

**Procedures for the management of threatened species  
under the forest practices system:  
Report on implementation during 2017–18**



Anne Chuter, A/Manager (FPA Biodiversity Program) and Andrew Crane, Manager (Policy and Conservation Advice Branch, DPIPWE)

Report to the Board of the FPA and the Secretary of DPIPWE

November 2018

Front page photograph: Toni Ogilvie (Forest Planner, Sustainable Timber Tasmania) searching for Marrawah skipper (*Oreisplanus munionga subsp. larana*) larval/pupal shelters in a coupe near Kunannah Bridge, Arthur River. The survey was part of an FPA supported project to further define the species distribution, refine its habitat definition and determine the effectiveness of current management delivered through the Agreed Procedures. Image credit: Phil Bell

### **Citation**

Chuter, A and Crane, A 2018, *Procedures for the management of threatened species under the forest practices system: Report on implementation during 2017–18*.

### **Acknowledgements**

Thank you to FPA staff Dydee Mann, Phil Bell, Kirsty Kay, Stephen Walker and Perpetua Turner; and to DPIPWE staff Oberon Carter, Karen Richards, Wendy Potts for providing data for this report. Thank you to Marie Yee from Sustainable Timbers Tasmania for providing the summary of a case study in box 1. Thank you to Chris Grove (FPA) for review and edits.

## Table of Contents

Summary .....	4
Background .....	5
Report on implementation .....	6
(A) Roles and responsibilities.....	6
1    Joint roles and responsibilities of the FPA and DPIPWE.....	6
2    Primary roles and responsibilities of DPIPWE .....	7
3    Primary roles and responsibilities of the FPA.....	8
Publications related to threatened species .....	20

## 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 on the implementation of the *Agreed procedures*. This report covers the 2017–18 period.
- Locality data and species management advice delivered via the Natural Values Atlas were maintained.
- FPA staff and consultants continued to work on the Threatened Plant Adviser (TPA) in 2017–18.
- FPA ran two field days on the identification and management of habitat for swift parrots 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 154 notifications of proposed FPPs in 2017–18. The majority of advice requests were for the management of habitat for swift parrot, Wedge-tailed eagle, Lake Fenton trapdoor spider and masked owl. The majority of complex advice requests were for clearance and conversion proposals (for agricultural developments).
- One notification for a proposed FPP was formally referred to the Policy and Conservation Advice Branch, DPIPWE in 2017–18, for swift parrot habitat management advice. FPA and DPIPWE continued to meet regularly to discuss complex issues arising from proposed notifications.
- The FPA Biodiversity Program staff provided specialist input to FPA compliance investigations in 2017–18 on mainland Tasmania and Flinders Island in relation to threatened species issues.
- FPA and DPIPWE staff and FPA/DPIPWE supported students contributed to 12 research and monitoring projects relating the threatened species management in 2017–18. FPA and other external sources funded these research projects and they 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 on 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 threatened species in 2017–18: Tasmanian devil, orange-bellied parrot and threatened butterflies. 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 [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*. DPIPWE and FPA revised the *Agreed procedures* in 2010 and 2014 to be consistent with changes to legislation and Tasmanian Government policy.

Clause 9 of the *Agreed procedures* requires an annual report of implementation of the *Agreed procedures*. Previous reports cover the financial years from 2011–12 through to 2016–17. This annual report provides a summary of the activities that relate to each clause in Part A of the *Agreed procedures* for 2017–18. It contributes to meeting recommendation 16 of the second five-yearly review of progress with implementation of the Tasmanian Regional Forest Agreement (RFA).



*Forest Practices Officer Jason Smith and FPA ecologist Dydee Mann discussing management of Tasmanian devil potential habitat.*

# 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.*

- The staff from the FPA's Biodiversity Program and the Threatened Species Section (TSS) of DPIPWE continued to collaborate on the clarification of the recommended actions delivered through the Threatened Fauna Adviser (TFA) in response to feedback from planners.
- The TFA 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 2017–18. 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. Implemented updates were recorded in a FPA database for compliance purposes. An update to the Skemp's snail habitat description was approved but has not yet been implemented due to staff shortages in DPIPWE.
- Feedback or suggestions for improving the TFA received by FPOs or planners were considered by the project steering committee, to be consistent with the procedures agreed between DPIPWE and FPA, and recorded in the FPA database for compliance purposes. Edits were made to the decision pathways and recommendations for eagles, masked owl and swift parrot.
- DPIPWE released updated information note sheets for threatened non-forest communities. 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 Threatened Plant Adviser (TPA). The project team completed the process of prioritising threatened flora based on the ecological requirements of the species, and the response of the species to forestry related disturbances. This prioritisation process included reviewing published and unpublished literature, completing research projects, and seeking advice from species experts where required. Draft recommended actions for all threatened flora species were developed, using the information from the prioritisation process. These recommended actions have been programed into the online draft TPA, and will be reviewed by practitioner and scientific reference groups and stakeholders.

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 one private case in 2017–18 that could have led to applications under Part 5 (Conservation Covenants) of the *Nature Conservation Act 2002*. This involved partial harvesting of potential swift parrot habitat within the potential breeding range of the species. DPIPWE advised that the proposed Duty of Care 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*.
- The FPA sought informal advice from the Conservation Assessment Section of DPIPWE for an unusual situation where a landowner wished to remove a degraded wedge-tailed eagle nest and, as an offset against the loss of this nest, proposed to register a covenant on title for a large forest patch containing a further five eagle nest records on another property. This situation is very complex and is still in the initial negotiation stages. FPA and DPIPWE are working with the FPO, landowner, and the Tasmanian Land Conservancy to reach a negotiated outcome.
- There were no Forest Practices Tribunal cases in 2017–8.

