occur as markers of memorial or heritage significance than other forms of vegetation. They are also often the defining element in ecological systems providing the over-arching stratum and key identifiers for some habitats. Notwithstanding that, many other forms of vegetation are protected due to the ecological values they possess and opportunities for the consideration of these should also be included as part of the assessment process.

1.1 Purpose of this document

The purpose of this framework is to primarily assist the Environment and Development Approvals Group (EDA) when providing advice to Maintenance Services with regards to approval requirements for vegetation assessed under the Risk Based Tree Assessment Framework and earmarked for clearing or pruning through Maintenance Services. The document will also serve to support assessment and approvals for other minor works which impact vegetation.

The framework and guideline assists identification of both legislative and other important ecological considerations identified within the State Road Reservation.

Specifically, Section 3 establishes the link between the risk based tree assessment process and this framework which provides an overview of environmental and heritage legislative requirements and exemptions and practical examples.

Section 4 – details listed flora species and communities and fauna habitat which intersects with the State road reserve.

Section 5 – Graphically demonstrates the current approvals processes

Section 6 – Provides a decision-making tool to help determine the appropriate approvals pathway in differing situations.

Section 7 – Identifies opportunities for improvements in the assessment process and contains recommendations for stakeholder engagement and implementation.

1.2 Existing departmental procedures

This section outlines current procedures and documentation relating to tree management.

Risk Based Tree Management Framework

This framework was developed to establish procedures for analysing risks posed by trees within and adjacent to existing roads. This framework relates to maintenance of safety for road users and protection of private property. It incorporates specific risk assessment methodologies for site specific assessments of risks posed by individual or small numbers of trees. The framework also incorporates procedural measures aimed at ensuring the safety of personnel. The field assessment is undertaken by Departmental staff using a standardised set of scores for a range of 'defects' which may cause the tree to pose a hazard. The action taken is then determined by the overall score achieved and whether the risk is posed by a defect or as a result of diminished sight distances.

Initial assessments are undertaken by field personnel and in some less urgent instances an arborist assessment is required. Where this assessment recommends the tree be removed or lopped, but there is no immediate danger, the advice of EDA is to be sought. This advice will be based on the ecological, cultural or other values attached to the tree.

This current framework is intended to provide a standardised process for identifying values associated with trees and other vegetation and determining what constraints, if any, may impact the decision to remove or retain the vegetation.

The assessment procedure under the Risk Based Tree Management Framework is shown in the flow chart at

Figure 1.

State Growth has established the risk applicable to trees throughout its road network and the timeframe for completion of each category is indicated in **Error! Reference source not found.** A map identifying the location of these different categories is included at Figure 2.

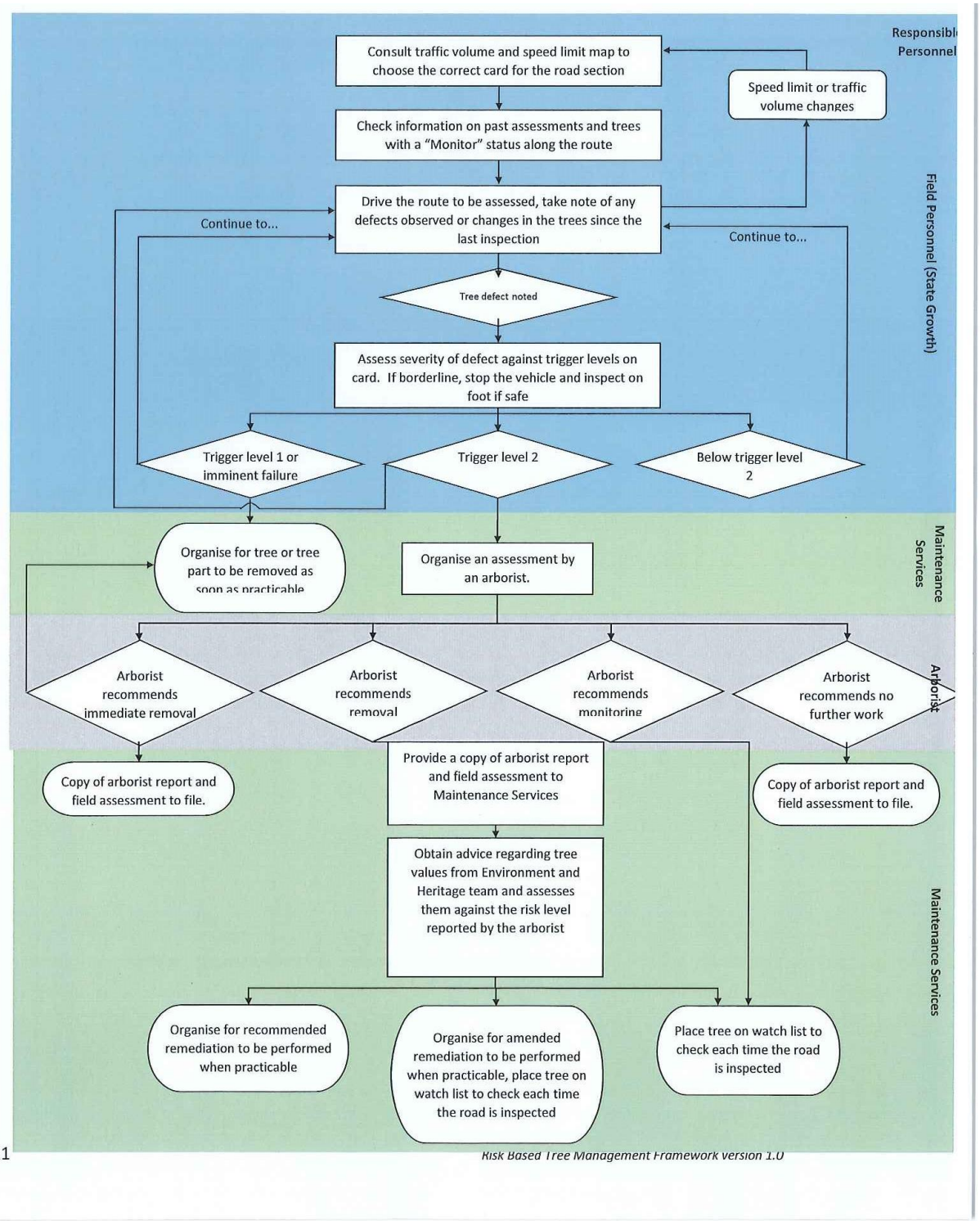


Figure 1: Risk Based Tree Management Framework

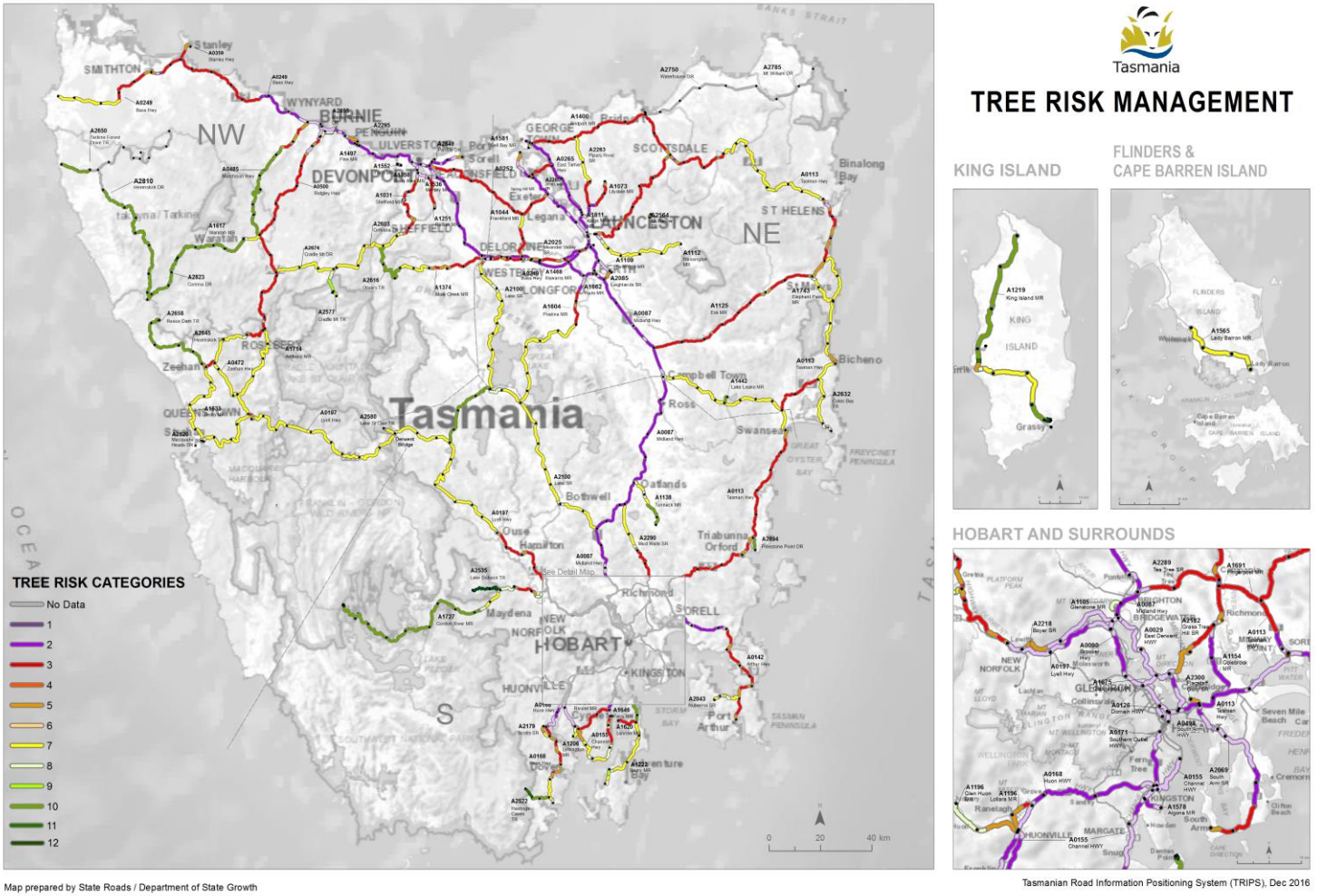


Figure 2: Map identifying maintenance categories across the State Growth road network

Table 1: Timeframe for maintenance works

Tree Risk Category	Month	Status
Category 1	May 2016	Complete
Category 2	June 2016	Complete
Category 3	June 2017	Programmed
Category 4	June 2018	Programmed
Category 5	June 2019	Programmed
Category 6	June 2019	Programmed
Category 7	June 2020	Programmed
Category 8	June 2020	Programmed
Category 9	June 2020	Programmed
Category 10	June 2020	Programmed

2. Legislation

The way that significance of vegetation is managed is determined by the legislation surrounding or protecting those values and operational systems requiring consideration and, or action.

The *Roads and Jetties Act 1935* (RJ Act) is the key piece of legislation that governs the rights and responsibilities of road construction and maintenance by State Roads. It outlines the requirements for landowner approvals and/or notification for vegetation clearing or trimming works. The road authority may cut down indigenous vegetation within 23 m of the road centreline without landowner consent but only under the following conditions:

- vegetation must not be reserved or planted as an ornament or shelter;
- there is nothing in the RJ Act which exempts the State road manager from complying with planning, environmental and heritage legislation.

Where sightlines or safety are reduced by vegetation (including hedges) growing on land adjacent a road, the road authority can ask the landowner to trim or remove the vegetation. If the landowner does not comply with the request, the authority can then undertake the works. This

provision relates to road intersections as well and could extend beyond the 23 m limit included above. Generally however State Growth undertakes all safety clearing works.

The responsibility of the State road authority to manage vegetation to ensure a safe road environment is considered to be a starting point and forms the basis against which the following procedures and approval requirements are considered.

In Tasmania, threatened flora species need to be considered under both the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Under the TSPA, species may be listed (in increasing order of conservation status) as: rare, vulnerable, endangered and presumed extinct. Under the EPBCA, species may be listed (also in increasing order of conservation status) as vulnerable, endangered, critically endangered and presumed extinct i.e. the EPBCA does not have a corresponding category for the TSPA's rare category and it has an additional category within the TSPA's endangered category.

There is generally very good alignment between the TSPA and the EPBCA such that species that occur in Tasmania listed on the EPBCA are usually also listed on the TSPA. However, many species listed on the TSPA are not listed on the EPBCA because the latter does not have a 'rare' category (although there are some TSPA rare species listed on the EPBCA with a higher status e.g. *Dianella amoena* is listed as rare on the TSPA but as vulnerable on the EPBCA). It is mainly Tasmanian endemic species that are listed on both the EPBCA and the TSPA. Additional information to support understanding of environmental legislation is provided in Appendix 1.

Threatened vegetation communities as well as local cultural heritage places and precincts are regulated through the local planning schemes under the *Land Use Planning and Approvals Act 1993*. These schemes are now consistent on a regional basis across Tasmania. Aboriginal heritage is under the authority of Aboriginal Heritage Tasmania in accordance with the *Aboriginal Heritage Act 1975*.

Key environment and heritage related legislation that has direct or indirect bearing on the management of trees and other native vegetation within the State road reserve is discussed below and outlined in Table 2: Effect of legislation on vegetation works through routine maintenance.**Error! Reference source not found.** Examples of the impact of each are also provided. Exemptions available for works impacted by this legislation are outlined in Table 3.

Table 2: Effect of legislation on vegetation works through routine maintenance

Legislation	**Effect**	**Relevance**	**Road maintenance example - historical or potential:**
Commonwealth			
Environment Protection and Biodiversity Conservation Act 1999 (EPBCA)	This act relates to the protection of Matters of National Environmental Significance (MNES) and sits outside the planning and environmental approvals processes. Direct disturbance of individuals of a listed flora species or threatened ecological community must be assessed but the act can also be triggered by impacts on vegetation that provides habitat for threatened fauna – assessment and/or	MNES relevant to State Growth activities are likely to be limited to impacts on threatened species and communities as well as heritage places. Morrisbys Gum and Miena Cider Gum are two examples of federally listed species in the State Road network.	State Growth has a roadside conservation site (RCS) at Sandford which contains a small stand of *Eucalyptus morrisbyi*. A couple of the larger trees have been identified as interfering with sight lines for turning traffic. To date, minor pruning work has been undertaken to reduce the safety risk. Any further requests from Maintenance Services for tree removal works would need assessment of the

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	approval may be required. The act applies only where a significant impact is likely. The Significant Impact Guidelines 1.1 are used to determine this. Assessment against these guidelines would only occur if a threatened species or community was to be impacted (as identified by site survey). If a significant impact is likely, referral to the federal minister is required and potentially a more detailed assessment and approval process.		impacts on MNES. As a species with state listing and a State Growth roadside conservation site, works also need to be assessed against our Maintenance Exception and RCS agreement with DPIPWE. A row of *Eucalyptus globulus* (blue gum) planted adjacent to the Midlands Highway at Mangalore was identified as providing potential foraging habitat for swift parrot, a threatened species which breeds only in Tasmania. These trees were planted on private

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			land however it is unknown whether they have any intended memorial or shelter value. Future safety assessment of these trees, could be covered by exemptions under the RJ Act however the EPBCA still requires assessment of the impact on potential MNES.
	These provisions also relate to landscape elements associated with nationally significant heritage places. There are 20 places on the Commonwealth Heritage List (predominantly light	The potential for impacts on trees associated with these is limited, as most are not near current state road corridors. State Growth has no relationship with places listed on the Commonwealth Heritage List. Nationally Heritage List places of relevance to State Growth are: • Richmond Bridge • Jordon River Levee • Tasmanian Wilderness	Vegetation works associated with the Richmond Bridge site has the potential to trigger MNES. For example, the poplars adjacent the bridge have the potential to impact the

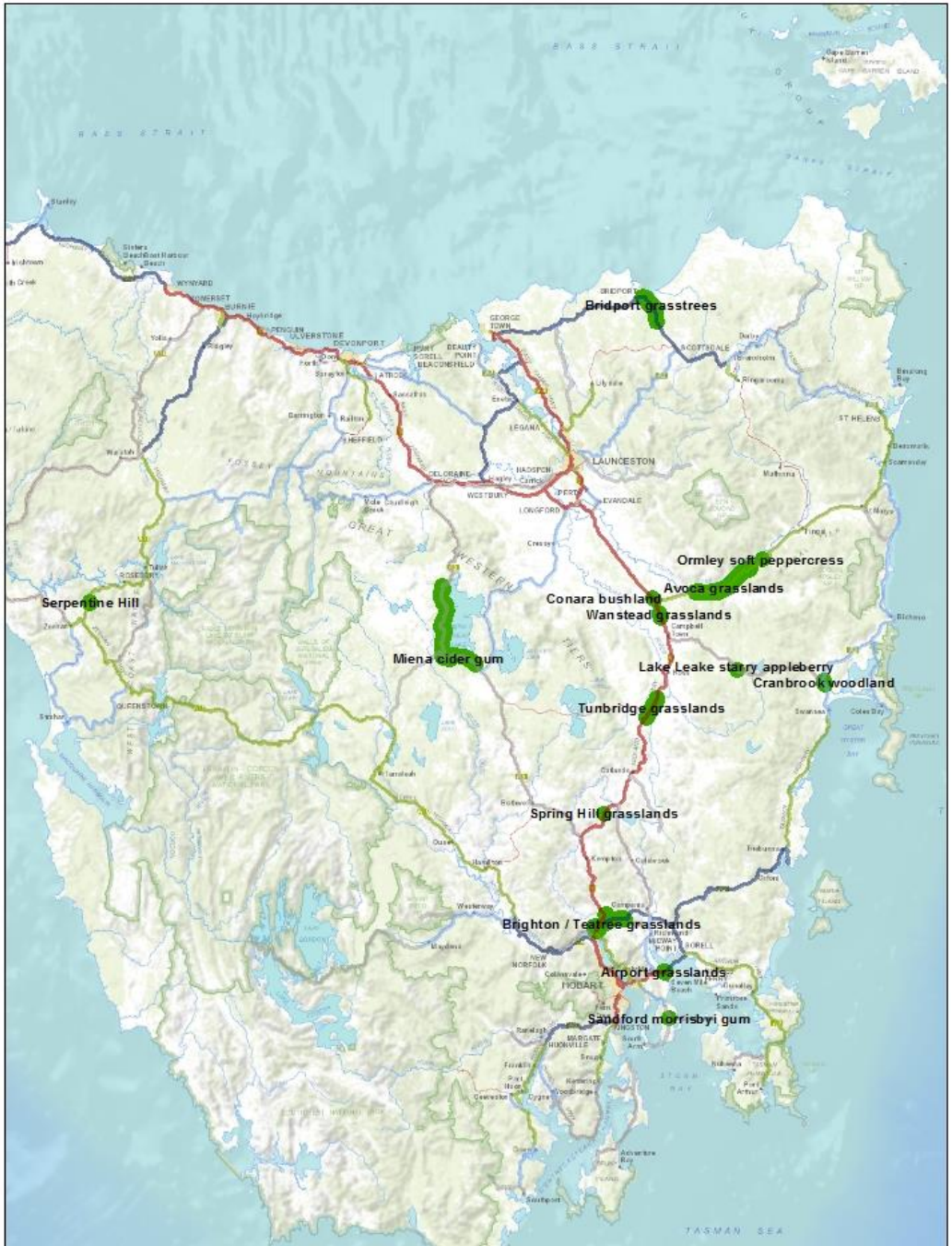
Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	houses and civic buildings in urban areas). There are 11 places listed on the National Heritage List (including wilderness and conservation areas).		structural integrity of the bridge and/or road user safety. Under the RJ Act, State Growth can order Council (who has responsibility for the vegetation associated with the site) to remove poplars but this would still need EPBCA consideration as a MNES due to the trees being part of heritage listing. State Growth has management responsibility for the Lyell Highway and Gordon River Main Road, both of which pass through the defined Tasmanian Wilderness areas

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			and have the potential for sight line and limb drop issues. Any proposed tree / vegetation removal in relation to these issues would need prior MNES consideration. State Growth also manages some of the cadastral parcels that comprise the Jordon River Levee site, however by the nature of the bridge being raised over these parcels, it is not likely that vegetation values will pose risks to the travelling public, however

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			other vegetation management issues may need consideration as relevant.
	World heritage properties are also protected under this act. These include a number of convict sites and the Tasmanian Wilderness. The Wilderness area is bisected by highways in some areas.	As above, State Growth has management responsibility for the Lyell Highway and Gordon River Main Road both of which pass through the defined Tasmanian Wilderness areas.	Lyell Highway and Gordon River Main Road through Wilderness World Heritage Area. Road widening, removal of vegetation for sight lines or removal of trees under Tree Risk Assessment Framework would need to consider Significant Impact Assessment thresholds and relevant maintenance exemption under EPBCA.

