

# CACTUS WREN SURVEY GUIDE

The general procedure for Cactus Wren surveys is:

- After arriving at the survey location, scan the plot from a good vantage point (usually there is a point on your map that serves as the best vantage point for the plot) looking for new nests and listening for wren vocalizations.
- If no wrens are detected and no new nests are detected, play the Cactus Wren song for 30-40 seconds and then scan the plot for movement/flight and listen for vocalizations. Both the male and female Cactus Wren “sing” and also have several other calls, so it’s worth studying recorded Cactus Wren vocalizations prior to the survey.
- If no wrens are detected but new nest(s) are found, spend some time watching the nests to detect silent birds that may be busy building or attending a nest.
- If you find no Cactus Wrens or signs of Cactus Wrens at the survey plot after 20 minutes, move on to the next plot.
- Cactus Wrens may not respond by vocalizing, or they may “flush” and fly away from a broadcast song, so be alert for any movement immediately after you begin broadcasting.
- At each location, broadcasts shall be discontinued once a wren is detected.
- Total survey time during which vocalizations are broadcast shall not exceed 10 minutes. Total time spent collecting information when Cactus Wren(s) present should not exceed 30 minutes.
- Attempt to re-sight all Cactus Wrens to determine banding status and read color band combinations.
- Attempt to determine breeding status by identifying pairs, dependent fledglings, or active nests.  
Do not approach nests or broadcast vocalizations if you detect Western Scrub-jay, Common Raven, American Crow, Greater Roadrunner, Sharp-shinned Hawk, Cooper’s Hawk, or other nest predators (snakes, etc.) in the immediate vicinity

As a general rule, songs should not be broadcast during Cactus Wren surveys if birds are singing on their own - this makes the broadcast unnecessary for locating birds. As long as you are within hearing distance of a singing bird, you should not need to broadcast the song. However, if you are surveying habitat well beyond the range of the last singing wren you encountered, and you are not picking up birds, you may play the tape to elicit response. As a rule of thumb, broadcast songs no closer than 400 m from the last bird you heard singing. Cactus Wren vocalizations can be heard from a long distance but may also be muttered quietly from within a cactus clump, so you should use care to determine whether your last bird is following you. One way to gauge this is by the length of time that passes between broadcasting the song and having a bird pop up before you. Also pay attention to the direction from which the bird approached you. Be aware that Cactus Wrens can drop out of view into vegetation and move a long distance before coming back into view.

One more comment on using broadcast songs to attract birds for the purpose of viewing legs: if the Cactus Wren does not respond within a minute or so, stop broadcasting and attempt to approach the wren carefully and silently. If birds are going to respond, they usually do so quickly. If they don’t respond, they are more than likely occupied with nest-site searching, nest construction, nest attendance, or other activities that we definitely want to avoid interfering with.

## **Prioritizing Your Activities in the Field**

### **Survey Priorities**

1. Fully cover your survey site and determine the area being used by the Cactus Wrens (could be multiple plots).
2. Resight adult Cactus Wrens.
3. Resight juvenile Cactus Wrens.
4. Determine breeding status (pair, single, transient).
5. Detect nests.

A common issue that occurs in the field is that in our excitement to be working with the birds we can get side-tracked. Becoming “side-tracked” can manifest itself as spending too much time looking at legs for color bands, spending too much time trying to determine whether a nest is being used as a roost or for a brood, etc. This can result in surveys taking longer than they should. So, here are some suggestions as to how to prioritize your time:

1. The first priority is to determine presence or absence of Cactus Wrens within the survey plot. If Cactus Wrens are present, and you follow the protocol above, you should be able to detect Cactus Wrens within 15 minutes of arriving at your survey plot. Be sure to move around the plot to survey from several different vantage points.
2. Once you’ve confirmed presence of Cactus Wrens at your survey plot, it’s time to put effort into leg checks - do this systematically by keeping a list of who you need to check, and who you’ve confirmed - so you don’t spend time looking at a bird you’ve already checked (this is where your smartphone comes in, it’s a little database in

your hands). Both adults should be re-sighted to determine whether or not they are banded, and what their band combos are.


It's worth looking for nests as they can be an indicator of the presence of Cactus Wrens. Unless you are monitoring the Cactus Wren pair, don't check the nest. Nests can be difficult to approach and your presence could attract predators to the nest or damage the nesting substrate. Only females incubate, and they easily flush from active nests, so be careful not to disturb a nest if your survey route (safe path) passes near a nest. Be aware that both males and females will carry nest material to the nest while it's active (building, incubation, and nestling periods). You can notify a nest monitor who may be able to check the nest if they have time. Most likely we're not going to get any "useable" nest data from nests on survey sites; the best we can hope for is to band nestlings (typically a rare event on survey sites due to logistics).

## **First Site Survey**

Surveys should be started as early as it is safe to move through the cactus. While Cactus Wrens are active throughout the day, they are most easily detected in the morning under calm, cool conditions. You will need the following equipment: **smartphone, binoculars, iPod and speaker**, batteries, compass, and a walking stick.

### **Before Beginning Your Survey**


1. Enter Survey Information into Survey123.

Tap  next to Survey Information.

Select Species, Location, and Observer. Ensure all data is correct.

Tap  next to Survey Information to collapse the form.

2. Enter Weather Data into Survey123.

Tap  next to Weather Data.

Fill in Start Time, Start Percent Cloud Cover, Start Temperature, and Start Wind.

Tap  next to Weather Data to collapse the form.


### **Cactus Wren Detection**

1. Enter territory visit data into Survey123.

Tap  under Territory Data.

Fill in all fields.

Enter Resight Data

Tap  next to Resight.

Fill in all fields.

NOTE: If you did not see the legs, select *Unknown* in the 'Banded' field.


