



Hayden Island free-roaming cat survey protocol



Cat with tipped right ear. Photo courtesy of FCCO

Purpose: To develop a baseline estimate of the feral/stray cat population on Hayden Island and to monitor the population trend annually as “Trap-Neuter-Return” and other humane methods are used to reduce the population.

Survey objectives:

1. Estimate the proportion of outdoor pet cats versus feral cats based on owned and sterilized cat characteristics (e.g., tipped ears or collars).
2. Estimate feral cat sterilization rates at the study site.
3. Examine patterns of cat distribution relative to established feeding areas.
4. Derive annual population estimates for outdoor cats within the study area and estimate population growth or attrition.

Study Area: Includes the developed portion of Hayden Island (except for far eastern section of island) as well as adjacent undeveloped area. For the purposes of this project we have divided Hayden Island into five land-use areas: **1) Natural Area, 2) Light Industrial; 3) Manufactured Home Community; 4) Box Store; and 5) Residential/Commercial.** Two of the land-use areas (Manufactured Home Community & Residential/Commercial) have been further subdivided into “plots” to facilitate sampling logistics for a total of **eight land-use area/plots** (See site map below).

What to bring (everything below will be provided by the Audubon unless noted):

- Yellow vest - volunteers should wear these when conducting surveys
- Binoculars (if you don't have your own, Audubon will have some available to borrow)

- Smart phone or camera (bring your own). An Android version 6 or newer must be used for recording survey data via the Talea cat counting app. Those with iPhones can use their phone to take pictures for the project or you are welcome to bring a camera.
- Plot maps (digital maps will be on the phone app but hard copies can be provided if desired).
- Pen and paper (you provide): if kittens or pregnant cats are seen write down their location and nearest house address. Can also do this digitally on smart phone.
- Audubon may provide clipboards, maps, data forms for sites where we don't have the cat survey being done with the cat counting app.

Frequency & timing of surveys:

- Conduct surveys on all transects (i.e. roads/paths) within each of the land-use areas / plots **three times** during the month of September. Assigned days will be announced before the counts and are typically on Sunday evenings.
- Each survey should begin in the late afternoon (approximately 5pm) and finish before it starts to get dark. Surveys typically take between 1-3 hours depending on the plot and cat activity.

Field methods:

- We will **work in groups of 2 or more** for each survey. The observer with the android phone and Talea App will be the data recorder and “navigator” (i.e. make sure the team covers all roads/paths within the plot). Other surveyors can focus on spotting the cats and dictating the data to the data recorder. It's OK to take turns in each of these roles during a given survey but if so, please enter data in the same survey / phone.
- Prior to survey day, you will be assigned a plot to do the survey. The surveyor with the android phone will receive the survey “packages” on their phone in advance of the survey. Each survey “package” will be for one of the eight land-use/plots.
- **Refer to the Talea App instructions on how to use the app to conduct the survey (attached below)**. You can also view the video recording of the cat count training on the [project webpage](#).
- To conduct the survey, start at one corner of your assigned plot and walk at a slow pace along the road (use sidewalk or road – either side of road is fine) or foot path, slowly working your way through all the roads in the plot. The Talea app displays the transect as a blue line and it will track where you are walking with a green line. Try to minimize back-tracking on sections of the road/path you already covered, but inevitably you'll have to do some back-tracking. **Do not count cats when you are back-tracking**. Resume counting when get back to a portion of the road/path that has not been surveyed.
- When a cat is spotted, collect the following data:
 - **Ear tipped?: left tipped, right tipped** (should be right ear as that is the standard for vets), **unknown (?)**. If you don't get a good view please record as “unknown” – we'd rather have you not guess.
 - **Collar?: Collared, no collar, unknown (?)**

- **Age?: Adult** (>6 months); **Juvenile** (betw. 2-6 months); **Kitten** (<6 months); **Unknown (?)**
- **Pregnant?: Pregnant, Not Pregnant, Unknown (?)**
- **Social?: Friendly, Avoided, Unknown (?)**
- **Condition?: Healthy, Unhealthy, Unknown (?)**
 - Cats in “poor” health will show signs of 1 or more of the following traits: loss of fur, notable wounds, visibly malnourished, etc.
- **Color description:** cat type (see cat colors chart below)
- Most cats will be detected visually but you can also count cats you hear if you believe they are ones you haven’t counted yet.
- Please be sure to check for cats under vehicles, bushes, porches, etc.
- **Use binoculars** to help collect ear tip status. At least one person on each survey team should have binoculars. It’s good if at least 2 people on a team can confirm if a cat’s ear is tipped or not. Determining ear tip status can be pretty tricky.
- **Do not count cats that are inside a household (indoors).**
- ***Do not go on private property when doing the survey*** Make your observations from the sidewalk or road.

