

**Procedures for the management of threatened species  
under the forest practices system:  
Report on implementation during 2016–17**



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Report to the Board of the FPA and the Secretary of DPIPW E

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Front page photograph: Threatened species (Marrawah skipper, *Oreisplanus munionga subsp. larana* and the wedge-tailed eagle, *Aquila audax subs. fleayi*) associated with a proposed clearance and conversion coupe in the north of the state. Following the agreed procedures both species were found to be at risk from this proposed operation and advice was provided on management actions to mitigate the risk.

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## Summary

- The *Agreed procedures* are the mechanism by which the requirements for the management of threatened species under s. 51 (3) of the *Threatened Species Protection Act 1995* are delivered through the Tasmanian forest practices system. Clause 9 of the *Agreed procedures* requires an annual report of implementation of the *Agreed procedures*. This report covers the 2016–17 period.
- Locality data and species management advice delivered via the Natural Values Atlas and the Threatened Species Link were maintained.
- FPA staff and consultants continued to work on the Threatened Plant Adviser (TPA) in 2016–17, with specialist technical input from DPIPWE staff.
- FPA ran field days on the identification and management of habitat for threatened frogs, butterflies and the wedge-tailed eagle for forest planners, consultants, DPIPWE staff and others involved in natural resource management.
- FPA and DPIPWE maintained existing agreed planning tools, including minor updates to clarify habitat descriptions and range boundaries.
- FPA provided advice on management actions for threatened species for 169 notifications of proposed FPPs in 2016–17. The majority of advice requests were for the management of habitat for the grey goshawk, wedge-tailed eagle, spotted-tailed quoll, Eastern quoll, masked owl, swift parrot, green and gold frog, eastern barred bandicoot, tussock skink and Tasmanian devil. The majority were for clearance and conversion proposals (for agricultural developments) and native forest operations.
- Six notifications for proposed FPPs were formally referred to the Policy and Conservation Advice Branch, DPIPWE in 2016–17. Five of these referrals resulted from issues surrounding difficulties associated with meeting the management objective for the swift parrot, primarily within swift parrot important breeding areas on permanent timber production zone land (PTPZL) managed by Forestry Tasmania (now Sustainable Timber Tasmania) in the southern forests. The complex nature of the notifications, due to the occurrence of the swift parrot breeding event in the area, resulted in significant delays.
- Of the 26 investigations that were initiated by the FPA compliance program in 2016–17, two related to a threatened species.
- A report on compliance with strategic management recommendations for threatened fauna species on a PTPZL block in the south of Tasmania, Florentine forest block, was provided by Forestry Tasmania, Forest Management Services, Conservation Branch (Forestry Tasmania, 2017). The results reflect the pre-Code forest management practices. However, the report concludes that present day Code provisions applied at a strategic or coupe by coupe scale will progressively contribute to restoring heterogeneity, connectivity and mature forest elements to the production forest landscape.
- FPA and DPIPWE staff and FPA/DPIPWE supported students contributed to 12 research and monitoring projects relating the threatened species management in 2016–17. These research projects were funded by the FPA and a variety of external funding sources and involved collaboration with external researchers, students and institutions. These studies provide information that can be used to assess the effectiveness of the threatened species management recommendations. The reports and publications from these studies are available via the FPA website.

- Staff from the Threatened Species Section (TSS) and other areas of DPIPWE also undertook ‘trend monitoring’ of habitat and/or populations for the following RFA priority species in 2016–17: Tasmanian devil, orange-bellied parrot and New Holland mouse. TSS staff also undertook targeted surveys on several threatened invertebrate fauna species and/or monitoring for about 70 threatened flora species (27 nationally-listed and 40 state-listed) as part of the Threatened Flora Link, a collaborative project between TSS, the Wildcare group Threatened Plants Tasmania, the three regional NRM organisations, and the Royal Tasmanian Botanical Gardens.

## Background

The [Agreed procedures for the management of threatened species under the forest practices system](#) (*‘Agreed procedures’*) are the mechanism by which the requirements for the management of threatened species under Section 51 (3) of the *Threatened Species Protection Act 1995* and the *Forest Practices Code* are delivered through the Tasmanian forest practices system (Section D3.3 of the *Forest Practices Code*). These *Agreed procedures* were introduced in 2000 and incorporated into the *Forest Practices Code (2000)*. They were revised by DPIPWE and the FPA in 2010 and again in 2014 to be consistent with changes to legislation and policy.

Clause 9 of the *Agreed procedures* requires an annual report of implementation of the *Agreed procedures*. Previous reports cover the 2011–12, 2012–13, 2013–14, 2014–15 and 2015–16 financial years. This document provides a summary of the activities that relate to each clause in Part A of the *Agreed procedures* for 2016–17. It contributes to meeting recommendation 16 of the second five-yearly review of progress with implementation of the Tasmanian Regional Forest Agreement (RFA).



*FPA ecologist Dydee Mann and consultant biologist Angus McNab discussing the management of sites that may support threatened frogs in SE Tasmania with landowner (Photo: Sarah Munks)*

