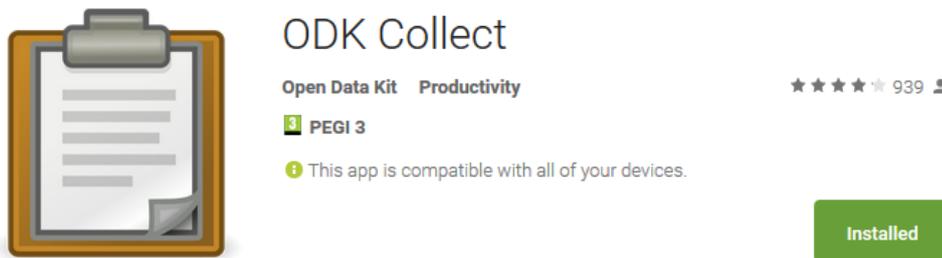# CROWD-SOURCING DATA COLLECTION OF FOREST REGENERATION GROWTH
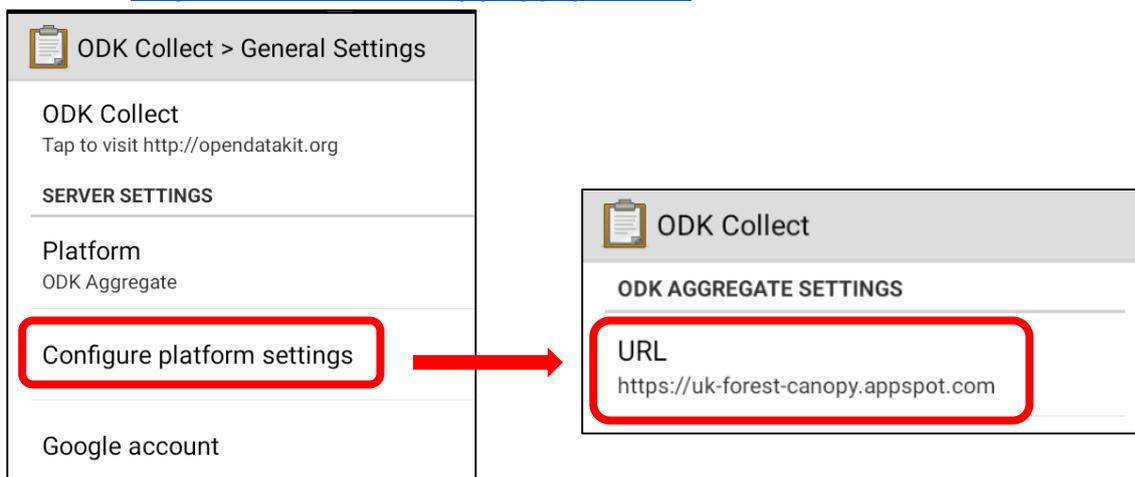
Thanks for joining the project!

If you own an Android device, please follow these 8 simple steps. If you own an OS device, contact me directly for different arrangements since ODK is not available in the Apple Store.

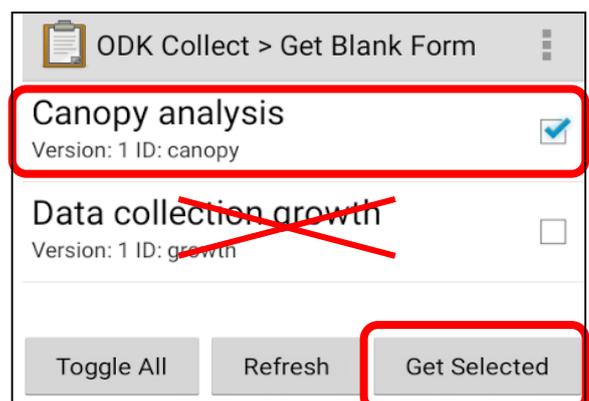*First, set up the ODK app to use the project field form…*

1. Install on your device the free app ODK. What's that? An open-source tool set for mobile data collection, replacing paper forms in the field. Search **odk collect** on Google Play or follow the link: https://play.google.com/store/apps/details?id=org.odk.collect.android

2. Open the app, select **General Settings** (either top right or bottom left, depending on your phone) **-> Configure Platform Settings**. Then click on URL and type this new address: **https://uk-forest-canopy.appspot.com**

3. Go back to the Main Menu and select **Get Blank Form**. You will now see various forms available. Select **Canopy Analysis** and click bottom right on **Get Selected** to download it to your device.
The form will be now present in the **Fill Blank Form** section!

Then, use it for the data collection…

4. Whenever you are in a forest and you encounter a Sitka spruce or a Douglas fir seedling **under 1.30 m height**, growing under any kind of canopy cover, you can collect a data point. Go to **Fill Blank Form** and complete the data entry. Equipment needed: **fish-eye lens and a measuring tape**.
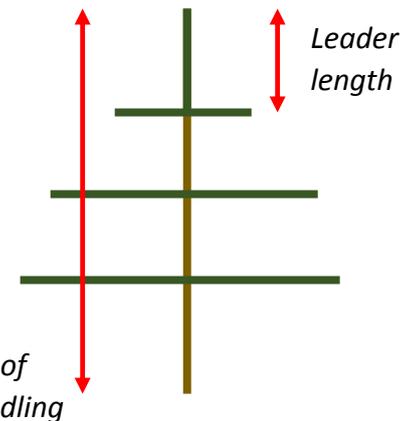
5. Take a look at the form before going in the field. Here are some tips:
    o **Surveyor**: no need for a real name, but please use always the same alias.
    o **GPS location**: it is very important to know the general position of the data. Please wait a moment to let the device record it.
    o **Species**: only Sitka spruce (*Picea sitchensis*) or Douglas fir (*Pseudotsuga menziesii*).
    o **Height of seedling**: to the nearest 0.5 cm, from the root collar to the top.
    o **Leader length**: corresponding to the **full growth of the last year**, from the top to the first node. Approx. to the nearest 0.5 cm. Conifers seedlings have a very simple structure and you should be able to recognize the leader extension clearly.