Submitting data and photos:

- After the survey, remember to **submit the data (see Talea app instructions below for details)**.
- Though not required, we encourage you to take photos of cats and people doing the survey. Please send any photos you’d like to contribute to Joe Liebezeit (jliebezeit@audubonportland.org) Please feel free to call Joe with any questions about this protocol, survey logistics, the Talea cat counting app at his office phone: **971-222-6121** or cell phone **503-329-6026**.

Communication with the public:

While conducting surveys you will likely encounter home owners, business owners, and other members of the public. They will probably be wondering what you are doing. Please be cordial and briefly describe the project and hand them a brochure if they want one. Here is an example script:

“Hi, my name is _____. I’m a volunteer conducting cat surveys on Hayden Island as part of a project with the Portland Audubon, Feral Cat Coalition of Oregon, and others. The information we are collecting is being used to figure out how many feral/stray cats are on the island. The project goal is to reduce the feral cat population using humane methods like “spay/neuter”. We are working with the local community on this effort.”

Try to get back to doing your survey as soon as you can. Just say, ***“We really need to get back to doing the survey, we’ve got a lot of ground to cover. Thanks for your interest.”***

If folks are really persistent, give them Joe Liebezeit’s contact info and tell them you can contact him for more info.

CAT AGE PROGRESSION CHART (Courtesy FCCO)

KITTEN

(2 MONTHS AND YOUNGER)

- Weighs under 2 pounds
- May still be under mother's care
- May be wobbly, not have full coordination



JUVENILE

(2 MONTHS – 6 MONTHS)

- Independent, no longer under mother's care
- Eats solid food



ADULT

(6 MONTHS AND OLDER)



CAT COLORS CHART (courtesy FCCO)

(You do not need to record colors to this level of detail on the data form)

SOLID



BLACK



GREY



WHITE



BLACK & WHITE

TABBY



GREY TABBY



BROWN & WHITE
TABBY



ORANGE TABBY



BUFF TABBY



ORANGE & WHITE

CALICO/TORTI



CALICO
(3 colors in patches)



TORTI
(Orange/black)



DILUTE TORTI
(gray/buff)



TORBY
(Torti with stripes, can
be Torby and white too)

POINT



SEAL POINT



FLAME POINT



BLUE POINT



TORTI POINT



LYNX POINT

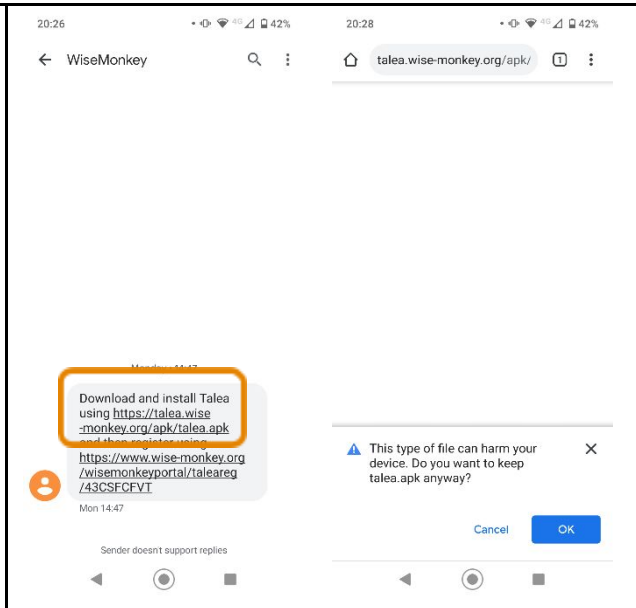
Study site map (white numbers = plot #)