## **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.
- DPIPWE substantially contributed to revised Commonwealth Conservation Advice for five flora species
- DPIPWE's Threatened Species Section (TSS) and the FPA had input into the drafting of a revised National Recovery Plan for the swift parrot. This revision was triggered by the growing understanding of the impacts of sugar glider predation on swift parrot breeding. The new plan is being developed by the Commonwealth Department of the Environment and Energy, and a draft for consultation is due to be released in mid-2019. Implications of the recommendations in the revised plan will be considered by the DPIPWE/FPA Threatened Fauna Adviser Project Steering Committee.
- Threatened flora notesheets were revised on 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 Threatened Species Section (TSS) and broader DPIPWE undertook habitat and/or population monitoring for the following RFA priority fauna species in 2017–18: Tasmanian devil, orange-bellied parrot and 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 undertook surveys for chaostola skipper and aquatic snails.
- Staff from TSS also provided informal advice to FPA biodiversity staff on a range of fauna, (predominantly snails and some spiders), as well identifying other invertebrate 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 2017. An increased focus on effectiveness monitoring has been implemented by staff in the FPA Biodiversity Program. The annual research update once again demonstrated the co-operation of industry, universities and other research organisations in producing high standard research and monitoring programs which inform forest practices. This work also relies on collaboration with external researchers and support of external funding bodies. A summary report on monitoring the effectiveness of the biodiversity provisions of the *Tasmanian Forest Practices Code 2017–18* (Turner and Munks 2018) can be found on the FPA website.
- The FPA ran a four-day Biodiversity Course in September 2017 on the east coast. The biodiversity course was attended by the FPO Training Course participants and other forest workers as well as people from other agencies. A total of 35 people attended at least one day of the course. Participants gained an understanding of the legislation, policy (including objectives and goals), processes and planning tools relating to the management of biodiversity in areas covered by the forest practices system. A recap day was held a month later to review the learnings from the course and address knowledge gaps as identified from marking course assignments.
- Two swift parrot field days were run in January 2018 in the Wielangta forest, supported by funding from the Tasmanian Training and Skills Development Service. With expert guidance from Australian National University's Dr Matt Webb and the FPA specialists. 40 participants learnt how to identify swift parrot nesting trees and trees with the potential to develop hollows in the future. They also honed skills in recognising swift parrot foraging habitat, and learned how to classify each habitat type and quality using the FPA *Fauna Technical Note 3: Swift parrot breeding habitat*.
- The FPA ran interactive training workshops on biodiversity evaluations and the use of FPA planning tools for FPOs including Private Forests Tasmania and Majestic Timbers.





*Biodiversity course participants learning to use flora keys and other guides to identify native tree species.*



*Swift parrot spotting on the swift parrot field day in the south east of Tasmania.*

*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 154 formal requests for advice on biodiversity issues related to proposed forest practices plans. The requests for advice were received through the online notification system. Of these, 49 notifications were for Permanent Timber Production Zone land (PTPZ land), with the remainder a mix of private operations. The number of notifications in 2017–18 decreased by approximately nine per cent from those received in 2016–17 (169). The requests for advice mainly concerned threatened species or threatened vegetation communities, and were often for multiple issues.
- The FPA Biodiversity Program staff provided advice to FPOs and planners prior to formal notification on species and habitat identification, and the requirement for surveys.
- The FPA Biodiversity Program provided advice to FPOs and planners on eagle nest management and nest reserve design.
- The FPA Biodiversity Program staff provided specialist input to FPA compliance investigations in 2017–18 on mainland Tasmania and Flinders Island, mainly in relation to threatened species and threatened vegetation communities.
- The Section Head of TSS, DPIPWE, was notified of any threatened-species-related compliance investigations throughout 2017–18.

*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 154 requests for advice on biodiversity issues from FPOs and other forest planners as part of the FPP development process. DPIPWE and Inland Fisheries Service specialists, specialists from universities and independent specialists were consulted when species-specific expertise was required. Many requests for advice involved multiple species.
- 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 CFPO), delivered through the Threatened Fauna Adviser, reduced the number of requests for advice on the eastern quoll. An endorsed FPA/DPIPWE recommended action is still required for this species.
- The number of requests for advice for flora management increased to 156 with more species being the subject of notifications than in previous years. This may be because of the release of the threatened flora habitat descriptions in 2016–17.
- Formal requests for advice on the swift parrot remained constant in 2017–18. Sustainable Timbers Tasmania continued to work with DPIPWE on a Public Authority Management Agreement and associated management plan for the swift parrot.
- Over half of the requests for advice were for operations in native forest (79), and 26 of these were for clearing of native forest to remain cleared. The clearing to remain cleared

operations were all on private land and most were for agricultural developments. There were 59 requests for advice for existing plantation operations, and five requests for advice for operations on non-forest mostly site preparation and planting with trees. There remains demand for specialist advice for both native forest and plantation management operations.

**Table 1. Number of requests for advice for threatened flora species (note that that multiple species can be attributed to the same notification)**

Flora	Notifications
<i>Acacia axillaris</i> – midlands wattle	2
<i>Acacia pataczekii</i> – Wallys wattle	2
<i>Acacia siculiformis</i> – dagger wattle	2
<i>Acacia ulicifolia</i> – juniper wattle	1
<i>Austrostipa blackii</i> – crested speargrass	1
<i>Barbarea australis</i> – riverbed wintercress	1
<i>Blechnum cartilagineum</i> – gristle fern	1
<i>Brunonia australis</i> – blue pincushion	1
<i>Caladenia filamentosa</i> – daddy longlegs	1
<i>Carex longebrachiata</i> – drooping sedge	1
<i>Colobanthus curtisiae</i> – grassland cupflower	3
<i>Cryptandra amara</i> – pretty pearlflower	1
<i>Cyathodes platystoma</i> – tall cheeseberry	1
<i>Deyeuxia minor</i> – small bentgrass	1
<i>Glycine microphylla</i> – small-leaf glycine	1
<i>Gynatrix pulchella</i> – fragrant hempbush	1
<i>Haloragis heterophylla</i> – variable raspwort	1
<i>Hibbertia calycina</i> – lesser guineaflower	1
<i>Hierochloe rariflora</i> – cane holygrass	2
<i>Hovea corrickiae</i> – glossy purplepea	1
<i>Hovea montana</i> – mountain purplepea	2
<i>Pimelea curviflora</i> var. <i>gracilis</i> – slender curved riceflower	2
<i>Pimelea flava</i> subsp. <i>flava</i> – yellow riceflower	1
<i>Plantago debilis</i> – shade plantain	1
<i>Polyscias</i> sp. Douglas–Denison – ferny panax	1
<i>Pomaderris intermedia</i> – lemon dogwood	1
<i>Pomaderris phyllicifolia</i> – narrow-leaf pomaderris	1
<i>Pultenaea humilis</i> – dwarf bushpea	1
<i>Rhodanthe anthemoides</i> – chamomile sunray	1

