



Cochrane Ecological Institute – Cochrane Research Institute

Monitoring bird populations at CEI on correlation with the weather



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3. Materials and methods

3.1. Study area

The study was conducted in Cochrane, in Alberta, where the climate is mostly characterized by its long and cold winter season. During this time, the days are short, the humidity is very low and there are very few rainfalls. It is a continental subarctic climate according to Köppen Climate Classification. The study focused on the property of the centre, which is 56 hectares, during approximately two months, from October to November 2018.

To observe and to estimate an animal population, you can use 3 main methods, which are camera trap, line transect and track surveys (Silveira et al., 2003). For this study, only two methods were used: camera trap and line transect. The first was at bird feeders, close to the houses. The second took place on the three parallel roads leading from the main gate of the property to the houses (Figure 1). According to Silveira, camera trap is a better method than the line transect one.

3.2. Camera trap method

Camera trapping involves placing cameras to cover the study area and then, bait may be placed to attract animals (Du Preez, 2014). For practical reasons, I only used two cameras (Moultrie, model: MCG-13182, M-40i, 2017) installed in front of bird feeders. They were in timelapse mode, with the following settings: *Interval 5 min, Start 6am, Stop 7pm*. This means that the cameras take a picture every 5 minutes, from 6am to 7pm, because it was the daylight hours and I didn't study nocturnal birds.

Every day and with each camera, I got 157 pictures to sort out to observe the different species of birds present at the feeders. Thanks to this, I was able to create two files: the first one to list the presence/absence of each species, the second to determine the abundance of birds hours-for-hours.

3.3. Transect lines method

The second method I used was the transect lines. This is often used to estimate density and abundance of various species (Buckland et al., 2001). It consists, through direct observations, in collecting data on one or more straight lines and noting the distance of each object perpendicularly to that line (Eguchi and Gerrodette, 2009). I had three transect lines, parallel to each other. This covered an area of 2,2 hectares and I called the different lines Right road,

Driveway and Left road, respectively 330, 230 and 270 meters. I made observations three times a week and I collected data through an application called CyberTracker.

3.4. Software

For the project, I used two software, which I will now explain:

- *CyberTracker*: it was created by CyberTracker Conservation, a South African non-profit company. The aim is to collect data easily in the field (CyberTracker Conservation, 2013). Thanks to this software, I create an application on my phone to record all my bird observations on the line transects. All the data was then transferred to my computer, which allowed me to create a database.
- *Distance*: the founder is Jeffrey Laake, member of the National Marine Mammal Laboratory. This software comes from another one called TRANSECT, which was used to analyse data with wildlife populations samples (Distance development team, 2001).

3.5. Statistics

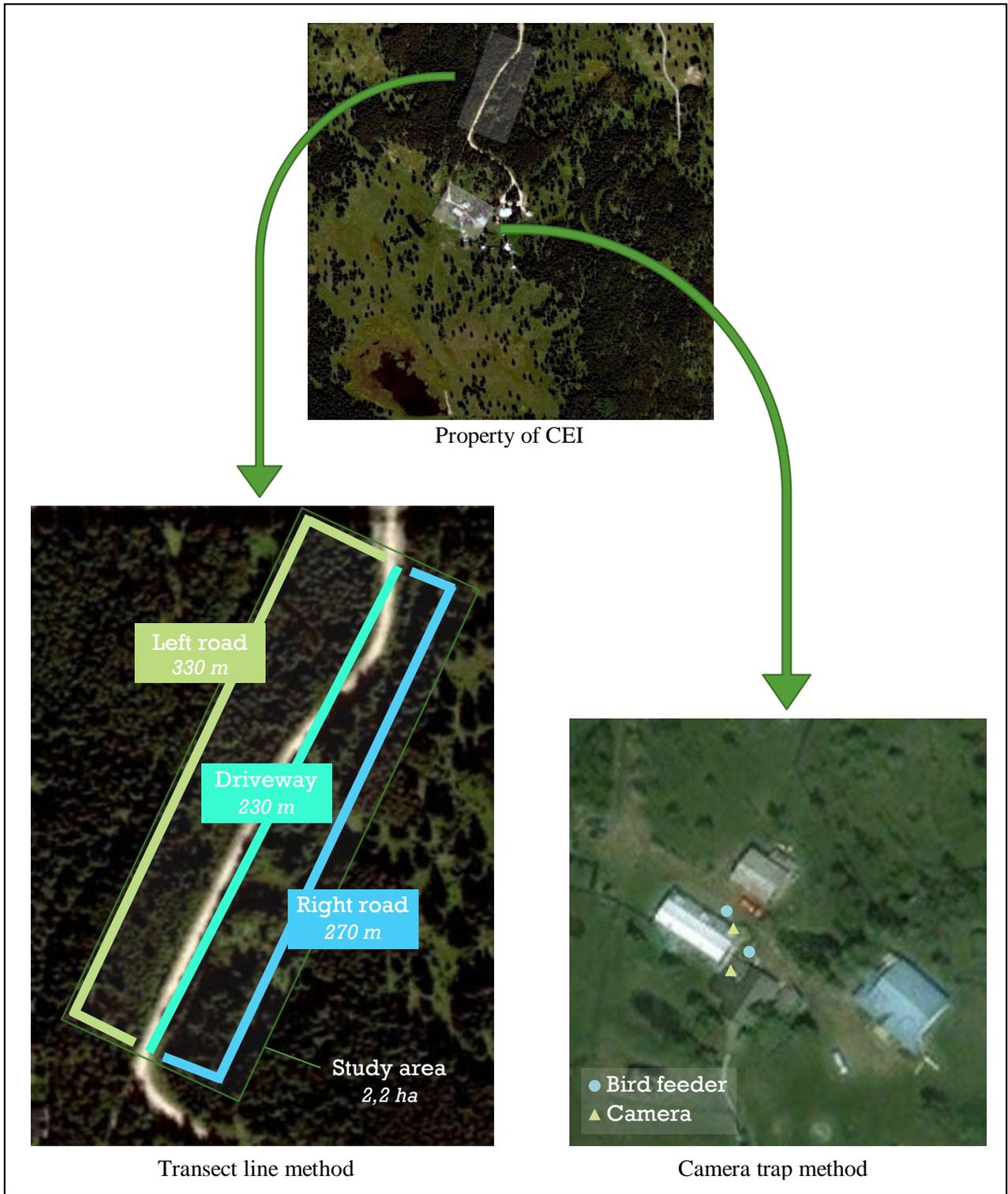


Figure 1: study areas of the different methods

References

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