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Perspective

Policy failure and conservation paralysis for the critically endangered swift parrot

Matthew H. Webb [A,B], *Dejan Stojanovic*[A] *and Robert Heinsohn*[A]

[A]Fenner School of Environment and Society, Australian National University, Canberra, ACT 0200, Australia.
[B]Corresponding author. Email: matthew.webb@anu.edu.au

Abstract. The critically endangered swift parrot (*Lathamus discolor*) is among the best studied Australian threatened species. Despite extensive outreach to the public and policy makers, conservation management has not kept pace with advances in knowledge and scientific evidence. Here we summarise policy and management failings that allow swift parrot breeding habitat in Tasmanian forests to continue to be logged. This practice continues in spite of extensive evidence demonstrating that the cessation of logging of swift parrot breeding habitat in Tasmania is urgently required to secure the species.

Additional keywords: conservation policy, forestry, Tasmania

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Introduction

Conservation planning for many migratory and nomadic species is at the frontier of conservation biology (Runge *et al.* 2015). Such is the severity of threats to migratory species that they are the subject of a dedicated international treaty, the Convention on the Conservation of Migratory Species of Wild Animals (2014). However, while this and related legal instruments have improved the protection of species crossing international borders (Runge *et al.* 2017), there is often a legal void for species that are migratory or nomadic within national boundaries. Yet, even where there is legislation in place that *should* provide protection for at-risk species, as well as detailed knowledge of their conservation requirements, implementation of conservation action can still fail (Gale 2013; Lindenmayer *et al.* 2015; Howes *et al.* 2017).

One reason is that uncertainties about the impact of threats are potentially greater among migrant species. Migrants, by definition, occur at more sites than non-migratory species. Threatening processes may more readily be identified and managed at the places where non-migrants occur all year. As with legislation, however, excellent knowledge of threatening processes and how they can be managed does not guarantee action.

Here we describe the case of the swift parrot, for which habitat protection is in direct conflict with established economic interests, in this case the timber industry. Despite its listing as threatened under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) since the inception of the Act, the conservation status of swift parrots has worsened from Vulnerable to Critically Endangered. The extent and quality of swift parrot breeding habitat has been greatly reduced by timber harvesting, conversion of native forests to plantation and wildfire (Webb *et al.* 2017). Initially, conservation prescriptions were based on inadequate knowledge, which often excuses management inaction and continuing declines or extinctions (Lindenmayer and Possingham 2013). However, while uncertainty has repeatedly been cited as a reason not to implement well supported conservation management prescriptions for swift parrots (see Forest Practices Authority 2010, 2014*a*), this is no longer a legitimate excuse. After 13 years of applied research (e.g. Webb 2008; Webb *et al.* 2012, 2014, 2017; Stojanovic *et al.* 2012, 2014*a*, 2014*b*, 2015, 2016, 2018; Heinsohn *et al.* 2015), swift parrots are among the best studied Australian threatened species, with detailed knowledge now available on threatening processes and how to manage them. In addition, information on population trends have been supported with a population monitoring program initiated by the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE) and now managed by the authors through the Australian National University.

Here we attempt to explain how conservation policy in Tasmania has failed the swift parrots, and propose a way forward to achieve better conservation outcomes for this species.

Breeding ecology and threats

The swift parrot breeds during the austral summer and only in Tasmania. Swift parrots are nomads whose nesting patterns when breeding are determined by interannual variation in the flowering of food trees (Webb *et al.* 2014) across eastern Tasmania (Fig. 1). While breeding sometimes occurs in northern Tasmania, little habitat remains in this region. To breed, the