Flora	Notifications
<i>Scleranthus fasciculatus</i> – spreading knawel	1
<i>Senecio squarrosus</i> – leafy fireweed	1
<i>Spyridium parvifolium</i> var. <i>parvifolium</i> – coast dustymiller	1
<i>Stellaria multiflora</i> – rayless starwort	2
<i>Veronica notabilis</i> – forest speedwell	1
<i>Viola cunninghamii</i> – alpine violet	1

**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	1
<i>Antipodia chaostola</i> – chaostola skipper	1
<i>Aquila audax fleayi</i> – wedge-tailed eagle	24
<i>Astacopsis gouldi</i> – giant freshwater crayfish	4
<i>Beddomeia capensis</i> – hydrobiid snail (Table Cape)	1
<i>Beddomeia fallax</i> – hydrobiid snail (Heathcote Creek)	1
<i>Beddomeia minima</i> – hydrobiid snail (Scottsdale)	1
<i>Beddomeia topsiae</i> – hydrobiid snail (Williamson Creek)	1
<i>Beddomeia turnerae</i> – hydrobiid snail (Minnow River)	1
<i>Beddomeia waterhouseae</i> – hydrobiid snail (Clayton's Rivulet)	1
<i>Beddomeia wiseae</i> – hydrobiid snail (Blizzards Creek)	2
<i>Catadromus lacordairei</i> – Catadromus carabid beetle	2
Cave-dwelling invertebrates –	1
<i>Charopidae skemps</i> – skemps snail	1
<i>Dasyurotaenia robusta</i> – tapeworm (Tasmanian devil)	1
<i>Dasyurus maculatus maculatus</i> – spotted-tail quoll	22
<i>Dasyurus viverrinus</i> – eastern quoll	24
<i>Engaeus yabbimunna</i> – burrowing crayfish (Burnie)	2
<i>Galaxias fontanus</i> – Swan galaxias	6
<i>Galaxiella pusilla</i> – dwarf galaxias	3
<i>Haliaeetus leucogaster</i> – white-bellied sea-eagle	10

<i>Helicarion rubicundus</i> – burgundy snail	2
<i>Hickmanoxymma gibbergunyar</i> – cave harvestman	1
<i>Lathamus discolor</i> – swift parrot	12
<i>Lissotes menalcas</i> – Mt. Mangana stag beetle	6
<i>Litoria raniformis</i> – green and golden frog	6
<i>Pardalotus quadragintus</i> – forty-spotted pardalote	1
<i>Perameles gunnii gunnii</i> – eastern-barred bandicoot	12
<i>Plesiothele fentoni</i> – Lake Fenton trapdoor spider	1
<i>Prototroctes maraena</i> – Australian grayling	6
<i>Pseudalmenus chlorinda myrsilus</i> – Tasmanian hairstreak (butterfly)	1
<i>Pseudemoia pagenstecheri</i> – tussock skink	12
<i>Pseudemoia rawlinsoni</i> – glossy grass skink	3
<i>Pseudomys novaehollandiae</i> – New Holland mouse	1
<i>Sarcophilus harisii</i> – Tasmanian devil	27
<i>Tasimia drepana</i> – caddis fly (Huon & Picton Rivers)	1
<i>Tasmanipatus barretti</i> – giant velvet worm	1
<i>Tasmaphena lamproides</i> – keeled snail	6
<i>Tyto novaehollandiae castanops</i> – masked owl	20

**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	5
Native forest	Advance growth retention	0
	Aggregated retention	1
	Clearfall followed by hardwood plantation	4
	Clearfall followed by sowing of native seed	11
	Clearfall to remain cleared	26
	Overstorey removal	1
	Partial harvesting	2
	Potential sawlog retention	0
	Quarry operation	3
	Road construction	3
	Salvage-fire killed, lake, dam, other	1

Land use	Operation type	Notifications
	Seed tree retention	4
	Firewood/fuelwood	1
	Selective logging	14
	Thinning	1
	Understorey removal	0
	Shelterwood – first cut	3
	Shelterwood – second cut	4
Plantation: hardwood	Clearfall followed by hardwood plantation	26
	Clearfall followed by softwood plantation	1
	Clearfall to remain cleared	10
	Site preparation and planting with eucalypts	1
	Thinning	5
Plantation: softwood	Clearfall followed by softwood plantation	7
	Clearfall to remain cleared	2
	Thinning	7

*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 2017–18 the FPA liaised with the Policy and Conservation Advice Branch, on one FPP (on private land) because the duty of care thresholds may not fully meet the desired conservation outcomes for the species within the area covered by the FPP (see section 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 78 FPPs covering the full range of forest operations in 2017–18 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. The FPA annual report can be found on the [FPA website](#).
- A report on compliance with strategic management recommendations for threatened fauna species on PTPZ land in the Tooms forest block, on the east coast of Tasmania, was provided by the Certification Branch, Sustainable Timber Tasmania. The summary from this report is provided in Box 1.

