

# Quadrats Online: Student Worksheet



Elsbeth Swan ©

## Activity 1

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### Calculating species density (Levels 6 & 9)

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### Introduction

If you were asked to determine how many types of plants were present in an area, how would you do this?

You are going to carry out an activity that simulates measuring densities of different plant species in a grassland area. Obviously in many cases it would be impossible to simply count the numbers of each plant in an area, especially if the area was large and there were many plants.

Instead, we count the numbers of plants that occur in a smaller space using quadrats.

Before beginning this activity you need to discuss the answers to the following questions.

If we are looking at a total area of 100 m<sup>2</sup>

- a) What shape should our quadrats be?
- b) What size should they be?
- c) How many quadrats should we use? Remember that a minimum of 2% of the total area is required.
- d) How do we decide if a plant lies inside or outside a quadrat?

### Activity

1. Obtain a copy of the 'Calculating species density' grassland map for this activity.
2. Determine a method to randomly select quadrats using the grid provided.
3. Complete the results table below.

### Results

Quadrat Number	Number of native grasses	Number of large trees	Number of small herbs	Number of shrubs
Average number per m <sup>2</sup> (Density)				

## Interpretation of results

1. Why was it important to choose the positions of the quadrats randomly?

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2. How did you decide whether a plant was inside or outside a quadrat?

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3. If you were working in the field, can you list any other difficulties you may need to overcome?

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4. How would you ensure that you did not damage the environment you were surveying?

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5. Do you think your results give an accurate representation of this grassland area?

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## Conclusion

6. Why are quadrats useful when determining plant densities in an ecosystem?

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7. Could quadrats be used for any animal species?

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