If you partially resighted a banded bird, enter the bands that you are sure of in the corresponding field (Left Top, Left Bottom, etc.), "-" in the fields where you are sure there was no band, and select your right and left leg confidence levels accordingly (if you are only sure of one band out of two, select 50, if you only caught a glimpse: 25, etc.). **Add comments for a partially resighted bird** (e.g., saw yellow band but don't know which leg, bird has full combo and one band is red, etc.).

Tap  next to Resight to collapse the form.

Tap  next to Territory Data to collapse the form.

2. Mark territory with GPS (approximate territory center).

Open Field Maps.


Tap  to collect a point; use the default of your current location or move the crosshair to the desired point location.

Fill in all fields.

Create the new feature by tapping .

## End of Survey

1. Enter ending Weather Data into Survey123.

Tap  next to Weather Data.

Fill in End Time, End Percent Cloud Cover, End Temperature, End Wind, and Weather Comments.

Tap  next to Weather Data to collapse the forms.

## UPLOAD YOUR SURVEYS DAILY


### Nest Monitoring

1. Enter territory visit data into your smartphone (See Data Collection manual for graphics).

Tap  under Territory Data.

Fill in all fields.

Enter Resight Data. **You should attempt to fully resight both adults at least one time for each nesting attempt.**

Tap  next to Resight.

Fill in all fields.

NOTE: If you did not see the legs, select *Unknown* in the 'Banded' field.

If you partially resighted a banded bird, enter the bands that you are sure of in the corresponding field (Left Top, Left Bottom, etc.), "-" in the fields where you are sure there was no band, and select your right and left leg confidence levels accordingly (if you are only sure of one band out of two, select 50, if you only caught a glimpse: 25, etc.). **Add comments for a partially resighted bird** (e.g., saw gold band but don't know which leg, bird has full combo and one band is metal purple, etc.).

Tap  next to Resight to collapse the form.

Enter Nest Check Data.

Tap  next to Daily Nest Check. Fill out all fields.

Add comments with as much information as possible (e.g., Male incubating, flushed; Adults scolded; No adults on nest; Male singing nearby). These comments will be extremely helpful in determining the stage of nesting activities when you fill out the end-of-season chronologies.

Tap  next to Daily Nest Check to collapse the form.

2. Make a GPS point in Field Maps for each nest you find and label with territory and date. Change the label to N1, N2, etc. only when confirmed as a brood nest. Then add comments to that point every time you visit the nest. This is the only convenient way to share nest monitoring data between monitors.

3. Enter Nest Vegetation Attributes after Failure or Success (fledging).

Tap  next to Nest Vegetation Attributes. Fill out all fields.

Tap  next to Nest Vegetation Attributes to collapse the form.

## UPLOAD YOUR SURVEYS DAILY

## Habitat Data Collection

After you have wandered through a survey plot and during your first survey, you should collect habitat data at each survey plot. While you are surveying the plot, pay attention to the vegetation. You will want to record the dominant shrub species, the co-dominant shrub species (if there is one), the presence or absence of elderberry (*Sambucus nigra*), the percent of cactus that is dead, the percent of cactus that appears unhealthy, the percent of cactus that is crowded by shrubs or overtopped by vines, and the percent of ground within the plot that is comprised of non-native annual plants.

The habitat data form is part of the Field Maps survey project. Open your Field Maps project and tap on the survey plot where you are working. Enter your username and date. The Site, Location, and Plot number should already be filled in.

**Dominant 1 and Dominant 2:** Decide which shrub species is dominant and select that from the drop-down menu. If you don't see the dominant shrub in the drop-down menu, select "other" and write what it is in the comments. If there is another shrub that seems co-dominant, select that under Dominant 2.

**Elderberry:** Yes if elderberry is present within the plot, no if not. There is a field called "Prev\_Elderberry" which gives the last reliable data for the plot. This is for your reference so you can verify that Elderberry is indeed in the plot (if Prev\_Elderberry = 1) or not (if Prev\_Elderberry = 0). If you disagree with Prev\_Elderberry, look harder and verify that your survey plot world only includes the plot (not just outside) and that you aren't looking at *Nicotia*, *Malosma*, Pepper, or some other elderberry look-alike. Sometimes elderberries die, or trees that appeared dead in the past spring back to life, so there may be differences, but I don't expect differences to be common.

**Shrub\_Vine\_Crowd\_Overtop:** Look at the cactus and determine about how much of it is crowded by shrubs or overtopped by vines. Shrubs and vines can serve as predator access to cactus. This doesn't include grass or other annual plants. Choose from the drop-down menu: 0%, <1%, 1-5%, >5-25%, >25-50%, >50%-75%, >75%.

**Non-native\_Annual\_Cover;** This is the percent of ground that is taken up by non-native herbs and grasses. If cactus and shrubs cover 50% of the plot, the non-native annual cover cannot be greater than 50%. Use the drop-down menu, same categories as for Shrub\_Vine\_Crowd\_Overtop.

**Percent Cactus Dead :** Use the drop-down menu to select the category that best fits how much of the cactus in the plot is dead (see drop-down menu categories above).

**Percent Cactus Unhealthy:** Use the drop-down menu to select the category that best fits how much of the cactus in the plot appears unhealthy (see drop-down menu categories above). Unhealthy cactus is usually grey, shriveled, or has rusty fungal patches or other diseases. Note in the comments if you find the rust fungus.

Also, please note (photos and gps point) if you see any sign of fungal pathogens in the cactus. These look like rust around the spines, with the tissue between the spines and spreading out from the rust blossoms becoming stressed and discolored as well:



If you are unsure, or you suspect you have found these fungal pathogens, please take photos and collect a GPS point.

If you forget to do this on your first survey, please do it on the second survey.