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
State			
Threatened Species Protection Act 1995 (TSP Act)	This act protects threatened species in Tasmania and includes species considered to be endangered, vulnerable and rare. A permit is required under the TSP Regulation to take any listed species.	There is an array of threatened species in the State Road Reserve. State Growth currently holds a Permit to Take for activities associated with its roadside maintenance activities, including minor road upgrades. As part of this Permit, State Growth manages a number of	Morrisby Gum and Miena Cider Gum are examples of two listed species that occur within the State road network, within the Roadside Conservation Sites, that pose potential threats to road users' safety and would need assessment and approval prior to any works which would constitute a 'take'.

		roadside conservation sites (shown in	


Bridport grasstrees
Ormley soft peppercress
Avoca grasslands
Conara bushland
Wanstead grasslands
Serpentine Hill
Miena cider gum
Lake Leake starry appleberry
Cranbrook woodland
Tunbridge grasslands
Spring Hill grasslands
Brighton / Teatree grasslands
Airport grasslands
Sandford morrisbyi gum
LAUNCESTON
HOBART
BASS STRAIT
TASMAN SEA

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
		Figure 3) which contain concentrations of threatened species and act effectively as an 'offset' for maintenance activities which impact dispersed threatened flora across the State road network.	
Forest Practices Act 1985 (FP Act)	Generally clearing of threatened communities is dealt with under the FP Act however the construction and maintenance of public roads does not require a forest practices plan under Clause 17(6) and the Forest Practices Regulation (Section 4(d)(iii)). Any clearing for road works is then considered under any relevant provisions of local planning schemes (via operation of the RJ Act).	NA	NA

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
Nature Conservation Act 2002 (NCA)	Schedule 3A of this act lists native vegetation communities considered to be threatened.	Below are some examples of listed vegetation communities whose extent (according to Tasveg 3.0) intersect with the State road reserve and could have implications for road user safety and relevant approvals: • *Eucalyptus amygdalina* forest and woodland on sandstone • *Eucalyptus amygdalina* inland forest and woodland on cainozoic deposits • *Allocasurina littoralis* forest • *Eucalyptus morrisbyi* forest and woodland • *Eucalyptus globulus* dry forest and woodland • *Eucalyptus ovata* forest and woodland • *Eucalyptus viminalis - Eucalyptus globulus* coastal forest and woodland • *Eucalyptus viminalis* wet forest • *Melaleuca ericifolia* swamp forest • Riparian scrub	State Growth were contacted by a concerned land owner in regards to vegetation overhanging his property boundary, adjacent to the road reserve in Kingston. One of the trees identified formed part of an immature stand of *Eucalyptus vimanalis* grassy forest and woodland listed under the NCA. EDA were contacted by Maintenance to provide advice in relation to its potential removal. Given the DBH was small, it was concluded that it

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			was unsuitable nesting and/or foraging habitat and subsequently not of concern from an environmental approvals perspective. A subsequent arborist report organised by State Growth found that the tree posed a low risk of failing/falling (> 1/10,000). Subsequently the tree was not removed.
Historic Cultural Heritage Act 1995 (HCH Act)	Landscape features on state significant heritage places and precincts are often covered by the listing as they make a significant	Typically, landscape elements such as hedge and boundary plantings at the frontage of heritage listed properties may be impacted by minor road and maintenance works. Generally, on large rural holdings, only the historic buildings and their immediate surroundings are listed under the HCH act. The Heritage Mile at Mangalore and Pioneer Ave Elm Trees at Perth are examples of scenarios that trigger this legislation.	The Craigow property on Richmond Road is heritage-listed at both State and local Council level. A row of elm

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	contribution to the heritage value of the individual property and/or a broader heritage precinct.		trees is located within the property boundary with elm sucker 'hedging' growing on the boundary and into the State road reserve. A request from the owner for vegetation removal at access to allow for improved sight distances resulted in removal of suckers within the road reserve and trimming at the access point. Any removal of trees within the property boundary would require consideration by Heritage Council and Clarence City

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			Council, however trimming and vegetation with accordance with Heritage Tasmania Works Guidelines would be eligible for a certificate of exemption.
Aboriginal Heritage Act 1975	The comparatively early settlement of Tasmania and the subsequent discontinuation of traditional practices, combined with the extent of clearing, has resulted in the survival of few, if any, scar trees remaining in Tasmania. Trees located within Aboriginal Heritage Sites.	There are no records confirmed in the State road network. In regards to Aboriginal heritage, the standard practice of tree felling at ground level that does not cause soil disturbance (e.g. to middens or quarries) and therefore would be acceptable under the Act. However if there was any reason for the methodology to include ground disturbance such as grubbing, a permit may be required at such sites.	State Growth have previously been involved in assessment of potential scar trees but none have been confirmed to date. Scar trees are unlikely to be a significant issue for road maintenance. Examples where this situation exist are trees south of Wacketts bridge and trees near the Southern

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			Outlet/Kingston Bypass and Algona Road intersection in Huntingfield.
Local			
Land Use Planning and Approvals Act 1993	Interim Planning Schemes + Tasmanian Planning Scheme (yet to become operational) Note that these examples are based on the review of a small number of interim planning schemes.		
Definitions in the scheme	Each scheme contains a range of definitions for works and vegetation values. These vary across schemes and can be found in the interpretation section of the	Not all schemes use the same definitions or apply them in the same way. To work out all exemptions that apply the definitions from the relevant planning scheme need to be identified up front.	State Growth may be required to undertake tree removal works in Council areas where trees have been have been identified as having special value under an

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	scheme or buried in the codes related to biodiversity or natural assets. Examples include: • *priority habitat* - means the areas shown as priority habitat on the planning scheme overlay maps • *native vegetation* - means plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not		applicable planning scheme (priority habitat/vegetation, threatened native vegetation communities, scenic corridors, local heritage places/precincts, significant tree register). Some councils have local by-laws which may apply protections to trees when the planning scheme doesn't. While still applying the 'maintenance exemption' due to works required for State Road responsibility to maintain a safe road environment (also see below), it is acknowledged

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	been planted for domestic or commercial purposes • priority vegetation communities - means threatened vegetation and important habitat for threatened species that are listed under the TSP Act or the EPBCA • threatened native vegetation community - means a native vegetation community listed as a		that Councils may have an interest in retaining vegetation with special values where possible. Therefore, further justification for any removal may be required through arborist risk assessment or works modified so entire tree is not removed. Correspondence with Councils to advise of any significant works proposed affecting special value vegetation, is recommended.

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	threatened vegetation community under Schedule 3A the NCA or a threatened ecological community under the EPBCA		
Planning scheme exemptions	Exemptions are available in all schemes. These include General Exemptions and Limited Exemptions. General exemptions apply without limitation (ie. maintenance and repair of existing infrastructure). Limited exemptions are typically not available for works	Interim planning scheme example: **General exemptions** **5.4 Maintenance and repair by or on behalf of the State Government …. of** **(b) infrastructure such as roads** 5.7 Emergency Works - Urgent works, that are undertaken for public safety or to protect property or the environment as a result of an emergency situation. **Limited exemptions**: 6.2 Minor upgrades… of infrastructure such as roads…. including: (a) minor widening or narrowing of existing carriageways EXCEPT where there is (b) the removal of any threatened vegetation 6.3 Vegetation planting, clearing or modification … to provide clearance of up to 1m for the maintenance, repair and protection of roads	(also see above) Under Clause 5.4, the 'maintenance exemption' is generally applied due to works required for State Road responsibility to maintain a safe road environment. However, it is acknowledged that Councils may have an interest in retaining vegetation

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	involving the clearing of threatened vegetation, heritage listed places, etc. Threatened vegetation is generally defined as threatened vegetation communities listed under the NCA or the EPBCA Council needs to confirm if they will accept part or all of the works as an exemption. Where exemptions cannot be used, a DA is required and all relevant codes must be complied with.	EXCEPT where there is an applicable planning scheme code related to heritage, scenic values, biodiversity values, or where the works involve removal of threatened vegetation or are within 30 m of a wetland or watercourse. To work out if the codes apply it is necessary to look at the application and definitions in each. In the case of Break O'Day the biodiversity code applies to works in mapped priority habitat areas AND for the removal of native vegetation, potentially capturing all clearing. Note that code provisions differ across schemes – some do not include the reference to native vegetation when specifying application of the biodiversity code and this is not a limiting factor for use of the exemptions (e.g. Launceston).	identified under the planning scheme as having special values, where possible. Further justification for any removal may be required through an arborist risk assessment or modified works so entire trees are not removed. It is recommended to correspond with Councils to advise of any significant works affecting special value trees.
Biodiversity or Natural Assets Overlays	The majority of Councils map areas of priority habitat or biodiversity	To work out if the codes apply it is necessary to look at the application and definitions in each. In the case of Break O'Day the biodiversity code applies to works in mapped priority habitat areas AND for the removal of native vegetation, potentially capturing all clearing.	Kingborough Interim Planning Scheme applies the Biodiversity

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	conservation areas as overlays on the planning scheme maps. Vegetation of interest may also be identified via description under the Biodiversity or Natural Assets Code (e.g. 'native vegetation' in Northern Region or threatened vegetation communities under NCA or EPBCA). While not required to be considered to the general exemption for road maintenance, under limited exemptions, areas of priority habitat can trigger approval requirements even when the works themselves would ordinarily be	Note that code provisions differ across schemes – some do not include the reference to native vegetation when specifying application of the biodiversity code and this is not a limiting factor for use of the exemptions (e.g. Launceston).	Code Overlay to nearly all non-urban areas within the Kingborough Municipality and Council clearly has a particular interest in protecting native vegetation. While the maintenance exemption will still apply, in these situations, it is recommended that an environmental risk assessment be undertaken to determine ecological significance of any trees proposed for removal. Correspondence may need to be sent to Council to advise of

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	exempt. This can relate to mapped areas (e.g. priority habitat or biodiversity conservation areas) or be triggered by proximity to other mapped features (e.g. within mapped waterway or wetland overlay areas)		impending works and provide further explanation of the hazard assessment methodology.
Scenic or Landscape Overlays	The purpose of Scenic Landscapes Code within the local government planning schemes is to recognise and protect landscapes that are important for their scenic values. These values can be quite varied but prominent exotic plantings are features of many areas.	Scenic landscape corridor: All vegetation and other property curtilage on land adjacent to the Midland Highway between Bagdad and Prospect. Tasman Highway – Orielton to Springfield. Bass Highway – Sassafras to Prospect Vale. Scenic Landscape Area: Travellers Rest (covers vegetated hills and residential lots, includes part of Bass Highway).	Scenic landscape corridors apply to land adjacent to a major road, extending from the boundary of the road (but not to the road parcel itself). Scenic landscape areas apply areas of scenic value generally, and do not exclude roads. Examples:

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	Scenic landscape corridors are areas of scenic value on either side of a major road that are shown on the planning scheme maps.		The scenic landscape corridor applies to Tasman Highway, however as the corridor only applies to vegetation on land beyond the road boundary, any vegetation removal within the road reserve is not subject to the overlay. The scenic landscape area applies to Travellers Rest, which includes part of the Bass Highway. The maintenance exemption will still apply to tree removal within the highway reserve at this location, however

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			consideration of any scenic values is important.
Heritage Precincts	The purpose of the local historic heritage code is to protect and enhance the historic cultural heritage significance of heritage precincts	Vegetation within the boundary of scenic towns including Ross, Evandale, Oatlands	A development application was required for removal of a suckering silver poplar that was growing into and impacting on a bridge in Campbell Town on the Midland Highway. The bridge was not heritage listed but is located in a Heritage Precinct under the Northern Midlands Interim Planning Scheme. Tree removal or modification would normally be exempt as maintenance works, provided it

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			does not affect vegetation on a state-listed heritage site.
Heritage Places	Trees on properties listed on local heritage registers	Often the hedges and trees lining road frontages and driveways are included in the listing description – this can require additional assessments and approvals or applications for exemptions where appropriate.	Under local government heritage codes the whole title of the property is listed, whereas under the HCH act the listed entity is the generally the historic buildings and their immediate surrounds. The Kenmore Arms at St Peters Pass is a typical example. Impacting a tree within the house gardens of this property will trigger DA approval/certificate of exemption at both the State and local level, but

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			beyond this area only at local level.
	Trees which are themselves listed as heritage features	These occur less frequently than vegetation attached to heritage places but can occur and are subject to consideration under the relevant heritage code. A row of mature elms along the Richmond Rd is listed as a stand-alone heritage item. Other trees in this area are also listed but as part of property listings.	It is rare that consideration would need to be given to such trees. The most likely impact would be to the root zones of very large trees. There is only two groups of trees that exist on the road network, Tasman Highway macrocarpas near Swansea and Richmond Road elms, being a row of mature elms listed as a stand-alone heritage items under the Clarence Interim Planning Scheme. Other trees in this area are also listed

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			but as part of property listings. Where works were proposed to address tree hazard risk for individual trees, alternatives to entire tree removal should be considered (including management of root impacts). Liaison with Council is recommended, given likely public interest along this section of road.
Zones	Environmental Management zones Specific controls may apply to vegetation removal even though no threatened species or particular habitat is present. These	St Mary's Pass is located within the St Patricks Head State Reserve. Although there is a Utilities zone covering much of Esk Main Road in this location the road is not confined to that zone and meanders into the surrounding Environmental Management zone.	State Growth undertook bank stabilisation works on a section of St Mary's pass. This involved the removal of *Eucalyptus globulus*. An ecological

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	could relate to landscape or social values.		survey and subsequent arboricultural assessment were conducted. The ecological assessment identified significant ecological values around the works footprint, and provided advice on management of any significant ecological values, including felling of significant trees and any other ecological values identified. The arboricultural assessment involved determining the safety risk of individual trees, consistent with

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			State Growth's Tree Risk Management Framework. The arboricultural assessment included a provision of an assessment against the QTRA risk management framework for trees identified as having significant ecological values by the ecologist. These surveys identified that no threatened flora, or fauna values were identified within the project footprint.
	Significant tree register - trees listed by local authorities for landscape or	Hobart and Kingborough Interim Planning Schemes both contain Significant Tree Codes which specify a list of trees (in a table – not shown on overlay maps).	Where tree removal is proposed by State Growth maintenance staff

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	streetscape purposes	These codes contains factors that must be considered before approval is granted for destruction, lopping, etc. of a tree listed in the register. There are limited exemptions available under this code related to emergency works or the improvement of tree health.	under the Tree Risk Management Framework for removal of a tree listed in the Significant Tree Code, referral to the relevant Council is recommended. This avoids the need for retrospective justification and potential ramifications of public interest. The works should still have exempt status if adequate justification is provided.
Local By-Laws	These are laws and policies applied at a local level by Councils in addition to those regulated under the LUPA	Kingborough Council has Health and Environmental Services By-law 3 of 2011. This By-law requires a permit before lopping or removing any tree that: • has a trunk circumference of greater than 80cm at 1.5, or more above ground level, • is listed on a register of significant trees, • is protected under an agreement under Part 5 of LUPA or a covenant on the title	Where tree removal is proposed by State Growth maintenance staff under the Tree

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	Act. These can require approval from Council for vegetation disturbance when there are no state or planning scheme constraints.	This does not apply to exotic species, including non-Tasmanian natives, which are not listed on the register of significant trees. It also does not apply where a DA is required for the works. If the tree is listed under the TSCA or EPBCA Council may require an offset.	Risk Management Framework for removal of a tree listed in the Significant Tree Register, referral to the relevant Council is recommended. This avoids the need for retrospective justification and potential ramifications of public interest.
Other			
Pioneer Avenue Memorial	The Pioneer Avenue is a series of roadside plantings that began in the 1930s, extending between Launceston and Hobart.	There is currently no legislative protection for most of these trees however a nomination for listing on the Tasmanian Heritage Register has been lodged. State Growth has a strategy for management and replacement of these trees aiming for no nett loss.	A potential scenario on the Midland Highway is identification of a Pioneer Avenue tree as a hazard risk under the Framework. As the trees do not

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
	Trees in the avenue vary in age and condition and occur in sporadic groupings along the Midland Highway.		have statutory protection (unless otherwise listed), no approval processes are required. However, State Growth has undertaken to protect such trees or undertake replantings as part of Midland Highway Safety Upgrade works, therefore the strategy aim of no nett loss should be applied. The most practical mechanism for achieving this is through replantings as part of future Midland Highway projects, rather than as part of any

Legislation	Effect	Relevance	Road maintenance example - historical or potential:
			maintenance works.