**Box 1** – Executive Summary from draft report ‘Implementation of strategic biodiversity management recommendations in Tooms forest block on PTPZ land’ (Sustainable Timber Tasmania, 2019)

- This report evaluates the implementation of the strategic biodiversity provisions of the *Forest Practices Code* in public production forest, and reports on the cumulative effect of forest management on biodiversity at a mid-landscape scale. The report focuses on Tooms forest block, and is the sixth of such block reports, provided by Certification Branch, Sustainable Timber Tasmania to the Forest Practices Authority.
- Tooms is a relatively large forest block that spans 75,750 ha, extending from the east coast near Swansea up to the Eastern Tiers in the west. It comprises an equal mix of public land and private land. The public forest estate is managed for both conservation and timber production. Over 66% of the public land occurs in formal or informal reserves centred on the Eastern Tiers, and comprises mostly mature eucalypt forest. As such, the mature habitat context on public land in Tooms is relatively high, with around 66% of the total public forest comprising high or medium mature habitat availability. Within timber production zones, the forest mostly comprises native regrowth forest regenerating from clearfelling during the 1970s and 1980s. Forestry activity within Tooms has been relatively minor since this period.
- As the bulk of harvesting within Tooms occurred prior to the introduction of the *Forest Practices Code* and related fauna conservation prescriptions, strategic threatened fauna planning has been limited to the establishment of wildlife habitat strips, implementing stream-side reserves during forest practices planning, applying dispersed harvesting design, and some strategic planning work for wedge-tailed eagles and swan galaxias.
- This evaluation confirmed that in Tooms, wildlife habitat strips were established correctly, consistent with the original guidelines and Technical Fauna Note 8; stream side reserves were established correctly for the small number of native forest operations that were harvested between 2007–8 and 2017–18, and these native forest operations were well dispersed, consistent with the *Forest Practices Code* coupe dispersal guideline.
- This report demonstrates how landscape indicators on land tenure, forest heterogeneity and availability of mature habitat provide a useful tool to evaluate the production forestry footprint in the context of the broader landscape. These indicators provide an efficient, consistent, and objective means to compare different landscapes from multiple ecological perspectives (cf. previous reports). However reporting on the implementation of specific Code provisions is still required in order to i) verify compliance and ii) provide a detailed understanding of how implementing Code provisions cumulatively contribute to biodiversity management within these production forest landscapes.
- A description of past strategic planning work on swan galaxias has showed that management of this species under the forest practices system has changed considerably. In 2001 a catchment guideline was recommended where the strategic aim was to ensure that no more than 15% of the basal area of the forest within a catchment, upstream of where the species occurs, is harvested within a ten year period. Due to broad concerns on how this rule could practically be applied, especially when dealing with multiple tenures, different forest operation types, and in catchments with different land-use histories, this changed in 2014 to the current approach where case-by-base recommendations are provided by FPA experts for all operations that occur within the known range of this species. A review of past three-year



plan environment compliance checks and current forest age structure has showed that in Tooms, where a population of swan galaxias was translocated to Lost Creek Falls in 1991, harvest operations within the past decade were compliant with the 2002 15% catchment guideline.

- This assessment of strategic planning work for swan galaxias in Tooms forest block has provided some lessons for future strategic planning approaches for threatened fauna management. In particular, this assessment highlights i) the need to clearly define the scope and practical feasibility of potential strategic planning approaches prior to endorsement; ii) the benefits of routinely documenting any strategic planning exercises and changes to management approaches to demonstrate compliance, as this knowledge could easily be lost over time; and iii) the importance of effectiveness monitoring. In particular, supporting long term monitoring programs that assess effectiveness of forest practices and conservation efforts on threatened fauna conservation.

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

- The Section Head, TSS, DPIPW was notified of significant threatened-species-related compliance investigations throughout 2017–18. Biodiversity Program staff provided specialist input to FPA compliance investigations in 2017–18 on mainland Tasmania and Flinders Island, mainly in relation to threatened species and threatened vegetation communities.

*g. Collaborating with DPIPW on, and participating in, research and monitoring priorities relating to threatened species management under the forest practices system.*

- FPA and DPIPW staff and FPA/DPIPW supported students contributed to 15 research and monitoring projects relating the threatened species management in 2017–18. 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 in 2017–18 were consistent with the priorities for effectiveness monitoring identified in the 2012 review (FPA 2012)<sup>1</sup>. The business plan for these projects was reviewed and updated to assist with project planning and budgeting (FPA 2016). Funding for these projects comes from a variety of external funding sources including industry stakeholders. Forico, Timberlands, Sustainable Timbers Tasmania, Private Forests Tasmania, Norske Skog and SFM Environmental Solutions all contributed to a successful FWPA funding application for the project ‘*Demonstrating stewardship of the environment and ecologically sustainable forestry: Monitoring the effectiveness of the Tasmanian Forest Practices Code for biodiversity*’. This multifaceted project involves collaboration with external researchers, students and research institutions.

---

<sup>1</sup> Forest Practices Authority 2012, *Developing a framework for the conservation of habitat of RFA priority species – Developing a biodiversity effectiveness monitoring program for the forest practices system: identifying priority projects*, report to the Federal Government and the Forest Practices Authority, 20 December 2012, Forest Practices Authority Scientific Report 17.