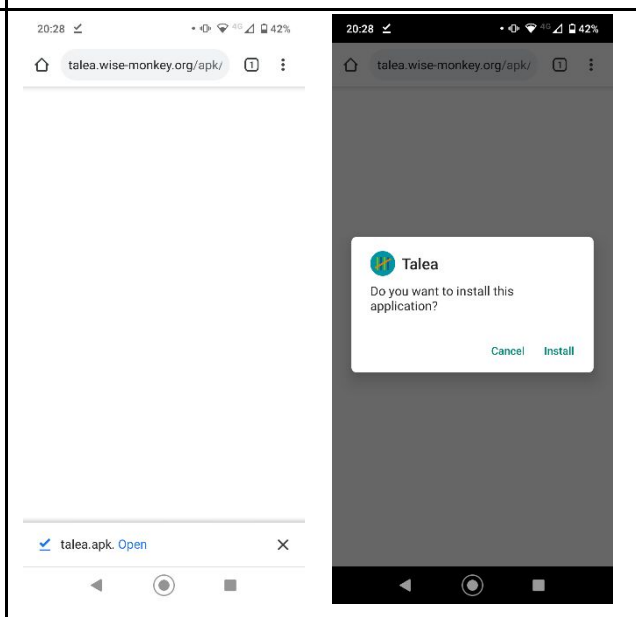
How to use the Talea app

How to set-up Talea app on your Device

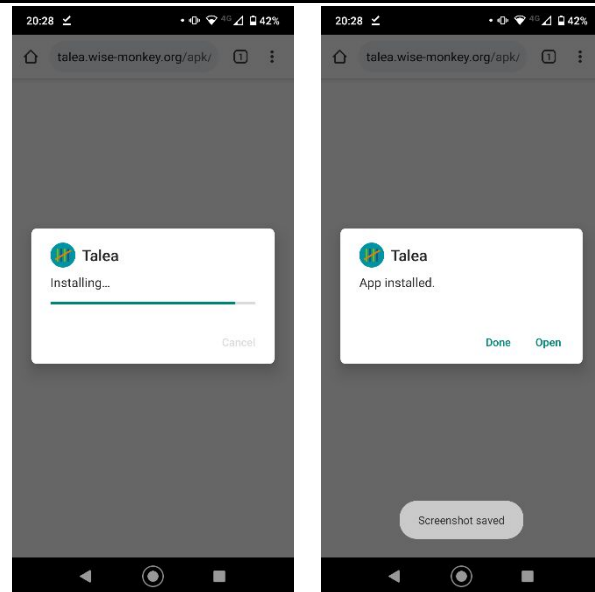
1. When your Device is invited to join a Talea Project you will receive an SMS. This SMS includes 2 weblinks. Click the first link to download talea.apk to your Device.
2. When prompted, open the Talea app.
 - a. *You may need to go into your Device settings to allow installations from unknown sources. You may also have to confirm you want to keep this file.*



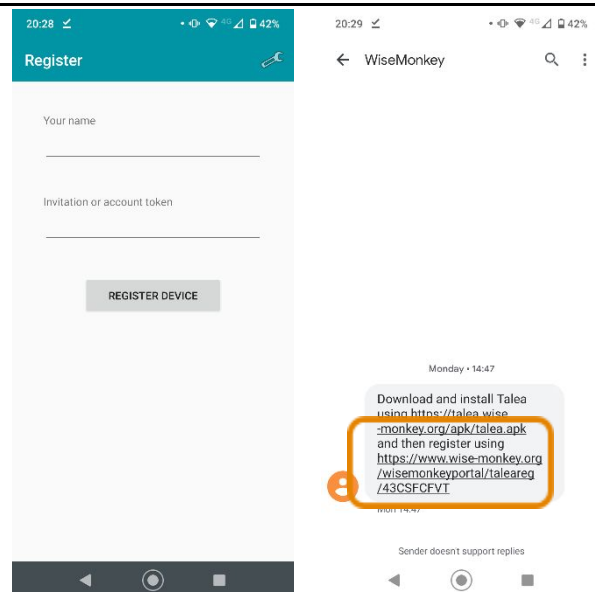
3. Open talea.apk
4. Click 'Install' when asked "Do you want to install this application"



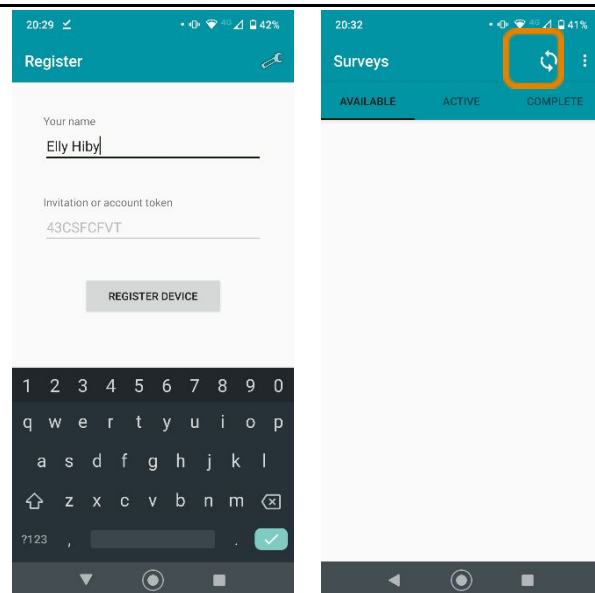
5. Allow the app to complete installation
6. Open the app once it has been installed