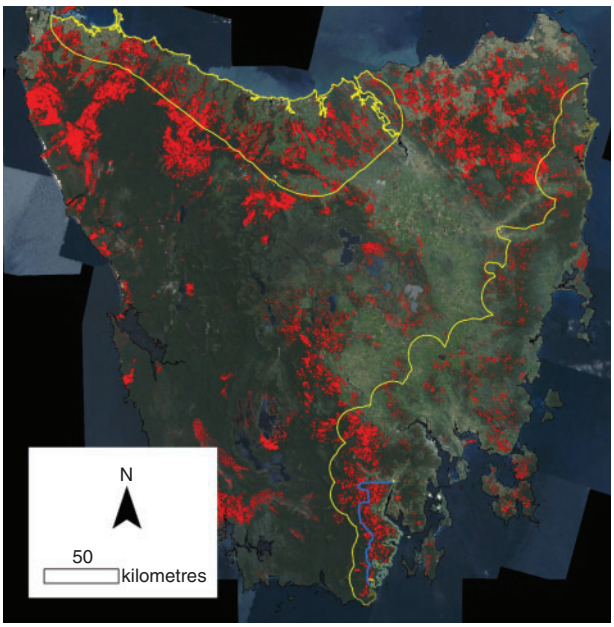

Fig. 1. Forest loss/disturbance in Tasmania between ~1996 and 2016 (red) and potential swift parrot breeding range (yellow line) (Anon. 2015). Forest loss was estimated from the Global Forest Cover Change layer (Hansen *et al.* 2013). Case study area: Southern Forests SPIBA (blue line) (Anon. 2015).

species requires the co-occurrence in the landscape of flowering Tasmanian blue gum (*Eucalyptus globulus*) and black gum (*Eucalyptus ovata*) for food, and tree-hollows suitable for nesting (Webb *et al.* 2017). While such hollows are rare (Stojanovic *et al.* 2012, 2014*b*), occurring mostly in large trees more than 150 years old (Webb *et al.* 2012), they may nevertheless occur in a wide range of forests, from scattered mature trees in regrowth through to high-density old-growth forest. Similarly, while few tree species are utilised for feeding, feeding may occur in a wide range of tree densities from trees in paddocks through to forest dominated by blue or black gum (Webb 2008; Webb *et al.* 2014, 2017).

Settlement of swift parrots in breeding habitat is spatially clustered due to flowering patterns of their food trees, with the location and extent of area occupied by parrots each year varying dramatically (Webb *et al.* 2014, 2017). These nomadic movements lead to high gene flow, and the species is a single, panmictic conservation unit (Stojanovic *et al.* 2018). The relative availability of feeding and nesting habitats varies each year depending on flowering conditions and this has implications for habitat functionality (Webb *et al.* 2017). In many years most available habitat is occupied (Webb *et al.* 2017) with many nesting aggregations (>50 nests) covering relatively small areas (5–100 ha) (Webb *et al.* 2012). Furthermore, in years when flowering is very poor, habitat limitation may prevent a proportion of the population from breeding (Webb *et al.* 2017). Also, depending on the spatial configuration of flowering each year, little breeding and feeding habitat falls within reserved land.

Reproductive success depends on where the species decides to nest in a given year. If they nest on the Tasmanian mainland, predation by sugar gliders is a major source of mortality (Heinsohn *et al.* 2015) with continuing habitat loss increasing glider predation rates (Stojanovic *et al.* 2014a). Stochastic events such as wildfires further contribute to the loss of breeding habitat (Webb *et al.* 2012, Stojanovic *et al.* 2016) and these are likely to increase across the breeding range with climate change (Grose *et al.* 2014). When they nest on Maria and Bruny Islands, reproductive success is very high (Stojanovic *et al.* 2014*a*, 2015) but intermittent island nesting is insufficient to prevent extinction (Heinsohn *et al.* 2015; Webb *et al.* 2017). Maria and Bruny islands do not support genetically isolated subpopulations of swift parrots (Stojanovic *et al.* 2018).

Policy background

Of conservation concern since the 1980s (Brown 1989), the first Tasmanian State Recovery Plan was prepared in 1997. This was followed, in 2002, by the first National Recovery Plan, which was adopted under the EPBC Act, the species having been on the first schedules to the Act when it came into force in 1999. However, management actions on land subject to forestry operations in Tasmania are managed under the *Tasmanian Regional Forest Agreement* 1997 (RFA), which takes legal precedence over the EPBC Act (Allchin *et al.* 2013). This means that the management of swift parrots nesting or feeding on forestry lands is guided by the Forest Practices Code (hereafter: the Code) and regulated by the Forest Practices Authority (FPA) under the auspices of the Tasmanian *Forest Practices Act* 1986. The Code includes a set of 'Agreed Procedures' for the management of threatened species, intended to provide a streamlined assessment process for threatened species in the context of wood production. The 'Agreed Procedures' are negotiated between the FPA and the DPIPWE and subsequent recommendations for the management of threatened fauna are delivered via an online planning tool: the Threatened Fauna Adviser (Forest Practices Authority 2014*a*). Currently, the DPIPWE has ultimate responsibility for approving logging operations (i.e. not the FPA). Under these arrangements two factors mitigate against imposition of stringent conditions on forestry operations. First, on public land, legislated wood quotas set by the *Forestry Management Act* 2013 currently require that the state production forest manager – Sustainable Timber Tasmania (STT, formerly Forestry Tasmania) – make 137 000 m^3 of timber available for harvest each year. Second, under the Code, 'Duty of Care Provisions' landholders (including STT) are required to retain only 5% of the original forest extent after soil and water values are accounted for (Forest Practices Authority 2013, 2014*b*, 2015). Any forest retention above 5% by the landholder is voluntary, although, under the *Nature Conservation Act* 2002, if private landholders are required to curtail forestry operations due to a threatened species they are eligible for compensation. This would include any retention of forest used by swift parrots above the 5% duty of care requirements. There appears to be no budgetary provision for compensation for forestry curtailment on any land tenure.