# Report on implementation

## (A) Roles and responsibilities

### 1 Joint roles and responsibilities of the FPA and DPIPWE

- a. *The Forest Practices Authority (FPA) and the Department of Primary Industries, Parks, Water and Environment (DPIPWE) will cooperate on the development of procedures, tools, objectives, endorsed management prescriptions and training for the management of threatened species within forests and/or threatened non-forest vegetation types at both the strategic (landscape) level and at the operational (forest practices plan) level.*
- Biodiversity Program staff and staff from the Threatened Species Section (TSS) of DPIPWE continued to collaborate on the clarification of the recommended actions delivered through the Threatened Fauna Adviser in response to feedback from planners.
  - The project steering committee established in 2014–15, for the ongoing maintenance of shared planning tools used in the management of threatened species in areas covered by the forest practices system, met at regular intervals throughout 2016–17. Topics relating to the revision of range boundaries and habitat descriptions for threatened species delivered through the Natural Values Atlas and the FPA’s Biodiversity Values Database (BVD) were discussed throughout the year as well as proposed minor modifications to the TFA pathways and management recommendations.
  - Species range boundaries and habitat descriptions delivered through the BVD continued to be updated by the FPA, as advised by DPIPWE, as new information became available. Any updates made were recorded in a FPA database for compliance purposes. Edits were made to habitat descriptions or range boundaries for the threatened frogs, cave fauna, keeled snail and masked owl.
  - Any feedback or suggestions for improvements received by planners, in relation to the Threatened Fauna Adviser, were considered by the project steering committee, to ensure that any proposed changes were justified and consistent with the procedures agreed between DPIPWE and FPA. Updates were recorded in a FPA database for compliance purposes. Minor edits were made to the decision pathways and recommendations for eagles, giant freshwater crayfish, freshwater snails, swift parrot, threatened frogs, masked owl, spotted tailed quoll, eastern quoll, forty-spotted pardalote and all aquatic species.
  - The ‘absent’ nest data (216 nests) on the Natural Values Atlas (NVA) was found to be incorrect, potentially misleading planners, in 2015–16. The information available for 176 nests has now been reviewed by FPA and DPIPWE specialists and its status confirmed as either ‘absent’ or ‘present’. The remaining 40 were reviewed in 2016–17. The NVA data is now up to date except for one nest (#267 – Peregrine Falcon nest) which was not given a conclusive determination in the review.
  - DPIPWE released updated information note sheets for threatened forest communities in 2016–17. These note sheets were developed in collaboration with FPA ecologists and are available via the DPIPWE and FPA websites.
  - FPA ecologists continued work on the development of the TPA in 2016–17. The TPA is a planning tool that will provide advice on the management of threatened flora species within areas covered by the forest practices system. It is intended for use by FPOs, forest planners and others conducting biodiversity evaluations as part of the process of developing an FPP.

Like the Threatened Fauna Adviser, the TPA will be a web-based decision support system to help planners determine areas or species that are a priority for conservation management and deliver consistent management advice. In 2016–17 the project team worked on updating the threatened flora habitat descriptions, survey guidelines and developing draft management recommendations for threatened flora species. New survey guidelines for all threatened flora species were developed by the FPA in consultation with DPIPW during the 2016–17 year and endorsed for release on the FPA website in June 2017 (see publications). The aim is to complete the TPA in 2017-18. The project is governed by an FPA and DPIPW project steering committee and the information produced by the project team will be reviewed by a Scientific Reference Group and a Stakeholder Reference Group in 2017-18.

- The FPA sought formal advice from the Conservation Assessment Section of DPIPW throughout the year on six FPPs that were likely to lead to the certification of an FPP where the proposed management approach (duty of care threshold under the Code and any negotiated voluntary contribution) was not consistent with the DPIPW/FPA-endorsed recommended actions for a particular species, delivered through the TFA 2014, or where endorsed recommendation actions did not exist. A summary of these referrals is provided in Table 1. Five of these referrals resulted from issues surrounding difficulties associated with meeting the management objective for the swift parrot, primarily within swift parrot important breeding areas on permanent timber production zone land (PTPZL) managed by Forestry Tasmania (now Sustainable Timber Tasmania) in the southern forests. This was made more complex in 2016-17 due to the concentration of swift parrot breeding activity in this area during the 2016-17 breeding season. Significant delays occurred in the referral process as a result of this complexity.
- FPA also sought advice from DPIPW for one coupe within the swift parrot breeding event area outside of the formal referral process (No. 6, Table 1). This was done because of a lack of a clear decision-making process when breeding birds are found within an active operation area or certified plan area.
- One formal referral (No. 4, Table 1) was for an unusual situation where a new sea eagle nest was located within a private plantation being planned for harvest. After further consideration, both DPIPW and FPA agreed that this case didn't warrant formal referral and technical advice was subsequently provided direct to FPA by the Threatened Species Section of DPIPW to assist the planner in development of the Forest Practices Plan prescriptions.

**Table 1** Formal referrals from the FPA to DPIPWE in 2016-17

No.	FPA Referral Name and file	Plan description and species	Key dates in referral process*	DPIPWE Response
1	Norris (Private) FPA/13/1070/18	Clearfell, selective and conversion plan. Swift parrot foraging habitat. FPA referred to DPIPWE because DPIPWE/FPA agreed recommended actions could not be met in full if the operation is to be viable for forestry, farm, and conservation covenant management purposes.	23.2.17 - FPA to DPIPWE 3.3.17 - DPIPWE requested additional information 3.4.17 - meeting 10.4.17 - field visit by FPA and DPIPWE 20.4.17 - additional information request 9.6.17 - Final advice from DPIPWE	DPIPWE considered the approach proposed by the planner in consultation with the landowner to be making a reasonable contribution to the conservation of the species in the context of the broader management framework for the species and consistent with the objectives of the Threatened Species Protection Act, 1995.
2	SO034A and FN019B (PTPZL)	Plans for clearfell, burn and sow operation on PTPZL. Coupes within SPIBA and contain swift parrot nesting habitat and known breeding records. FPA referred because DPIPWE/FPA agreed recommended actions could not be met in full and based on specialist advice this would result in loss of important nesting sites.	22.3.17 - FPA to DPIPWE 22.3.17 - meeting and additional information request 4.4.17 - additional information provided by FPA 17.5.17 - DPIPWE query need for referral and reason clarified by FPA. 24.5.17 - DPIPWE query the mechanism for the referral. FPA responded and provided additional information in relation to nesting sites. 25.5.17 - DPIPWE query the information provided by the ANU specialist (via FPA) in relation to nest trees. 29.5.17 - FPA provided additional information from ANU specialist on the location of nest trees. 13.6.17 - Final response from DPIPWE received by FPA.	DPIPWE response: 'because the FPA were unable to identify any known/confirmed nests that are to be impacted by the operation' ...' the referral of the draft FPPs to DPIPWE is not required under the terms of the Agreed Procedures' ... and [DPIPWE has] ... ' no further advice to provide on this matter'.

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No.	FPA Referral Name and file	Plan description and species	Key dates in referral process*	DPIPWE Response
3	RU030A (PTPZL)	Cable and ground-based CBS on PTPZL. Swift parrot foraging habitat. Referral to DPIPWE because coupe outside core range and SPIBA and no agreed DPIPWE/FPA recommended action (TFA rec 9). Specialist advice indicated that the area is important for breeding and should be considered a SPIBA.	22.3.17 - Initial referral 20.4.17 - DPIPWE request additional information on DoC requirement and voluntary contribution proposed in plan. 18.5.17 - Revised referral provided by FPA using information from STT planner. 13.7.17 - Formal response from DPIPWE	The proposed DoC and voluntary contribution, which include retention of 63% of high density foraging habitat, are sufficient and make a reasonable contribution to the conservation of the species in the context of the broader management framework for the species, consistent with the objectives of the Threatened Species Protection Act, 1995.
4	RV1039 (Private)	Harvest of plantation established on pasture with eagle nest (built in remnant native tree post plantation establishment). Consultation and referral because no DPIPWE/FPA agreed recommendations in the TFA for this scenario.	Discussed in pre-referral meeting and TSS specialist recommended a formal referral. 11.3. 17 - Initial referral 9.5.2017 - DPIPWE noted referral being considered by TSS 10.5.17 - DPIPWE inform FPA that advice on way 12.5.17 - FPA provide planner contact details to DPIPWE for additional information. 17.5.17 - DPIPWE request additional information from FPA via e-mail. 23.5.17 - DPIPWE and FPA meet and agree case does not warrant a 'formal referral'. 25.5.17 - TSS, DPIPWE provides technical advice to help formulate management actions with the landowner.	Technical advice provided to FPA regarding management of the nest site. FPA provide advice to planner.

