



Resilient  
Landscapes

National Environmental Science Program

# Before going on Country Night Parrot Acoustic Monitoring with Song Meter Mini (SM Mini)

Standard operating Procedure



# Get ready to go on Country

## Gather your gear

Electronic device(s) – charge ready for use, check data collection systems (e.g., Fulcrum) and navigation system (e.g., Avenza) are loaded, and load site maps.

Song meters and SD cards – one of each for every site you want to monitor.

## Consider

### Training and skills

Preparing rangers trained and competent in:

- Mapping software (e.g., ARCGIS, QGIS)
- Navigation systems (e.g., Avenza/GPS)
- Data collection systems (e.g., Fulcrum/Datasheets)
- Setting up song meters

### Timing

Prepare well before Going on Country so that you have time to gather equipment or train staff, if needed.

### Check Permissions

- Which areas you can go to set up monitoring sites.
- Data sharing permission, and who it can be shared with is determined by the decision makers in the community, and any rules about who can see the data, and when they need to check back in with you for its use.

## Actions

### Plan

1. Plan which dates you will put song meters out and collect them.
  - If you are going to put song meters out for a long time, you may also plan another visit to change SD cards and batteries.
  - A good time to survey can be soon after a good rain.
2. If this is the first year you are monitoring:
  - Gather Night Parrot records in your area and identify where potential Night Parrot habitat is.
  - Discuss with decision makers in the community where you can go to set up sites.
  - Set up data sharing agreements e.g. with the Commonwealth Government if you would like to contribute to a big picture understanding of Night Parrots.
  - Check with decision makers in the community who they are happy to share data with and decide on any rules about the data.
3. Check equipment lists for all steps and get any equipment you don't have. See 'ARU buying guide' for advice on which recording units may be suitable to buy.
4. Plan how you will store the sound recordings, as they can take up a lot of memory.
5. Plan how you will record information on when, where, and for how long each song meter will be recording e.g. Fulcrum electronic data forms.
6. Prepare maps to show where song meters will be placed, e.g. georeferenced PDFs for Avenza, with existing sites and/or potential sites (Night Parrot potential habitat and records).
7. Load maps onto your electronic device(s).
8. Check that rangers know how to use the devices, data collection apps, navigation systems etc. and how to identify Night Parrot habitat.
  - Arrange training if staff don't know how to use equipment or identify Night Parrot habitat.

### **Set Up Song Meters (SM Mini):**

1. Give each song meter a unique name e.g. 'SM01' and write it on the outer cover with permanent marker.
2. Give each SD card the same name as the song meter it will be used with.
3. Insert SD cards into song meters.
4. Download the 'Song Meter Mini Configurator' app to a mobile phone from the app store (it's good to have this app on multiple phones when Going on Country). Ensure Bluetooth on your phone is turned on.
5. Take the front cover off the song meter, insert batteries, and turn the on/off switch (bottom left) to 'On'.
6. Open the app on your phone. You should see your song meter in the list of detected recorders (if this is the first time, it will be the song meter's serial number).
7. Press and hold the 'PAIR' button on the SM Mini, next to the on/off switch, for about 5 seconds. On your phone, you will see a 'Pair' icon next to the song meter number. Tap this to pair the song meter with your phone.
8. Tap the 'Configure' icon that appears next to your song meter.
9. Edit 'Recorder Name' so it is the same as the unique identifier you have assigned the song meter (you only need to do this the first time you use the song meter).
10. Set up the song meter for recording.

### **Song Meter (SM Mini) recording settings:**

1. In the 'Song Meter Mini Configurator' app, tap 'Acoustic settings'. Set the 'Sample rate' to 24000 Hz, set 'Maximum recording length' to 30 mins, leave 'Channel' at the default setting of Left, and leave 'Left channel gain' on the default setting of 18 dB. Return to 'Configure' menu.
2. Tap 'Location & time zone'. Set the Latitude and Longitude for the approximate location where the machine will be deployed. Return to Configure menu.
3. In the 'Schedule' section, tap the box under 'START' and select 'Set' (i.e sunset). Set 'DUTY CYCLE' to 'Always', and in the box under 'END', select 'Rise' (i.e sunrise). The top box in this section should now say 'Custom schedule'. Return to the main screen.
4. Tap 'Status'. Check that the SD card has available space. Check that 'RECORDER TIME' is correct (this is set to the same time as your phone), and that 'START TIME OF NEXT RECORDING' is approximately the time of sunset where the recorder will be placed. Return to the main menu.
5. Tap the 'Unpair' icon and turn it off.
6. The song meter is now ready to be used, when you turn it on in the field, all settings will be retained.

### **Resources**

[Song Meter Mini and Mini Bat User Guide - Wildlife Acoustics](#)

### **Next step**

Going on Country



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## Going on Country

# Night Parrot Acoustic Monitoring with Song Meter Mini (SM Mini)

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# Going on Country

## Gather your gear

### One set of this equipment is needed for each site:

- Song Meter with batteries installed
- SD Card installed in Song Meter
- Star picket
- Cable ties (300 x 4.8 mm size is recommended)

### One set of this equipment:

- Electronic device(s) – charged and ready to record data, take photos and navigate to sites; with:
- Ability to take photos.
- Data collection system (app and form)
- Navigation system e.g., Avenza
- Site maps
- Optional: GPS device to record Song Meter locations
- Hammer or picket driver
- Multi-tool or side cutter for snipping cable tie ends
- Snacks, breakfast and/or lunch
- Water

### Personal protective equipment PPE

- Hat
- Sunscreen
- Sunglasses
- Long shirt and pants
- Gloves
- Boots

## Consider

### Location

Known Night Parrot locations and potential Night Parrot habitat.