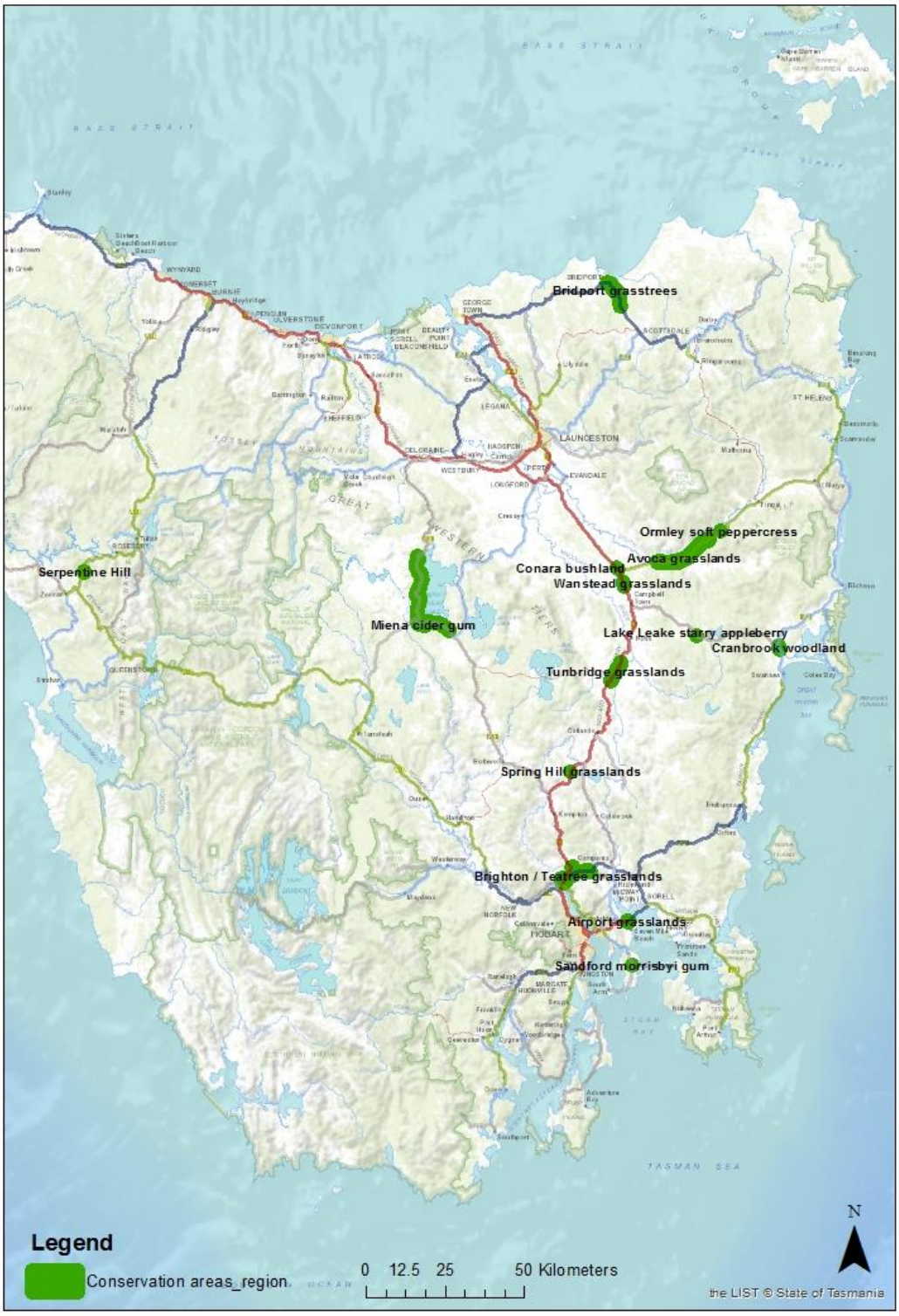


Figure 3: Map of roadside conservation areas managed by State Growth under the 2017-19 program

3. Exemptions

Current exemptions available for certain works are outlined in Table 3. The current local interim planning scheme exemptions will be replaced by more relaxed provisions in the proposed state planning scheme provisions. The only limiting factor relevant to most departmental activities will be the works being located on a heritage place.

Table 3: Exemptions available for vegetation disturbance

Legislation	Exemption	Qualification / Limitation[1]
Roads and Jetties Act 1935	For the prevention of danger from obstructed views from trees/vegetation on land adjoining the road, the managing authority may give the owner/occupier 21 days notice to cut down trees/vegetation within 23 m of the road centreline or after such time the road authority may remove the trees/vegetation without landowner/occupier consent	• vegetation must not be reserved or planted for the purpose of ornament or shelter • there is nothing which exempts the road manager from complying with planning or other legislative requirements
Environment Protection and Biodiversity Conservation Act 1999	The federal minister may grant an exemption from the requirement to conduct an assessment or obtain an approval or a permit.	• EPBCA only applies where a significant impact is likely • Some activities are exempt under section 43A and 43B, including: o activities that were authorised by a specific environmental authorisation under a Commonwealth or state law before 2000; o activities that commenced prior to 2000 and the use of land was lawful and the action has continued in the same location without enlargement, expansion or intensification o Activities that are listed as being potentially exempt from the EPBCA requirements include maintenance of existing dams, roads, fences etc. Application of the ongoing use exemption generally requires a demonstration that activities have been ongoing, but as it is commonly known that road maintenance is required and it is reasonable to assume ongoing use for existing road networks (Brendan Taylor, Department of Environment, pers. Comm.).

[1] Those likely to be relevant to State Growth works / projects

Legislation	Exemption	Qualification / Limitation[1]
		• Other than the above, an exemption can only be granted if the minister is satisfied that it is in the national interest to do so or it is a national emergency.
Threatened Species Protection Act 1995	General exemptions are limited under this Act however a general permit to take is issued by DPIPWE – this is valid for two years. General Permit to Take conditions: • Clearing to be kept to the minimum practicable • Hygiene and limited rehabilitation measures prescribed • Annual or bi-annual updates required For general exemptions: • The area and species have been addressed under a certified Forest Practices Plan however the Threatened Species Unit retains the right to require a separate permit. • the listed native plant is collected from a domestic garden where it is in cultivation.	State Growth maintains a Permit to Take for State Growth's Roadside Maintenance Program. Schedule 1 Conditions include: • activities include but are not limited to: clearing of drains and culverts; mowing; slashing; pruning vegetation; mulching; weed spraying; clearing; grubbing and minor road upgrades including but not limited to: road shoulder widening and modification of associated drainage infrastructure; installation of safety barriers, fencing, signs, and street lighting. • All areas identified as Roadside Conservation Program Sites in Schedule 3 of the permit must be managed in accordance with the relevant management plan, or an amended version approved in writing by the Policy and Conservation Advice Branch (DPIPWE) • Disturbance of threatened flora must be kept to the minimum practicable • Where practicable: laydown and storage areas must not be located in areas known to support threatened flora species; mechanical disturbance, dumping of fill, alteration of drainage patterns and soil compaction on sites known or likely to support threatened species must be avoided. • Where practicable topsoil from areas known to contain threatened species must be stockpiled and used for rehabilitation onsite. • Appropriate hygiene measures must be taken to prevent the introduction and spread of weeds and plant diseases such as *Phytophthora cinnamomi* (particularly through mud) and frog diseases such as chytrid fungus (in freshwater environments). Measures to control the spread of disease and weeds by equipment or by on ground operations must be undertaken in accordance with the DPIPWE (2015) Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania as relevant.

Legislation	Exemption	Qualification / Limitation[1]
Nature Conservation Act 2002	A permit is not required for flora species which are growing on private freehold land	• species is not listed under the TSP Act • species is not listed under the NCA • plants are not growing within a Private Sanctuary, Private Nature Reserve or protected by a Conservation Covenant as declared under the NCA
	Threatened vegetation communities	• clearing of a threatened vegetation community is required for construction and maintenance of road infrastructure - this then defaults to local planning provisions
Aboriginal Heritage Act 1975	No exemptions	• normal clearing practices of vegetation do not trigger the Act
Historic Heritage Act 1995 An application for the exemption must be made before any works can be done – THC will either issue an exemption certificate or request a Discretionary DA. Exemptions may be granted by the THC for the following types of activities.	Changes to gardens and landscapes – e.g. changes to garden or planting areas; replacement of trees	• Replacement trees in parks and open landscaped gardens such as homesteads may be established but should retain the dominant pattern of open spaces. • Use the same cultivars / species unless an arborist advises that the species to be replaced is unsuitable (based on assessment of current plantings) • is consistent with historic planting patterns (such as hedges along drives and frontages) • is in an area not associated with the heritage values of the place and has no or negligible impact on the significance of the place (such as native species planted for screening but not part of the original landscape)
	Plantings where significant archaeological values are present	• Plantings may only occur where areas have been disturbed before and only to the depth of previous disturbance • The species planted will not impact values
	Removal of vegetation	• there is no impact to the social or community value of the planting (e.g.: memorial plantings) • the vegetation does not contribute to the heritage significance of a place

Legislation	Exemption	Qualification / Limitation[1]
		• the tree is dangerous or senescent
	Trimming / pruning	• pruning to remove diseased, dead or dangerous material
Forest Practices Act 1985	Section 17(6) of the Act outlines those instances where a Forest Practices Plan is not required. Provided that the Authority has approved in writing the manner in which maintenance or safety works to public roads will be carried out, a Forest Practices Plan will not be required.	• the clearing of native vegetation to provide a reasonable buffer for existing infrastructure if the clearing is necessary to maintain the infrastructure or for public safety • the harvesting of timber or the clearing of trees on any land, or the clearance and conversion of a threatened native vegetation community on any land, for one or more of the following purposes – includes • the construction and maintenance of public roads
Land Use Planning and Approvals Act 1993 **Planning scheme requirements**	General exemptions	• Urgent works that are undertaken for public safety or to protect property or the environment as a result of an emergency situation. • Maintenance and repair by or on behalf of the State Government of existing infrastructure such as roads, rail lines, footpaths, cycle paths, drains.
	Limited exemptions – these generally relate to: • Provision and Upgrades of Linear and Minor Utilities and Infrastructure	Some examples include: • Provision of minor utilities and infrastructure including footpaths, cycle paths and traffic control devices if **not involving the removal of any threatened vegetation or involving local heritage places or precincts.** • Minor upgrades including widening or narrowing of existing carriageways **if not involving the removal of any threatened vegetation or involving local heritage places or precincts.**
	• Vegetation planting, clearing or modification to provide clearance of	• only where not involving a heritage place • only where not involving the removal of any threatened vegetation

Legislation	Exemption	Qualification / Limitation[1]
	up to 1m for the maintenance, repair and protection of roads	• only where not impacting on biodiversity areas • only where not impacting on scenic or landscape values • only where not within 30 m of a wetland or watercourse
	Code exemptions These are exemptions for certain activities identified within a particular code which may reduce the assessment requirements for any DA. Note that several biodiversity or natural asset codes have no exemptions at all. Other codes limit their application (e.g. disturbance of native vegetation – but only where within a mapped biodiversity protection area)	Example Glamorgan Spring Bay Biodiversity Code: (g) works considered necessary by an agency or council to remedy an unacceptable risk to public or private safety or to mitigate or prevent environmental harm (j) works within 2 m of existing infrastructure including roads, tracks, footpaths, cycle paths, drains, sewers, pipelines and telecommunications facilities for the maintenance, repair, upgrading or replacement of such infrastructure (o) clearance and conversion or disturbance requiring assessment under the EPBCA (p) clearance and conversion or disturbance requiring assessment under the FP Act, the TSP Act and/or the NCA. The last two are significant to note as they avoid duplication and may present an easier approval pathway than local government.
Proposed State Planning Provisions (Tasmanian Planning Scheme)	Emergency works	Urgent works to protect property, public safety or the environment in an emergency situation, that are required or authorised by or on behalf of the Crown, a council or a State authority
	Road works	Maintenance and repair of roads and upgrading by or on behalf of the road authority which may extend up to 3m outside the road reserve including: (a) widening or narrowing of existing carriageways;

Legislation	Exemption	Qualification / Limitation[1]
		(b) making, placing or upgrading kerbs, gutters, footpaths, shoulders, roadsides, traffic control devices, line markings, street lighting, safety barriers, signs, fencing and landscaping, **unless the Local Historic Heritage Code applies** and requires a permit for the use or development; or (c) repair of bridges, or replacement of bridges of similar size in the same or adjacent location.
	Vegetation removal	• for safety or in accordance with other Acts • clearance within 2m of lawfully constructed buildings or infrastructure including roads, tracks, footpaths, cycle paths, drains, sewers, power lines, pipelines and telecommunications facilities, for maintenance, repair and protection; • for safety reasons where the work is required for the removal of dead wood, or treatment of disease, or required to remove an unacceptable risk to public or private safety, or where the vegetation is causing or threatening to cause damage to a substantial structure or building; or
	Clearing within a priority vegetation area	• Where native vegetation occurring within a private garden, public garden or park, national park, or within State-reserved land or a council reserve and is not protected by legislation
	Clearing within a scenic road corridor	• any development or works associated with road construction

4. Natural values relevant to the State Road Network

The preparation of the following information involved collation of both technical and spatial information and included specialist consultation. It contains an overview of legislative definitions (Appendix 1), summarises the methodology for preparation of spatial information and provides sources for further information and data (Appendix 3).

The following spatial information and supporting information was used to aid understanding, assessment and decision making:

- Threatened tree species:
  - habitat descriptions and survey guidelines
  - GIS layers of threatened tree species (Natural Values Atlas)
- Threatened vegetation communities:
  - threatened community note sheets
  - GIS layers of extent of threatened vegetation communities (Tasveg 3.0)
- Threatened fauna species:
  - potential and significant habitat descriptions for threatened fauna species dependant on threatened tree species or vegetation communities which have the potential to occur in the State Road Reserve.
  - GIS layers of core range boundaries for threatened fauna dependant on threatened tree species or other veg communities.

It should be noted that the spatial layers used above have limitations as follows:

- The habitat descriptions and survey guidelines were developed with DPIPWE for the risk assessment process used within the forest practices system. The level of risk accepted for a 'forest practice' may not be appropriate for the road maintenance 'works' which this assessment framework covers
- Locality records are not available for all occurrences of threatened tree species
- Tasveg 3.0 has known inaccuracies due to its broad scale and so spatial analysis using this layer may not capture all locations of threatened vegetation communities
- The definitions of potential and significant habitat for threatened fauna were developed for use within the forest practices system, and consequently have a focus on forest environments. Therefore these definitions may not be totally suitable for application in other areas (such as agricultural or urban areas with lower densities of trees).
- Core range boundaries were developed for use within the forest practices system to identify areas "within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species". Therefore the species can and do occur in areas outside of the core range.

These inaccuracies may have considerable impact on the accuracy of the output of this project, but the spatial data and habitat definitions used represent the best available information at the time. These inaccuracies will not be emphasised throughout the document for the sake of brevity.

4.1 Threatened tree and shrub species

Table 4 contains a list of threatened species of trees or tree-like shrubs within Tasmania listed under either the TSPA or the EPBCA considered to have potential to be affected by maintenance or small-scale works within the State Road Reserve.

To ascertain which species are likely to be encountered by State Growth as a result of small-scale or routine maintenance works, records from the NVA (with an accuracy of ≤ 100m), were overlain by the State road network (buffered by 30m). All species included in Table 4 also therefore have records within a 30m buffer either side of the road centreline. Species that were considered as part of this process, but not included due to various reasons, are included in Table 5 along with reasons for their exclusion.

Table 4 also contains habitat descriptions (and distribution) endorsed by DPIPWE as well as threatened flora survey notes for each species. The latest habitat descriptions for all threatened species of Tasmanian flora can be downloaded from the FPA website via the following link:

http://www.fpa.tas.gov.au/fpa_services/planning_assistance/advisory_planning_tools/Biodiversity_values_database

Once the threatened flora survey notes for all Tasmanian species are endorsed by DPIPWE these can also be referenced.

Table 4: Threatened tree and tree-like shrub species with potential to occur within State Road Reserve. For more information on these species refer to the species' Listing Statements, Note Sheets and Recovery Plans on the DPIPWE website.

