

Coastal IFOA: Monitoring plan
Species-specific fauna

October 2020



Monitoring strategy summary	
Monitoring strategy	Species-specific – Fauna Monitoring
Version 1.0	8 October 2020

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Part 1: Monitoring strategy details	
1.1 Strategy title	
Species-specific fauna monitoring	
1.2 Protocol 38	
<ul style="list-style-type: none"> ▪ Protocol 38.1 (d) The monitoring program must be designed to provide species-specific monitoring, including but not limited to those management plans listed in Protocol 21: Species management plan 	
1.3 Coastal IFOA condition and associated outcome statements	
<p>C72, C84, C72, C84 Species Management Plans</p> <p>Monitoring, management and protection measures are identified, planned and implemented for specific native species to support their persistence.</p>	
1.4 Monitoring questions	
<ul style="list-style-type: none"> ▪ To what extent do the Coastal IFOA conditions support the maintenance of fauna species viability in the landscape?¹ ▪ To what extent are the species-specific management plans (SMP) effective in maintaining the viability of that species? 	
1.5 Monitoring plan objectives	
<ul style="list-style-type: none"> ▪ Monitoring, management and protection measures are identified, planned and implemented for specific native species to assess if they support the persistence of those species within Coastal IFOA areas. 	
1.6 Strategy summary	
<p>The Coastal IFOA requires that the monitoring program must be designed to provide for species-specific monitoring data that will be used to evaluate the effectiveness of actions in species-specific management plans to support the persistence of those species.</p> <p>The Species-specific Monitoring Strategy will adopt the monitoring outlined in each species-specific management plans (SMP), which contain detailed objectives and monitoring</p>	

¹ For the purpose of effectiveness monitoring, landscape only refers to state forests within the Coastal IFOA.

requirements for the species generally at specific locations, plus review and reporting requirements.

SMPs have been reviewed and the data is currently being analysed. These will be updated based on the findings of the review and analysis and implemented as part of the monitoring program. Assuming the updated SMPs are approved, then the data collected by these plans will comprise the monitoring and the adaptive management strategies to measure the effectiveness of the Coastal IFOA conditions for supporting the persistence of those species.

SMP monitoring results will be analysed in accordance with the requirements within each SMP. The analysis will be used to determine the effectiveness of the plans in maintaining the presence of those species and their habitats within a forested landscape.

Subject to available funds, additional focal species that are rare in the landscape, sensitive to disturbance or those that have specific habitats not covered by a broad occupancy monitoring program, will be included for species specific monitoring. This will include extending existing programs where possible to assess occupancy trends and the effectiveness of conditions. Examples include the Hastings River mouse, where 23 locations (monitoring grids) have been routinely monitored since 2015 and the greater glider, where existing monitoring could be expanded to assess issues such as wildfire impacts, occupancy trends and effectiveness of conditions.

1.7 Outline of methods and approach

Update fauna SMPs

There are currently five fauna SMPs for the Coastal IFOA, which are for the:

- southern brown bandicoot (*Isodon obesulus*) (South Eastern NSW) – in operation since 2008
- giant burrowing frog (*Heleioporus australiacus*) (South Eastern NSW) – in operation since 2008
- yellow-bellied glider (*Petaurus australis*) (Bago Plateau) – in operation since 2013
- eastern bristle bird (*Dasyornis brachypterus monoides*) (Donaldson State Forest and surrounding area) – in operation since 2016
- smoky mouse (*Pseudomys fumeus*) (South Eastern NSW) – in operation since 2008.

The SMPs have been reviewed by EcoLogical Australia Pty Ltd and recommendations have been made for amendments. It is proposed that a thorough review of the monitoring undertaken to date, including an analysis of the data, is completed to ensure that suitable data is being collected to meet the expected strategy outcomes.

SMP monitoring data collected to date will be collated and analysed by DPI Forest Science to determine if:

- the aims/objectives and conditions the SMPs monitor can be answered using the data that is currently collected
- the monitoring sites and the monitoring methods are suitable
- analysis can be completed with the data collected to date
- recommendations are required for monitoring going forward (in consultation with relevant FCNSW staff and researchers).

FCNSW with EPA will update and implement the fauna SMPs in consideration of the recommendations in the EcoLogical review and also the data analysis findings, with the potential to opportunistically also incorporating remote sampling technology and to potentially assess wildfire fire recovery following analysis of data already obtained.

SMP monitoring results will be analysed in accordance with the requirements within each SMP. The analysis will be used to determine the effectiveness of the plans in maintaining the presence of those species and their habitats within a forested landscape.

The Species-specific monitoring strategy will adopt the monitoring outlined in each SMP, which contain detailed objectives and monitoring requirements for the species generally at specific locations, plus review and reporting requirements. Monitoring programs in SMPs typically require repeat surveys to assess ongoing occupancy related to historic or modified conditions. The Species-specific Monitoring Strategy will rely on the adaptive management arrangements outlined in the SMPs, as amended over this process, to test the adequacy of the monitoring and make improvements as required.

Species-specific monitoring

In addition to the SMP species, species-specific monitoring is proposed for a range of fauna species that are rare in the landscape, sensitive to disturbance or those that have specific habitats not covered by a broad occupancy monitoring program. Examples include the Hastings River mouse, where 23 locations (monitoring grids) have been routinely monitored since 2015 and the greater glider, where existing monitoring could be expanded to assess issues such as wildfire impacts, occupancy trends and effectiveness of conditions.

