

Little Penguin Toolkit

Section 5

Undertaking Little Penguin surveys and monitoring

The survey and monitoring methods have been designed for use by community groups. Some of the methods described in the table below are relatively simple, non-invasive surveys that can rapidly fill information gaps on Little Penguins.

Please note the following:

- Many of these methods will require specialised training, mentoring and guidance.
- Community groups that are inexperienced or are new should work under the guidance of a mentor with the appropriate permits (an experienced penguin biologist or an experienced state or local government biologist/ecologist holding current Animal Ethics and DPI/PWE Scientific Permits).
- Most surveys will require permission and approval from the relevant land manager(s), and landowners.
- Animal Ethics approval and a current Scientific Permit under the *Nature Conservation Act, 2002* will be required to undertake some survey methods.
- Detailed descriptions of the survey methods are provided.

Overall goals:

1. Determine the past and current distribution of Little Penguin breeding colonies.
2. Estimate the abundance of Little Penguins and attempt to establish trends in selected key populations.
3. Identify and document the number of deaths/predation events, including all relevant information about predators, at Little Penguin colonies.
4. Identify opportunities for reducing threats to penguins on land and at sea.

Objectives:

- To improve understanding of Little Penguins, including colony locations.
- To monitor changes or trends in Little Penguin distribution.
- To identify threats to Little Penguin colonies.

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Community-based survey methods that may be used at different habitat types and locations

<i>Number</i>	<i>Survey method</i>	<i>Sandy beach</i>	<i>Rocky beach</i>	<i>Viewing area</i>
5.1	<i>Presence or absence</i>	✓	✓	✓
5.2	<i>Penguin track counts</i>	✓		
5.3	<i>Regular counts at designated areas</i>			✓
5.4	<i>Colony counts</i>	✓	✓	
5.5	<i>Wildlife camera monitoring</i>	✓	✓	
6	<i>Threat assessment</i>	✓	✓	✓
7	<i>Habitat site assessment</i>	✓	✓	✓

Full colony census

The community based survey methods outlined in this Toolkit are key to monitoring ongoing changes around each colony, they will not detect the exact numbers of penguins within a colony. Methods required to achieve a full census of the colony are quite invasive and therefore require approval from an Animal Ethics Committee to protect surveyors from prosecution under the Animal Welfare Act, 1993 should harm inadvertently come to any penguins while undertaking the survey. It is recommended that a colony census be undertaken periodically (but may be years apart) or undertaken if there is any significant ongoing changes detected using the methods recommended in this Toolkit. To this end:

- Census can't be undertaken without ethics approval.
- Ethics approval cannot be granted without experienced biologist and registration as a Research Institution such as UTAS BirdLife Tasmania or DPIPW.
- Alternatively, consultants may be able to undertake the work.
- Census is invasive and although unlikely can potentially cause damage to the colony/penguins.
- Census is important to determine baseline or allow a comparison to a previous census.
- Methods provided in this toolkit provide valuable information regarding any changes to the colony including population increase/decrease, changes in colony distribution.
 - Any significant changes in observations over time should trigger reporting to MCP and potentially a full census of the colony.

Decision tree for the *survey and monitoring methods*.

The decision tree aims to assist in preliminary discussions with community groups, Councils and land managers in deciding the most suitable method to use at the site.

Question		Data sought	Methods	Permits, skills and training required
1.	Are penguins present in an area?	<ul style="list-style-type: none"> • Presence (yes)/ absence (no). 	<ul style="list-style-type: none"> • Presence or absence • Penguin track counts • Carcasses on foreshore 	See table below for detailed method-specific requirements
2.	If present, how many are there?	<ul style="list-style-type: none"> • Spatial extent (area) of penguins/colony. 	<ul style="list-style-type: none"> • Penguin track counts • Regular counts at designated areas • Colony counts • Wildlife camera monitoring 	See table below for a detailed description of surveys methods, objectives and specific requirements.
			<ul style="list-style-type: none"> • GPS mapping of colony extent • GPS mapping of burrows 	Discuss with PWS/DPIPWE before commencing any field studies.
3.	If present, when are they here?	<ul style="list-style-type: none"> • Temporal data – timing of colony/nest attendance. 	<ul style="list-style-type: none"> • Penguin track counts • Regular counts at designated areas • Colony counts • Wildlife camera monitoring 	See table below for a detailed description of surveys methods, objectives and specific requirements.
4.	If present, what are they doing when they're here?	<ul style="list-style-type: none"> • Data on ecological aspects (breeding, phenology, foraging ecology, burrow occupancy and species composition in colony etc). 	<ul style="list-style-type: none"> • Focussed ecological studies by accredited researchers, MCP, PWS, IMAS, BirdLife Tasmania etc 	Discuss with PWS/DPIPWE before commencing any field studies.

NB: Boxes in yellow indicate Animal Ethics and scientific permits are required and qualified biologists are involved.

Little Penguin survey methods included in this toolkit

A summary table of survey and monitoring methods is below:

Survey method	Survey objective	Monitoring objective	Description	Disturbance level	Supervision /permits required	Level of training required for volunteers	Volunteer skill level required	Animal Ethics approval required
Presence or absence	To determine the presence or absence (distribution) of penguins in a given area.	To identify changes in penguin distribution over time.	This basic non-invasive method will determine if penguins are present or not at a site and may provide an indication of a breeding colony.	Nil	Guidance may be required. No permits required.	Follow instructions in survey method.	Novice.	No, if colony is not disturbed or entered.
Penguin track counts	To identify presence or absence and a rough distribution, and to provide an index of abundance.	To detect changes in presence or absence and provide an indicator of population change over time.	This method can determine the distribution of penguins and may determine the level of activity in an area at the time of the survey.	Nil	Experienced mentor. No permits required.	Onsite training.	Novice.	No, if colony is not disturbed or entered.
Regular counts at designated areas	To provide an estimate of numbers of penguins coming ashore during the year.	To identify variation in the numbers of penguins coming ashore during the year.	This method records the variation in numbers of penguins coming ashore during the breeding and non-breeding seasons in a defined area.	Low, if undertaken using guidelines.	Experienced mentor.	Penguin counters follow set instructions and guidelines. Onsite training required.	Novice.	No.

<p>Colony counts</p>	<p>To provide an estimate of population abundance.</p>	<p>To determine changes in population abundance.</p>	<p>Coordinator sets up survey design and assembles volunteers at specific points to count penguins as they come ashore.</p>	<p>Medium</p>	<p>Coordination of counts by researcher with ethics approval.</p>	<p>Clear instructions need to be provided. Volunteers will need on-site supervision and direction to ensure no undue/unintended disturbance.</p>	<p>Medium.</p>	<p>Ethics approval required.</p>
<p>Wildlife camera monitoring</p>	<p>To provide an index of population abundance.</p>	<p>To determine changes in population abundance over time.</p>	<p>Experts to install wildlife monitoring cameras at major runways to count penguins coming ashore.</p> <p>Volunteers can assist with reviewing camera data.</p>	<p>Low-Medium</p>	<p>Researcher requires permission from land manager and permits from relevant authority.</p> <p>Guidance / training may be required for reviewing camera data.</p>	<p>Volunteers can be trained to review camera data.</p>	<p>N/A</p>	<p>Ethics approval required if cameras placed within colonies.</p>