Scientific Name	**Common Name**	**Potential height**	**Status** **TSPA, EPBCA**	**Tasmanian habitat description (and distribution)**	**Comments re State Road Network distribution**	**Su**
Banksia serrata	Saw banksia	12m	r, -	*Banksia serrata* is known from open woodland and sedgeland on broad flats, slopes and ridgelines, most strongly associated with quartzitic soils and stony ground. It is restricted to the Sisters Beach/Rocky Cape area, and near Wingaroo on Flinders Island.	Only likely to be encountered around Sisters Hills near Rocky Cape.	Th by di pe Ja an sc re
Callitris oblonga subsp. *oblonga**	South Esk pine	10m	v, EN	*Callitris oblonga* subsp. *oblonga* occurs predominantly in riparian scrub, woodland and forest (where it can extend away from rivers) in areas with low precipitation and usually sandy soil. It is local on the East Coast, particularly on the margins of the Swan, Apsley, South Esk, Cygnet and St Pauls rivers. A small population is also present in Cataract Gorge.	Mostly at waterway crossing points within East Coast range e.g. bridge works at sites such as Lilla Villa bridge on Tasman Highway.	M co th gr *Co* N oc
Elaeocarpus reticulatus	Blueberry ash	10m (20m)	r, -	*Elaeocarpus reticulatus* is restricted to King and Flinders islands. On Flinders Island, it mostly occurs in moist sheltered sites in lowland forests. On King Island, including wet eucalypt forest, tall/wet scrub, riparian vegetation, coastal scrub and teatree scrub.	Only those occurrences near Naracoopa on King Island likely to be affected by road works.	Th id ve O m ne
*Eucalyptus barberi**	Barbers gum	5m	r, -	*Eucalyptus barberi* occurs on dolerite-derived soils on the central east coast of Tasmania, with disjunct populations occurring in the Wielangta area. The species tends to occur on broad ridgelines, saddles and flats, often with high	East Coast, e.g. roadside occurrences on Tasman Hwy near Cherry Tree Hill.	Th id th m th po hy

Scientific Name	Common Name	Potential height	Status TSPA, EPBCA	Tasmanian habitat description (and distribution)	Comments re State Road Network distribution	Su
				surface rock cover (including at the edge of dolerite rock plates). *Eucalyptus barberi* generally occurs in localised stands in heathy/grassy eucalypt forest and woodland, typically dominated by *E. pulchella,* with *E. viminalis* and *E. ovata* also present on some sites.		wi be oc fr pe
Eucalyptus gunnii subsp. *divaricata**	Miena cider gum	15m	e, EN	*Eucalyptus gunnii* subsp. *divaricata* dominates open woodland and woodland with grassy/heathy/shrubby understoreys on dolerite around the Great Lake region on the Central Plateau. The most characteristic forms are found towards the exposed edges of treeless flats, which tend to be poorly drained and prone to severe frost (the species is the most frost-tolerant of any eucalypt). It also extends to adjacent rocky slopes, often dominated by *E. delegatensis*. The recorded altitude range is 865-1150 m above sea level. Unfortunately, there has been significant dieback of trees of *E. gunnii* subsp. *divaricata*, coupled with browsing of regeneration, so many sites are marked by dead stags and dying trees, with little prospect of replacement.	Great Lake region on the Central Plateau. Problem of ID with subsp. *gunnii* and even other species.	Fl (o fr Cl pr ye de ch di co *Eu ar* ra of at er ha
*Eucalyptus morrisbyi**	Morrisby's gum	12m	e, EN	*Eucalyptus morrisbyi* occurs in coastal, dry sclerophyll woodland on gentle to hilly slopes with poor drainage. It tends to be restricted to gullies that offer some relief in this drought-prone, low rainfall area. It is associated with poor soils. The Calverts Hill subpopulation and associated	Highly restricted distribution, e.g. road side specimens on South Arm.	Th tir (w id hy *vi* Fe

Scientific Name	Common Name	Potential height	Status TSPA, EPBCA	Tasmanian habitat description (and distribution)	Comments re State Road Network distribution	Su
				remnant stands occur on recent sands overlying dolerite and the Risdon subpopulation on Permian mudstone.		
Eucalyptus radiata subsp. *radiata*	Forth River peppermint	45m	r, -	*Eucalyptus radiata* subsp. *radiata* is largely restricted to the middle and upper sections of the Forth River catchment, where it occurs on basalt, granite, quartzite, sediments and metamorphic substrates. It is present as a dominant or co-dominant in dry sclerophyll and damp sclerophyll forest, and in taller wet sclerophyll forest on more favourable sites (typically lower slopes of major river valleys). Outlying stands may be present in middle sections of the Mersey River catchment.	Mid and upper sections of the Forth River catchment.	Th id M ju id *ra* an
*Eucalyptus risdonii**	Risdon peppermint	8m	r, -	*Eucalyptus risdonii* is restricted to the greater Hobart area (particularly the Meehan Range), with an outlying population at Mangalore and on South Arm. It occurs on mudstone, with an altitudinal range from near sea level to 150 m above sea level. It can occur as a dominant in low open forest with a sparse understorey on dry, insolated ridgelines and slopes (e.g. with a north-west aspect), and individuals can extend into other forest types typically dominated by *E. tenuiramis* or *E. amygdalina* (but occasionally by other species) on less exposed sites.	Greater Hobart region at Risdon and Grass Tree Hill.	Th ca ye flo id in be th wi fo in m to N
Gynatrix pulchella	Frangrant hempbush	5m	r, -	*Gynatrix pulchella* occurs as a riparian shrub, found along rivers and drainage channels, sometimes	River crossings only, e.g. bridge works in	Th be ba

Scientific Name	Common Name	Potential height	Status TSPA, EPBCA	Tasmanian habitat description (and distribution)	Comments re State Road Network distribution	Su
				extending onto adjacent floodplains (including old paddocks), predominantly in the north of the State.	central north of the State.	m Th bo fr
*Melaleuca pustulata**	Warty paperbark	3m	r, -	*Melaleuca pustulata* occurs in a range of habitats including dry open woodland (often on dolerite in forests dominated by *Eucalyptus pulchella*), grassland and scrub, riparian zones and stable dunes in sparse coastal shrubbery. It is restricted to the State's Central East coast.	Tasman Highway between Swansea and Bicheno.	Th sh th ha le
*Pherosphaera hookeriana**	Drooping pine	5m	v, -	*Pherosphaera hookeriana* occurs in coniferous heath that varies from boggy areas near water bodies to well drained, exposed and rocky situations near mountain peaks, with most populations on dolerite.	Unlikely to be commonly encountered. Dwarf conifer endemic to west, southwest and central plateau at altitudes above 600m. E.g. Mt Field.	Th id ve of

The codes for each Act: **TSPA** – rare (r), vulnerable (v), endangered (e) and **EPBCA** – vulnerable (VU), endangered (EN), critically endangered (CR).

* indicates endemic to Tasmania.

Table 5: Threatened tree and shrub species that have not been included in the spatial files for the Tree Assessment Guideline

Scientific Name	**Height**	**Common Name**	**TSPA**	**EPBCA**	**Reason for exclusion**
Eucalyptus globulus subsp. *pseudoglobulus*	45m	Gippsland blue gum	r	-	True occurrences occur on Rodondo Island, dubiously on northern Flinders. Did not come up in GIS search in proximity to road network.
Eucalyptus perriniana	6m	Spinning gum	r	-	Apart from a historic record at 'Ouse', no sites next to State Growth roads apart from planted specimens – see discussion below.
Pomaderris intermedia	8m	Tree pomaderris	r	-	Not usually above 3m, difficulties with identification of species, unlikely to be noted by maintenance team.
Pomaderris oraria subsp. *oraria*	1.8m	Coast pomaderris	r	-	True shrub, very near coastal species. Did not come up in GIS search in proximity to road network.
Pomaderris paniculosa subsp. *paralia*	2m	Shining pomaderris	r	-	True shrub, did not come up in GIS search in proximity to road network.
Pomaderris phylicifolia subsp. *phylicifolia*	3m	Narrow leaf pomaderris	r	-	True shrub, did not come up in GIS search in proximity to road network.

The codes for each Act: **TSPA** – rare (r), vulnerable (v), endangered (e) and **EPBCA** – vulnerable (VU), endangered (EN), critically endangered (CR).

Range boundaries of threatened tree and shrub species

To assist with locating areas where these species are most likely to occur with respect to the State road network, boundaries of the extent of occurrence have been prepared for each species based on known locations contained in the NVA and expert opinion.

To do this all known NVA records (as of 10/5/17) with an accuracy of ≤100 m were mapped and minimum convex polygons created. Review of the records enabled the exclusion of some inaccurate outliers and identification of known locations in proximity to the State road network. It was then determined where shapefiles of the extent of occurrence overlapped with a 30m buffer of relevant stretches of State roads.

Shapefiles of these range boundaries have been provided to EDA.

Planted species

It is worth noting that some threatened tree species have been planted alongside the State road network, including *Eucalyptus morrisbyi*, *E. perriniana*, *Banksia serrata* and *B. integrifolia*. Clarification is required from DPIPWE as to whether permits would be required for the removal of such trees, or whether planted species are exempt from requiring a permit under the TSPAct.

4.2 Location of Threatened tree and shrub species

A map estimating the distribution of these species across the State Growth road network is provided in

Figure 4.

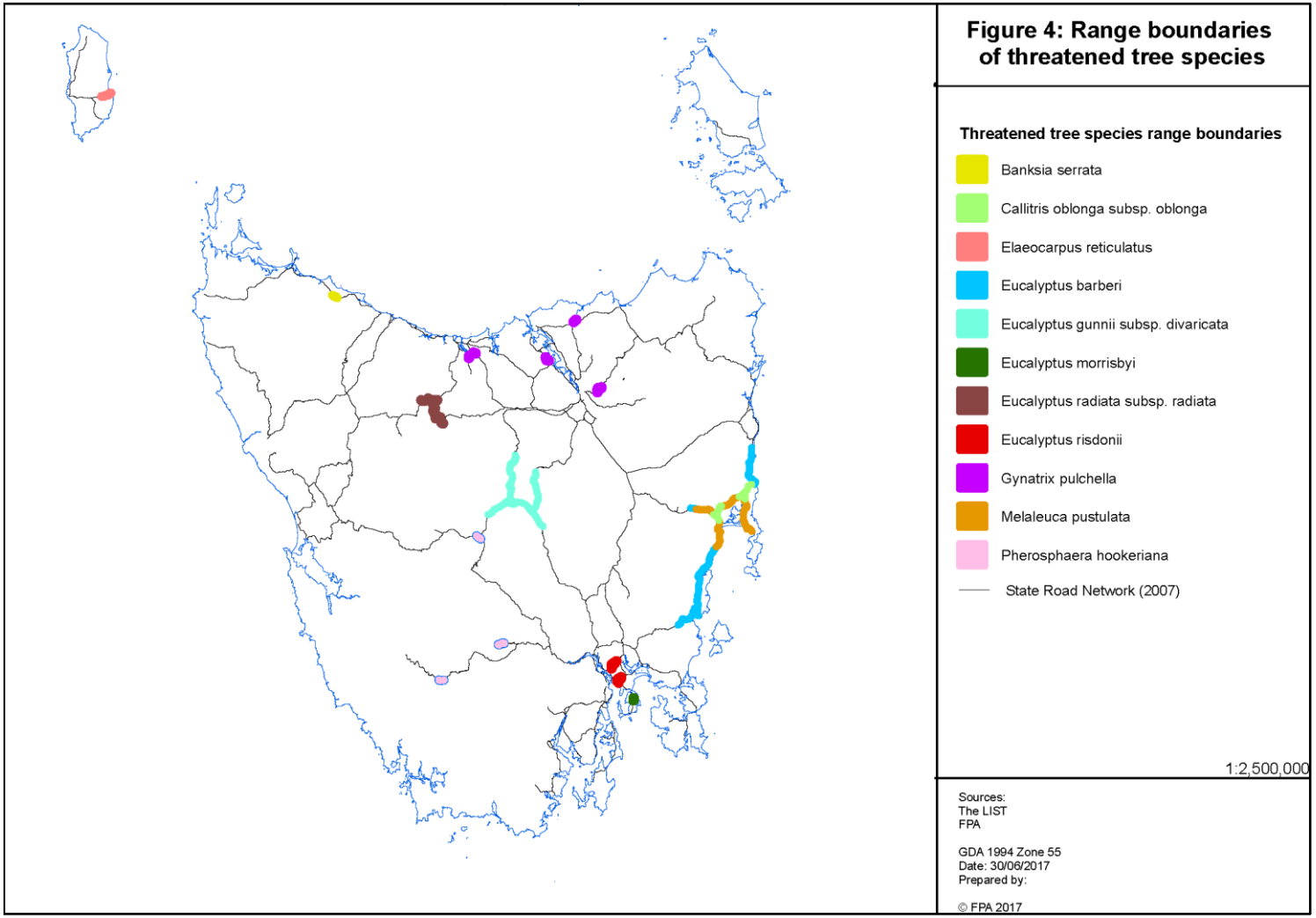


Figure 4: An estimated distribution of threatened tree species that overlap with the State Growth road network, as determined by spatial analysis

4.3 Threatened vegetation communities

In addition to assessing the value of isolated trees due to their listing as a threatened species (Section 4.1), or potential to provide habitat for threatened fauna (Section 4.5), in some cases trees within the road reserve will form part of a threatened forest or woodland vegetation community. Additionally, a threatened non-forest vegetation community may be present e.g. grassland or shrubland. Clearance of threatened native vegetation communities is regulated under various legislation and policy (see Table 2). Identification of relevant communities is discussed below.

Tasmanian Nature Conservation Act 2002

There are currently 39 communities listed as threatened under Schedule 3 of the Tasmanian NCA. Some of these communities will not overlap with the State Road Network due to their limited distribution and specific habitat requirements.

Table 6 contains a list of threatened communities that are considered to have potential to occur within the road reserve of the State road network. This table is based on a GIS query to clip TASVEG to the State Road Network buffered by 30m and expert opinion. Some communities will only be encountered very rarely due to restricted distributions e.g. King Island, Cradle Mountain or Mt Field. These communities are identified in

Figure 5. Communities that were excluded during this process are included in **Error! Reference source not found.**

A shapefile of the communities that intersect with the State road reserve has been provided to State Growth to assist with desktop planning. Threatened community note sheets for all threatened communities in Tasmania can also be downloaded from the DPIPWE website:

http://dpipwe.tas.gov.au/conservation/threatened-species-and-communities/threatened-native-vegetation-communities

Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The following EPBCA communities could occur within the State road network:

- Lowland native grasslands of Tasmania – Critically Endangered
- *Eucalyptus ovata - Callitris oblonga* forest – Vulnerable
- Subtropical and temperate coastal saltmarsh – Vulnerable.

Another community, Tasmanian forests and woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata / E. brookeriana*) has been proposed for listing as Critically Endangered under the EPBCA. Patches of this community are likely to intersect with the State road network, although this community would largely encompass areas in Tasmania mapped as Tasveg codes DOV, DOW and WBR, which are already listed threatened communities in Tasmania.

Ecological communities listed as Vulnerable are not considered to be Matters of National Environmental Significance under the EPBCA and therefore do not trigger the referral, assessment or approval requirements of the Act. As such, works affecting *Eucalyptus ovata – Callitris oblonga* forest, or subtropical and temperate coastal saltmarsh, will not require referral under this Act and do not therefore need to be considered further by State Growth under the provisions of the EPBCA. Note, however, that *Callitris oblonga* is a listed threatened species under the EPBCA and the TSPA (Section 4.1) and as such a referral under the EPBCA may still be required for impacts to this species. Additionally, a permit is likely to be required from DPIPWE to take any individuals of this species.

Due to the lowland native grassland of Tasmania ecological community being listed as Critically Endangered, and the potential for this community to be present within the State road reserve, this community is likely to require further consideration, particularly through central and southern parts of the State. This ecological community is comprised of two major sub-types differentiated by the dominant native tussock-forming perennial grass species: lowland *Poa labillardierei* grassland (can correspond to Tasveg code GPL) and lowland *Themeda triandra* grassland (can correspond to Tasveg code GTL). Please note that GPL and GTL are not listed threatened communities under the NCA.

The lowland native grasslands of Tasmania ecological community comprises those patches that meet the description and condition thresholds set out in the community listing advice, and therefore not every Tasveg unit mapped as GPL or GTL will qualify as the ecological community. Condition thresholds include patch size, cover of native perennial tussock grasses, and species richness. This ecological community includes both natural and disturbance induced (or derived) native grasslands, and therefore providing the condition thresholds are met patches may be located within, or overlap with, the road reserve even where there may be a history of disturbance.

For completeness, a separate shapefile containing Tasveg units GPL and GTL clipped to the 30m road State network buffer has also been provided to State Growth to act as a flag for further consideration in the vicinity of roads that intersect these polygons. The primary roads that are likely to intersect with GPL or GTL are the Midlands Highway, The Tasman Highway between Hobart and Bicheno, and Lake Leake Road.

4.4 Location of Threatened vegetation Communities

Table 6: List of NCA threatened vegetation communities with potential to intersect with the State road reserve, according to spatial analysis.

Schedule ID	NCA Community Name	Tasveg Codes	Comments on distribution relative to State road network
2	*Allocasuarina littoralis* forest	NAL	Uncommon - West Tamar Highway, Sidmouth and Tasman Highway, Weldborough.
4	*Athrotaxis cupressoides* open woodland	RPW	Uncommon - near Lake Dobson, Mt Field.
5	*Athrotaxis cupressoides* rainforest	RPP	Uncommon - Cradle Mt Road, and Highland Lakes Road, Central Plateau.
6	*Athrotaxis selaginoides / Nothofagus gunnii* short rainforest	RKF	Uncommon – Cradle Mt and Mt Field.
7	*Athrotaxis selaginoides* rainforest	RKP	West Coast - Anthony Rd, Murchison Rd, Lyell Hwy.
11	*Callitris rhomboidea* forest	NCR	Uncommon – Coles Bay Road, and Tasman Hwy south of Bicheno.
14	*Eucalyptus amygdalina* forest and woodland on sandstone	DAS	Eastern half of the State on suitable rock types.
15	*Eucalyptus amygdalina* inland forest and woodland on cainozoic deposits	DAZ	Northern Midlands and the Fingal Valley, also West Tamar-Westbury, East Coast, Cleveland-Epping Forest area and Cressy-Blackwood Creek area.
16	*Eucalyptus brookeriana* wet forest	WBR	North-west of the State and King Island.
17	*Eucalyptus globulus* dry forest and woodland	DGL	South East and East Coast.
18	*Eucalyptus globulus* King Island forest	DKW, WGK	Uncommon – 2 polygons of WGK on King Island. No DKW intersects with road hierarchy.
20	*Eucalyptus ovata* forest and woodland	DOV, DOW,	DOV and DOW scattered across the State, primarily in the North, East and

Schedule ID	NCA Community Name	Tasveg Codes	Comments on distribution relative to State road network
		DMW (partial)	South East. DMW has been excluded from the analysis as it is a woodland complex with various dominant species.
21	*Eucalyptus risdonii* forest and woodland	DRI	Uncommon – confined to Grasstree Hill, and Mornington areas.
22	*Eucalyptus tenuiramis* forest and woodland on sediments	DTO	South East around Hobart.
23	*Eucalyptus viminalis* - *Eucalyptus globulus* coastal forest and woodland	DVC	South East and East Coast from Dover to St Marys.
25	*Eucalyptus viminalis* wet forest	WVI	Mostly in the northern half of the State.
28	Highland grassy sedgeland	MGH	Central Highlands, Mt Field, and Murchison Hwy and Ridgley Hwy near Waratah.
29	Highland *Poa* grassland	GPH	In the vicinity of Cradle Mt (Cradle Mt Rd and Belvoir Rd), Waratah, Derwent Bridge and Bronte Park.
30	*Melaleuca ericifolia* swamp forest	NME	Northern half of the State and also King and Flinders Islands.
31	*Melaleuca pustulata* scrub	SMP	Tasman Highway between Swansea and Cherry Tree Hill.
34	Riparian scrub	SRE	Tasman Hwy east of Launceston, Blessington Road, Buckland, Birralee Rd, Esk Main Rd.
36	*Sphagnum* peatland	ASP	Uncommon - Cradle Mt and Waratah.
37	Subalpine *Diplarrena latifolia* rushland	MDS	Uncommon - Belvoir Rd, Murchison Hwy, Ridgley Hwy.
39	Wetlands	AHL, ASF, AHS, AHF	In the vicinity of the Tamar and Derwent Estuaries, and Little Swanport.