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No.	FPA Referral Name and file	Plan description and species	Key dates in referral process*	DPIPWE Response
			(D17/420420).	
5	HPO10C (PTPZL)	CBS coupe. Swift parrot nesting and foraging habitat. Certified plan. New nesting locations discovered. FPA requested advice from DPIPWE as, unlike other species (eg., eagle) there is no DPIPWE/FPA agreed approach to deal with new swift parrot breeding locations that arise after an FPP has been formulated and certified.	17.5.17 - FPA wrote to DPIPWE regarding new information about swift parrot breeding activity in the 2016/17 breeding season in HPO10C (RM D17/139858/1). FPA requested advice from DPIPWE on the adequacy of the management approach proposed by STT.	In May 2017 DPIPWE requested further information from FPA following a substantial change in the FPP occurred in response to the discovery of new nesting locations. Further advice received from the FPA. A formal response to be provided for inclusion in the 2017-18 reporting period.
7	SFM224A (Private)	Partial harvest of foraging habitat within breeding range but outside core range of the swift parrot. Referral required because for this situation no DPIPWE/FPA agreed TFA management recommendations. FPA sought advice from DPIPWE on the adequacy of the proposed approach by planner/landowner to meet the agreed objective for the species.	4.7.17 - Formal referral to DPIPWE with proposed approach.  15.8.17 - Final response received from DPIPWE.	The proposed Duty of Care and voluntary contribution is sufficient and make a reasonable contribution to the conservation of the species in the context of the broader management framework for the species, consistent with the objectives of the <i>Threatened Species Protection Act 1995</i> .

**\*Note if additional information required then DPIPWE response may be longer than the agreed 21 days.**

b. *The FPA and the DPIPWE will liaise on any cases that may lead to applications under Part 5 (Conservation Covenants) of the Nature Conservation Act 2002 relating to the refusal or amendment of applications for FPPs for the purpose of protecting a threatened species. Where such cases proceed to a tribunal, the FPA and DPIPWE will cooperate in providing evidence to the tribunal.*

- The FPA and DPIPWE liaised on two private cases in 2016–17 that could have led to applications under Part 5 (Conservation Covenants) of the *Nature Conservation Act 2002* (number 4 and 7, Table 1). Both involved clearance of threatened species known localities and habitat on private land. In the swift parrot case (number 7, Table 1) DPIPWE advised that the proposed DoC and voluntary contribution was sufficient and made a reasonable contribution to the conservation of the species in the context of the broader management framework for the species, consistent with the objectives of the *Threatened Species Protection Act, 1995*. In the eagle nest case (number 4, Table 1), DPIPWE provided advice to facilitate nest protection.
- There were no forest practices tribunal cases in 2016–17.

## **2 Primary roles and responsibilities of DPIPWE**

a. *Developing strategic plans and other strategic instruments for the management of threatened species as prescribed in legislation, plans and policies for which the department is responsible.*

- Updates were made by DPIPWE to the Threatened Species Link and the Natural Values Atlas.
- The draft *Tasmanian Threatened Orchid Recovery Plan*, which was drafted in 2014, underwent further revision in 2016–17 and is currently with the Commonwealth for adoption under the *Environment Protection and Biodiversity Conservation Act 1999*.
- Both TSS, DPIPWE and the FPA had input into the drafting of a revised National Recovery Plan for the Giant Freshwater Crayfish. The new plan was finalised and adopted in 2017. Implications of the recommendations in the revised plan are being considered by the DPIPWE/FPA Threatened Fauna Adviser Project Steering Committee.
- Threatened flora notesheets were written and added to the DPIPWE web-site.

b. *Coordinating and participating in research and monitoring of the impacts of land use activities and other factors on the maintenance of habitat and populations of threatened species.*

- Staff from the TSS and broader DPIPWE undertook habitat and/or population monitoring for the following RFA priority fauna species in 2016–17: Tasmanian devil, orange-bellied parrot and New Holland mouse, threatened butterflies. TSS botanists undertook surveys for numerous threatened flora species, in many instances with the assistance of the Wildcare group Threatened Plants Tasmania; this latter work, which also involved collaboration with the Royal Tasmanian Botanical Gardens and the three regional NRM organisations, contributed directly to monitoring and/or surveying of over 70 species (27 nationally listed, 40 state listed), many of them RFA priority species. (see also 3.(g))
- Staff from TSS and FPA co-supervised a University of Tasmania PhD project in 2016–17. This project aims to increase our understanding of the impacts of human disturbance on wedge-tailed eagles. Aspects of this work will guide the methods for a statewide NGO eagle monitoring project, planned for launch in 2018.
- TSS staff and private volunteers revisited the Viking Creek snail translocation sites confirming the success of the project in establishing additional populations of the species.