7. The app opens in a registration window.
8. Reopen the SMS and click the second link

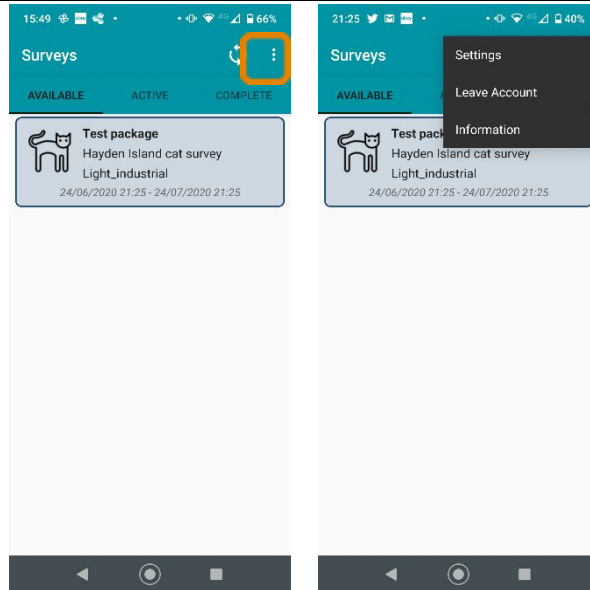


9. The second link automatically enters the token in the registration window. Now include your name and tap 'REGISTER'.
10. This completes the registration process and opens the app. Tap the curved arrows to sync with the Talea Project and received into your AVAILABLE tab any Packages you have been sent.

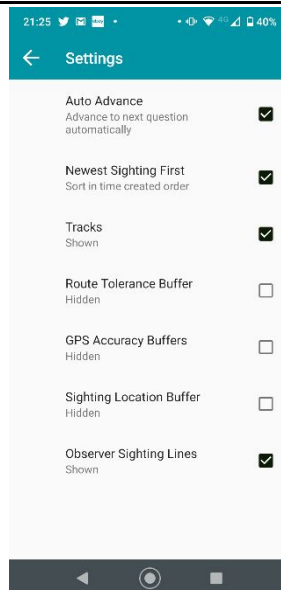


App settings

1. Talea comes with default settings, to change from these default, open the 3 vertical dots menu in the top right of the screen
2. Select 'Settings' from the menu



3. The default settings are shown in the image. Any of these can be changed to the opposite setting by ticking/unticking the tick box.
 - Auto Advance: Moves to the next question automatically as soon as a choice is selected. When unticked you must tap 'Next question' to move on after a choice has been made – this is default for a multiple-choice question.
 - Newest Sighting First: In list view, the most recent sighting will be at the top of the list. When unticked the sightings will be order with oldest sighting first.
 - Tracks: Your track will be shown as well as the Sandbox, in **green** when you are within the route tolerance buffer and **red** when outside. When unticked no track will be shown.
 - Route Tolerance Buffer: Not visible by default. When ticked a translucent blue area will be visible around the route to indicate the extent of the tolerance buffer set when the Sandbox was created.
 - GPS Accuracy Buffers: Not visible by default. When ticked translucent circles will be visible around your