Refer to From Forest to Fjaeldmark for explanation of TASVEG 3.0 mapping unit codes.

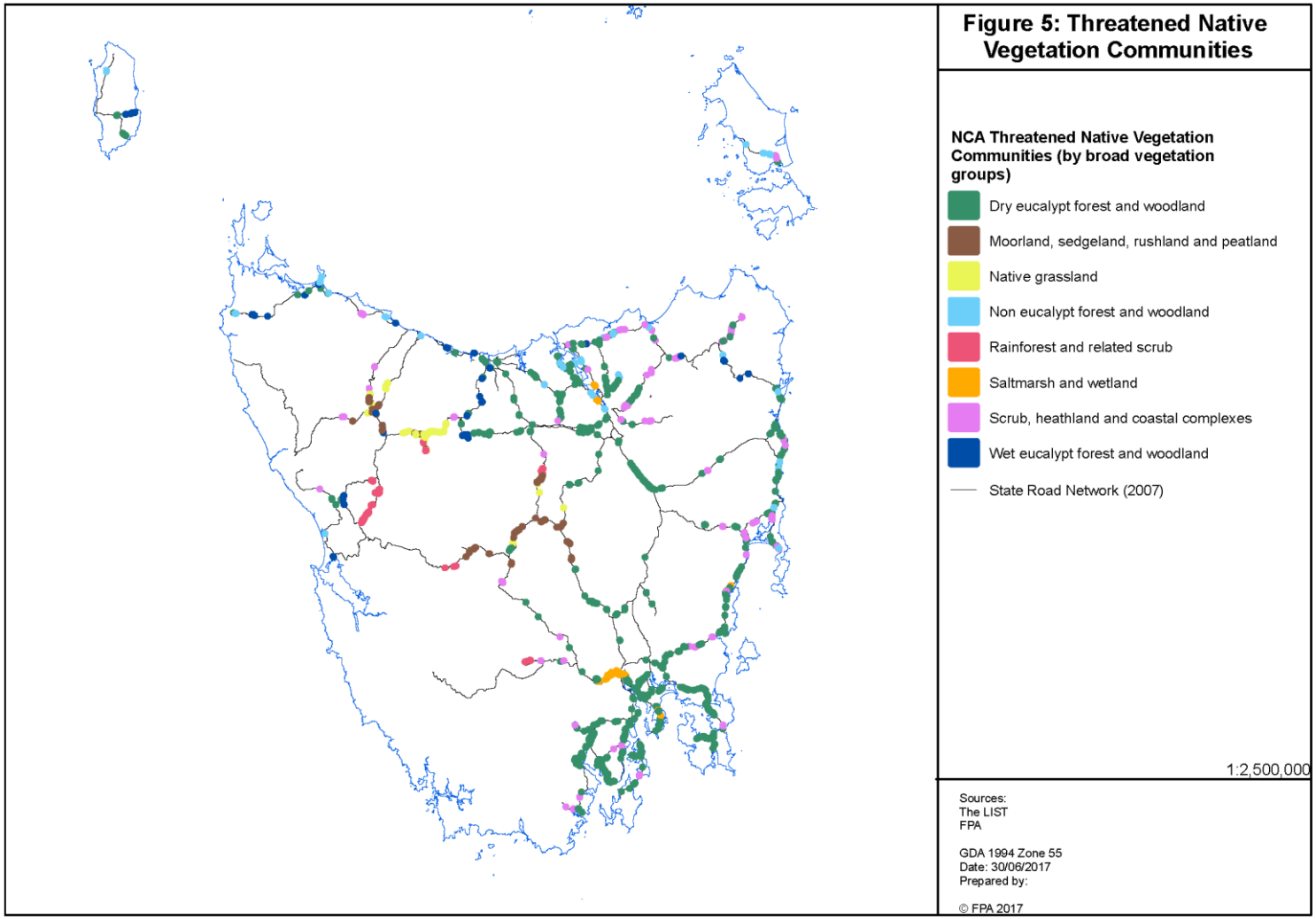


Figure 5: Map of NCA-listed threatened vegetation communities with potential to be impacted by road maintenance activities

4.5 Threatened fauna habitat

To assess the value of trees as habitat for threatened fauna, this section provides a list of tree-dependent species and their key habitat requirements, and provides details on how to view and/or obtain range boundaries for each species. Table 7 contains a list of tree-dependent threatened fauna species with potential to be affected by routine maintenance and small-scale works.

Table 7: Tree-dependent threatened fauna species thought to have the potential to be affected by maintenance and works on state roads.

Common Name	**Scientific Name**	**Status** **TSPA, EPBCA**
Swift parrot	*Lathamus discolor*	e, CR
Masked owl	*Tyto novaehollandiae castanops*	e, VU
Forty-spotted pardalote	*Pardalotus quadragintus*	e, EN
Wedge-tailed eagle	*Aquila audax* subsp. *fleayi*	e, EN
White-bellied sea eagle	*Haliaeetus leucogaster*	v,-
Grey goshawk	*Accipiter novaehollandiae*	e, -

The codes for each Act: **TSPA** – rare (r), vulnerable (v), endangered (e) and **EPBCA** – vulnerable (VU), endangered (EN), critically endangered (CR).

Range boundaries

The first step in assessing whether a tree might support any of the species listed in Table 7 is to establish whether the assessment site falls within the range boundary of one or more of the species. Beyond this, an assessment of the tree's potential to provide suitable habitat for the species can be made.

The FPA and DPIPWE have developed range boundaries for threatened fauna species in Tasmania. The known range (or actual range) is the area within which the species is most likely to occur, being the area of land within a minimum convex polygon of all known localities of the species. The core range encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species. The potential range includes the known range, but also includes the area within which the species has not been found but may occur based on environmental conditions.

The latest endorsed range boundaries of threatened fauna species can be viewed through the FPA's Biodiversity Values Database on the FPA website, or shapefiles can be downloaded from the NVA. The fauna range boundaries are updated fairly regularly and should be downloaded regularly from the NVA to ensure they are up to date. The FPA's Biodiversity Values Database (BVD) is also updated regularly and can be accessed at the following link:

http://www.fpa.tas.gov.au/fpa_services/planning_assistance/advisory_planning_tools/Biodiversity_values_database

Information on how to access the database or down load range boundary shape files from NVA can be found in Appendix 3.

Figures 6 to 10 show the latest DPIPWE-endorsed range boundaries for the six threatened bird species listed in Table 8.

Habitat descriptions

Habitat descriptions for each species in Table 7 are provided in Appendix 4.

The latest endorsed habitat descriptions for threatened fauna species in Tasmania can be obtained from the FPA website at the following link:

http://www.fpa.tas.gov.au/fpa_services/planning_assistance/advisory_planning_tools/Biodiversity_values_database

Please note that habitat descriptions for fauna are only provided for species that could occur in forests and/or be affected by forest practices and as such excludes, for example, marine species or shorebirds.

Evaluating habitat for threatened tree-dependent fauna

Once it is determined that a tree falls within the range of a threatened fauna species, further consideration needs to be given to the features of the tree and or vegetation patch, to assist with evaluation of the potential to support the target species. Table 8 sets out key habitat features for each species and further details, specific to each species, are provided below.

Table 8: Key habitat trees important to threatened tree-dependent fauna that have the potential to occur within the reserve system of State roads.

Species	**Key habitat features**
Swift parrot	• Foraging - all *Eucalyptus globulus* or *E. ovata* ≥ 40cm dbh. • Nesting - any eucalypt > 70cm dbh and/or with visible hollows.
Masked owl	• Any eucalypt > 100cm dbh and/or with large (≥15cm) visible hollows.
Forty-spotted pardalote	• Foraging - *Eucalyptus viminalis* (white gum) >25 cm dbh • Nesting - any eucalypt > 70cm dbh and/or with visible hollows
Eagles	• Any large tree with a very large raptor nest. For further details on nest identification please refer to the FPA Fauna Technical Note No. 14: Nest identification.

Grey goshawk	• Any large tree with a potential grey goshawk nest. Most likely to occur in wet forest, rainforest and damp forest patches in dry forest. For further details on nest identification please refer to the FPA Fauna Technical Note No. 14: Nest identification.

Swift parrot

The swift parrot has a complex ecology. They breed over the summer in the forests and woodlands of some areas in Tasmania and migrate to mainland Australia over winter.

One of the main foraging resources for swift parrots are the flowers on *Eucalyptus globulus* (blue gum). *E. globulus* flowering is highly variable in both space and time. This means it cannot be predicted where flowering events will occur in any given breeding season, and therefore it cannot be predicted where swift parrots will be breeding in any given year. Swift parrots will also feed on the flowers of *E. ovata* (black gum), as well as lerps, psyllids, pollen and honeydew. Potential foraging-trees are considered to include *E. globulus* and/or *E. ovata* ≥ 40 cm diameter at breast height (dbh).

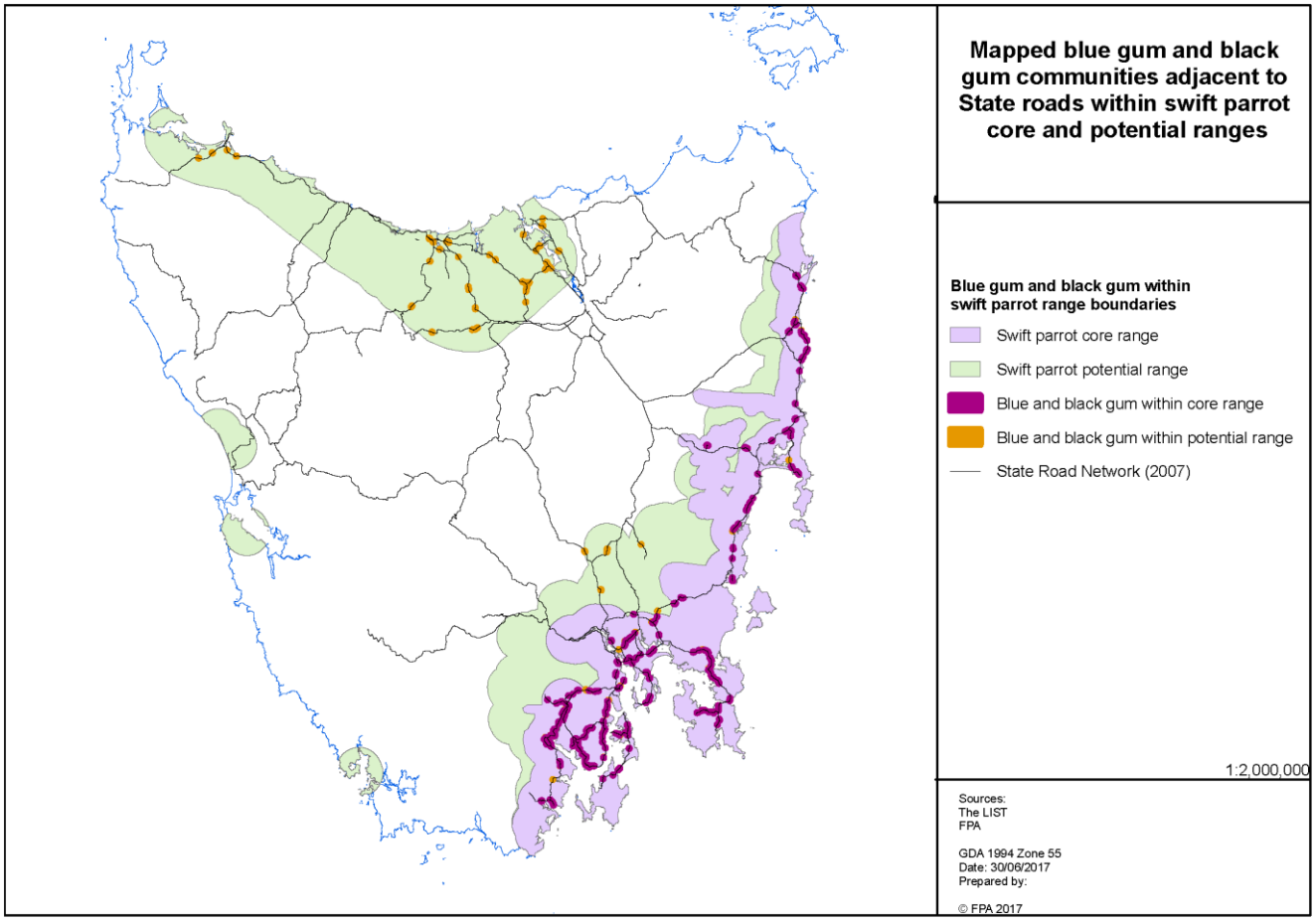
Swift parrots breed in tree hollows and are selective in the size of hollow they will use. They prefer hollows located high in the trees that are deep and have narrow entrances. Swift parrots often nest in aggregations, with the density of nests depending on the foraging resource available. Therefore a large number of suitable hollows may be required in an area to support breeding. These areas of suitable nesting habitat need to be located within a few kilometres of the foraging resource.

Potential nesting-habitat is hollow-bearing eucalypt trees of any species. Nest trees typically contain multiple hollows, have a large trunk diameter (mostly > 70 cm diameter at breast height) and have signs of advanced senescence (i.e. contain dead wood).

For further details on assessing swift parrot habitat please refer to the FPA Fauna Technical Note No. 3: Identifying swift parrot breeding habitat and the FPA Hollows booklet.

Error! Reference source not found. indicates the core and potential ranges of swift parrots in Tasmania, and also highlights Tasveg 3.0 mapping units dominated by *E. globulus* or *E. ovata* within 30m of the road network. The range boundaries have been developed for management purposes and represent negotiated outcomes between stakeholders (primarily the forest industry and government) based on best available evidence. They do not reflect the entire ecological range of the species. As such, habitat descriptions are extremely valuable to predict the species occurrence. The species may nest and forage anywhere there is suitable habitat and the can change on a yearly basis. As a result the key habitat features in Table 9 include all *E. globulus* and *E. ovata* ≥ 40cm dbh (excluding plantations) as suitable foraging habitat and any eucalypt > 70cm dbh and/or with visible hollows.

Figure 6: Swift Parrot core and potential range



Masked owl

Masked owls can be found in a wide range of habitats across Tasmania, with owl densities varying geographically. The highest densities are suggested to be in the east and north of Tasmania, while the lowest densities occur at elevations above 600m above sea level. The potential range of the masked owl is the whole state, except the Bass Strait islands. The core range of the masked owl includes all areas that occur at low elevation (<600m above sea level). Figure 7 indicates the extent of the core and potential ranges for masked owl in Tasmania.

Potential habitat for the masked owl is defined as all areas that have trees with large hollows (≥15cm entrance diameter). Tree size can be used as a substitute for hollow availability - trees over 100cm DBH have a higher probability of containing hollows suitable for masked owls than smaller diameter trees. Remnants and individual trees in agricultural areas may also constitute significant habitat if they include large old hollow-bearing trees.

Refer to FPA Fauna Technical Note No. 17: Identifying masked owl habitat for further information.