### 3 Primary roles and responsibilities of the FPA

*a. Organising and coordinating training in threatened species and the use of the planning tools for FPOs and others involved in the FPP planning process.*

- The A/Research Biologist and Biodiversity Manager ran the second annual FPA Research Update event in 2016 during which researchers presented information about their projects. The purpose of this annual event is to update stakeholders, industry personnel and other researchers on research that has been conducted in the last financial year that considers the effectiveness of provisions implemented through the forest practices system for the conservation of natural and cultural values, including threatened species.
- Three field botany courses were held in November 2016 in the north-west, central-north and south-east of the state. These were well attended by forest managers, but also staff from DPIPWE, Parks and Wildlife Service, Tasmania Fire Service, Tasmanian Irrigation, local councils and other natural resource management consultants. The courses were run by FPA ecologists with the help of Mark Wapstra (ECOtas). Each day was spent entirely in the field and focussed on providing participants with the botanical skills to use identification keys and recognise botanically important sites (such as grassland or rocky outcrops) that may support threatened species. In addition to known sites of threatened species, it was notable that during the course three new sites of threatened species were found.
- Three threatened frog field days were held in October and November 2016 in the NE, NW and south of the State. The days were run by FPA ecologist Dydee Mann, with the help of frog specialist, Angus McNab. The aim of the field days was to introduce the threatened frog technical note and demonstrate its use in assessing habitat quality at each site.
- In March 2017, the FPA held two one-day courses on Tasmania's threatened butterflies and moths. The courses comprised a morning of indoor presentations to introduce each of the eight threatened species in Tasmania covering their identification, habitat requirements, food plants, threats and appropriate habitat management. Participants learned that each species has specific and quite distinct habitat and food requirements. The theory sessions were followed by a field visit to a known site for Ptunarra brown butterfly to assist participants in recognising suitable habitats in the field and give them a chance to catch butterflies and moths for identification.
- An eagle habitat identification and management course was run in May 2017. The course is designed to provide participants with the information needed to enable identification and management of wedge-tailed eagle and white-bellied sea eagle habitat and nest sites. The two day course was delivered by staff from the Forest Practices Authority and other specialists, including Nick Mooney and James Pay.



*Dr Phil Bell (FPA A/Ecologist) helping butterfly course participants identify threatened butterflies during the field day in the midlands.*



*Threatened frog spotting on the frog field day in the NW of Tasmania run by Dydee Mann (FPA Ecologist)*



*Kirsty Kay FPA Ecologist) and Mark Wapstra (Ecotas) running the flora field day at Wielangta*

*b. Assessing notifications lodged as part of the FPP planning process as required to ensure that the planned operations are in accordance with the requirements of the Forest Practices Code and associated planning procedures.*

- The FPA, Biodiversity Program staff responded to approximately 169 requests for advice on biodiversity issues (mainly concerning threatened species or community) received through the online notification system, from FPOs and other forest planners as part of FPP development between 1 July 2016 and 30 June 2017. Of these, 77 notifications were for Permanent Timber Production Zone land (PTPZ land), with the remainder a mix of private operations. The number of notifications in 2016-17 increased by approximately 25 per cent from those received in 2015-16 (135).
- The Section Head of TSS, DPIPWE, was notified of any threatened-species-related compliance investigations throughout 2016–17.
- A total of 26 compliance investigations into alleged breaches of the *Forest Practices Act 1985* or an FPP were initiated by the FPA compliance program in 2016–17. Of the 26 investigations that were initiated, two related to threatened species. One investigation (completed) related to the discovery of eagle nest during the course of harvesting operations, however this was not deemed to be a breach of the *Forest Practices Act 1985* (correct operational planning procedures had been followed). The other (completed) related to planning standards in which threatened species habit and priority floristic communities were not identified or poor management prescriptions put in FPP. The FPO had warrant suspended for a period of two months. None of the uncompleted investigations relate to threatened species. Another incident of unknown status (not yet a formal investigation) involves a report of partial clearing of Southern Hairy Red Snail habitat set aside under a FPP on King Island.

*c. Developing and providing site-specific management advice for FPPs where the planned operations are not covered by endorsed management prescriptions. This may involve consultation with relevant specialists within DPIPWE and other organisations where specific expertise is required.*

- As indicated in (b) FPA Biodiversity Program staff processed 169 requests for advice on biodiversity issues from FPOs and other forest planners as part of the FPP development process between 1 July 2016 and 30 June 2017. DPIPWE and Inland Fisheries Service

specialists, specialists from universities and independent specialists were consulted when species-specific expertise was required.

- Tables 1 and 2 provide the number of requests for advice for individual threatened flora and fauna species, respectively.
- The highest number of requests for advice (>10) for fauna management issues (Table 2) related to the grey goshawk, wedge-tailed eagle, spotted-tailed quoll, eastern quoll, masked owl, swift parrot, green and gold frog, eastern barred bandicoot, tussock skink and Tasmanian devil. The uploading of an ‘interim’ recommended action (approved by the FPA, CFPO), delivered through the Threatened Fauna Adviser, reduced the number of requests for advice on the eastern quoll (listed in 2015-16) in 2016-17. An endorsed FPA/DPIPWE recommended action is still required for this species.
- The number of requests for advice for flora management increased in 2016-17 (Table 1) with more species been notified for than in previous years. This may have been because of the release of the threatened flora habitat descriptions in 2016-17.
- Formal requests for advice on the swift parrot increased in 2016–17 and a number of coupes required informal advice or field surveys prior to formal notification. This increase was probably due to the breeding event in 2016–17 in the southern forests in areas overlapping or adjacent to planned coupes. Forestry Tasmania continued to work with DPIPWE and ANU scientists on a strategic plan for this species in this area in 2016–17, but this is not yet completed.
- The majority of the requests for advice were for native forest operations, and most of these were for either clearfell, burn and sow or clearance and conversion operations, although there was an increase in selective harvest operations in 2016–17. The clearance and conversion operations were on private land and most were for agricultural developments. A large number of the requests were also for hardwood plantation operations (Table 3). This indicates that the main need for advice from the FPA specialists is for operations impacting on native forest, in particular clearance and conversion proposals and native harvesting in wet forest. However, the demand for specialist advice for plantation management operations remains (particularly hardwood).

**Table 1. Number of requests for advice for threatened flora species (note that 118 of the notifications had no data (not entered by FPOs), and that multiple species can be attributed to the same notification)**

Flora	Notifications
<i>Acacia pataczekii</i> – Wally’s wattle	1
<i>Acacia siculiformis</i> – dagger wattle	2
<i>Aphelia pumilio</i> – dwarf fanwort	3
<i>Aphelia pumilio</i> – slender fanwort	3
<i>Arthropodium strictum</i> – chocolate lily	1
<i>Asperula minima</i> – mossy woodruff	1
<i>Asperula subsimplex</i> – water woodruff	1
<i>Austrocynoglossum latifolium</i> - forest houndstongue	1
<i>Austrostipa bigeniculata</i> - doublejointed speargrass	2
<i>Austrostipa nodosa</i> – knotty speargrass	1