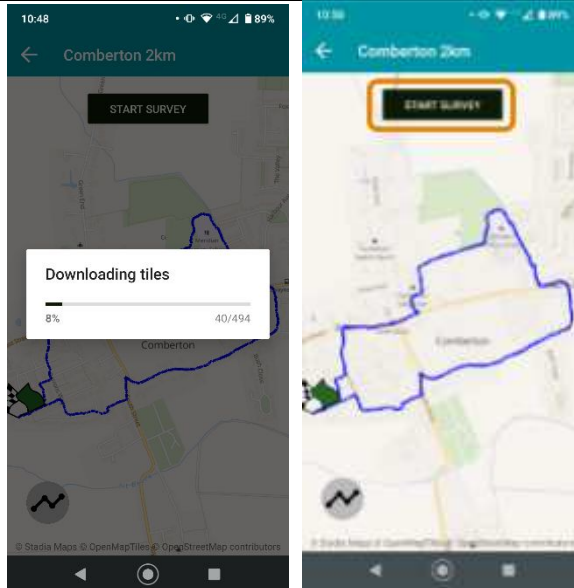


<p>GPS location showing the degree of accuracy, the bigger the circle the lower the accuracy of the GPS coordinates.</p> <ul style="list-style-type: none"> ● Sighting location buffer: Not visible by default. When ticked a red translucent area will be visible around the route to indicate the extent of the maximum sighting distance set when the Sandbox was created. ● Observer sighting lines: A black line between the sighting location and the observer location is drawn when a sighting is recorded. When unticked this is not visible. 	
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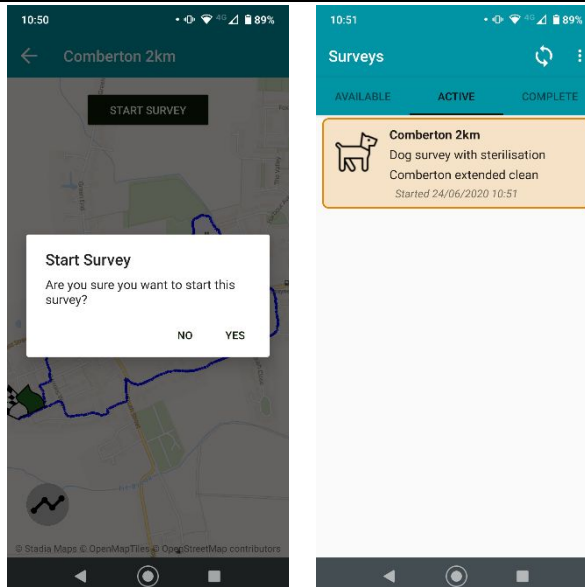
How to start and pause the survey

<ol style="list-style-type: none"> 1. Tap the curved arrows to sync the app with the Project. This will activate any pending app updates or Packages waiting to arrive. 2. When you open the Talea app there will be 3 tabs visible: 'AVAILABLE', 'ACTIVE' and 'COMPLETE'. The 'AVAILABLE' tab includes one or more blue boxes, each box is a Package you can use for surveying. The information displayed in the box is the Package name, Template, Sandbox and the time and date the Package was sent. 3. Tap on the Package you wish to use. 	
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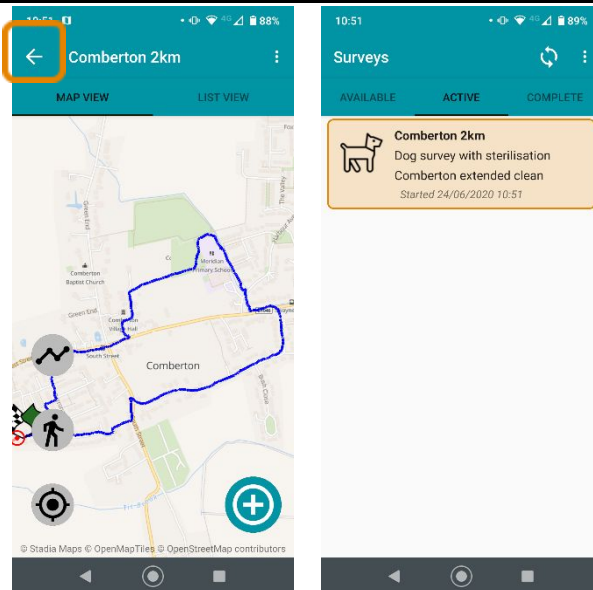
4. The background tiles for navigating the Sandbox will now start downloading to the Device. This first download will require internet access so you may wish to be connected to WiFi at this point. Once downloaded, the map tiles will be available for 90 days on the Device before automatically expiring, during this time you will be able to survey using this Package offline, including navigating the Sandbox.
5. Once tile downloading is complete the 'Downloading tiles' window will close, exposing the 'START SURVEY' box.



6. Tap 'START SURVEY' when you are at your Sandbox and ready to begin surveying. You will be asked to confirm if you want to start the survey now.
7. The Package will now move to an orange box in the 'ACTIVE' tab. Tap the Package to open it.