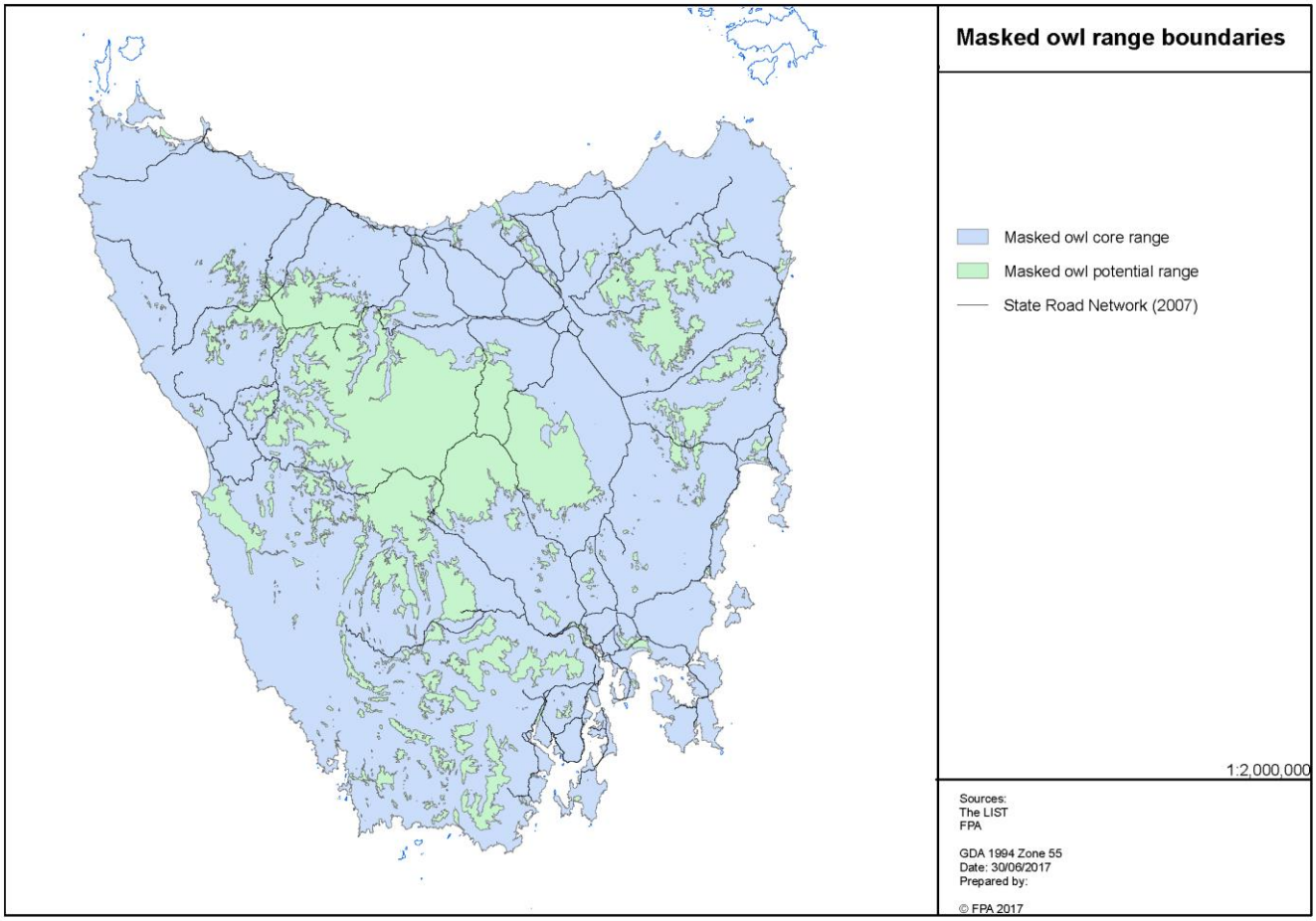


Figure 7: Masked Owl Range Boundaries

Forty-spotted pardalote

There are five extant colonies of forty-spotted pardalote currently known within Tasmania. These are located on Maria Island, Bruny Island, Flinders Island, Tinderbox/Huntingfield and Southport. Only three of these colonies have potential to be affected by works undertaken to the State Road Network: Bruny Island, Flinders Island and Tinderbox/Huntingfield. Figure 8 shows the locations of the known and potential ranges of the species and the sections of the State Road Network that may require further consideration in terms of this species. Figure 9 indicates sections of the State Road Network in South East Tasmania that have white gum (*Eucalyptus viminalis*) within a 30m buffer either side of the road network within the core and potential ranges of the species.

Table 8 above sets out the key habitat features and management requirements for this species relevant to the Tree Assessment Guideline.

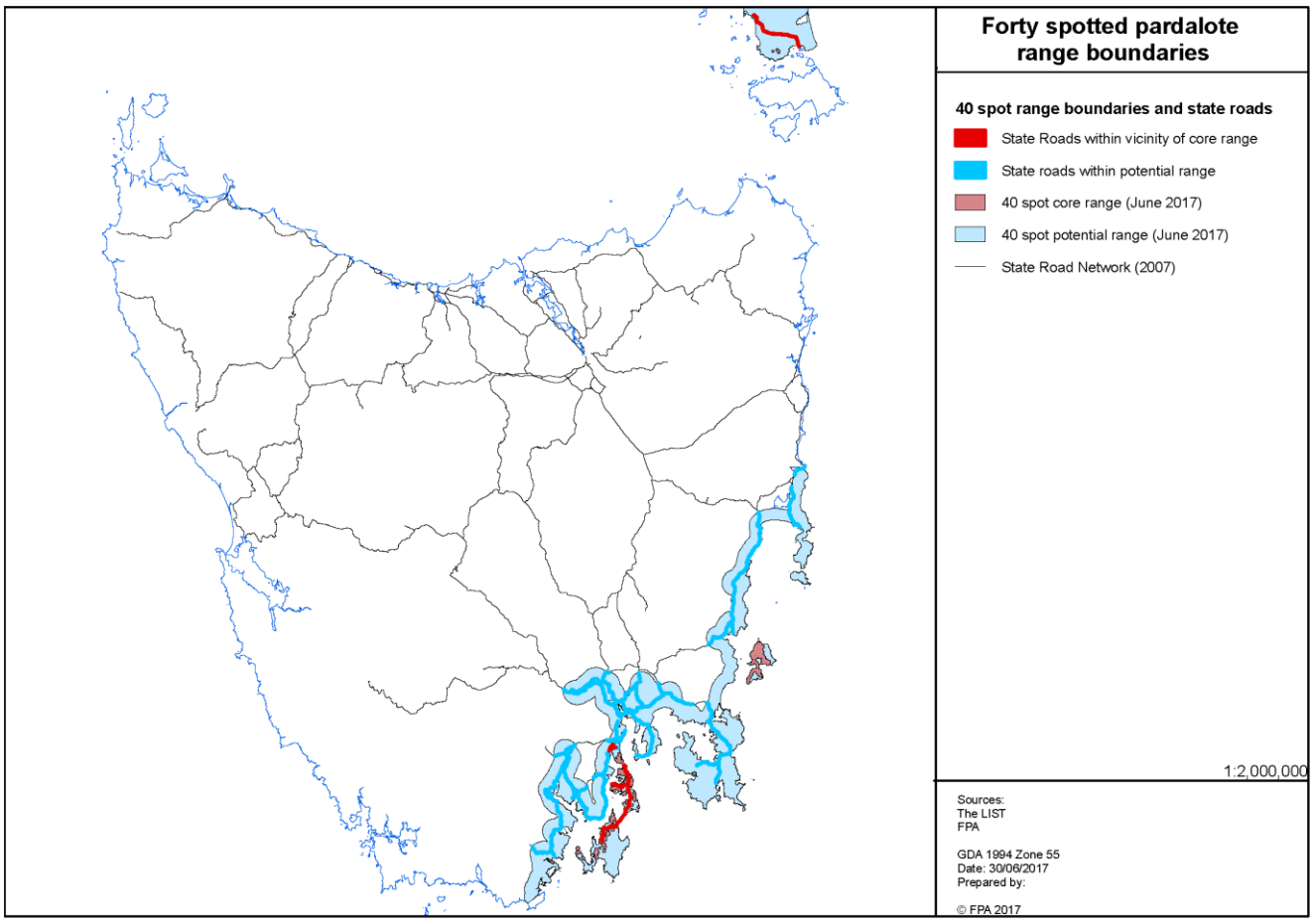


Figure 8: Forty-spotted Pardalote Range Boundaries

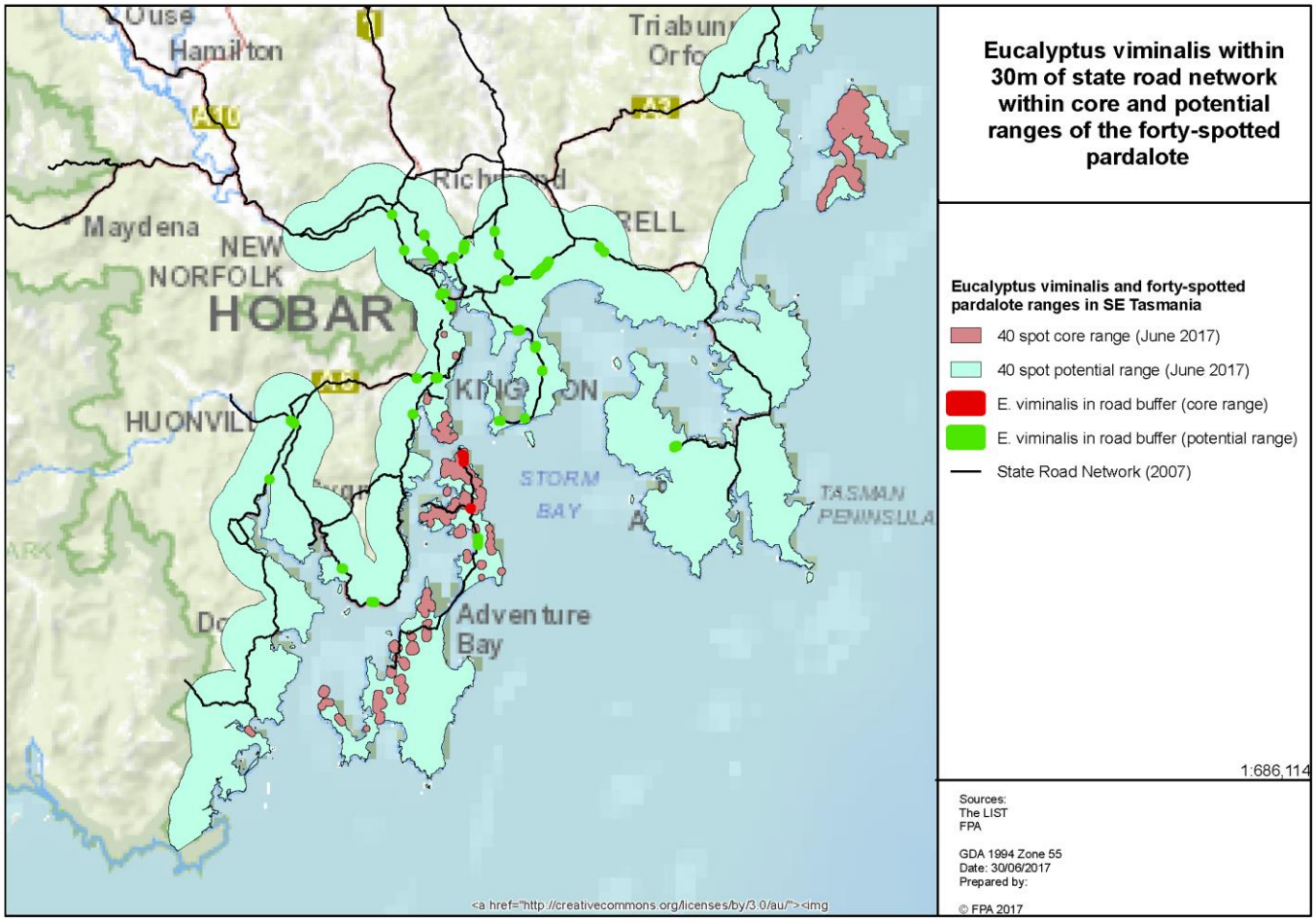


Figure 9: Sections of the southern State Road Network with *Eucalyptus viminalis* within a 30m buffer of either side of the road within the core and potential ranges of 40 spotted pardalote

Wedge-tailed eagle and white-bellied sea eagle

These species usually build the largest nests for any raptor species in Tasmania. A very large nest, when in use, is usually about 1.2m across and 1m deep (but they can range from 3m across and 3m deep to 0.8m across and 0.5m deep) and is usually built in large, live eucalypts at the canopy level. Sea eagles are more flexible in their preferences, often using dead eucalypts and sometimes using tea tree, she-oaks, pines and rock stacks (on islands).

It is rare that any part of a sitting bird can be seen from under the nest. Whitewash under nests with advanced chicks can be extensive. Pellets and other prey remains mainly represent mammals but there may be remains of birds, reptiles and fish scattered about. The two eagle species often compete for nest sites so care has to be taken in deciding what species is actually in residence.

Twig size is very helpful when identifying nest type. When viewing a nest through binoculars, a helpful tool for assessing twig size is to use leaves occurring close to the nest as a ruler: first identify the type of leaves that occur close to the nest and determine the typical length of these

leaves, then use these to visually 'measure' some of the twigs in the nest when viewing through the binoculars.

Grey goshawk

Grey goshawks most frequently nest in blackwood, silver wattle, myrtle or sassafrass. In some (rare) cases they may nest on an epiphyte growing on any of the above (where their nest may barely be visible). These trees may be associated with a swamp forest or a narrow strip growing along a small creek amongst eucalypts. The nest of the grey goshawk tends to be situated beneath the shady crown of a tree, close to bases of limbs which provides a more sturdy foundation with less likelihood of the nest structure flexing in winds. If in large trees (such as eucalypts) the nests are more likely to be out on a limb built into a multi-forked structure. The nest is usually about 50 cm across and made of sticks up to 20 mm thick. The tail tip of a sitting grey goshawk may at times be visible protruding from the nest.

Whitewash under nests with advanced chicks can be obvious but may not be visible immediately after a heavy rainfall event. Pellets mainly contain remains of birds and small mammals and there may be further remains of their prey scattered about.

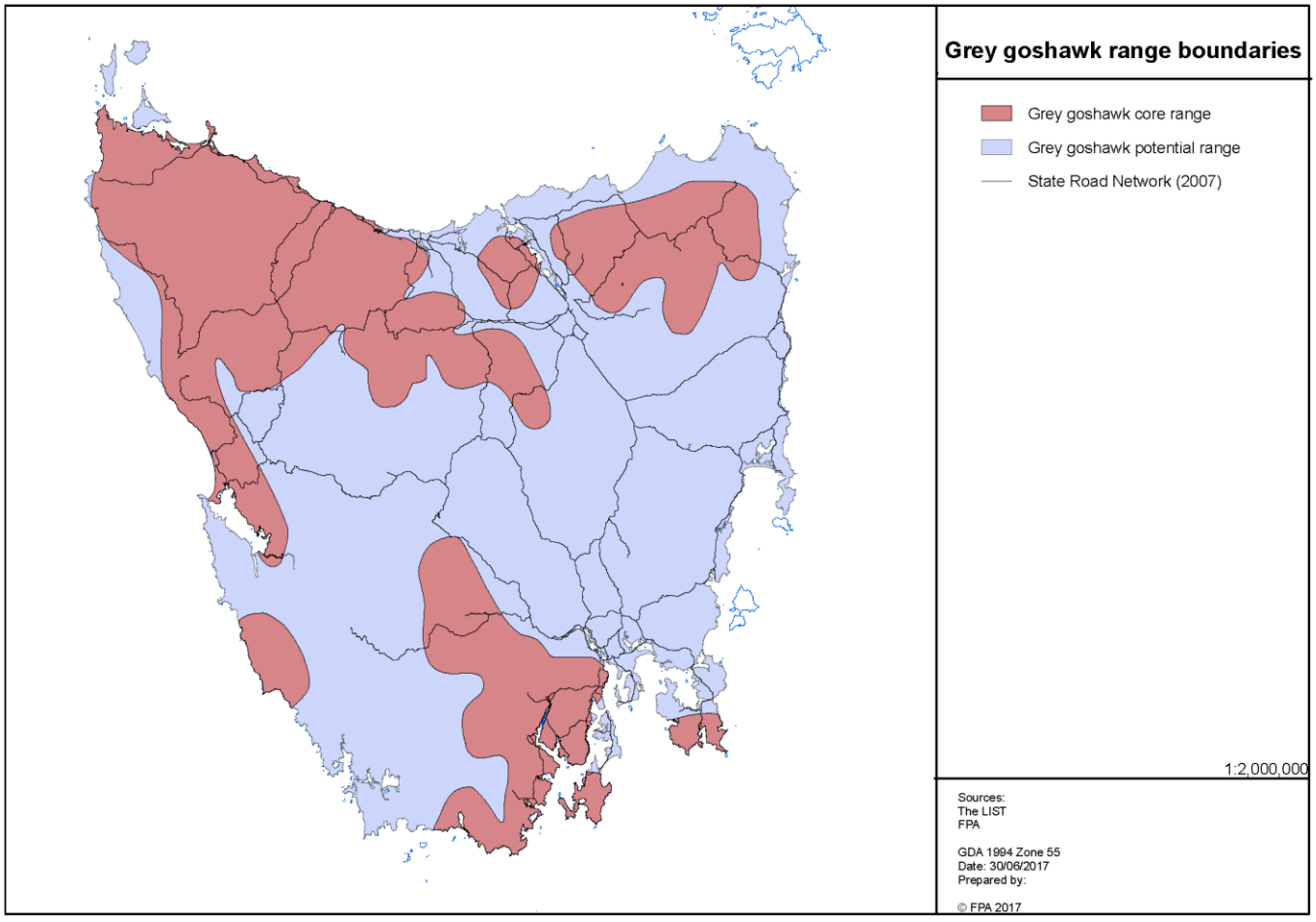


Figure 10: Grey Goshawk range boundaries

Known nests

DPIPWE should be consulted prior to any removal of trees with nests likely to be used by a threatened species, a permit may be required. The NVA contains the most up-to-date records for known nest sites and should be referred to before considering removal of trees.

4.6 Non-threatened fauna habitat

Hollow-bearing trees provide important habitat for a range of fauna, including some threatened species. In many landscapes, particularly agricultural, urban and intensive forestry landscapes, hollow availability can be low and single trees can provide important habitat. As such, non-threatened hollow-using fauna should also be considered as part of the ecological assessment.

Non-threatened hollow-using fauna vary greatly in the size and shape of hollows they will use. Therefore any tree with a visible hollow should be considered to have habitat value regardless of whether it is within the range of a threatened species or not. In particular:

- Dry forest: trees >70 cm dbh with visible hollows
- Wet forest: trees >100 cm dbh with visible hollows

4.7 Natural values with restricted distributions

The above analysis has identified various natural values that have very restricted distributions in relation to the State road network. These values will be very rarely encountered as part of routine maintenance and small scale works, but have been included for completeness. These values are specific to certain areas such as King Island or Cradle Mountain and each region is discussed further below.

King Island

A number of values have been identified that only occur on King Island. These include the tree species *Elaeocarpus reticulatus* (Blueberry ash) and the threatened community *Eucalyptus globulus* King Island forest (Tasveg code WGK).

While not included in Section 4.5, there are several species of bird that occur on King Island whose potential range is the whole of King Island. Potential habitat for the King Island green rosella is any forest (primarily with a eucalypt canopy) supporting suitable hollows. Potential habitat for the King Island scrub tit is wet sclerophyll forest and swamp forest (including remnants). Potential habitat for the King Island brown thornbill is eucalypt forest, woodland, teatree thickets, and wet scrub (including remnants amongst farmland).

