



Ecological Field Monitoring Protocols Manual

Using the Ecological Monitoring System Australia

Targeted Surveys Module - PROCEDURE ONLY



Citation

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Version

Readers are advised that all modules of the Ecological Field Monitoring Protocols Manual regularly undergo revision. Readers should check the website <http://emsa.tern.org.au/documents> to ensure they are viewing the current version.

Version 3

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Acknowledgements and contributors

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Key components of this module were developed, written, and field tested by the TERN Ecosystem Surveillance team, including by Beth Cox, Rhys Morgan, Tamara Potter, and Carly Steen. Technical components, including the development of the accompanying app, were developed by the team led by Andrew Tokmakoff, including Luke Derby, Matthew, Jin Zhou, Ho Hai Huy Vo, Walid Al Naim, Muhammad Khan, and Michael Doroch. Aspects of the protocols that have been built on by this project are the result of the extensive and ongoing body of work conducted by the TERN Ecosystem Surveillance team, as part of TERN's field-based ecosystem monitoring program. A full list of team members who have contributed is available on the TERN eSupport Services website.

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Front cover photograph: *Caladenia brumalis* (Winter Spider-orchid), Yorke Peninsula, South Australia (J Bignall).

Version control

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The version history of this module is identified below. The version history of the Ecological Field Monitoring Protocols Manual, the methods and data implications, both historical, current and future interpretations of data, are available from the TERN website. Enquiries should be directed to emsa_support@adelaide.edu.au

| Version | Date | Version update overview |
|-----------|-----------------|--|
| 1 | 20 October 2023 | Review version |
| 2 (draft) | 29 January 2024 | Draft version for early release. Note: This includes significant changes from the v1 Review version with a complete re-working of the intention of the module. |
| 2 | 7 January 2025 | Improved paragraph text throughout; added key definition and terminology table; updated spatial information data fields; added metadata collection field controlled vocabulary tables in Appendix 1. |

1 Survey metadata collection protocol

1.1 Metadata collection

1.1.1 Metadata preparation

1. Prior to using the Monitor app, prepare the data and supporting information ready for submission.
2. Ensure the required information is reviewed and available before entering the data in the Monitor app, including:
 - The monitoring location boundary, including the geographic coordinate system, map projection or datum, and ideally represented as a polygon.
 - The survey location dataset should use the Geocentric Datum of Australia 2020 (GDA2020) datum and be projected using the appropriate Map Grid of Australia zone.
 - Citation information for published and unpublished datasets.
 - Information on data accessibility, including any agreements and conditions in place.
 - Information on the data custodian and appropriate contact details.
 - Description of the methods and techniques used, including citation information and links to published methods.

1.1.2 Metadata entry

1. Open the Monitor app and select the Targeted Surveys Module.

Data submitter

2. Follow the prompts to record:
 - *Submitter name* – the name of the person creating the metadata record.
 - *Submitter contact number*.
 - *Submitter contact email*.
 - *Organisation* – the name of the organisation responsible for conducting the monitoring (i.e. the regional delivery partner name).
 - *Organisation email* – list an alternate email to the submitter email (this should be a generic organisation email address, not a personnel's email address).
 - *Secondary organisations* – the name of any sub-contracted or consultant organisations or individuals who conducted the monitoring.
 - *Data licencing comments* – include any key information relating to the data licencing arrangements (e.g. public domain, attribution, attribution-share alike, restricted, delayed release, confidential).

Data identification

3. Follow the prompts to record:
 - *Dataset title* – assign your monitoring dataset a brief descriptive name. This should be a concise and cover the where, what, how, when of the dataset, for example, Golden Ray Reserve, WA, Annual Vegetation Condition Monitoring Surveys, 2019–2022.
 - *Linked datasets* – include the names of any linked datasets from the monitoring program that have been submitted via Monitor previously.
 - *Broader monitoring program* – indicate if the dataset is part of a broader monitoring program, and if so, include comments on the name of the program (and ideally identifying the funding body if applicable).
 - *Dataset version number* – i.e. if data is supplied more than once with, for example, updated species names.
 - *Dataset creation date* – the date the dataset was created.