The species-specific monitoring projects that are proposed to commence or be continued as part of this strategy, include:

- greater glider (*Petauroides volans*)
- yellow bellied glider – extending the work outside the Bago area covered by the SMP
- Hastings River mouse (*Pseudomys oralis*)
- golden-tipped bat (*Kerivoula papuensis*)
- northern corroboree frog (*Pseudophryne pengilleyi*)
- *Phyloria* spp. and Pouched Frog (*Assa darlingtoni*)

An overview of existing monitoring to date that will be expanded for this monitoring strategy is provided in Table 1 below. Where possible, the monitoring programs will be developed in consideration of and in consultation with Saving Our Species programs underway for the identified focal species.

Table 1: Existing species-specific monitoring for identified focal species.

Monitoring	Location	Details	When	Proposed extension
Greater glider	Eden State Forests (Nadgee, East Boyd, Timbillica) and Nadgee Nature Reserve	Species occupancy and abundance at 100 sites	1988-2011; surveyed once or twice during autumn in 1988, 1992, 1994, 1997, 2000, 2003, 2006, 2011.	Recommence monitoring program. Investigate opportunities for other sites to be resurveyed, such as in the northern subregions.

Yellow-bellied glider	Bago and Maragle State Forests, Tumut	Surveys and monitoring of population to assess ongoing persistence of population and provide data on endangered population.	Initial surveys in 1995 of 126 sites located on a 1.7 km grid were repeated several times between 2010-2019.	Continue monitoring program and extend to other RFA areas to evaluate species-specific conditions, particularly in the northern sub-regions.
Hastings River mouse	Northern Forests Upper North East	1,150 traps in 23 locations	April 2015 (ongoing)	Continue monitoring program to evaluate species-specific conditions
Golden-tipped bat	Southern RFA	Periodic radio tracking	2001 (ongoing)	Continue monitoring program to evaluate species-specific conditions. Investigate opportunities to expand into the northern subregions.
Northern corroboree frog	Tumut area	Monitored via call response. Surveyed annually (Feb-Mar)	1993 hardwood 2002 softwood Surveys recommenced 2019 Additional monitoring undertaken by DPIE between 2015-2018	Continue monitoring program to evaluate species-specific conditions
<i>Philoria</i> spp. and Pouched Frog	TBD	TBD	N/A	TBD No monitoring has been completed to date. It is proposed to monitor using songmeters in known breeding locations

Occupancy modelling

Where appropriate to do so, the results from the species-specific monitoring can be incorporated into the species occupancy monitoring strategy, where the species are shared between the two strategies, providing presence and absence data for the modelling. Occupancy modelling can also be used to inform and investigate trends identified as part of the SMP and additional species monitoring.

1.8 Summary of approach to develop baselines and benchmarks for adaptive management

Condition effectiveness baseline:

The revised SMPs will detail baselines and benchmarks for monitoring and adaptive management.

Benchmarks:

Benchmarks and baselines are required for the additional species-specific fauna and will be developed as part of the experimental design of the strategy with review of the existing

programs and the analysis of data to date. These will be linked to any species-specific conditions for focal species, for example, maintaining occupancy in the landscape.

Monitoring data will be analysed, and trends plotted annually. Trends will be analysed every 3-5 years and declines over a threshold (to be determined based on baselines) will be investigated in detail. Some short-term declines are to be expected with drought or fire, but any identified sustained declines will trigger a targeted program to investigate and, if appropriate, a change in management.

Adaptive management

As part of the decision-making framework being developed under the program's adaptive management strategy, the process to establish performance benchmarks, analyse the monitoring results and the adaptive management activities that are triggered to adapt the Coastal IFOA to better meet its desired outcomes for fauna species viability will be described.

1.9 Existing programs and data that will inform the strategy

- DPIE EES - Atlas of NSW Wildlife
- DPIE EES - Saving our Species Program
- FCNSW historic monitoring and reporting under existing SMPs, or other species not covered by SMPs
- DPI Forest Science fauna monitoring programs

1.10 How the data will be stored, analysed and presented

Data will be collected and initially stored on FCNSW systems to the standards set out in the Forest Monitoring and Improvement Program data management system, including analysis and presentation, then made available for integration with the state-wide forest monitoring program analysis platform. The Coastal IFOA requires all data and information is made publicly available on SEED or similar.

1.11 Expected strategy outcomes

Evidence that monitoring, management and protection measures contained in SMPs and for the focal species identified for species-specific monitoring support the occupancy and persistence of identified species within relevant Coastal IFOA areas.

1.12 Linkages and uses with the overall NSW Forest Monitoring and Improvement Program Framework

The state-wide and Coastal IFOA landscape-scale environmental values work will monitor trends in species occupancy and is likely to include a broader range of species, which includes some species in SMPs. Where possible, the data from the SMP monitoring will be incorporated into the state-wide dataset for fauna occupancy modelling.

The state-wide program has the following evaluation questions that guide the program:

- What is the occupancy and distribution of forest-dependent fauna and flora species, and what are the predicted trajectories?

Several forest dependent species, as prioritised for the Forest Monitoring and Improvement Program, will be sampled by the proposed monitoring methods. Priority species are still being determined in collaboration with the FMIP technical working group with consideration of the Coastal IFOA requirements.

Part 4: Timeline		
Milestone description	Start date	End date
1. Identification of any additional species to be monitored strictly within the Coastal IFOA framework (i.e. outside cross-tenure forest monitoring)	Completed	
2. Review and analysis of Yellow-bellied Glider SMP data	June 2020	September 2020
3. Yellow-bellied Glider recommendations report	June 2020	October 2020
4. Updated SMPs	July 2020	October 2020
5. Review and analysis of other SMP monitoring data	October 2020	March 2021
6. Detailed design for additional focal species	October 2020	March 2021
7. Other SMPs recommendations reports	March 2020	August 2020
8. Species specific data collection and analysis	Spring 2020	Ongoing
9. Annual SMP review		Each November
10. 3-5 year data trend analysis		By September 2024
11. 5-year review reports		By September 2024