- FPA staff co-supervised higher degree students affiliated with the School of Natural Sciences and the Centre for Forest Value, UTas, continued in 2017–18. The students included James Pay (eagle breeding behaviour, PhD, UTas), Joanna Lyall (use of plantations by spotted-tailed quolls and devils, MSc, UTas) and new students, Tim Garvey (threatened frogs, PhD, Deakin University), Alyce Hennessey (bats and remnants, honours, UTas) and Adam Cisterne (masked owls, PhD, ANU).
- The research work was communicated to different audiences at a number of events throughout the year. The Biodiversity Manager and an FPA Ecologist presented some of the work of the FPA at the International Mammalogical Conference in Perth, WA, in July 2017 and the Biodiversity Manager and A/Research Biologist presented work on effectiveness monitoring at the Ecological Society of Australia conference in December 2017 (see conference presentations). The annual FPA Research Update event was delivered for stakeholders in August 2018. The key outcomes relating to management were communicated to practitioners through *Forest Practices News* articles, presentations and field days (see training section 2.3 in this report). The Biodiversity Manager also gave a presentation to third-year UTas students on forest vertebrates and their conservation management.
- Staff from the TSS and broader DPIPW undertook ‘trend monitoring’ of habitat and/or populations for the following RFA priority species in 2017–18: Tasmanian devil and orange-bellied parrot. 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 Biodiversity research projects that were current in the 2017–18 reporting period, with summary of activities undertaken (further information is provided in [Monitoring the effectiveness of the biodiversity provisions of the Tasmanian Forest Practices Code 2017–18 summary report](#))**

Project title	Activities during 2017–18
Monitoring the timing of the wedge-tailed eagle breeding season	Annual nest monitoring surveys were completed in November 2017. Thirty-one nests were surveyed. The data gathered was used to determine the timing of the breeding season for management purposes.
Eagle nest prioritisation project	This project was initiated in 2015–16. Data analysis was completed and a draft report produced for review in 2017–18.
Testing the effectiveness of selected actions to mitigate the impact of forest practices on the wedge-tailed eagle	The aim of this project, initiated in 2017–18, is to assess whether the exclusion zones are effective in reducing disturbance to breeding eagles and their young at the end of the season. Project design, camera testing and site selection began in late 2017–18. Initial field data collection will begin in the 2018–19 breeding season.
Testing the accuracy of the Mature Habitat Availability Map (MHAmapping) for predicting hollow availability in wet forest	The scientific paper was accepted for publication in <i>Ecological Management and Restoration</i> in 2017–18 (see reference list). The FPA Research Biologist worked with STT scientists on the development of a predictive map that refines the low density categories of the MHAmapping using LIDAR data.
How effective are management	The FPA A/Research Biologist completed the data analysis. The FPA

actions for the Skemps snail?	A/Research Biologist presented the results of this project at the Ecological Society of Australia conference in Dec 2017.
How effective are management actions for the keeled snail?	The FPA A/Research Biologist completed the data analysis and drafted a scientific publication. The FPA A/Research Biologist presented the results of this project at the Ecological Society of Australia conference in Dec 2017.
Survival of trees in wildlife habitat clumps	The scientific paper was accepted for publication in Forest Ecology and Management in 2017–18.
Impact of fire and habitat disturbance on the threatened chaostola skipper and Tasmanian hairstreak butterfly	The annual 2017–18 survey was conducted to assess the re-establishment or re-colonisation of the burnt areas by chaostola skipper and the Tasmanian hairstreak butterfly.
Assessing the efficacy of management prescriptions for the protection of masked owl nest and roost sites	Nest and roost sites associated with past FPPs and covenants were 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.
Systematic survey for chaostola skipper in Tasmania	<a href="#">Report</a> completed and published on FPA web-site. Results from this study were used to review the potential range boundary, potential habitat description and management prescriptions for chaostola skipper delivered through the FPA's Threatened Fauna Adviser.
Systematic survey for marrawah skipper in Tasmania	<a href="#">Report</a> completed and published on FPA web-site. Results from this study were used to review the potential range boundary, potential habitat description and management prescriptions for Marrawah skipper delivered through the FPA's Threatened Fauna Adviser.
Headwater stream management and water quality	This study started in 2017–18. The aim is to test the effectiveness of the Class 4 Stream guidelines in reducing sediment input to sub-catchments that support the giant freshwater crayfish. Work was carried out on project design and site selection.
Managing devil dens	The aim this study which started in 2014 is to identify and determine long-term use of den sites in plantations. Post-harvesting camera monitoring of the dens continued in 2017–18. The results so far were presented at the International Mammalogical Conference in July 2017 by FPA Ecologist Dydee Mann.
Monitoring effects of long-term forest management on the Vulnerable shrub <i>Hibbertia calycina</i> .	This project which started in 2016 aims to evaluate the degree to which past implemented management strategies e.g. reservation and <i>Phytophthora cinnamomi</i> management zones, have been effective for the management of the species. Surveys were carried out in 2017–18 and results analysed.
Response of <i>Pterostylis atriola</i> (snug greenhood) to forestry disturbance in Tasmania	This project looked at the response of <i>Pterostylis atriola</i> to forestry-related disturbance events. Surveys were completed in 2017–18 and the results written up for publication.

### Student projects supported by FPA

These projects contribute to the work of the FPA and were either formally co-supervised in 2017–18 by the FPA Biodiversity Manager, Research Biologist or A/Research Biologist through their adjunct positions with UTas or receive other FPA support. Some have also received advice and support from the FPA's ecologists.