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Flora	Notifications
<i>Austrostipa scabra</i> – rough speargrass	3
<i>Barbarea australis</i> – riverbed wintercress	1
<i>Blechnum cartilagineum</i> – gristle fern	2
<i>Boronia hemichiton</i> – Mt Arthur boronia	1
<i>Brunonia australis</i> – blue pincushion	2
<i>Caesia calliantha</i> – blue grasslily	1
<i>Calocephalus lacteus</i> – milky beautyheads	1
<i>Colobanthus curtisiae</i> – grassland cupflower	3
<i>Dianella amoena</i> – grassland flaxlily	1
<i>Elaeocarpus reticulatus</i> - blueberry ash	1
<i>Epacris virgata</i> - pretty heath	1
<i>Epilobium pallidiflorum</i> – showy willowherb	1
<i>Eryngium ovinum</i> - blue devil	1
<i>Eucalyptus gunnii</i> subsp. <i>divaricata</i> - miena cider gum	1
<i>Euphrasia scabra</i> - yellow eyebright	1
<i>Glycine latrobeana</i> – clover glycine	4
<i>Gynatrix pulchella</i> - fragrant hempbush	1
<i>Haloragis heterophylla</i> - variable raspwort	2
<i>Hierochloe rariflora</i> - cane holygrass	1
<i>Hovea montana</i> - mountain purplepea	1
<i>Hypolepis muelleri</i> - harsh groundfern	2
<i>Lachnagrostis robusta</i> - tall blowgrass	1
<i>Leucopogon virgatus</i> var. <i>brevifolius</i> - shortleaf beardheath	1
<i>Melaleuca pustulata</i> - warty paperbark	1
<i>Monotoca submutica</i> var. <i>autumnalis</i> – roundleaf broomheath	1
<i>Muehlenbeckia axillaris</i> - matted lignum	1
<i>Myriophyllum integrifolium</i> - tiny watermilfoil	1
<i>Pilularia novae-hollandiae</i> – austral pillwort	1
<i>Pimelea curviflora</i> var. <i>gracilis</i> - slender curved riceflower	1
<i>Pimelea flava</i> subsp. <i>flava</i> – yellow riceflower	4
<i>Plantago debilis</i> - shade plantain	1
<i>Pomaderris intermedia</i> - lemon dogwood	2
<i>Prasophyllum crebriflorum</i> - crowded leek-orchid	1
<i>Prasophyllum stellatum</i> - ben lomond leek-orchid	1
<i>Pterostylis grandiflora</i> - superb greenhood	1
<i>Pterostylis pratensis</i> - liawenee greenhood	1

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Flora	Notifications
<i>Pultenaea mollis</i> - soft bushpea	2
<i>Pultenaea prostrata</i> - silky bushpea	1
<i>Ranunculus pumilio</i> var. <i>pumilio</i> - ferny buttercup	1
<i>Scleranthus brockiei</i> - mountain knawel	3
<i>Scleranthus fasciculatus</i> – spreading knawel	1
<i>Senecio velleioides</i> - forest groundsel	1
<i>Siloxerus multiflorus</i> – small wrinklewort	1
<i>Spyridium obcordatum</i> - creeping dustymiller	1
<i>Spyridium parvifolium</i> var. <i>parvifolium</i> - coast dustymiller	2
<i>Stellaria multiflora</i> - rayless starwort	1
<i>Tetradthea ciliata</i> - northern pinkbells	1
<i>Tetradthea gunnii</i> - shy pinkbells	1
<i>Teucrium corymbosum</i> – forest germander	2
<i>Thismia rodwayi</i> – fairy lanterns	1
<i>Tricoryne elatior</i> - yellow rushlily	1
<i>Triptilodiscus pygmaeus</i> – dwarf sunray	2
<i>Uncinia elegans</i> - handsome hooksedge	1
<i>Vittadinia cuneata</i> var. <i>cuneata</i> - fuzzy new-holland-daisy	1
<i>Westringia angustifolia</i> - narrowleaf westringia	3

**Table 2. Number of requests for advice for threatened fauna species (note that 61 notifications had no data entered, and that multiple species can be attributed to the same notification)**

Fauna	Notifications
<i>Accipiter novaehollandiae</i> – grey goshawk	20
<i>Alcedo azurea diemenensis</i> – azure kingfisher	3
<i>Antipodia chaostola</i> – chaostola skipper	2
<i>Aquila audax fleayi</i> – wedge-tailed eagle	31
<i>Astacopsis gouldi</i> – giant Freshwater crayfish	6
<i>Beddomeia camensis</i> – hydrobiid snail (Cam River)	1
<i>Beddomeia capensis</i> – hydrobiid snail (Cam River)	1
<i>Beddomeia minima</i> – hydrobiid snail (Scottsdale)	3
<i>Beddomeia petterdi</i> – Hydrobiid snail (Blythe River)	1
<i>Beddomeia topsiae</i> – hydrobiid snail (Williamson Creek)	2
<i>Catadromus lacordairei</i> – green-lined ground beetle	3

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<i>Charopidae Skemps</i> – Skemps snail	1
<i>Dasyurotaenia robusta</i> - tapeworm (Tasmanian devil)	2
<i>Dasyurus maculatus maculatus</i> – spotted-tail quoll	19
<i>Dasyurus viverrinus</i> – eastern quoll	24
<i>Engaeus granulatus</i> – central north burrowing crayfish	2
<i>Engaeus orramakunna</i> – Mt Arthur burrowing crayfish	1
<i>Engaeus spinicaudatus</i> – Scottsdale burrowing crayfish	1
<i>Engaeus yabbimunna</i> – burrowing crayfish (Burnie)	2
<i>Galaxias auratus</i> – golden galaxias	2
<i>Galaxias fontanus</i> – swan galaxias	5
<i>Galaxias johnstoni</i> - Clarence galaxias	1
<i>Galaxiella pusilla</i> - dwarf galaxiid	5
<i>Haliaeetus leucogaster</i> – white-bellied sea-eagle	4
<i>Hoplogonus simsoni</i> – Simson’s stag beetle	1
<i>Lathamus discolor</i> – swift parrot	11
<i>Limnodynastes peroni</i> – striped marsh frog	2
<i>Lissotes menalcas</i> – Mt. Mangana stag beetle	1
<i>Litoria raniformis</i> – green and golden frog	11
<i>Oreixenica ptunarra</i> – ptunarra brown butterfly	1
<i>Perameles gunnii gunnii</i> – eastern-barred bandicoot	11
<i>Plesiothele fentoni</i> – Lake Fenton trapdoor spider	2
<i>Prototroctes maraena</i> – Australian grayling	4
<i>Pseudemoia pagenstecheri</i> – tussock skink	13
<i>Pseudemoia rawlinsoni</i> – glossy grass skink	6
<i>Sarcophilus harrisii</i> – Tasmanian devil	19
<i>Tasmaphena lamproides</i> – keeled snail	4
<i>Tyto novaehollandiae castanops</i> – masked owl	24