If any works are planned on King Island, it is recommended that a natural values assessment is undertaken by a qualified ecologist, due to the significance of the site-specific values present.

Mt Field and Cradle Mountain national parks

Several natural values have been included in Sections 4.1, 4.3 and 4.5 because they occur along the roads into and within the Cradle Mountain and Mt Field national parks. These include the communities *Athrotaxis cupressoides* open woodland and *Athrotaxis selaginoides* / *Nothofagus gunnii* short rainforest and drooping pine *Pherosphaera hookeriana*.

As both areas are National Parks and also part of the Tasmanian Wilderness World Heritage Area, it is recommended that any routine maintenance or safety works planned for roads in these areas are fully assessed through a comprehensive natural values assessment by a qualified ecologist.

5. Approval pathways

The tables in Section 2 and 3 have identified the myriad of legislative requirements applicable to road works and associated clearing. The current approvals pathways are represented in the flow charts in figures 10-12.

In summary there are exceptions that apply at a local, state and Commonwealth level associated with emergency works and the ongoing use, repair and maintenance of linear assets such as roads. There may be times when works trigger levels where the exemptions do not apply and this must be reviewed.

At a local government level it is acknowledged that some Councils may have an interest in retaining vegetation with special values where possible. Therefore, further justification for any removal may be required through arborist risk assessment or works modified so entire trees are not removed. Correspondence with Councils to advise of any significant works proposed affecting special value vegetation, is recommended.

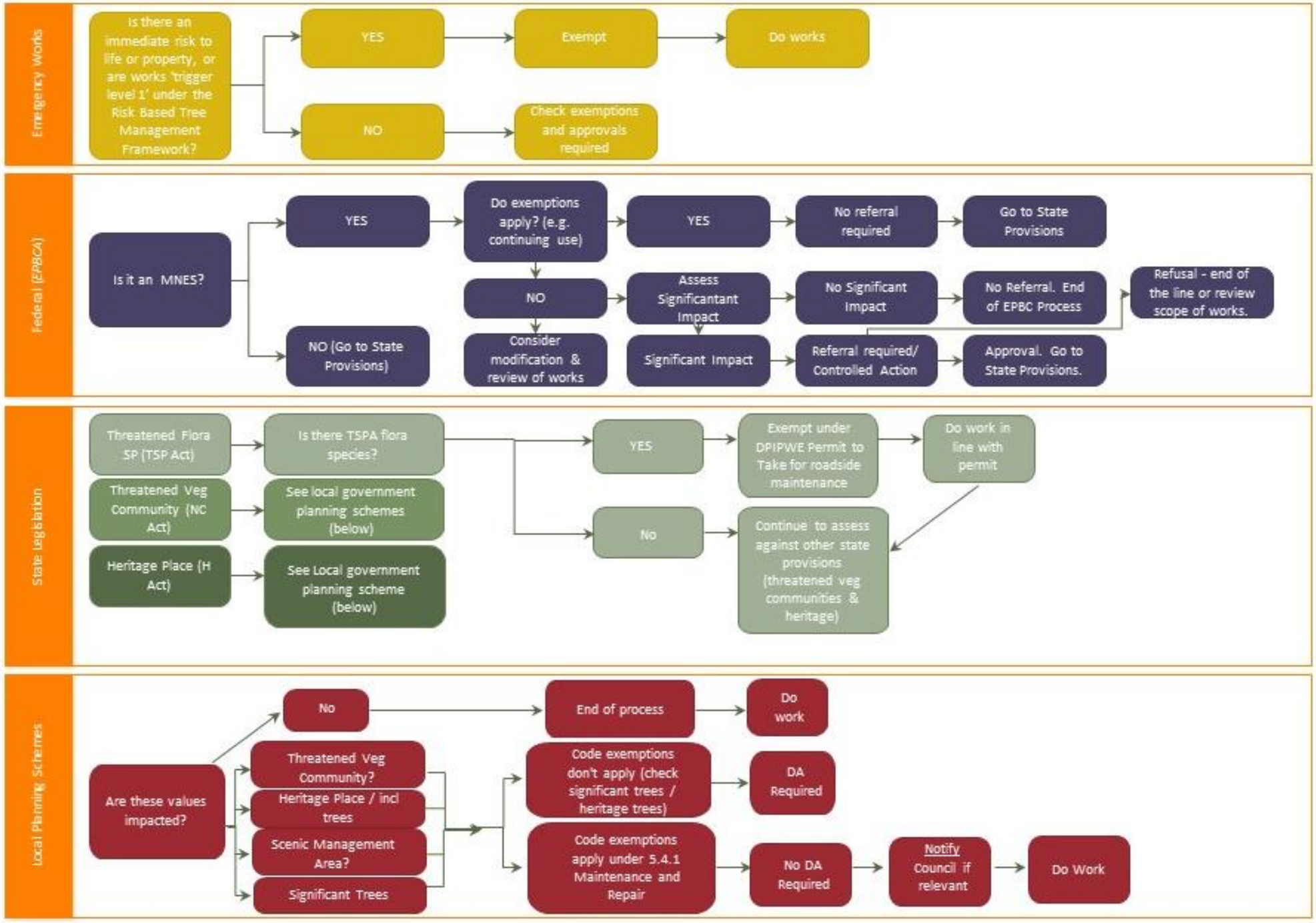


Figure 11: Flow chart of Federal, State and Local approval and exception pathways

6. Decision making tool

As described above, this section identifies the decision making tool for the various legislative provisions.

Works identifier:			
Responsible officer:			
Date:			
Is there an immediate threat to human life and safety?			**If yes – do works** **If no – proceed with checklist**
Step		**Yes/No**	**Outcome**
1	Is the vegetation on land within the Department's responsibility or does it have the potential to affect road user safety?		If yes, proceed to step 6. If no, go to step 2.
2	Is the vegetation within a reserve?		If yes, landowner consent required. Obtain consent then go to 6. If no go to 3
3	Is the vegetation within an area planted for ornamental purposes (e.g. domestic garden, memorial planting)?		If yes, go to 5 If no go to 6
4	Is the vegetation within a planted shelter (e.g. wind break, stick shelter)?		If yes, landowner consent required. Obtain consent then go to 5. If no go to 6
5	Are Pioneer Avenue Memorial Plantings affected?		If yes, landowner consent required. Refer to Departmental Policy on removal and replacement of

			Pioneer Avenue Memorial Plantings in consultation with landowner. If no go to 6

6	**MNES Are any of the following applicable?**	**Yes**	**No**
a	Is the site within a Wilderness Area?		
b	Does the vegetation form part of a Threatened Ecological Community or provide habitat for any species listed as threatened under the EPBCA?		
c	Is the vegetation located within a federally listed heritage site?		

If yes to any of these an assessment of whether an MNES is significantly impacted may be required – this is a separate process - then go to 7

If no – got to 7

7	**State provisions**	**Yes**	**No**
a.	Is the vegetation identified as a threatened species under the TSP Act?		
b	Is the vegetation identified as a threatened vegetation community in the NCA?		
c	Does the tree / vegetation have any of the following: • large stick nests • tree hollows • burrows or dens		
d	Is the vegetation on a site identified as a state listed heritage place on the LISTmap?		

If yes to any of these approval may be required – refer to State Features checklist then go to 8 **If no – go to 8**

8	**Local Provisions**	**Yes/No**	**Outcome**
	Does the planning scheme have general or limited exemptions that apply to the works proposed		If yes go to a. If no go to b.
a	Are these exemptions limited by factors such as: • native vegetation • threatened vegetation • local heritage values • scenic values		If yes go to the Local Features checklist If no confirm with Council that no DA is required
b.	Is there threatened vegetation under the NCA on site?		If yes go to the Local Features checklist If no go to c
c.	Is the vegetation on a site identified as a local heritage place identified on a planning scheme overlay		If yes go to the Local Features checklist If no go to d
d.	Is the vegetation within a scenic management area (this can be the road itself or a distance measured from the edge of the road)		If yes go to the Local Features checklist If no, work can be done with no DA

State Features Checklist

Ecological

7a	Vegetation identified is a threatened species under the TSP Act?	A general exemption has been issued to State Growth for removal of threatened species listed under this act. There may however be local planning provisions which apply through definitions. Go to Section 8
7b	Is the vegetation identified as a threatened vegetation community in the NCA? (See Figure 5)	Go to Section 8
7c	Does the tree / vegetation have any of the following: • large stick nests • tree hollows • burrows or dens	If yes it may provide habitat for any threatened species which may make it 'priority habitat' If a DA is required, refer to planning scheme code related to biodiversity or natural assets to determine if 'priority habitat' is impacted If no DA is required move to 7d or Section 8

Heritage places

7d	Does the listing advice include the vegetation to be impacted? Some larger rural sites have a defined area which excludes road frontage areas.	If yes, check if the exemptions below apply. If no, no approval or exemption necessary from THC. Move to the Section 8
	Will removal of vegetation impact the social or community value of the planting (e.g.: memorial plantings)	If yes, Discretionary approval may be required – seek advice from THC If no, may be eligible for exemption. Lodge exemption request and move to Section 8
	Does the vegetation contribute to the heritage significance of a place?	If yes, Discretionary approval may be required – seek advice from THC If no, may be eligible for exemption. Lodge exemption request and move to Section 8
	Is the tree is diseased, dangerous or senescent?	If yes, exemption likely. Lodge exemption request and move to Section 8

Local Provisions Checklist

Ecological

8a		
I	Is the vegetation within a planning scheme overlay related to priority habitat or biodiversity protection area?	If yes got to iii In no go to ii
Ii	Does the planning scheme code for biodiversity or natural areas contain definitions that would likely include the vegetation (e.g. threatened species or habitat for threatened species)?	If yes go to iii If no go to form
iii	Does the relevant code have exemptions that cover the clearing?	If yes no DA required for ecological values – go back to form If no confirm with Council that DA is required. Assessment of ecological values required.

Heritage

8b	Are there exemptions within the relevant heritage code (generally these relate to safety reasons) that apply to the works?	If yes no DA required for heritage values – go back to form If no confirm with Council that DA is required. Assessment of heritage values required.

Scenic values

8c	Does the scenic protection code have exemptions that cover minor road works or clearing?	If yes no DA required. If no confirm with Council that DA is required. Assessment of scenic values required.

NOTE: A requirement for a DA for one aspect does not preclude a requirement to consider other values and codes.

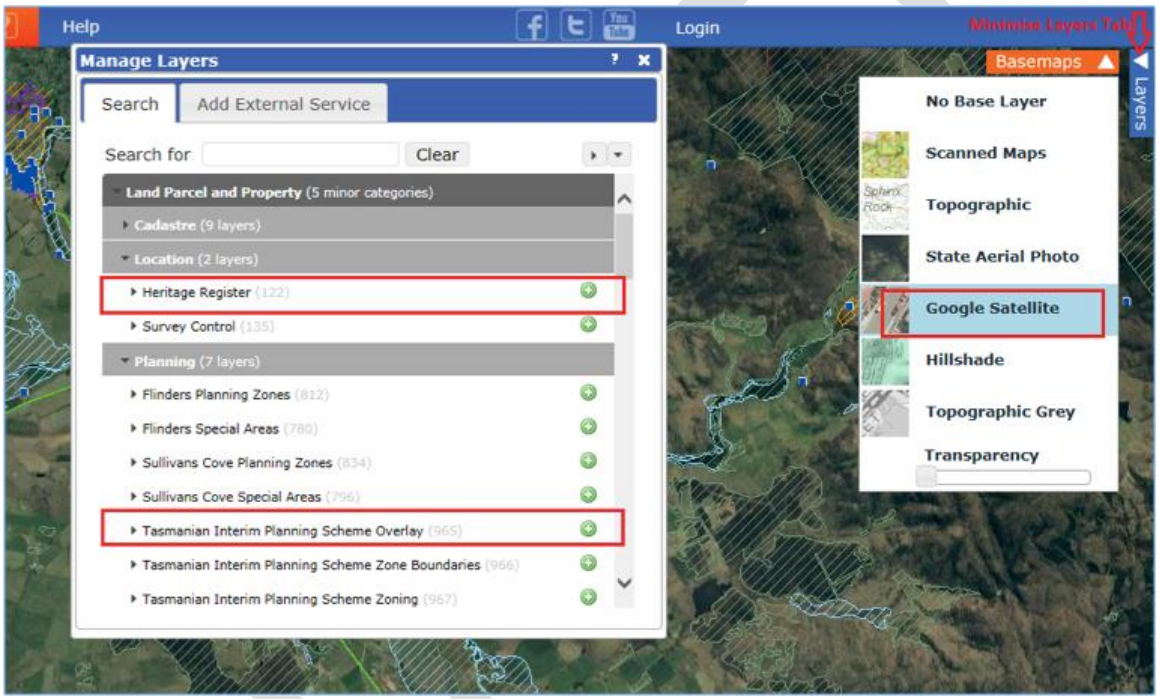
NOTES

Heritage and ecological values can be viewed on LISTmap by pasting this link into your browser:

http://maps.thelist.tas.gov.au/listmap/app/list/map?bookmarkId=93572

and making sure the following layers are turned on (see image):

- Heritage Register
- Tasmanian Interim Planning Scheme Overlay



Note for heritage places and precincts you must click on the blue square (state) or purple dot (local) on the map – clicking elsewhere on the parcel of land will not bring up the details

7. Opportunities for improvement

Assessment of flora, fauna and heritage values against the variety of legislation and associated exceptions can be complex. Some values, if unintentionally impacted, generate more public or regulator scrutiny than others (e.g. impacts on heritage trees on private or public land). Other values (e.g. ecological) could be seen to be over-regulated creating an overlapping series of controls. These factors combine to create some uncertainty as to the best approach to ensure all legislative requirements are met, acknowledging the values of subject vegetation, while taking advantage of available exemptions to stream line the approvals process for works.

The development of this framework, which supports consistent, systematic consideration of all of the above elements will add value to State Growths effectiveness and responsiveness in relations to maintenance requests that impacts flora, fauna and heritage values.

Additional opportunities for improving the assessment system and the outcomes include:

- Assessing forward plans for works

Identify ecological and heritage constraints early in the process. This could be based on strategic plans for works (i.e. works scheduled in the medium and long term) and on historical works (what areas / works consistently face the same assessment / approval requirements). In areas where future works are likely to be required, undertake the necessary assessments early to identify constraints and determine an approvals pathway.

- General approvals

If there are clear patterns then protocols could be developed for certain activities and if possible general approvals put in place, such the case for maintenance works under the *TTSPA* at present. Make the best use of exemptions – identify the exemptions available for routine works in each local government area and maximise the use of these. Preparation of area specific guides for use in the field may help personnel do works that fall within exemptions as required allowing time for wider scoping works to go through the approvals pathway.

- Minimisation of impacts on fauna species

In terms of smaller trees, with a dbh <40cm, where these are not identified as providing key habitat to the target threatened fauna species, where possible at least some of these trees should be retained where they do not pose a future safety hazard, as they provide a potential future habitat resource for fauna species.

For larger trees, an arborists report is usually required. It is noted that the preference for safety is to retain trees (i.e. by pruning, etc), where this can be accommodated safely. Risks for safety are likely to be higher on higher volume roads (e.g. Cat 1-3 roads). The arborists can help to measure some of the elements that will help to determine whether individual trees are potential habitat trees (e.g. species, diameter at breast height, presence, size and location of hollows, photos etc.).

- Cumulative impacts

Generally the tree assessment framework will apply to single trees or a small number of trees to be removed for a single works program. Assessment of the impact of removal of a single tree or small number of trees may result in a decision that the works will have a low impact on ecological values due to the small-scale of the impacts and the small number of trees to be removed. The combined impact of a number of small-scale projects, however, could be quite different in terms of the cumulative number of trees removed in a year or a number of years, and the impact from removal of habitat on tree-dependent fauna species over time.

For example, the removal of three blue gum trees that could provide foraging habitat for the swift parrot would be permitted if it was deemed not to represent a 'significant impact' under the EPBCA. However, if over the course of a year a combined total of 100 blue gum foraging trees was removed from adjacent to the State road network, this may begin to reach a threshold that could be considered to be more significant in terms of habitat provision for the swift parrot.

While generally, works involving the removal of a small number of trees for safety or routine maintenance would be exempt under the EPBCA, it is recommended that a tree removal register be established to record the loss of such trees and facilitate the establishment of offsets to mitigate cumulative impacts.

- Offsets

To mitigate the loss of trees and native vegetation as a result of minor road works and routine maintenance, State Growth could establish an offset program. This could be achieved by establishing a tree removal register, and at the end of each year a nominated fee per tree could be paid to a third party landholder, such as local government or Tasmanian Land Conservancy to plant trees as replacement for those removed through routine maintenance. Offset ratios would need to be considered e.g. 1:1 vs. 5:1, dependant on the tree species and importance as fauna habitat. For example the offset for blue gum may be higher than black gum. In such a program monitoring of success of re-establishment would need to be undertaken and factored into the cost of replacing lost trees.

An offset program such as this would address the cumulative impacts of minor and routine native tree removals where habitat or potential values exist.

- Training

It is recommended that staff who will be regularly working through the Tree Assessment Framework have a good level of understanding of the species and communities and field recognition of key habitat features detailed within this document. Training can be provided through the FPA or other ecological experts to assist with development of this knowledge at State Growth, should it be required.

8. Stakeholder engagement

Key stakeholders in the process are:

- The staff involved in the assessments and works. If the systems set up are too time consuming or not clear, they will be of little benefit.

- Those designing works and developing schedules need to be fully aware of the legislative framework to ensure adequate consideration is given to ecological, heritage and social values as well as allowing sufficient time and resources for the required assessments and approvals.
- Regulators. The involvement approval bodies, such as Council and THC, will help to establish agreed processes, particularly around the application of exemptions to individual works.

9. References

CofA (Commonwealth of Australia) (2013). EPBC Act Policy Statement 1.1: Significant Impact Guidelines – Matters of National Environmental Significance. Commonwealth of Australia, Canberra.