Project title	Activities during 2017–18
Behaviour of breeding eagles and the impact of disturbance	Fieldwork for this PhD project by James Pay (UTas) was completed in 2017–18. Data analysis and thesis writing is underway. The FPA Research biologist co-supervised this project and the FPA raptor specialist provided expert advice.
Swift parrot ecology	This FPA supported ARC project was completed in 2017–18. ANU PhD student, Mathew Webb, completed his thesis in 2017–18. Data collected on habitat use, distribution, and threats to swift parrots as part of this project, and the associated postdoctoral work by Dejan Stojanovic, was published in 2017–18. These projects were not supervised by FPA staff, although the Research Biologist provides expert advice as required. The results of this work were taken into account in the revision of the Recovery Plan for this species in 2017–18.
Factors in plantations in north-west Tasmania influencing usage by spotted-tailed quolls, devils and cats	MSc student Joanna Lyall (UTas) completed her thesis in 2017–18 and two scientific papers have been drafted for publication. The FPA Biodiversity Manager co-supervised this project.
Devising commercial forest practices that support metapopulations of threatened frogs	Deakin University PhD student Tim Garvey completed the first season of fieldwork in 2017–18 with co-supervision by the FPA Research Biologist.
Bird acoustic study	This PhD project by Scott Whitemore at the ARC Centre for Forest Value (UTas) is supported by the FPA. Using data provided by STT Scott has been able to train and test a multi-species recogniser, in collaboration with Andrew Hingston, that is showing quite promising performance.
Epiphytic diversity on treeferns in relation to silvicultural practices	MSc student, Clare Duck (University of Melbourne) completed her thesis in 2017–18. The FPA A/Research biologist co-supervised this project. Data collected in Tasmania will be used to inform the possible effects of variable retention harvesting in Victoria where ARN is in its infancy. This knowledge will be useful for determining the best silvicultural approach for managing tree fern populations and maintaining their ecological function in the forests of Victoria and Tasmania.
Distribution and abundance of aquatic fauna in relation to habitat condition in the Midlands	This honours project by Ana Zepeda De Alda (UTas) aims to look at the occurrence of platypus, Tasmanian water rat (rakali), bats and riparian insects in relation to stream and catchment condition in the Midlands. Fieldwork began in 2017–18.
Ecology of the endangered Tasmanian Masked Owl	This PhD project by Adam Cisterne (ANU) is co-supervised by the FPA Research Biologist. The project aims to use radio-tracking to determine home ranges and habitat use by breeding pairs. Data will be assessed in relation to landscape scale features in order to estimate resource

availability, including used and potential nest sites, and how these are affected by habitat disturbance.



*The threatened Green and gold frog, Litoria raniformis, found in protected habitat in a plantation close to Bridport. (Image credit: Tim Garvey)*

## Publications related to threatened species

### FPA

**Koch AJ, Chuter A,** Barmuta LA, **Turner PAM,** and **Munks SA** 2018, 'Long-term survival of trees retained for hollow-using fauna in partially harvested forest in Tasmania, Australia', *Forest Ecology and Management* 422, 263-272.

**Koch, AJ,** Webb, M, Cawthen, L, Livingston, D and **Munks, SA** 2018, 'Managing mature forest features: The production, accuracy and ecological relevance of a landscape-scale map,' *Ecological Management & Restoration* 19(3): 247-256. : <http://dx.doi.org/10.1111/emr.12336>

**Koch, A** and **Munks, S** 2018, 'A proposed strategy for maintaining mature forest habitat in Tasmania's wood production forests,' *Ecological Management & Restoration* 19(3): 239-246. <https://doi.org/10.1111/emr.12337>

Lazenby, BT, **Bell, P,** Driessen, MM, Pemberton, D, & Dickman, CR, 2018, 'Evidence for a recent decline in the distribution and abundance of the New Holland mouse (*Pseudomys novaehollandiae*) in Tasmania, Australia', *Australian Mammalogy*, <https://doi.org/10.1071/AM18003>.

Potter-Craven J, Kirkpatrick, JB, McQuillan, PB, **Bell, P,** 2018, 'The effects of introduced vespid wasps (*Vespula germanica* and *V.vulgaris*) on threatened native butterfly (*Oreixenica ptunarra*) populations in Tasmania', *Journal of Insect Conservation*, <https://doi.org/10.1007/s10841-018-0081-9>.

Todd, MK, Kavanagh, RP, **Bell, P** and **Munks, SA** 2018, 'Calling behaviour of the Tasmanian Masked Owl *Tyto novaehollandiae castanops*,' *Australian Zoologist*: 2018, Vol. 39, No. 3, pp. 449-463. DOI: <https://doi.org/10.7882/AZ.2017.030>

Webb, MH, 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*, 31(5), 1018–1028.

## Newsletter and magazine articles

**Cisterne, A** 2018 'Unmasking a difficult bird', [Forest Practices News, vol 14 no 1, p 6](#).

Duck, C, Nitschke, C and **Turner, P**, 2018, 'How do treeferns and their associated plant biodiversity fare over time after aggregated retention/CBS harvesting and wildfire?', [Forest Practices News, vol 14 no 1, p 16](#).

**Mann, D** 2018, 'Swift Parrot Field Days January 2018', [Forest Practices News, vol 14 no 1, p 23](#).

**Wiersma, J** 2018, 'Eagles join the 4G network', [Forest Practices News, vol 14 no 1, p 24](#).

## Reports and technical notes

**Bell, P** 2018, *Assessing the effectiveness of Forest Practices Code provisions for the threatened chaostola skipper* *Antipodia chaostola leucophaea*, Forest Practices Authority Scientific Report 21, Hobart, Tasmania. [Available on the FPA website](#)

**Bell, P** 2018, *Assessing the effectiveness of Forest Practices Code provisions for the threatened Marawah skipper* *Oreisplanus munionga larana*, Forest Practices Authority Scientific Report 22, Hobart, Tasmania. [Available on the FPA website](#)

**Koch, A** and **Munks, S** 2017, *Monitoring the effectiveness of the biodiversity provisions of the Tasmanian Forest Practices Code 2016–17 summary report*, report for the Board of the FPA and the Secretary of the DPIPW, FPA Scientific Report 21, Hobart, Tasmania. [Available on the FPA website](#)

**Munks, S** and Crane A, 2017 *Procedures for the management of threatened species under the forest practices system: Report on implementation during 2016–17*, report to the Board of the FPA and the Secretary of DPIPW, Hobart, Tasmania. [Available on FPA website](#)

**Turner, P** and **Munks, S** 2018, *Monitoring the effectiveness of the biodiversity provisions of the Tasmanian Forest Practices Code 2017–18 summary report*, report for the Board of the FPA and the Secretary of the DPIPW, Forest Practices Authority Scientific Report 24, Hobart, Tasmania. [Available on FPA website](#)

## Conference presentations, abstracts and posters

**Bonham, K, Koch, AJ, Turner, PAM**, Yee, M, 2017, 'How effective are management strategies for the rare and threatened Keeled snail?', paper presented to the annual conference of the Ecological Society of Australia, Pokolbin, NSW, November 2017.