The governance of swift parrot conservation was hindered rather than helped during the year the *Tasmanian Forests Agreement Act* 2013 (TFAA) was in force. While negotiations (e.g. Kelty 2010) and the provision of 'Future Potential Reserves' promoted threatened species management, the high level of reservation emerging from this process largely failed to

account for the needs of a mobile species like the swift parrot. Instead, before its repeal in 2014, the TFAA increased tension between the forest industry and those advocating off-reserve management, leading to strong resistance to adoption of threatened species conservation plans for areas other than the proposed reserves (Wilkinson 2016). As it is, TFAA's replacement, the 2014 *Forestry* (*Rebuilding the Forest Industry*) *Bill*, reclassified the 398 490 ha of reserves as 'Future Potential Production Forest', which may become available for logging in 2020.

Conservation management for the swift parrot

Before data on the species' complex spatial ecology were available, the primary focus of swift parrot conservation action had two aspects. One was some level of protection for dry grassy forest dominated by blue gum and, to a lesser extent, black gum forest (Brereton 1997). Because very little dry blue gum forest occurs in public production forests, conservation management of the swift parrot imposed few constraints on the timber industry on this tenure. The second was nest protection, with a 1-ha reserve declared around any nests discovered (Brereton 1997; Bryant and Jackson 1999). Nest protection appears not to have been taken seriously, given there was neither a formal nest survey program undertaken by industry or government, and nor were landholders or managers required to undertake prelogging surveys for nests. Furthermore, nest protection has not been consistently applied despite formal notification of over 500 nesting records (e.g. Webb *et al.* 2012, 2014, 2017; Stojanovic *et al.* 2012, 2014a, 2015; and further unpubl. data) or patches of known nesting habitat since 2004. Critical sites continue to be logged, either because of uncertainty about the exact location of a nest tree, even though the parrots were patently nesting in a group of trees, or unwillingness to alter logging plans that had already been approved.

With new knowledge, however, it is apparent that neither strategy was likely to have had substantial benefit to the parrots. First, feeding habitat varies each year and includes many areas that are not dry forests or dominated by the principal food tree species. Second, the protection of individual nesting trees during a nesting season was never going to be adequate because only a small proportion of nest trees can be identified in any one year, leaving the rest of the habitat vulnerable to logging. While it is still important that known nest trees are protected in the long term, it is more important that protection is given to the old-growth habitat in which hollows are likely to be available. Hollow availability in a single tree will vary over time (Stojanovic *et al.* 2016) so protection of hollow-bearing mature forest (and associated foraging habitat) should be the focus of conservation prescriptions. That said, if *all* swift parrot nests had been found over the past couple of decades, and *permanently* protected, this would likely have encompassed a large proportion of the species' contemporary nesting habitat.

