**Measurement of the distribution and abundance of plants in a habitat STUDENT**

**Introduction**

This activity makes use of interrupted belt transect sampling. This method of sampling is ideal for investigating the progressive change in the distribution and abundance of several plant species in a habitat.

**Aim**

To survey a habitat using interrupted belt transects and to use this technique to produce and present informative data.

**Intended class time**

* 1 hour to collect data (graphical presentation will be carried out at a later date)

**Equipment (per group)**

* Frame quadrat
* Tape measure (30 m long)
* Marker pegs
* Recording sheet with clear folder/plastic bag to cover it in case of rain
* Key or method of identifying species in area of study

**Procedure**

1. Your teacher will tell you about the habitat that you are going to survey and the length of your transect. Make a note of these.

**Habitat**……………………………………………………………………………………………………………………………………………………..

**Length of transect**…………………………………………..
2. Your teacher will also tell you the starting point and end point of your transect. Mark these points with pegs. If your end point is not visible from your starting point you will need intermediate pegs so that you can always see the line of the transect you are working.
3. Lay down the tape measure from your starting point along your transect. Your transect will be longer than your tape so you will need to re-lay the tape periodically as you work along the transect. On each occasion look to the end point (or the next intermediate marker peg) to ensure you are continuing in a straight line.
4. You will need to take at least 8 samples along your transect and up to 20 might be useful especially if there are several changes in the abiotic and/or biotic conditions along your transect. Your teacher will tell you how many samples you will take. Work out the necessary gap between each sample point such that your final sample will occur at the end point.

**Number of samples**……………………….. **Gap between samples**……………………………………..
5. Carefully place the quadrat at the starting point so that the left hand back corner is at the start of the tape measure and the left hand edge runs along the tape measure. Thus your quadrat sample is immediately to the right of your tape measure as you work along the transect.
6. Identify the species present in the quadrat using the key provided and then count the numbers of individuals of each species present. Record this information in a suitably designed table.
7. Find the next sampling point by moving the ‘gap’ distance you calculated in step 4 along the tape measure. Place your quadrat to the right of the tape measure as before.
8. Repeat steps 6 and 7 until you have reached and sampled the end point.
9. Make an annotated drawing of one of the plant species. Your teacher will tell you which species to observe and draw.

**Species**:……………………………………………………………………………………………
10. Note down any additional observations you have made during the survey about the nature of the site and the habitat along your transect. Read the extension questions before leaving the survey site to be sure you have observed and noted anything that might be useful in answering these questions.
11. Choose a suitable way to present the data you have gathered.
12. Describe the changes you see in plant species and abundance along your transect and suggest an explanation for these observations.

**Extension questions**

1. What other information should you gather at the survey site in addition to your interrupted belt transect?
2. What evidence, if any, did you find of the presence of animal species in this habitat?
3. Based on the data collected and your observations of the site, predict how the species abundance and distribution along your transect is likely to change over the next one, five and twenty years.

**To submit**

For this piece of work to count towards Practical Activity Group 3 of the GCE Biology Practical Endorsement, you need to have evidence of the data collected from all the quadrats along your transect and the drawing of the named plant species you observed in the field. You also need to have a graphical representation of the data you have gathered.