**Koch, A** 2017, 'Possibilities for developing the forest practices system – a biodiversity perspective', paper presented at the Looking Back – Looking forward Conference: 30 years of the Tasmanian forest practices system, Hobart, Tasmania, November 2017. [Available on FPA website](#)

**Munks, SA**, Kavanagh, RP, Loyn, RH 2017, 'Monitoring the effectiveness of forest practices to conserve biodiversity in western North America: lessons for Australian forest management', paper

presented at the annual conference of the Ecological Society of Australia, Pokolbin, NSW, November 2017

**Munks, S and Mann, D** 2017, 'Contributing to the conservation of biodiversity through the Tasmanian forest practices system', paper presented at the Looking Back – Looking forward Conference: 30 years of the Tasmanian forest practices system, Hobart, Tasmania, November 2017. [Available on FPA website](#)

**Turner, PAM and Munks, SA** 2017, Effectiveness monitoring Symposium, convenors of symposium at the annual conference of the Ecological Society of Australia, Pokolbin, NSW, November 2017.

## Theses submitted for projects supported or co-supervised by the FPA staff

**Lyll J** 2017, 'Distribution of native and invasive mammalian carnivores in a forestry and agricultural landscape in northwest Tasmania', Master of Life Science thesis, University of Tasmania.

**Duck, C** 2017, 'The influence of disturbance history on tree fern dynamics in Tasmania and Victoria: implications for epiphyte and plant diversity', Master of Forest Ecosystem Science thesis, School of Ecosystem and Forest Sciences, University of Melbourne.

## DPIPWE

**Andersen GE, Johnson CN, Barmuta LA, Jones ME** 2017, 'Dietary partitioning of Australia's two marsupial hypercarnivores, the Tasmanian devil and the spotted-tailed quoll, across their shared distributional range', *PLoS ONE* 12(11): e0188529. <https://doi.org/10.1371/journal.pone.0188529>

**di Folco, MB** 2018, 'Monitoring Impacts of Fire on the Organosols of Buttongrass Moorlands - CE 2018, Establishment Report', Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Driessen, MM and Kirkpatrick, JB** 2017, 'Higher taxa can be effective surrogates for species-level data in representing changes in invertebrate assemblage structure due to disturbance: a case study using a broad-range of orders', *Austral Entomology* doi: 10.1111/aen.12315

Farquharson KA, Gooley RM, **Fox S, Huxtable SJ**, Belov K, **Pemberton D**, Hogg CJ and Grueber, CE 'Are any populations 'safe'? Unexpected reproductive decline in a population of tasmanian devils free of devil facial tumour disease', *Wildlife Research* 45 (1): 31-37.

Grueber, CE, **Fox, S**, Belov, K, **Pemberton, D** and Hogg, CJ 2018, 'Landscape-level field data reveal broad-scale effects of a fatal, transmissible cancer on population ecology of the Tasmanian devil', *Mammalian Biology* 91: 41-45.

Hogg, CJ, Taylor, HR, **Fox, S** and Grueber, CE 2018, 'Response to Britt et al. 2018 The importance of non-academic co-authors in bridging the conservation genetics gap biological conservation 218, 118–123', *Biological Conservation* 222: 287-288.

Jarman, PJ and **Driessen, MM** 2018, 'Quantitative interpretation of images of long-nosed potoroos at baited camera-trap: defining a 'visit'', *Australian Mammalogy*: doi: 10.1071/AM17057.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 1: Alkaline Pans*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.



**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 8: Athrotaxis Selaginoides Subalpine Scrub*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 9: Banksia Marginata Wet Scrub*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 13: Cushion Moorland*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 26: Heathland on Calcareous Substrates*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 27: Heathland Scrub Complex at Wingaroo*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 28: Highland Grassy Sedgeland*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 29: Highland Poa, Grassland* Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 31: Melaleuca Pustulata Scrub*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 33: Rainforest Fernland*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 34: Riparian Scrub*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 35: Seabird Rookery Complex*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 36: Sphagnum Peatland*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 36a: Spray Zone Coastal Complex*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 37: Subalpine Diplarrena Latifolia Rushland*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Kitchener, AE** 2018, *Threatened Native Vegetation Communities 39: Wetlands*, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

**Lazenby, BT, Tobler, MT, Brown, WE, Hawkins, CE, Hocking, GJ, Hume, F, Huxtable, S, Iles, P, Jones, ME, Lawrence, C, Thalmann, S, Wise, P, Williams, H, Fox, S and Pemberton D** 2018, 'Density trends and demographic signals uncover the long-term impact of transmissible cancer in Tasmanian devils', *Journal of Applied Ecology* 55: 1368–1379.