Recognising that existing strategies were failing to protect swift parrots, a working group (Fauna Strategic Planning Group) was established in 2008. It comprised industry stakeholders (e.g. Forestry Tasmania, Gunns Pty Ltd, Private Forests Tasmania), FPA, DPIPWE and species experts (including MHW) and was intended to address the emerging issues associated with swift parrot conservation in production forests (Forest Practices Authority 2010). This was a protracted process that produced a draft document: 'Species Habitat Planning Guideline for the conservation management of *Lathamus discolor* (Swift Parrot) in areas regulated under the Tasmanian Forest Practices System', hereafter: the Habitat Planning Guideline (Forest Practices Authority 2010). The Habitat Planning Guideline aimed 'to ensure enough breeding habitat is available in any given year' (see Forest Practices Authority 2010, p.16, for full details). Hence it was concluded that the focus of conservation management should be on the protection of nesting and foraging habitat (as suggested above). The guidelines also identified Swift Parrot Important Breeding Areas (SPIBAs) as priority management units. In addition, this process identified the need for spatially explicit thresholds of habitat loss (i.e. a minimum amount of forest that must be protected within a SPIBA), and a landscape context assessment of logging operations (Forest Practices Authority 2010). A decade later, the Habitat Planning Guideline is still in draft. Although several of its management recommendations are incorporated in the 'Threatened Fauna Advisor', they are voluntary, and regularly watered down or ignored (MHW and DS, pers. obs.; also see Pullinger 2015 for examples).

In 2009 the Tasmanian and Commonwealth governments initiated a joint project to develop a 'strategic landscape approach to the management of RFA priority species'. Part 1 of the project was to 'develop a [tenure blind] species strategic plan … to cover the breeding range and all activities, including forest practices, which have the potential to have a significant impact on the quality and/or quantity of breeding habitat'. MHW participated in this project. Again, almost a decade later, the plan has not been endorsed and is not publically available for scrutiny.

Population monitoring by the authors has produced a wealth of information including predictive distribution models that clearly identify key sites and habitats as well as likely resource bottlenecks in space and time (Webb *et al.* 2014, 2017). These allow predictions of occurrence and abundance to be made over unsampled areas, reducing the need to rely on known nests or rare specific forest communities (e.g. high-density old-growth or blue gum–dominated forest). However, these advances in knowledge are applied poorly or haphazardly on the ground. Instead, the dated practice of focusing on known nest trees or specific forest/habitat types often continues without regard to the species' range dynamics and habitat suitability.

Failure to implement consistent guidelines for swift parrot habitat protection within production forests has resulted in cumulative habitat loss that has yet to be quantified (but see Case Study below). While formal monitoring and reporting of forest practices exists (Wilkinson *et al.* 2014), this has not focussed on swift parrot management. Forest Practices Plans and associated Natural Values Assessments are not housed in an easily accessible database that allows habitat loss (or retention) following logging operations to be assessed. This has resulted in swift parrot breeding habitat being a textbook example of a 'shifting baseline' (Pauly 1995) as previous loss is not explicitly considered in conservation assessments. Moreover, the lack of an adequate database recording habitat loss means such assessments are not even possible.

In addition, areas retained for swift parrots during logging operations are not routinely afforded formal reservation status and the forest practices system does not play a direct role in the creation of reserves (Forest Practices Authority 2013). Over time the original reason for specific areas being retained can be 'lost or forgotten', resulting in these areas subsequently being incorporated into future operations (MHW, pers. obs.). Furthermore, logged breeding habitat may not be suitable for nesting for hundreds of years, and foraging habitat will take many decades to recover and up to 100 years to provide high-quality habitat. Indeed, the current proposed rotation time-frames for logging on public land (Forestry Tasmania 2016) means that logged forests are unlikely to ever reach an age where they will form nesting sites, and may barely reach an age to provide a foraging resource before being logged again.

Case study: 20 years of logging swift parrot habitat in the southern forests under the Tasmanian Regional Forest Agreement 1997

We present the Southern Forests SPIBA as a case study to demonstrate the conservation problems we raise. The southern forests case study represents the impact of 20 years' intensive logging under the RFA on a key breeding area. Substantial habitat loss also occurred elsewhere during this period (Fig. 1, Fig. S1 available as Supplementary Material to this paper). Although not possible to quantify, we argue that the southern forests case study is likely indicative of intensive logging pressure elsewhere before 1996 (e.g. Eastern Tiers, Tasman Peninsula; also see Fig. S2*a*, *b*). Much of this (and historical) loss occurred in the absence of an adequate understanding of the species' requirements. However, as stated above, this is no longer an excuse. It is very clear that critical breeding habitat is being logged and that current logging regimes are not sustainable. Over this period habitat loss was substantial in many areas across the breeding range, but the southern forests were the most heavily impacted (Fig. 1). The SPIBA is a key breeding region, and in some years most of the swift parrot population breed there (Webb 2008; Forest Practices Authority 2010; Webb *et al.* 2014, 2017). Before 2007 the region was not considered to support breeding habitat and no management was implemented despite previous detections of swift parrots throughout the region (see Brown 1989). Only 6.5% of the southern forests SPIBA is formally reserved, and remaining habitat continues to be logged.

