Fall ARU Deployment Standard Operating Procedures

- Song Meter Minis -

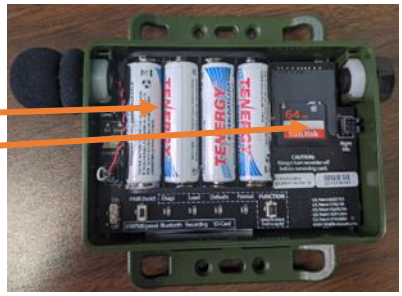
General

The Forest Management and Grassland clusters will use Song Meter ARUs. The Shrub Planting cluster will use AudioMoths instead (see AudioMoth SOP, **not yet written**). If you are unsure what units you should be using, check your state in the WLFW Monitoring Design PowerPoint (downloadable here).

Use this link to watch a video about programing the Song Meter Minis:
https://www.youtube.com/watch?v=LnAUn36WW0E&t=8s

Preparation

- 4 AA batteries
- SD card



<u>ARUs will be set up using a smartphone to set date, time, time zone and location</u>.

- You will need to download the **Song Meter Configurator App by Wildlife Acoustic, Inc.** This app will work with most smartphones or tablets that have Bluetooth version 4.0 or later and run either iOS 10 or later, or Android 5.0 or later. This app will not work with Android devices produced by Huawei.

GET IT ON Google Play

Available on the App Store

ARU Settings for Song Meter Mini

1. Turn on your smartphone's Bluetooth and open the "Song Meter" app.

2. Press and hold the "pair" button on the ARU for ~4 seconds.
    a. If this is your first time pairing this particular ARU with the phone, look for the ARU's serial number to appear in the main menu of the app.
    b. If you've previously paired this ARU with your phone, the ARU will already be listed in the main menu. However, you will still need to press and hold the "pair" button on the ARU.

3. A "pair" icon should appear in the app next to the ARU ID. Click it to create a connection between the ARU and the phone.

4. To adjust the settings, click "configure".

5. Change the "recorder name" according to the following conventions: *UnitID-PointID*, where and *UnitID* is the 5-digit number found on the front and/or side of the ARU, and *PointID* is the 4-digit number representing the location. <u>The recorder name *must* be changed anytime the ARU is moved to a new location.</u>

   E.g., If I'm deploying ARU 10776 at point 1223, the recorder should be named 10776-1223.

6. Go to the "location and time zone" settings and adjust them accordingly.
    a. In the field, you may click the "set" button if you have cell service, but make sure the map shows the correct area where the ARU will be placed.
    b. Or you can program ahead of deployment using the point coordinates.

7. Return to the main settings.

8. No need to set a delayed start, but you may turn the Bluetooth beacon option on to get status updates from the song meter if you wish.

   Additionally, because in-person covey counts are to be paired with a recording ARU, it is recommended that you <u>not</u> set a "date range". This ensures that the ARU will continue to record each morning in the event that weather or unexpected scheduling conflicts prevent you from surveying during the originally anticipated deployment dates.

9. Record data for 1 hour every morning the ARU is deployed (45 minutes before sunrise to 15 minutes after sunrise). Adjust the recording windows in the app so they resemble the following settings:

a.	Start time		hours	minutes
b.	Rise	-	00	45
c.	Time Duty Cycle = Always			
d.	End time		hours	minutes
e.	Rise	+	00	15

Please make sure the highlighted (+/-) signs are exactly as shown above.

10. After setting the schedule, click the “estimated battery and SD card life”. Make sure the dates are as expected.

11. After configuring the ARU, return to the main menu (i.e., the list of previously paired ARUs).

12. Click on “status” to double-check storage and battery levels. This is also where you can check to make sure the SD card is properly seated. Then click the return button to return to the main menu again.

13. When you have completed the programming for the song meter, click “unpair”. The lights will turn off on the Song Meter as the connection between the phone and ARU is disconnected. The lid to the song meter has a list of definitions for what the different lights mean when you click the “function” button on the song meter. At this point, the song meter should be properly programmed and ready for the next recording window.

Important Notes

- SD cards coming unseated during deployment seems to be a recurring issue with the Song Meter Minis.
    - When you insert the SD card, assume it is not seated properly if you don't hear a click the first time. If you don't hear it, remove the card *completely* and reinsert.
    - Secure the SD cards with a small strip of duct tape. Be cautious; please ensure that gum from the duct tape does not build up or jam the port as you remove and replace it during card swaps.

    - Please double check your SD cards as a last step of ARU deployment. Pair the ARU with your phone and click "status". If you see a "no SD card" warning message under "storage info", this means the SD card is not seated properly.
- Ensure the lid snaps on tightly during deployment.
    - Be sure the thin rubber weather strip on the ARU's outer edge remains clean.
    - The lids can be deceiving by snapping on loosely; so please press on the lid to make sure it is snapped on all the way.
- Squirrels sometimes like to nibble on the microphone covers.
    - If you have a location where squirrels are a problem, you can try *lightly* dusting the microphone cover with ground red cayenne pepper or a similarly hot spice.

In the field

At the survey point, one mini should be deployed as following:

1. Drive a 5-foot metal t-post approximately 15-20 cm into the ground using a mallet.
2. Attach the mini to the posts using 2 or 3 zip-ties (or more if needed to secure).
3. Double check that ARU is set to record correctly before leaving.
4. The ARUs are waterproof *if the lid is secured properly* so they do not need to be placed in a bag/undercover.