- *Published status* – indicate if the dataset is published, or not published.
- *Published date* – if published, indicate the publication date.
- *Published dataset location* – if published, include the URL.

Dataset time period

4. Follow the prompts to record

- *Dataset start date* – the date on which the monitoring commenced.
 - Note this is not necessarily a survey start date, but the earliest date of which the monitoring commenced, a series of individual surveys may have occurred since, i.e. annual spring surveys that commenced in September 2019.
- *Dataset end date* – the date on which the monitoring concluded.
 - Note this is not necessarily a survey end date, but the latest date of which the monitoring concluded, a series of individual surveys may have concluded since.
- *Survey frequency* – select the most accurate description that represents the dataset temporal frequency (daily, weekly, monthly, seasonally, bi-annual, annual, biennial, ad-hoc) or input a custom value (Appendix 1).
- *Number of sampling periods* – indicate the number of sampling periods with the dataset (this can be an approximate number).

Monitoring summary

5. Follow the prompts to record

- *Broad monitoring type* – indicate the types of monitoring the dataset includes (indicate as many as appropriate) (Appendix 1).
- *Monitoring scale* – select the most appropriate option (Appendix 1).
- *Landscape category* – select the most appropriate option or input a custom value (Appendix 1).

Survey data

6. Follow the prompts to record:

- *Target taxa* – select all applicable taxa that best describe the dataset (Appendix 1).
- *Target species* (if applicable).
- *Target communities* (if applicable).
- *Data captured* – choose all applicable data types to best describe the dataset or input a custom value (Appendix 1).

Methods summary

7. Follow the prompts to record:

- *Methods citation* – name the reference source (if applicable), include the *name, publisher organisation, version, year*.
- *Methods description* – describe the methods used (the field allows for 600 words).
- *Methods employed* – choose all applicable or input a custom value (Appendix 1).
- *Trap type* – if trapping is selected, indicate the types of traps used (Appendix 1).
- *Surveyor type* – indicate the types of people who conducted the surveys (Appendix 1).
- *Observers* – list the names of any key personnel (optional) that conducted the surveys.
- *Survey period effort* – comment on the total effort employed for each survey period (i.e. if trapping, indicate the number of trap nights, for searches indicate the number of personnel hours conducted).
- *Species determination method* – indicate how the species were determined.

- *Lodgement facility* – name the facility where specimens/samples are lodged (if applicable).

Spatial information

8. Follow the prompts to record information about any spatial data associated with the dataset:
 - *Geographic extent* – use the mapping interface to record bounding box coordinates for the monitoring area.
 - *Geographic description* – provide details (e.g. common place names, landscape features) that indicate the location of the monitoring area.
 - *Spatial data type* – select if the spatial data includes vector (points, lines, polygons) and/or raster (grid) data.
 - *Horizontal resolution* – record the horizontal distance between two data points. For observations within 1 ha plots, select '30 m - <100 m'. For opportune observations and data collected by sensors deployed in the field (e.g. camera traps), select 'Point Resolution'. For transect surveys, use the distance between the points along the transect. For raster data, use the size of the pixels (picture elements) on the ground comprising the imagery.
 - *Vertical resolution* – record the vertical distance between two data points, accounting for the depth of any soil observations.
 - *Temporal resolution* – record the time frequency of remotely sensed data collection. *Survey frequency* is captured in the *Dataset time period* section.

Descriptive keywords

9. Follow the prompts to record any relevant descriptive keywords, including:
 - *GCMD Earth Science Keywords* – search for and select from the relevant earth science keywords (Global Change Master Directory (GCMD) 2023).
 - *ANZSRC Fields of Research* – search for and select from the relevant ecological and environmental fields of research (ABS – Stats NZ 2020).
10. Complete the metadata collection component.
11. The end date and time will populate automatically. This can be changed as appropriate.
12. End the targeted survey. Check the Summary of the data and queue the collection for submission.

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