Are stock and/or wildlife that might damage the ARUs present? You may need to consider additional set up equipment e.g. guy lines.

### Training and skills

Field staff trained and competent in:

- Field staff trained and competent in:
- Navigation systems (e.g., Avenza)
- Data collection systems (e.g., Fulcrum)
- Setting up song meters
- Identifying Night Parrot habitat

### People

At least 2 people

### Timing

After rain can be a good time to survey for Night Parrots (Murphy et al., 2017)

## Actions

### Choose where to place Song Meters:

1. Visit the sites and decide if it is good Night Parrot habitat. To help you decide:
  - If the answer to all the questions below is yes, you should consider putting a song meter out:
  - Is the spinifex long unburnt?
  - Are there large spinifex hummocks?
  - Is the structure of the spinifex hummocks complex?
  - Is the spinifex open, with very few trees or shrubs?
  - Are there lots of patches of suitable spinifex in the area?
  - Is there suitable feeding habitat in the area?
2. Decide how many song meters you will put out to get good coverage of the habitat. Song Meter Minis can be placed approximately 400 metres apart .

### **Putting the Song Meter out:**

1. Hammer in a star picket and attach the song meter with cable ties. Fixing needs to be tight and secure so that no noise is made from a loose machine moving against the picket.
  - Avoid setting up near objects that will cause noise (e.g. branches etc.). Take into account that grasses may grow near the units if they are out for long periods of time.
2. Set up the song meter so that the microphone is pointed towards the Night Parrot habitat. Ensure the microphone is horizontal, or, pointed slightly down. This allows moisture that collects to drain away. **DO NOT POINT THE MICROPHONE UP.**
3. Take the front cover off, ensure an SD card is inserted into the song meter, and turn it on using the on/off switch at the bottom left.
4. Ensure that all steps in the 'SM Mini set up' and 'Configuration for recording' sections have been completed.

### **Record**

Information to record about each Song Meter deployed:

1. The date the song meter was set up at a site.
  2. The name of the song meter.
  3. The name of the SD card (usually the same as the song meter).
  4. The exact location the song meter is placed on site e.g. mark a waypoint with a handheld GPS device or Avenza.
    - Name the location with the Song Meter's name and the date.
  5. Who put the song meter out on site.
- Suggested information to record about each site:
6. Are there signs of predators e.g. scats or tracks?
  7. What is the fire age?
  8. Any other signs of disturbance, or interesting things worth recording about the site?
  9. Is the site a place where you already know there were Night Parrots?
  10. Capture a photo of the habitat.
  11. What sort of habitat is it?
  12. What are the most common shrub and understorey plant species? What is the size of the spinifex?

### **Service the Song Meter**

1. Check that the song meter is securely attached to the picket and clear of plant growth.
2. Take the front cover off and turn the song meter off using the on/off switch at the bottom left.
3. Eject the SD card and replace with a new SD card.
4. Turn the song meter on using the on/off switch at the bottom left.

### **Record:**

Information to record when servicing a Song Meter:

1. The date the song meter is serviced.
2. The name of the new SD card you put into the song meter.
3. Who serviced the song meter?  
Information to check is correct
4. The name of the song meter.
5. The exact location where the song meter is set up.

### **Collect the Song Meter**

1. Take the front cover off and turn the song meter off using the on/off switch at the bottom left.
2. If you don't plan to reuse the site, remove the song meter and any accessories, including the star picket.

### **Record:**

Information to record when collecting a Song Meter:

1. The date the song meter is collected.  
Information to check is correct
2. The name of the song meter.
3. The name of the SD card.
4. The exact location the song meter was set up.

### **Next step**

After going on Country



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# After going on Country Night Parrot Acoustic Monitoring with Song Meter Mini (SM Mini)

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# After going on Country

## Gather your gear

- Electronic device(s) that you used to record your song meter set up and service data.
- Data management system e.g. cloud storage
- SD cards from song meters
- Computer or laptop
- Bioacoustics sound analysis software e.g. Kaleidoscope

## Consider

### Location

Your office

### Training and skills

Rangers/staff managing data are trained and competent in:

- Use of data collection apps and data management system(s).
- Use of computer.
- Bioacoustics sound analysis software.

### People

At least one data manager.

Ranger team.

### Timing

Download your sound recordings as soon as possible after your site visits so that SD cards are not overwritten or misplaced.

## Check Permissions

Data sharing permission, and who it can be shared with, is given by the decision makers in the community, and any rules about who can see the data, and when they need to check back in with you for its use.

## Action

1. Upload the song meter set up details (when, where, how long and any other site detail etc) to your data management system.
2. Remove SD cards from song meters.
3. Download the recordings from SD cards and upload to your data management system.
4. Check recordings for Night Parrot calls using computer software such as Kaleidoscope. You can choose to skip this step and go straight to the experts.
5. Contact experts to help confirm Night Parrot calls and check for any that may have been missed – Night Parrot calls vary a lot and can be easy to misidentify.
  - Discuss whether these might be related to your management e.g. cat or fire management, to check how well management is working, or if adjustments might need to be made.
7. Share the data according to any data sharing or funding agreements you have made.