    Beware: during spring/summer DO NOT measure the length of the new but incomplete leader. Ignore it and measure both the total height and leader length considering the situation of the precedent year.
    If you are not confident about this, check:
    www.simonebianchi.eu/crowdsourcing/fieldwork

    Leader length

    Height of the seedling

6. Set up the fish-eye lens on the device and take a picture towards the canopy, while holding your device above the top of the seedling. Check the tips provided below and in the next page to ensure you are taking a good picture!
    o Please note that you can take a picture directly through the form (**Take Picture**), or select from your gallery one taken in a different moment (**Choose Image**).

Good picture: nice contrast.   Lower quality: overexposed due to direct sun light.   Lower quality: too blurred.

7. When you have completed the form, **swipe from right to left** to go the end. Save and exit the form, being sure that the form is being mark as finalized. You can give it a name for your own records or not, it does not affect the project. Note: Selecting **Edit Saved Form** let you access the old forms, until they are uploaded to the server.

Finally, upload the data to the webserver…

8. Whenever you have internet connection, upload the forms to the server by going to **Send Finalized Form**. Select the finalized forms and click **Send selected** at the bottom right. Or you can tick on the option **General settings -> Auto-send with Wi-Fi** to do the uploading automatically on the background, if you prefer.
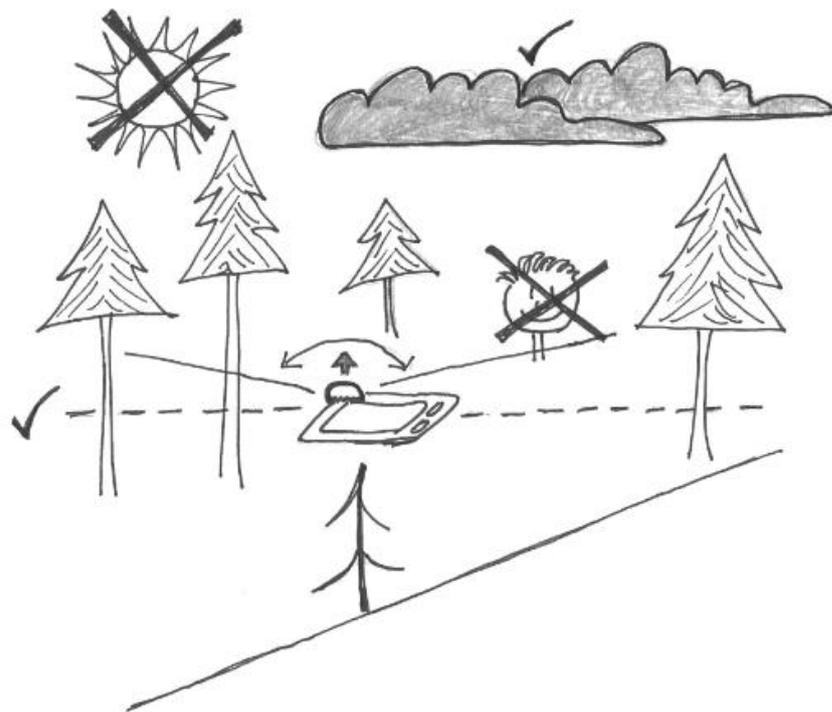
You have done it! Thanks!

- Check www.simonebianchi.eu/crowdsourcing to view the progress of the project.
- As long as Sitka spruce or Douglas fir seedlings are growing under a certain degree of canopy cover, of any species or density or origin, they are eligible for the research.
- There is no minimum requirements of data needed (even one seedling will be useful) nor a maximum number of entries that you can upload. If you are collecting more data in the same forest, as general rule try to sample seedlings distant at least 10-15 m from each other.

Summary of ODK main menu:

To open the Settings Menu – may be located elsewhere (see step 2)

To carry out the data collection in the field (see step 4)

Edit an already completed form (see step 7)

Upload the completed forms to the webserver (see step 8)

Download the form for this project (see step 3)

A brief guide on hemispherical photography of the forest canopy

o Hold the device above the top of seedling.
o The lens must point to the zenith. Keep your device as level to the horizon as possible, not to the ground that may be sloping.
o Avoid pictures under direct sun light, or the image will be overexposed. The best conditions are cloudy days (not difficult in the UK!), or with the sun low on the horizon (after sunrise or before sunset).
o Don't take selfies with the seedling! Hold the camera with your hand above the top of the seedling, and be sure you are not in the picture. I found it useful to set a 2 second timer, or to use the reverse camera if you have one (which usually has a better quality).
o Choose isolated seedlings, so that the pictures is not covered by other regenerating trees growing nearby.
o Before starting the data collection, I suggest you to practice few shots in the forest and check them against the example provided on this document and on www.simonebianchi.eu/crowdsourcing/fieldwork.

Please contact me for any issue! Thanks for joining the project.

Email afp462@bangor.ac.uk; website www.simonebianchi.eu/crowdsourcing