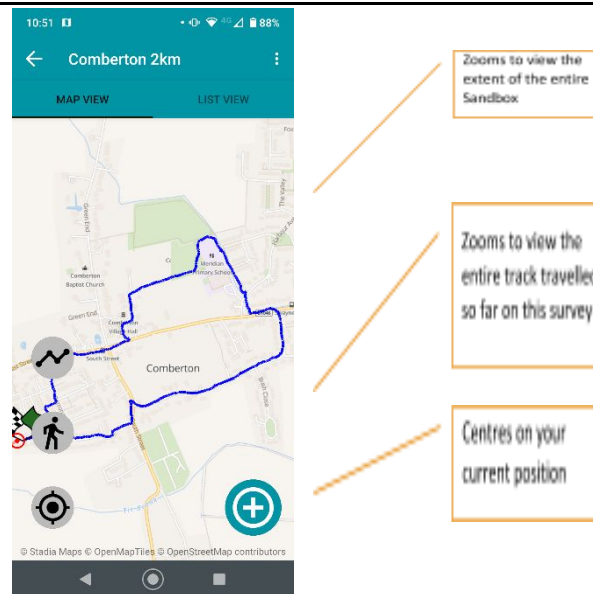


- The survey is now active, your start time and track is being recorded. There are 2 ways of viewing your active survey, the 'MAP VIEW' tab (shown here) and 'LIST VIEW' tab (lists any recorded sightings).
- If you need to pause your survey, tap the back arrow, this brings you back to the ACTIVE tab. Recording of your track and time spent surveying is now paused, track length and time spent surveying in the Analysis will not include time spent in paused status. Tap the Package to resume surveying, this reopens the survey MAP VIEW.

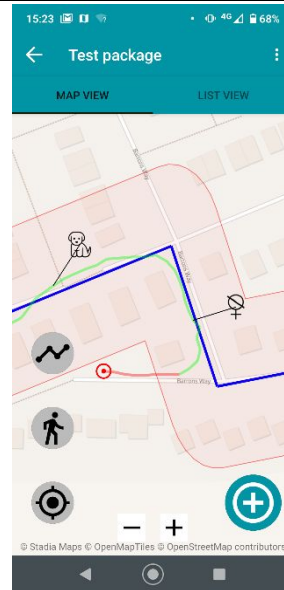


How to navigate in the app

- MAP VIEW has 3 icons for navigation.
- You can also pan and zoom the map using fingertips or the – and + icons visible at the bottom of the screen (visible in the next image).



3. Your position appears as a red dot and circle.
4. A route Sandbox appears as a blue line. A polygon Sandbox as a translucent blue box.
5. Your track appears as a green line when you are with the valid distance of your Sandbox. It turns red when you are outside the valid distance.
6. If your Sandbox was created to 'Require sighting location selection', the maximum sighting distance will be seen as a translucent red zone around your Sandbox.



Extent of maximum sighting distance zone

Blue Sandbox route

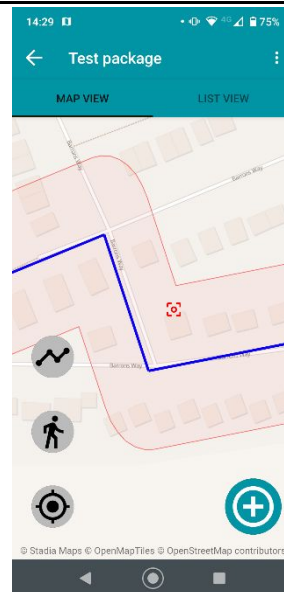
Green track within valid distance

Red track outside valid distance

Your current position

How to add, edit and delete a sighting

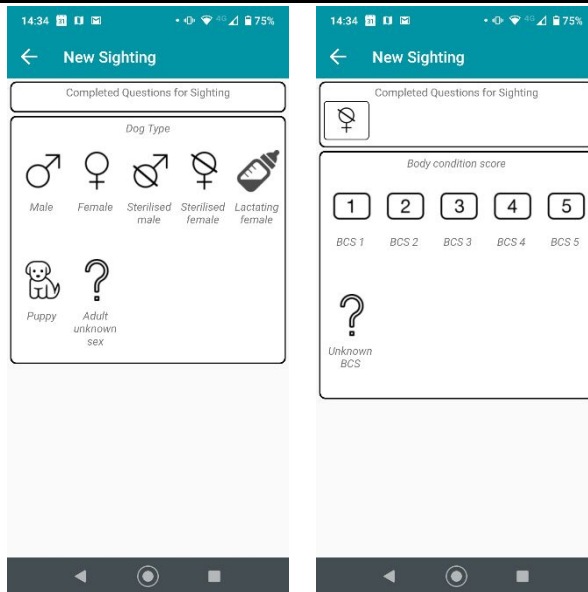
1. If your Sandbox requires a sighting location to be selected on the map, long press on the exact location of the sighting on the map, until the red bounded circle appears. You can change the position by long pressing again, until you have the correct location identified. This stage is not used when your Sandbox is configured to record the sighting as the same as the observer position.
2. To record a sighting, tap the circled "+" icon.