FPA 2016 'Habitat descriptions of threatened flora in Tasmania', Forest Practices Authority, Hobart, Tasmania.

Kitchener, A. and Harris, S. (2013). From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2. Department of Primary Industries, Parks, Water and Environment, Tasmania.

Survey skill guidelines background document (FPA and EcoTAS 2017b)

Appendix 1
Definitions associated with environmental legislation

Tasmanian Threatened Species Protection Act 1995 (TSPA)

Under the TSPA (Section 51), "…a person must not knowingly, without a permit…take, keep, trade in or process any specimen of a listed taxon of flora or fauna…". The Act does not define the term 'knowingly' and it is usually taken to mean what could be reasonably known by the person undertaking the action. For example, a private landowner would not be expected to check the Natural Values Atlas to "know" if their bush block supported a threatened species prior to undertaking some understorey slashing. However, it would be reasonable to expect a government agency undertaking a deliberate action such as a new road project to "know" if threatened species are present but such a check may not be reasonably expected for an action such as emergency fire-fighting.

DPIPWE's Natural Values Atlas database is usually taken to be the source of "knowing" if a threatened species is present because the information on threatened species is also readily available on The List. However, there may be other sources of reasonable knowledge including commissioned reports (which can contain point location data not transferred to the Natural Values Atlas), communications with experts, and personal knowledge. There are "grey areas" in this concept of course: someone merely suggesting that an area may have a threatened species probably does not constitute "knowing" but this would depend on the expertise of that person. In practice, the Natural Values Atlas is considered to be the most up-to-date source of records.

The Act does define the term "take", which would include killing or damaging individuals of threatened flora during, for example, the construction of a new road project.

State Growth has a permit to take threatened flora within 3m of the pavement edge without needing surveys or any reporting.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBCA)

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (CofA 2013, herein the *Guidelines*), provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBCA.

The *Guidelines* define a **significant impact** as:

"…an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and

quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts"

and note that:

"…all of these factors [need to be considered] when determining whether an action is likely to have a significant impact on matters of national environmental significance".

The Guidelines provide advice on when a significant impact may be likely:

"To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.

If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment".

The following steps and matters are recommended under the Guidelines to determine whether a referral under the EPBCA is required.

1. Are there any matters of national environmental significance located in the area of the proposed action (noting that 'the area of the proposed action' is broader than the immediate location where the action is undertaken; consider also whether there are any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)?

2. Considering the proposed action at its broadest scope (that is, considering all stages and components of the action, and all related activities and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance?

3. Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)?

The Guidelines also state:

However you should not conclude that a significant impact is not likely to occur because of management or mitigation measures unless the effectiveness of those measures is well-established (for example through demonstrated application, studies or surveys) and there is a high degree of certainty about the avoidance of impacts or the extent to which impacts will be reduced.

4. Are any impacts of the proposed action on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)?

Under the Guidelines, an action is likely to have a significant impact if there is a real chance or possibility that it will: (a) lead to a long-term decrease in the size of a population; (b) reduce the area of occupancy of the species; (c) fragment an existing population into two or more populations; (d) disrupt the breeding cycle of a population; (e) modify, destroy, remove, isolate or decrease the availability or quality

of habitat to the extent that the species is likely to decline; (f) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat; (g) introduce disease that may cause the species to decline; or (h) interfere with the recovery of the species.

Under the EPBCA, long-term, continuing or routine activities, such as "usual" roadside maintenance activities, appear to be exempt under S43A of the EPBCA. It is recommended to obtain advice on how EPBCA S43B would be applied to tree clearing for road maintenance and other "routine" activities.

Providing they are not exempt, any proposed works that are anticipated to have a significant impact on EPBCA-listed flora, fauna or communities will need to be carefully considered against the relevant criteria of the Significant Impact Guidelines and appropriate advice sought from State and/or Commonwealth agencies on the requirements for formal referral under the EPBCA.

The documents prepared as part of the present project clearly identify which species or communities are listed on the EPBCA (but consideration may need to be given to additional species not included here).

Tasmanian *Forest Practices Act 1995* and associated Regulations

The Forest Practices Act 1985 defines the following terms that may be relevant to State Growth road works:

clearing of trees means the removal of trees by–

(a) clearing, cutting, pushing or otherwise removing; or

(b) destroying the trees in any way;

trees means–

(a) any woody plants with a height or potential height of 5 metres or more, whether or not living, dead, standing or fallen, that are–

(i) native to Tasmania; or

(ii) introduced into Tasmania and used for the processing or harvesting of timber; and

(b) tree ferns;

On this basis, for example, clearing of sight lines could be considered to be "clearing".

The Forest Practices Regulations 2007 define the following terms that may be relevant to State Growth:

existing infrastructure means –

(a) infrastructure existing when these regulations take effect; or

(b) infrastructure built, after these regulations take effect, in accordance with a certified forest practices plan; or

(c) infrastructure built, after these regulations take effect, for which no certified forest practices plan is required;

infrastructure includes but is not limited to roads, fences, buildings and drainage channels;

public road means –

(a) a State highway within the meaning of section 3 of the Roads and Jetties Act 1935; and

(b) a subsidiary road within the meaning of section 3 of the Roads and Jetties Act 1935; and

(c) a country road within the meaning of section 3 of the Roads and Jetties Act 1935; and

(d) a highway under local management within the meaning of section 4(6) of the Local Government (Highways) Act 1982;

The Regulations state:

4. Circumstances in which forest practices plan, &c., not required

For the purpose of section 17(6) of the Act, the following circumstances are prescribed:

(b) the clearing of native vegetation to provide a reasonable buffer for existing infrastructure if the clearing is necessary to maintain the infrastructure or for public safety;

(d) the harvesting of timber or the clearing of trees on any land, or the clearance and conversion of a threatened native vegetation community on any land, for one or more of the following purposes:

(iv) the construction and maintenance of public roads;

In effect, provided that the Authority has approved in writing the manner in which maintenance or safety works to public roads will be carried out, a Forest Practices Plan will not be required.

Local Planning Schemes

Clarify requirements regarding clearance of trees within a NCA listed community under biodiversity codes / overlays.

- Definitions under biodiversity code – would removal of 1 tree constitute clearing?
  - clearance and conversion means "the process of removing native vegetation from an area of land and:
    - leaving the area of land, on a permanent or extended basis, in a state predominantly unvegetated with native vegetation; or

    - replacing the native vegetation so removed, on a permanent or extended basis, with residential, commercial, mining, agriculture or other non-agricultural development."
- Would removal of a single tree (or a small number of trees) leave the land in a "predominantly unvegetated state with native veg"?
- Similarly, in most cases removal of a small number of trees would not be replacing the native veg with another development (unless for minor upgrade)?
- disturbance means "the alteration of the structure and species composition of a native vegetation community through actions including cutting down, felling, thinning, logging, removing or destroying of a native vegetation community"
- Would felling a single tree would substantially alter the structure/species composition of a native vegetation community?

Appendix 2
List of NCA threatened vegetation communities unlikely to intersect with the State Road Reserve

Schedule ID	Community Name	Tasveg Codes	Comments
1	Alkaline pans	AAP	Unlikely to be encountered.
3	*Athrotaxis cupressoides* / *Nothofagus gunnii* short rainforest	RFP	Unlikely to be encountered.
8	*Athrotaxis selaginoides* subalpine scrub	RKS	Unlikely to be encountered.
9	*Banksia marginata* wet scrub	SBM	Unlikely to be encountered.
10	*Banksia serrata* woodland	NBS	Unlikely to be encountered.
13	Cushion moorland	HCM	Unlikely to be encountered.
19	*Eucalyptus morrisbyi* forest and woodland	DMO	Unlikely to be encountered.
24	*Eucalyptus viminalis* Furneaux forest and woodland	DVF	Unlikely to be encountered.
26	Heathland on calcareous substrates	SCL	Unlikely to be encountered.
27	Heathland scrub complex at Wingaroo	ASF (partial), SHW (partial) and DNF (partial) – where they occur at Wingaroo on King Island	Wingaroo is not in the vicinity of the State road network.
32	*Notelaea* - *Pomaderris* - *Beyeria* for est	SBR (partial)	This threatened community cannot be mapped separately, as it has now been included within the Tasveg mapping unit Broad-leaf scrub (SBR), which can be dominated by a

			range of broad-leaved species.
33	Rainforest fernland	RFE	Unlikely to be encountered.
35	Seabird rookery complex	SRH	Unlikely to be encountered.
36A	Spray zone coastal complex	SSZ	Unlikely to be encountered.
38	Subalpine *Leptospermum nitidum* woodland	NLN	Unlikely to be encountered.

Appendix 3
Accessing the FPA BVD database and NVA for fauna range boundaries

The FPA's Biodiversity Values Database (BVD) delivers locality data for threatened fauna and flora species, derived from the NVA, in a user-friendly way and provides information on threatened fauna species range and habitat descriptions for use in site assessments. The tool has been specifically tailored to the needs of Forest Practices Officers and others completing biodiversity evaluations when preparing a forest practices plan, but contains links to DPIPWE-endorsed range boundary maps for each species.

To access the BVD click on the red 'Search the BVD' button in the top right hand corner of the screen. On the next page, enter an Easting and a Northing for your location and hit the 'Search' button, or the 'Enter' key. A report will be generated for your location showing species that have ranges that overlap with the coordinate entered. On the right hand side of each column is a button that takes you to a web map showing the range boundary for that species in relation to the coordinate entered. A second list below shows NVA records within 5 km of your coordinate.

It is important to note that the list excludes some fauna species that would not be likely to occur outside of a forestry situation, and as such it is recommended to also obtain an NVA report for your location to ensure no species are missed.

In order to download fauna range boundary shapefiles from the NVA, the following steps are required.

- Once logged into the NVA, find the tabs in the blue line at the top of the NVA pages. Click on one called 'Projects'. This will take you to the Projects home page.
- On the left hand side there is a link called 'Project search', click on this. This will take you to the project search page.
- Once there enter the words 'range boundaries' into the 'Project' search box in the centre of the page, and hit 'Search'.
- This will bring up a table listing a project called 'Range Boundaries'. Click on the blue 'Details' button on the left hand side of the Project Name in the list.
- This will show you a page with all the details about the project. If you scroll down the page you will see a section called 'Attachments'. This is where all the shape files for range boundaries are kept for external download.
- Click on the file you want (probably a Zip folder of all Shapefiles) and this will load onto the place of your choice on your Hard drive. The .XLS is a list of all the current range boundaries the NVA has.

Appendix 4

Potential habitat for threatened fauna species

The table below was accurate at the time this report was produced, but is updated regularly. For a more up-to-date version, see http://www.fpa.tas.gov.au/__data/assets/pdf_file/0011/111404/Threatened_fauna_range_and_habitat_descriptions.pdf

Generic	**Core range:** encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species.	**Potential range:** includes the known range, but also includes the area within which the species has not been found but may occur based on environmental conditions.	**Potential habitat:** is all habitat types within the **potential range** of a species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently (e.g. occasional foraging habitat only). Potential habitat is determined from published and unpublished scientific literature and/or expert opinion, and is agreed by the Threatened Species Section (DPIPWE) in consultation with species' specialists.	**Significant habitat:** is habitat within the **known or core range** of a species that (1) is known to be of high priority for the maintenance of breeding populations throughout the species' range and/or (2) conversion of which to non-native vegetation is considered to result in a long-term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but that need to be maintained to ensure the long-term future of the species. Significant habitat is determined from published and unpublished scientific literature and/or expert opinion, and is agreed by the Threatened Species Section (DPIPWE) in consultation with species' specialists.	N/A

Spotted-tailed quoll	The **core range** of the spotted-tailed quoll is a specialist-defined area based on ongoing survey and modelling work by Troy et al.	The **potential range** of the spotted-tailed quoll is the whole of mainland Tasmania and Robbins island.	**Potential habitat** for the spotted-tailed quoll is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex areas are present, and includes remnant patches in cleared agricultural land or plantation areas.	**Significant habitat** for the spotted-tailed quoll is all potential denning habitat within the core range of the species.	**Potential denning habitat** for the spotted-tailed quoll includes 1) any forest remnant (>0.5ha) in a cleared or plantation landscape that is structurally complex (high canopy, with dense understorey and ground vegetation cover), free from the risk of inundation, or 2) a rock outcrop, rock crevice, rock pile, burrow with a small entrance, hollow logs, large piles of coarse woody debris and caves. FPA's *Fauna Technical Note 10* can be used as a guide in the identification of potential denning habitat.

Grey goshawk	The **core range** of the grey goshawk is a specialist-defined area (N.Mooney, unpublished data) based on the availability of potential and significant habitat and known breeding records.	The **potential range** of the grey goshawk is the whole of mainland Tasmania.	**Potential habitat** for the grey goshawk is native forest with mature elements below 600 m altitude, particularly along watercourses. FPA's *Fauna Technical Note 12* can be used as a guide in the identification of grey goshawk habitat.	**Significant habitat** may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.). FPA's *Fauna Technical Note 12* can be used as a guide in the identification of grey goshawk habitat.	N/A
Wedge-tailed eagle	N/A	The **potential range** of the wedge-tailed eagle is the whole of Tasmania including islands.	**Potential habitat** for the wedge-tailed eagle comprises **potential nesting habitat** and **potential foraging habitat**. **Potential foraging habitat** is a wide variety of forest (including areas subject to native forest silviculture) and non-forest habitats. **Potential nesting habitat** is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close	**Significant habitat** for the wedge-tailed eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where the nest tree is still present).	N/A

			to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see FPA's *Fauna Technical Note 1* and FPA's *Fauna Technical Note 6* for more information]		
White-bellied sea-eagle	N/A	The **potential range** of the white-bellied sea-eagle is the whole of Tasmania including islands.	**Potential habitat** for the white-bellied sea-eagle species comprises **potential nesting habitat** and **potential foraging habitat**. **Potential foraging habitat** is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). **Potential nesting habitat** is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used. The species nests and forages mainly near the coast but will also live near rivers, lakes and farm dams. Nest trees are amongst the largest in a locality. Nests are not usually constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next	**Significant habitat** for the white-bellied sea-eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where nest tree still present).	N/A

			year. [see Part I of the BVD, and FPA's *Fauna Technical Note 1* for more information]		
Swift parrot	The **core range** of the swift parrot is the area within the SE potential breeding range that is within 10km of the coast or is designated as a **SPIBA** (as defined in FPA 2010)	The **potential breeding range** of the swift parrot comprises the **NW potential breeding range** and the **SE potential breeding range**. The **NW potential breeding range** includes the NW breeding areas (known nesting locations e.g. Gog Range, Badger Range, Kelsey Tier).	**Potential breeding habitat** for the swift parrot comprises **potential foraging habitat** and **potential nesting habitat**, and is based on definitions of foraging and nesting trees (see Table 1 in Technical Note 3). **Potential foraging habitat** comprises *E. globulus* or *E. ovata* trees that are old enough to flower (for management purposes, this applies to native forest only). The occurrence of foraging-habitat can be remotely assessed, although only to a limited extent, by using mapping layers such as GlobMap (DPIPWE 2010). Due to the scale and inadequacies in current foraging-habitat mapping, potential foraging-habitat density within operational areas may need to be largely identified by ground-based surveys as per Table 2 in the swift parrot habitat assessment Technical Note). For management purposes **potential nesting habitat** is considered to comprise eucalypt forests that contain hollow-bearing trees. The FPA mature habitat availability map (see FPA's *Fauna Technical Note 2*) predicts the availability of hollow-bearing trees using the relevant definitions of habitat provided in Table 3 of the swift parrot habitat assessment Technical Note. The mature habitat availability map is designed to be used to make landscape-scale assessments and may not be reliable for	**Significant habitat** is all potential breeding habitat within the SE potential breeding range and the NW breeding areas.	N/A

			stand-level assessments required during the development of a forest practices plan. At the stand-level the availability and distribution of hollow-bearing trees across a coupe or operation area is best determined from a ground-based assessment (see Table 3 in the *Fauna Technical Note 3 Swift parrot breeding habitat*).		
40-spotted pardalote	The **core range** of the 40-spotted pardalote is a 500 m (radius) buffer centred on the boundary of all mapped colonies.	The **potential range** of the 40-spotted pardalote is mainland Tasmania between Cockle Creek and Bicheno within 5 km of the coast, and some offshore islands. The **survey range** of the 40-spotted pardalote is a specialist-defined area within the potential range delineated to assist with decisions on the need for a survey (most areas are close to known colonies).	**Potential habitat** for the 40-spotted pardalote is any forest and woodland supporting *Eucalyptus viminalis* (white gum) where the canopy cover of *E. viminalis* is greater than or equal to 10% or where *E. viminalis* occurs as a localised canopy dominant or co-dominant in patches exceeding 0.25 ha.	**Significant habitat** for the 40-spotted pardalote is all potential habitat associated with known colonies and such habitat within 500 m of known colonies.	N/A
Masked owl	The **core range** of the masked owl is forest that occurs at	The **potential range** of the masked owl is the whole state,	**Potential habitat** for the masked owl is all areas with trees with large hollows (≥15 cm entrance diameter).	**Significant habitat** for the masked owl is any area of native dry forest, within the core range, with trees	**N/A**

	low elevation (<600 m a.s.l.).	except Bass Strait islands.	Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute potential habitat. See FPA *Fauna Technical Note 17* for guidance on assessing masked owl habitat using 'on-ground' and remote methods.	with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute significant habitat. See FPA *Fauna Technical Note 17* for guidance on assessing masked owl habitat using 'on-ground' and remote methods.	

Note known ranges could not be identified for these species.

Know range (or actual range)**:** is the area within which the species is most likely to occur, being the area of land within a minimum convex polygon of all known localities of the species. This term is synonymous with 'extent of occurrence' as referred to in the *Guidelines for Eligibility for Listing under the* Threatened Species Protection Act 1995 (DPIW 2009).

Tasmanian Government

Department of State Growth

GPO Box 536
Hobart TAS 7001 Australia

Phone: 1800 030 688

Email: info@stategrowth.tas.gov.au

Web: www.stategrowth.tas.gov.au

Images courtesy of Dave Watts, Phil Bell, Selena Dixon