**Table 3. Number of requests for advice by operation type (note that some notifications are for more than one operation type)**

Land use	Operation type	Notifications
Cleared land	Site preparation and planting with eucalypts	7
Native forest	Advance growth retention	7
	Aggregated retention	9
	Clearfall followed by sowing of native seed	31
	Clearfall to remain cleared	22

Land use	Operation type	Notifications
	Overstorey removal	2
	Partial harvesting	1
	Potential sawlog retention	1
	Road construction	1
	Seed tree retention	10
	Firewood/Fuelwood	2
	Selective logging	20
	Thinning	1
	Understorey removal	1
	Shelterwood - first cut	6
	Shelterwood - second cut	4
Plantation: hardwood	Clearfall followed by hardwood plantation	16
	Clearfall followed by softwood plantation	5
	Clearfall to remain cleared	9
	Salvage-Fire killed, Lake, Dam, Other	1
	Thinning	3
Plantation: softwood	Clearfall followed by softwood plantation	6
	Clearfall to remain cleared	3
	Thinning	4

*d. Ensuring that provisions within FPPs make an effective contribution to the management of threatened species in accordance with the duty of care requirements of the Forest Practices Code.*

- In 2016–17 the FPA formally advised the Policy and Conservation Advice Branch, DPIPW of two FPPs (on private land) because the duty of care thresholds, and any voluntary contribution negotiated, was not considered to fully meet the desired conservation outcomes for the species within the area covered by the FPP (see also 1. b above).

*e. Monitoring and reporting on the standard of compliance with, and the effectiveness of, the endorsed or site-specific management prescriptions contained within FPPs.*

- The FPA compliance monitoring program assessed 62 FPPs covering the full range of forest operations in 2016–17 as part of the annual compliance (monitoring and assessment program) audit. The results of this assessment are in Appendix 3 of the FPA annual report.
- A report on compliance with strategic management recommendations for threatened fauna species on PTPZL, Florentine forest block, in the south of Tasmania was provided by Forestry Tasmania, Forest Management Services, Conservation Branch (Forestry Tasmania, 2017). The summary from this report is provided in Box 1.

**Box 1 – Executive Summary from ‘Implementation of strategic biodiversity management recommendations in Florentine forest block on PTPZ land’ (Forestry Tasmania, 2017)**

- The key strategic biodiversity provisions of the Forest Practices Code include establishing wildlife habitat strips, establishing stream-side reserves for soil and water protection, applying dispersed harvesting design, and specific strategic management recommendations for threatened fauna.
- This report highlights the need for implementation monitoring to consider the historical and policy context in which forest management decisions and activities were made. In the lower Florentine Valley, extensive areas of the public production forest were clearfelled and regenerated in the 1960s and 70s, prior to the introduction of the Forest Practices Code and threatened species legislation. Hence, no stream protection or threatened fauna management measures were afforded at this time.
- Since then, there has been little native forest harvesting in the Florentine, aside from some harvesting in 1990’s along the eastern slopes near Mt Field National Park, and two coupes in the past 5 years. An evaluation of these areas show that the cutting sequence of coupes in Florentine from the 1990s to the present day were consistent with the forest practices standards of the time. Since the 1990s, there have been substantial changes to the dispersed harvesting provision of the Code, where maximum coupe size reduced from 200 to 100 ha (50 ha for steep country harvests), and the original 1987 provision allowed for 1000 – 2000 ha aggregations of harvested areas.
- The establishment of wildlife habitat strips and stream side reserves within the Florentine block has occurred retrospectively over a ‘regenerating forest landscape’ as part of a subsequent recouping exercise, where minimum reserve widths have been applied, capturing 1960’s and 1970s silvicultural regeneration within the reserves. A review of the special values evaluation for recent coupes show that it is at the forest practices planning stage where minimum reserve widths are reviewed to take account of detailed on-ground mapping and site-specific management of the natural values.
- Due to the extensive logging in the Lower Florentine Valley, it is assumed that the region was not considered of conservation priority for threatened fauna, relative to other regions. Furthermore, there has been very little native forest harvesting activity in the past 20 years, as the trees were not at a commercial age. Hence there has been little need to implement the strategic management recommendations for threatened fauna.
- Aside from strategic nest surveys for wedge-tailed eagle nests, there has been no concerted effort, known when this report was prepared, to undertake strategic planning for threatened fauna in the Florentine Valley. Rather, in conjunction with the CAR reserves (including wildlife habitat strips) the management of threatened fauna associated with harvest operations is provided by implementing coupe level prescriptions and any voluntary contributions that retain native forest and habitats.
- By looking at past forest management in the Florentine forest block, it is evident that there have been significant improvements with regards to environmental standards, biodiversity conservation and watercourse protection in production forests due to the introduction of the Forest Practices System, Forest Practices Code, and subsequent improvements to forest practices and new approaches to forest management and silviculture.
- The second harvest cycle for the regenerating native forest in Florentine forest block is not due for another couple of decades, by which time the present day environmental standards and forest practices, and any of STT’s voluntary contributions, will apply. As such, these present day conservation mechanisms applied at a strategic or coupe by coupe scale will progressively contribute to restoring heterogeneity, connectivity and mature forest elements to the production forest landscape. It is however worth noting that in regenerating production forest landscapes such as the Florentine, retaining forests of high commercial value (e.g. thinned silvicultural regeneration) to strategically ‘restore’ habitat for biodiversity will have a significant cost to sustainable wood yields, and hence will require a well-considered strategic approach.

*f. Undertaking investigations and taking any enforcement action that is necessary to achieve compliance with the prescriptions contained within FPPs, in conjunction with DPIPWE where relevant.*

- The Section Head, TSS, DPIPWE was notified of significant threatened-species-related compliance investigations throughout 2016–17. Of the 26 investigations that were initiated by the FPA in 2016–17, only two related primarily to threatened species. One investigation

(completed) involved the discovery of an eagle nest during the course of harvesting operations, however this was not deemed to be a breach of the *Forest Practices Act 1985* since correct operational planning procedures had been followed. The other (completed) related to planning standards in which threatened species habit and priority floristic communities were not identified or poor management prescriptions were included in an FPP. In this case the FPO had their warrant suspended for a period of two months. Another incident of unknown status (not yet a formal investigation) involves a report of partial clearing of Southern Hairy Red Snail habitat set aside under a FPP on King Island.

