

Vegetation Sampling Protocol

The vegetation and grid scale sampling will be based on a grid system centered on each point count location (orange dot) of 10 x 10 50-m by 50-m squares, totaling an area of 500-m by 500-m:



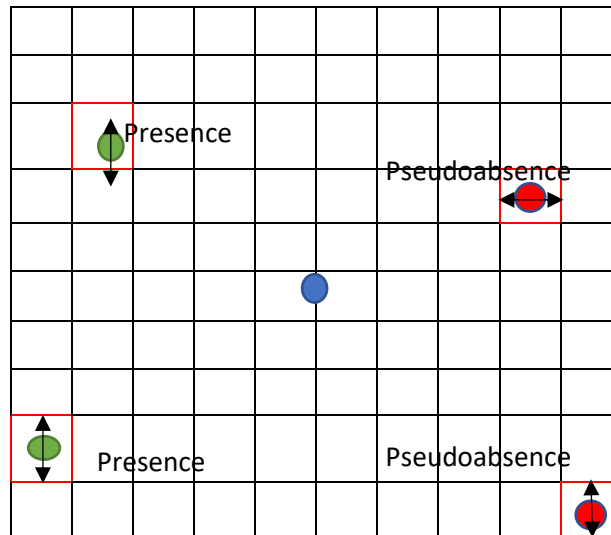
Across each 500-m x 500-m grid we will conduct two different vegetation surveys:

- 1) **Vegetation sampling:** Fine scale plant species and community vegetation surveys in four of the 50 x 50m smaller grid cells
- 2) **Grid scale survey:** A habitat characterization survey demarking major habitat types across the whole 500 x 500 m grid

Survey Type 1: Vegetation Surveys in the 50-m x 50-m grid cells

- 1) The first step **before** going out into the field is to print out the forms. You should have three forms:
 - a) **The point count survey protocol datasheet (point count survey)**
 - b) **The vegetation protocol datasheet (vegetation sampling survey)**
 - c) **The grid scale survey gridded and demarked map (grid-scale habitat survey)**
- 2) Arrive at the point count location and conduct the point count survey following the point count protocol (see Point Count Protocol document). During this point count survey you will mark on the point count datasheet gridded map the most likely locations of all bobwhite heard during the point count by estimating the distances and direction.
- 3) You will now survey four of the 50-m by 50-m grid cells: two should be cells that contain a bobwhite presence point, and two should be cells that contain no bobwhite presences.
 - a. **Presence cells** should be selected in the order in which the bobwhite were seen e.g. select the first and second squares in which a bobwhite was recorded. In the unlikely scenario that bobwhite were recorded in all cells, survey the first four cells where bobwhite were recorded.
 - b. **Absence cells** will be selected randomly – we will provide you with a list of 50 grid squares that have been randomly sampled. You should proceed down the list until you reach the first two squares with no bobwhite recorded during the point count. If no bobwhite were recorded during the survey, select four absences cells following the same method. In the example image below there are four highlighted cells, two with green dots where bobwhite occurrences were noted during the point counts and two with no bobwhite.

- 4) You will now conduct the vegetation survey in each of these four 50-m x 50-m squares. Firstly, at the approximate point you saw or heard bobwhite, mark a 20 m line transect (see black arrows in diagram below) using a measuring tape across the grid square intersecting the bobwhite point, or in the absences squares, as close to middle as possible.



- 5) At every 5 meters along the line transect, place a 1-m x 1-m quadrat (Daubenmire). You will need to classify elements within each quadrat as either:

- **Tree (A woody perennial of > 5m height)**
- **Grass (Please identify and note the dominant, and a co-dominant grass species)**
- **Bare**
- **Litter (Dead woody stem less than 10 cm tall or any dead plant material on the soil surface which was not rooted in the ground)**
- **Forbs (None-woody broad-leaved plants. Also, please identify and note the dominant, and a co-dominant forb species)**
- **Shrub (A plant with a persistent woody stem with several basal shoots and < 5m in height. Also, please identify the dominant, and a co-dominant shrub species)**

- 6) Estimate the percentage ground coverage measurement of each of the elements listed above, by visually examining each quadrat from a height of approximately 1.37 m above the ground using the Daubenmire framework. Divide specific cover percentage into categories as shown in below table.

Class	Range (%)	Midpoint
1	0-5	2.5
2	5-25	15
3	25-50	37.5
4	50-75	62.5
5	75-95	85
6	95-100	97.5

(Please see this YouTube video to further understand the Daubenmire framework and its working and calculation: <https://www.youtube.com/watch?v=wKcKQzNbsds>).

- 7) At each 5m interval, you will also estimate visual obstruction and vegetation height using a Robel pole. Record the lowest reading at 5-cm intervals visible on a 2.5-cm diameter pole, read from 4 m in 4 directions, 90° apart, from 1 m above the ground.

(Please see this YouTube video to understand Robel pole measurements: <https://www.youtube.com/watch?v=iNgeeevOT3s>).

All results will be recorded in the vegetation survey datasheet:

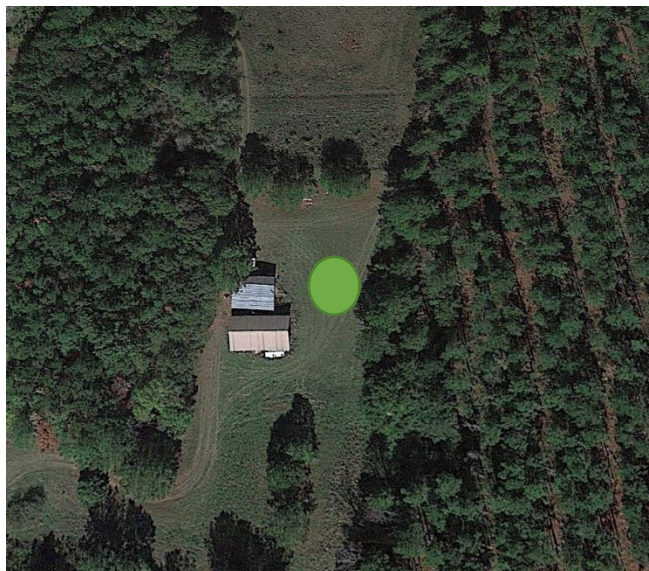
****Please see example recording sheet ****

Survey Type 2: Grid scale landscape survey across the 500-m x 500-m grid

As well as the vegetation survey, you will also conduct a broad grid scale survey across the whole 500-m by 500-m grid using an aerial image. The idea of this is to ground truth the aerial image and to identify the main broad types of habitat around the point count location.

Conduct the grid scale survey after the point count and vegetation survey:

- Use the grid scale survey gridded and demarked map. This map will show the same gridded area as the point count and vegetation survey, but will also show areas of the landscape that have been demarked that you need to verify (see an example below).
- Demarcate all habitat types that you can identify on the ground by **shading or annotating the map as detailed as possible**. These are the major habitat types we would like you to record if accessible and possible to identify:
 - **Forest stand and main species**
 - **Other tree stands**
 - **Understory of all forests and main species**
 - **Grass**
 - **Shrub**
 - **Buildings/ roads**



Your Map