To quantify the current area of eucalypt forest we used TasVEG 3.0 (DPIPWE 2013). To quantify the potential area of nesting habitat we used the Tasmanian RFA Forest Senescence Data Layer as an indicator of hollow-bearing forest (Commonwealth of Australia and State of Tasmania 1996). To the best of our knowledge, this spatial layer provides the only historical information of the extent of potential 'hollow-bearing' forest. Forest loss/disturbance from each of these layers was quantified using the Global Forest Cover Change layer (Hansen *et al.* 2013) (see Text S1, Supplementary Material for details on methods and limitations of spatial data layers).

Currently, 42 796 ha of the SPIBA is eucalypt forest. To estimate the area of forest in ~1996 we assumed that plantations that intersected with the Global Forest Cover Change layer were previously native forest, producing a total estimate of 45 782 ha. The total loss/disturbance of eucalypt forest between ~1997 and 2016 was estimated to be 15 271 ha, representing 33% of pre-RFA extent (Fig. 2). Cumulative loss of this forest is shown in Fig. 3. The Eucalypt Forest Senescence layer identified 11 183 ha of forest supporting trees with old-growth characteristics. Total loss/disturbance of this forest between ~1996 and 2016 was estimated to be 2532 ha, representing 23% of pre-RFA extent (Fig. 2). Cumulative loss is shown in Fig. 4. Due to limitations of the Eucalypt Senescence layer this likely significantly underestimates loss (see Text S2, Supplementary Material). Considering these estimates, and the fact that large areas were logged before 1996, we argue that the current logging regime is severely reducing the breeding habitat of swift parrots in the region.

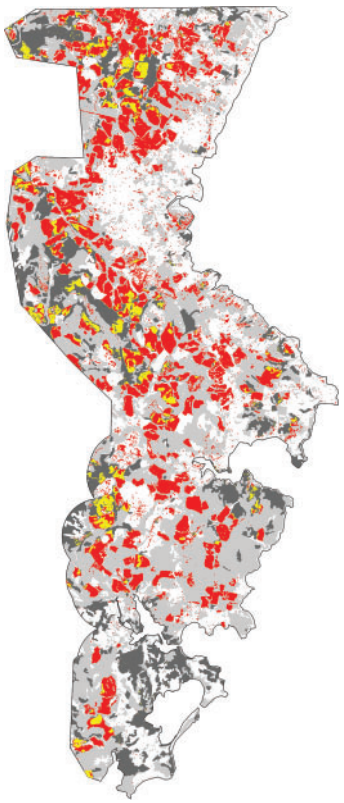

Fig. 2. Forest loss (as defined by Hansen *et al.* 2013) in the Southern Forests SPIBA between ~1996 and 2016: dark grey, senescent forest; yellow, logged senescent eucalypt forest; light grey, eucalypt forest; red, logged eucalypt forest. Senescent forest was identified using the Tasmanian RFA Forest Senescence Data Layer (Commonwealth of Australia and State of Tasmania 1996).

Information to quantify directly the loss of feeding habitat (blue gum or black gum) was not available, but is likely to have been substantial given (1) that 33% of the SPIBA was logged, (2) poor understanding of feeding habitat before 2006, (3) the regular rejection of conservation advice since 2006 (e.g. Blakers and Crawford 2008; Pullinger 2015), (4) personal observations (primarily by MHW) of blue gum being logged since 2006. Furthermore, blue gum has often being targeted as preferred timber species (MHW, pers. obs.).