- *g. Collaborating with DPIPWE on, and participating in, research and monitoring priorities relating to threatened species management under the forest practices system.*
  - FPA and DPIPWE staff and FPA/DPIPWE supported students contributed to 12 research and monitoring projects relating the threatened species management in 2016–17. These research projects were funded by the FPA and a variety of external funding sources and involved collaboration with external researchers, students and institutions. The projects are summarised in Table 4.
  - Any new projects initiated by the FPA in 2016–17 were consistent with the priorities for effectiveness monitoring identified in the 2012 review (FPA, 2012). Forest Practices Authority (2017) provides information on projects which contribute to our understanding of the effectiveness of actions recommended to mitigate impacts of forest practices on biodiversity values, including threatened species.
  - External funding sources provide \$26,000 to support three of the projects covered by the plan (Timberlands support for PhD eagle project by James Pay, Tasmanian Fire Service funding for projects on threatened butterflies and Forestry Tasmania (now STT) funding for PhD project on the masked owl). Forestry Tasmania also provided ‘in-kind’ support in terms of GIS data, technical expertise and logistical support for the threatened terrestrial snail projects.
  - The FPA and TSS specialists continued to provide supervisory support to a higher degree students undertaking projects which contribute to our understanding of threatened species, including James Pay (eagle breeding behaviour, PhD) and Joanna Lyall (responses of native and introduced carnivores to habitat change and fragmentation in northern Tasmania, Masters). The FPA Research Biologist also contributed to the advertising of a new PhD research topic through ANU to start in 2016–17 on the conservation and landscape ecology of the Tasmanian masked owl.
  - A presentation on the work on the Tasmanian devil undertaken by the FPA was given at the international mammalogical conference (IMC) in WA by Dydee Mann, FPA ecologist.
  - Staff from the TSS and broader DPIPWE undertook ‘trend monitoring’ of habitat and/or populations for the following RFA priority species in 2016–17: Tasmanian devil, orange-bellied parrot and New Holland mouse. TSS staff also undertook targeted surveys and/or monitoring for several threatened invertebrate fauna species and about 70 threatened flora species (27 nationally-listed and 40 state-listed) as part of the Threatened Flora Link, a collaborative project between TSS, the Wildcare group Threatened Plants Tasmania, the three NRM groups and the Royal Tasmanian Botanical Gardens.

**Table 4 Threatened species related research and monitoring projects active in 2016–17 reporting period, with summary of activities undertaken during this period. (Further information for some projects is provided in Turner and Munks, 2016 and Koch and Munks, 2017)**

Project title	Activities during 2016–17
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Project title	Activities during 2016–17
Monitoring the timing of the wedge-tailed eagle breeding season	Annual nest monitoring surveys were completed in November 2016. Forty-two nests were surveyed. The data gathered was used to determine the timing of the breeding season for management purposes. A scientific paper on the development of a nesting habitat model was submitted for publication.
Eagle nest prioritisation project	This project was initiated in 2015–16. Work in 2016–17 included gathering data on environmental and management factors relating to the nests and preliminary data analysis.
How effective are management actions for the Skemps snail?	The surveys for this FPA and Forestry Tasmania supported project were completed in 2016-17 by FPA and FT staff and Kevin Bonham (consultant). A report was produced and is available on the FPA web-site. The FPA A/Research Biologist started work on data analysis for a scientific publication.
How effective are management actions for the keeled snail?	The surveys for this FPA and Forestry Tasmania supported project were completed in 2016-17 by FPA and FT staff and Kevin Bonham (consultant). A report was produced and is available on the FPA web-site. The FPA A/Research Biologist started work on data analysis for a scientific publication.
Impact of fire and habitat disturbance on the threatened chaostola skipper and Tasmanian hairstreak butterfly	<p>The project was initiated in 2016–17 to monitor the response of chaostola skipper and Tasmanian hairstreak butterfly to fire and habitat disturbance. The project aims to develop effective management prescriptions for threatened butterflies for forestry, planned burning and development activities and is jointly supported by FPA, TSS, PWS and TFS. The project monitors butterfly habitat and populations in two conservation reserves before, and in the years following planned burns.</p> <p>Initial surveys were undertaken in April 2016 in areas proposed for subsequent autumn burns. The distribution and abundance of chaostola skipper was determined for Peter Murrell Reserve, near Kingston and a burn was conducted in autumn 2017. The reserve will be surveyed annually to assess re-establishment or re-colonisation by chaostola skipper. Assessing the distribution and abundance of Tasmanian hairstreak a within Lime Bay Nature Reserve proved problematic due the large extent of the food plant (silver wattle) within the reserve. The area surveyed in 2016 was subsequently burnt in autumn 2017 and will be surveyed annually to assess re-establishment or re-colonisation by Tasmanian hairstreak.</p>
Assessing the efficacy of management prescriptions for the protection of masked owl nest and roost sites	This project was initiated in 2016–17 to assess the efficacy of current management prescriptions for protection of masked owl nest and roost sites. The project involves annual monitoring of reserves and management actions that have been implemented in FPPs for the protection of nest and roost sites. Locality records from across Tasmania were reviewed. All confirmed nest and roost sites will be surveyed in 2017–18 to establish baseline environmental data on general habitat and critical habitat features, local landuses and disturbance, and evidence of use of sites by masked owls. The project will reassess nest and roost sites on an annual basis and any newly recorded nests and roosts will be added to the annual monitoring schedule.
Systematic survey for chaostola skipper in Tasmania	The aim of this study initiated in 2016–17 is to review the potential range boundary for this species. Known records and locations of chaostola skipper were reviewed and a simple habitat model, based on known