- McLennan, EA, Gooley, RM, **Wise, P**, Belov, K, Hogg, CJ and Grueber, CE 2018, 'Pedigree reconstruction using molecular data reveals an early warning sign of gene diversity loss in an island population of Tasmanian devils (*Sarcophilus Harrisii*,') *Conservation Genetics* 19 (2): 439-450.
- Proemse, BC, **Eberhard, RS**, Sharples, C, Bowman, JP, **Richards, K**, **Comfort, M** and Barmuta, LA 2017, 'Stromatolites on the rise in peat-bound karstic wetlands', *Scientific Reports* 7 (15384).
- Pye, R, Patchett, A, McLennan, E, Thomson, R, Carver, S, **Fox, S**, **Pemberton, D**, Kreiss, A, Baz Morelli, A, Silva, A, Pearse, MJ, Corcoran, LM, Belov, K, Hogg, CJ, Woods, GM and Lyons, AB 2018, 'Immunization strategies producing a humoral igg immune response against devil facial tumor disease in the majority of Tasmanian devils destined for wild release', *Frontiers in Immunology*, 9 (259).
- Richards, K** and Spencer, CP 2017, 'The Elusive Weldborough forest weevil, *Enchymus* sp. nov. Zimmerman 1991(Coleoptera: Curculionidae)', *The Tasmanian Naturalist* 139 (2017): 23-26.
- Richards, K** and Spencer, CP 2017, 'New distribution and foodplant observations for several Coleoptera species in the Tasmanian Central Highlands, Summer 2017, *The Tasmanian Naturalist* 139 (2017): 98-106.
- Robinson, NM, Legge, S, Scheele, BC, Lindenmayer, DL, Southwell, DM, Wintle, BA, Bennison, K, Benshemesch, J, Bickerton, D, Brooks, L, **Carter, O**, Dickman, C, Einoder, L, Gillespie, G, Herman, K., Kanowski, J, Koleck, J, Lahoz-Monfort, JJ, Latch, P, Lintermans, M, Marsh, H, Paltridge, R, Radford, J, Skroblin, A, Wayne, A, and Woinarski, JCZ 2018, 'Essential Principles to Guide Monitoring of Threatened Biodiversity', in S Legge et al. (eds.) *Monitoring Threatened Species and Ecological Communities* Chapter 35: 427-438, CSIRO Publishing, Clayton, Vic.
- Robinson, NM, Morgain, R, Legge, S, Scheele, BC, Lindenmayer, DL, Southwell, DM, Bennison, K, Benshemesch, J, Bickerton, D, Brooks, L, **Carter, O**, Dickman, C, Ehmke, G, Kanowski, J, Koleck, J, Lintermans, M, Marsh, H, Oliver, D, Paltridge, R, Radford, J, Skroblin, A, Wayne, A, and Woinarski, JCZ 2018, 'Organisational perspectives on threatened species monitoring', in S Legge et al. (eds.) *Monitoring Threatened Species and Ecological Communities* Chapter 34: 413-426, CSIRO Publishing, Clayton, Vic.
- Rout TM, Baker CM, **Huxtable S** and Wintle BA 2018, 'Monitoring, imperfect detection, and risk optimization of a Tasmanian devil insurance population', *Conservation Biology* 32 (2): 267-275.
- Stojanovic, D, Alves, F, Cook, H, Crates, R, Heinsohn, R, Peters, A, Rayner, L, **Troy, SN** and Webb, MH 2018, 'Further knowledge and urgent action required to save orange-bellied parrots from extinction', *Emu - Austral Ornithology* 118 (1): 126-134.
- Storfer, A, Epstein, B, Jones, M, Micheletti, S, Spear, SF, Lachish, S and **Fox, S** 2017, 'Landscape genetics of the Tasmanian Devil: implications for spread of an infectious cancer,' *Conservation Genetics* 18 (6): 1287-1297.
- Tasmanian Department of Primary Industries, Parks, Water and Environment 2017, 'Mange Prevalence in Tasmanian Wombat Populations: 2017', Dept. of Primary Industries, Parks, Water and Environment, Hobart.

Tasmanian Department of Primary Industries, Parks, Water and Environment 2017, 'Wombat Population Trends in Tasmania: 1985–2017', Dept. of Primary Industries, Parks, Water and Environment, Hobart.

Tasmanian Department of Primary Industries, Parks, Water and Environment. Natural and Cultural Heritage. Aboriginal Heritage Tasmania 2018, 'Aboriginal Heritage Standards and Procedures, Dept. of Primary Industries, Parks, Water and Environment, Hobart.

Tasmanian Department of Primary Industries, Parks, Water and Environment: Natural and Cultural Heritage: Natural Values Conservation Branch 2017, 'Assessment of the ecological impacts of the 2016 Mersey forest fire complex', Dept. of Primary Industries, Parks, Water and Environment, Hobart.

Tasmanian Department of Primary Industries, Parks, Water and Environment: Natural and Cultural Heritage. Nature Conservation Branch 2018, 'Giant trees and very tall forest values in the Tasmanian Wilderness World Heritage Area', Dept. of Primary Industries, Parks, Water and Environment, Hobart.

Thomson, VA, Mitchell, KJ, **Eberhard, R**, Dortch, J, Austin, JJ and Cooper, A 2018, 'Genetic diversity and drivers of dwarfism in extinct island emu,' *Populations Biology Letters* 14 (4): 1-4.

**Visoiu, M** and **Driessen, M** 2018, 'Camera trapping for the detection of small mammals – trial of camera traps to survey for the New Holland mouse (*Pseudomys novaehollandiae*)' in Tasmania: Natural Values Report for the Natural and Cultural Heritage Division's Biodiversity Monitoring Program Dept. of Primary Industries, Parks, Water and Environment, Hobart.

### **Forestry Tasmania**

Forestry Tasmania, 2017, 'Implementation of strategic biodiversity management recommendations in Florentine forest block on PTPZ land', report prepared by Certification Branch – Sustainable Timber Tasmania for the Forest Practices Authority, 22 September 2017.

### Document control log table

#### Document summary information

<b>Document name</b>	Procedures for the management of threatened species under the forest practices system: Report on implementation during 2017-18
<b>Version</b>	1.3
<b>Trim record</b>	D19/6602
<b>Owner</b>	Anne Chuter, FPA
<b>Author(s)</b>	Anne Chuter FPA and Andrew Crane DPIPWE
<b>Release date</b>	February 2019
<b>Release Approved by</b>	Peter Volker, CFPO
<b>Release status</b>	Public document (on FPA web-site)

#### Version control

Version	Date	Author(s)	Summary of changes
1.0	6.11.18	Anne Chuter, Andrew Crane	Original document
1.1	10.1.19	Dydee Mann	Edits following feedback from TSS staff
1.2	4.2.19	Anne Chuter	Final edits
1.3	13.2.19	Peter Volker	Final edits by CFPO

#### Stages required for release outside FPA

Category of advice		C
Stages	Required/not required	Completed (date)
Specialist	Required	Feb 2019
Line Manager	Required	Feb 2019
Peer/FPO/stakeholder review (FPA staff)	N/A	
CFPO	Required	Feb 2019
FPAC	Not required	
Board	Not required	