Sighting location indicated by long press

Icon for recording sighting

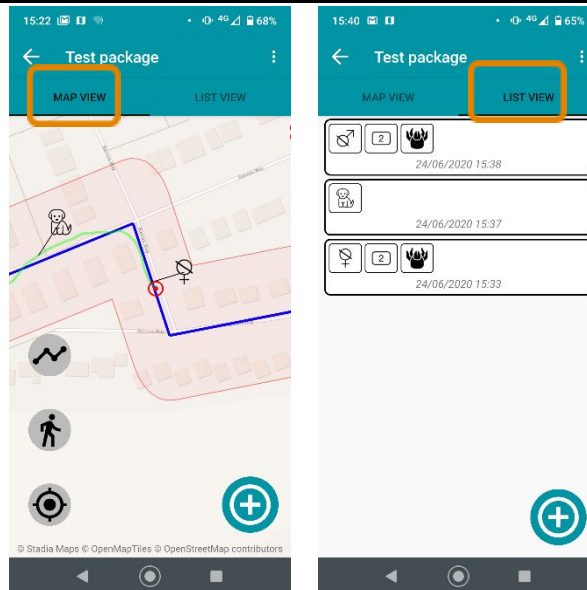
3. This opens the questions to answer for the sighting. The questions are presented one at a time. The question name is written at the top, followed by all the choices indicated by their icon and choice name. Tap the correct choice for this sighting.
4. From question 2 onwards, the answers to previous questions are shown at the top, the next question is presented in the box below. If you have made a mistake, you can tap the answers to previous questions to reopen that question and change choice, this removes any choices from subsequent questions which must then be re-entered.



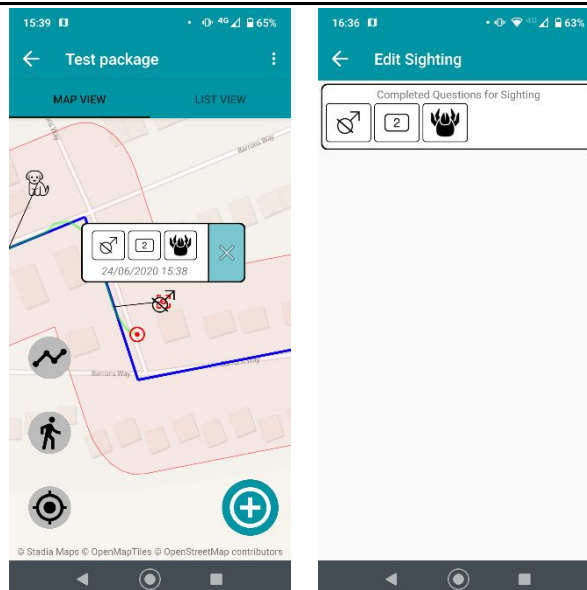
5. Once all the questions have been answered, you will be asked to either 'SAVE&ADD' or 'SAVE'. SAVE&ADD allows you to add another sighting at the same location and starts at question 1 again for this next sighting. SAVE completes this sighting record and returns you to the MAP VIEW.



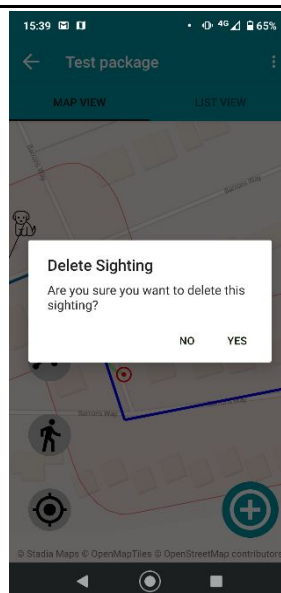
6. Completed sightings are visible on the MAP VIEW, represented by the icon choices from the first question.
7. LIST VIEW tab shows the recorded sightings in a list, the most recent at the top of the list.