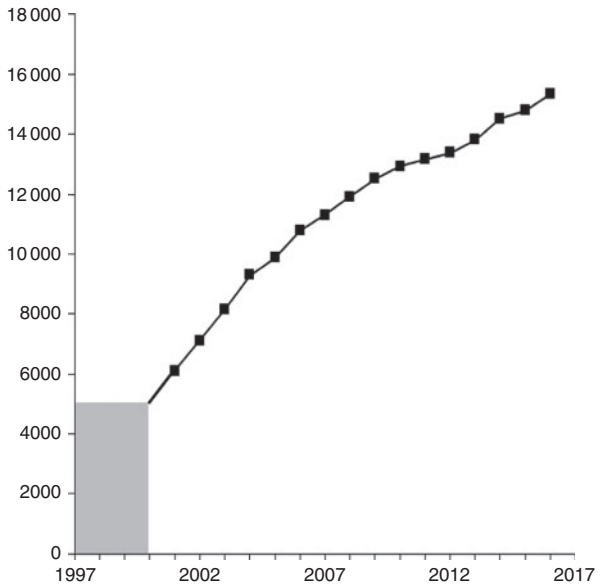

Fig. 3. Total loss of eucalypt forest (ha) between ~1997 and 2000 (grey bar). Cumulative loss of eucalypt forest each year from 2000 to 2016 (black line). Estimates of forest loss are calculated using Hansen *et al.* (2013) (see Text S2, Supplementary Material for further details).

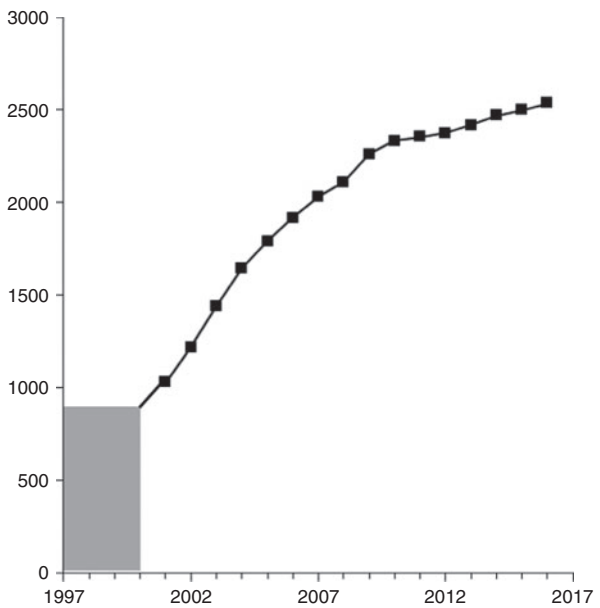

Fig. 4. Total loss of forest (ha) identified by the Commonwealth Eucalypt Senescence Layer between ~1997 and 2000 (grey bar). Cumulative loss of this forest each year between 2000 and 2016 is shown (black line).

Consequences of current management

Significant areas of swift parrot breeding habitat are earmarked for logging in the near future (see Sustainable Timber Tasmania's (2017) [Forestry Tasmania] three-year wood production plan), yet at the same time Sustainable Timber Tasmania is seeking to attain Forest Stewardship Council (FSC) certification. Failures to protect swift parrot breeding habitat in approved logging operations have been repeatedly exposed by public access to documents outlining decision-making processes (e.g. Blakers and Crawford 2008; Blakers 2009; Pullinger 2015). The information in these reports show that expert advice is routinely ignored, and that known breeding habitat and nest trees are knowingly logged.

These documented failures are not consistent with the objectives of the National Recovery Plan, draft conservation plans, the Threatened Fauna Advisor or scientific evidence of the species' requirements, let alone the guidelines of the FSC certification. These failings demonstrate the lack of strategic planning in place for swift parrot conservation across public and private land. At best, the evidence points towards strategic planning to ensure wood supply regardless of the conservation implications. In 'conservation' advice from DPIPWE, operations involving clear-cutting of known swift parrot breeding habitat have been described as having made '… a reasonable contribution to the conservation of the species' (Pullinger 2015, pp. 12–14) but fail to reconcile what is considered reasonable with the evidence of ongoing habitat loss.

A failure to create clear, transparent and adequate conservation policies for the swift parrot is likely to have consequences for Sustainable Timber Tasmania's attempt to gain FSC certification given the FSC's stated principles that the organisation 'shall maintain, conserve and/or restore ecosystem services and environmental values of the Management Unit, and shall avoid, repair or mitigate negative environmental impacts' (Principle 6) and, 'shall maintain and/or enhance the High Conservation Values in the Management Unit through applying the precautionary approach' (Principle 9) (https://ic.fsc.org/en/what-is-fsc-certification/principles-criteria/fscs-10-principles). This is likely to have consequences for marketing Tasmanian timber. The first application for certification (Forestry Tasmania 2014*a*, 2014*b*) largely ignored swift parrot management. In over 250 pages of the application, the words 'swift parrot' appeared only three times (in tables) without any details of future management intentions, and the Threatened Fauna Advisor was not mentioned at all. The lack of adequate swift parrot management was a major reason for Forestry Tasmania's failure to achieve certification (Forestry Tasmania, January 2017).