Project title	Activities during 2016–17
	<p>locations of the foodplants (<i>Gahnia radula</i> and <i>G. microstachya</i>) and the distribution of associated forest communities including <i>Eucalyptus tenuiramis</i> forest on granite, and <i>Eucalyptus amygdalina</i> forest on sediments was developed to guide the surveys.</p> <p>The 2016–17 survey has rediscovered the species in the Huon valley (where it was previously recorded in the 1960s but thought to be extinct due to clearing for agriculture and residential development) and adjacent to Mt William National Park in the far north east of the state (over 40 km from the nearest known location). Habitat for chaostola skipper was also found to be more diverse than previously thought, including Coastal <i>E. amygdalina</i> forest.</p> <p>The results of the survey so far suggest that chaostola skipper is more common than previously thought and will be used to inform a review of the conservation status, potential range boundary, potential habitat description and management prescriptions for the species delivered through the FPA’s Threatened Fauna Adviser.</p>
<p>Systematic survey for Marrawah skipper in Tasmania</p>	<p>The aim of this study initiated in 2016–17 is to review the potential range boundary for this species. Known records and locations of marrawah skipper were reviewed and a simple habitat and distribution model was developed to guide surveys. The model was mainly based on known locations of the foodplant (<i>Carex appressa</i>) but also on the distribution of associated forest communities, mainly <i>Melaleuca ericifolia</i> coastal swamp forest.</p> <p>While the surveys discovered several new populations for Marrawah skipper, all were within the existing known range and an inland range extension to the Arthur River near Kanunna Bridge.</p> <p>The results of the survey suggest a large easterly range contraction for Marrawah skipper of about 90 km, however more sites have been found for the species within its core range in the far northwest. These results will be used to review the potential range boundary, potential habitat description and management prescriptions for Marrawah skipper delivered through the FPA’s Threatened Fauna Adviser.</p>
<p>Testing the utility of drones for assessing swift parrot foraging habitat</p>	<p>A trial was organised by FPA for UTas and ANU staff members to assess whether drones could be used to remotely assess the presence of foraging habitat (primarily <i>Eucalyptus globulus</i>) for swift parrots. This work will be written up as a short report or FPNews article.</p>

**STUDENT PROJECTS SUPPORTED BY FPA and DPIPWE**

**These projects contribute to the work of the FPA and are either co-supervised by the FPA Biodiversity Manager or Research Biologist and TSS scientists through their honorary positions with the University of Tasmania or receive other FPA/DPIPWE support. Some have also received expert advice and support from the FPA Scientific Officer (raptor specialist).**

<p>Effectiveness of management for the giant freshwater crayfish</p>	<p>Honours thesis by Andre Pracejus completed and a follow-up project on headwater stream management designed and planned to start in 2016–17.</p>
<p>Behaviour of breeding eagles and the impact of disturbance</p>	<p>This PhD project by James Pay continued in 2016–17. It is being conducted through the University of Tasmania with funding support from Timberlands and the FPA. The aim of the study is to improve our</p>

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	understanding of eagle breeding biology and learn more about activities that may disturb this species. The objective is to determine whether management practices are effective in mitigating disturbance to breeding birds. The information gathered will be used to review eagle management recommendations.
Swift parrot ecology	FPA and DPIPWE are supporters of an ARC research grant that is funding a PhD (Matt Webb) and a post-doctoral position (Dejan Stojanovic). These projects are assessing habitat use, distribution, and threats to swift parrots. These projects are not supervised by DPIPWE/FPA staff, although the FPA Research Biologist provides expert advice as required.
Responses of native and introduced carnivores to habitat change and fragmentation in northern Tasmania	This Masters project by Joanna Lyall is being conducted through the University of Tasmania and is co-supervised by the FPA Biodiversity Manager. The study is exploring the landscape and stand level factors that influence habitat suitability of plantations for Tasmanian devils and spotted tailed quolls, and the interaction between devils, spotted tailed quolls and cats in plantation areas. Field research and data analysis was completed in 2016–17.
Devising commercial forest practices that support metapopulations of threatened frogs	Funding for this PhD was obtained through Deakin University in 2015–16 and a student, Tim Garvey, has been appointed to do this project. Fieldwork is planned to commence in 2016–17.



*Jason Wiersma (FPA scientific officer) with Forest Practices Officer, Lee Nicholls and juvenile wedge-tailed eagle tagged with a satellite transmitter ready for release and monitoring as part of the Utas PhD project by James Pay*

## **Publications related to threatened species**

### **FPA**

#### **Published journal articles**

**Lunn, T, Munks, SA, Carver, S** (2017). The impacts of timber harvesting on stream biota – an expanding field of heterogeneity. *Biological Conservation* 213 154-166

Webb, M. H., Terauds, A., Tulloch, A., **Bell, P.**, Stojanovic, D. and Heinsohn, R. (2017), The importance of incorporating functional habitats into conservation planning for highly mobile species in dynamic systems. *Conservation Biology*. doi:10.1111/cobi.12899

#### **Conference presentations**

**Kay, K** 2017, 'Managing saltmarsh communities in Tasmania – case study: Pipe Clay Lagoon' presentation to *Australian Mangrove and Saltmarsh Network Conference*, 21-24 March 2017, Hobart, Tasmania.

**Munks, SA** 2016, *Threatened Fauna Adviser – A Decision Support System for Forest Planners*. Poster paper at the Australasian Wildlife Management Society, Auckland New Zealand, Nov 2016

#### Newsletter articles

**Chuter, A and Kay, K** 2016, 'FPA Botany courses 2016: shy susan reveals herself', *Forest Practices News* vol 13 no 2, p 1–3.

**Mann, D** 2016, 'Florentine devil den site popular with the locals', *Forest Practices News* vol 13 no 2, p 6–7.

**Mann, D** 2016, 'A swift response is valuable!', *Forest Practices News* vol 13 no 2, p 18.

**Mann, D** 2016, 'Training course shows Kermit-ment to threatened frogs', *Forest Practices News* vol 13 no 2, p 22.

#### Reports

**Bonham, K** 2016, Monitoring the effectiveness of the keeled snail (*Tasmaphena lamproides*) management plan: 2016 Togari Block sampling, unpublished report to the Forest Practices Authority, Hobart, Tasmania

**Bonham, K** 2016, Monitoring the effectiveness of the Skemps snail management plan, report to the Forest Practices Authority, Hobart, Tasmania

**Forest Practices Authority**, 2017 'Managing threatened flora species in areas planned for fuel reduction burning: Background document 1: Project overview, key terms and legislation', Forest Practices Authority, Hobart, Tasmania.

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DPIPWE and **FPA** 2017, *Tasmanian native vegetation communities notesheets*. Department of Primary Industries, Water and Environment, Hobart, Tasmania

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#### Theses

**Lyll J** 2017, *Distribution of native and invasive mammalian carnivores in a forestry and agricultural landscape in northwest Tasmania*. A thesis submitted in partial fulfilment of the requirements for the degree of Master of Life Science at the University of Tasmania

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### Document control log table

#### Document summary information

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#### Stages required for release outside FPA

Category of advice		C
Stages	Required/not required	Completed (date)
Specialist	Required	Dec 2017
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