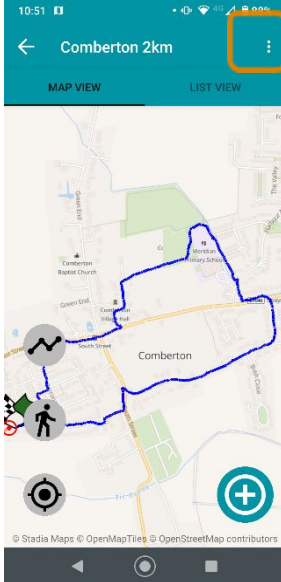
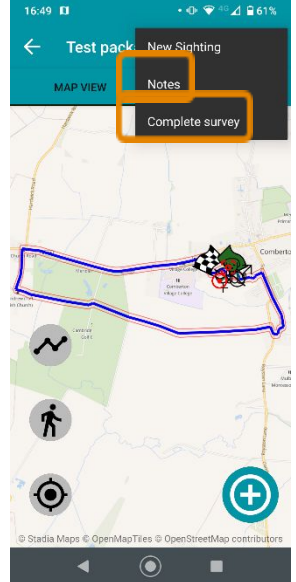
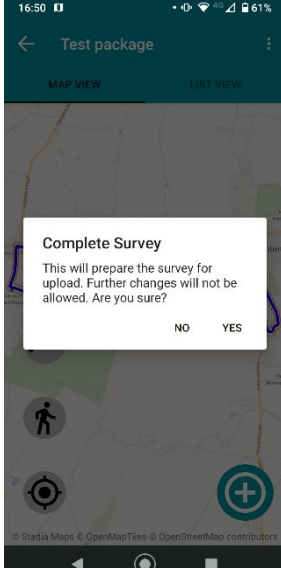

8. To edit a previously saved sighting, tap on the sighting icon in MAP VIEW, this opens a window showing the choices selected for that sighting. Tap this window to reopen the questions relating to this sighting and tap any of the choices that you wish to change. This removes any choices from subsequent questions which must then be re-entered.
9. In LIST VIEW a sighting can be selected for editing by tapping the sighting box in the list.
10. Click 'SAVE' when you have completed your amendments.



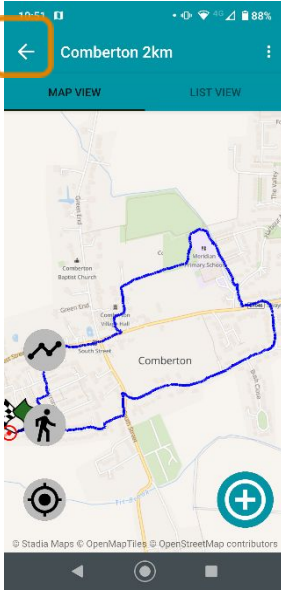
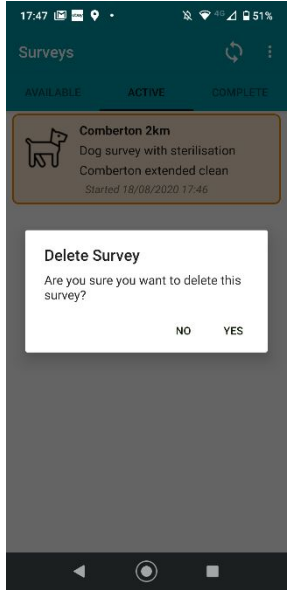
11. To delete a previously saved sighting, tap on the sighting icon in MAP VIEW, this opens a window showing the choices selected for that sighting. Long press on the sighting box to request a deletion, you will be asked to confirm whether you want to go ahead with the deletion.
12. The same can be done in LIST VIEW with a long press on any of the sighting boxes.



How to complete and send a survey to the Project

<ol style="list-style-type: none"> 1. Once you have completed the survey, open the menu. 2. Select notes to add any details about the survey that need to be recorded (this could include comments about the weather or difficulties with the route) 3. Select Complete survey to end the survey. You will be asked to confirm if you want to complete the survey as you cannot amend a survey once it has been completed. 		
<ol style="list-style-type: none"> 4. Once a survey has been completed it will appear in a green box within the COMPLETE tab. 5. To submit this survey to the Project you must tap the curved arrows sync icon. Your data will not be visible in the Project until you have synced. You will need internet access to sync. 6. Once synced, the survey will disappear from the COMPLETE tab. If your Package has been created to be repeatable, you will see the Package is back in the AVAILABLE tab. 		

How to delete an active or completed survey without submitting data to the Project

<ol style="list-style-type: none"> 1. Once a survey is started, you can pause it by clicking the back arrow. 2. This returns you to the Active tab. Long press the orange survey box and you will be asked whether you want to delete this survey. 3. Tap YES to delete this active survey – this removes all data recorded on this survey from your Device. 		
<ol style="list-style-type: none"> 4. You can also delete a completed survey before it has been submitted. Once a survey has been completed it will appear in a green box within the COMPLETE tab. 5. Long press on the green survey box and you will be asked whether you want to delete this survey. 6. Tap YES to delete this completed survey – this removes all data recorded on this survey from your Device. 	