More recently, Sustainable Timber Tasmania's recent draft High Conservation Values Assessment and Management Plan for the FSC (Forestry Tasmania, January 2017) claimed improvements to the previous plan. Some of these sound encouraging such as 'Implementing expert agreed protection or management measures for threatened species habitat' and 'The objective of Forestry Tasmania's swift parrot management is to maintain the integrity of breeding habitat by ensuring that sufficient levels and spatial arrangement of important nesting habitat and foraging-habitat are retained to support breeding in any given year' (Forestry Tasmania 2017, p. 21). However, since January (2017) the authors have personally observed several logging operations that contradict these statements, where expert advice and scientific evidence was ignored, and known breeding habitat has been destroyed. Without clear unambiguous statements by the forest industry and government that conservation advice and recommendations will, or will not, be implemented, including outlining the scientific evidence (or other factors) used in the decision-making process and making

these processes available for scrutiny, it is hard to see why the FSC should certify operations that knowingly increase extinction risk of a critically endangered species.

Potential solutions

To secure the swift parrot, halting habitat loss at key sites is critical to maintaining enough breeding habitat each year (Webb *et al.* 2017) as is addressing or minimising the interaction between habitat loss and predation rates (Stojanovic *et al.* 2014*a*). Destructive wildfires will continue to occur, and possibly more frequently due to a changing climate (Fox-Hughes 2014; Grose *et al.* 2014), but we have little control over this process or where it occurs. The only effective action that can be undertaken to manage these risks is the retention of as much habitat as possible. Because the parrots do not use all potential habitat in all years, genuine conservation management will require significant areas of forest to be set aside. These areas can readily be identified using data from the current population monitoring program. These monitoring data provide clear scientific evidence on how swift parrots use the landscape in time and space and allow the implementation of a more sophisticated spatially explicit management approach. Specifically, the program was designed to (1) produce probabilistic spatial models of swift parrot occurrence and abundance, (2) quantify variation in the spatial location and extent of occupied and available habitat, and (3) measure variation in exposure of the population to predation by sugar gliders (Webb *et al.* 2014, 2017).

At the very least, existing conservation plans could be implemented, and improved in light of more recent findings. Importantly, this would not exclude logging within the species' breeding range, or even within some forest patches containing habitat. This is because much of the forest within the breeding range does not support the key habitat features required by the species (feeding and nesting trees). The critical policy changes required for this to happen are (1) the recommendations for the management of threatened fauna and delivered via the Threatened Fauna Adviser be binding on the DPIPWE and FPA, (2) the areas designated to meet the legislated wood quotas set by the *Forestry Management Act* 2013 be modelled using the swift parrot habitat requirements to identify areas excluded from logging, and (3) budgetary provision be made to compensate for forestry curtailment on private land.

Conclusions

In the context of continuing habitat loss and extreme nest predation, two key questions for decision makers are: (1) is the evidence about swift parrot habitat requirements going to be incorporated into conservation planning?, and (2) will destruction of habitat then be halted? The Forest Practices System in Tasmania is claimed to be one of the most globally prescriptive and comprehensive forest management systems, with high standards of governance, accountability and transparency of forest regulation (Wilkinson *et al.* 2014). However, failure to implement threatened species prescriptions means the system has not been able to achieve conservation goals for the swift parrot. This is because conservation management of the prime breeding habitat of the parrot is in conflict with the logging industry. The implementation of management prescriptions that (partly) address the species' needs is voluntary and the current regulatory arrangements in which timber harvest plans are developed is largely in the hands of a state-owned forestry business and not subject to public review. If habitat loss continues, it will be for socioeconomic reasons, not uncertainty about the species' requirements. We believe that openly acknowledging this is essential so that clear cost–benefit analyses can be undertaken to shed light on the economic realities of an economically doubtful industry struggling to maintain social licence (Schirmer 2011). When assessed objectively and following a logical decision pathway, decision makers should adopt the intent of the objectives of two previous 'draft' conservation planning documents – *maximise available breeding habitat*. Perhaps the biggest hurdle to swift parrot conservation is the political will to move beyond conservation paralysis in decision making and enact necessary actions to secure the species.

Conflicts of interest

The authors have no conflicts of interest.

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