**Sand Dunes Transect Survey Sheet**

**Area of Transect:** East Head  **Name Date**

|  |  |
| --- | --- |
|  | **Stations** (tick if species is present) |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** |
| Distance from last station (m) | **0** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Distance from station 1 (m) | **0** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Air Temperature (oC) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Soil Temperature (oC) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wind Speed (m/s) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| % ground cover: organic (plants) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| % ground cover: inorganic (sand, mud) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Plant Species** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **English Name** | **Scientific name** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Marram Grass | *Ammonphila arenaria* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lyme Grass | *Leymus arenarius* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sand Couch | *Elytrigia juncea* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Seas Spurge | *Euphorbia paralias* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Common Catsear | *Hypochaeris radicata* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Red Fescue | *Festuca rubra* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ragwort | *Senecio jacobaea* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sand Sedge | *Carex arenaria* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bramble | *Rubus fruticosus* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Groundsel | *Senecio vulgaris* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Centaury | *Centaurium erythraea* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lesser Hawkbit | *Leontodon hispidus* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Silverweed | *Potentilla recta* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Buckshorn Plantain | *Plantago coronopus* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pearlwort | *Sagina spp.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| White Clover | *Trifolium repens* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hairsfoot Clover | *Trifolium arvense* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Birdsfoot Trefoil | *Lotus corniculatus* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chickweed | *Stellaria media* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Grass species |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Marsh Bedstraw | *Galium palustre* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Marsh willowherb |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Moss species |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lichen species |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Common cudweed | *Filago vulgaris* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Common polyplody | *Polypodium vulgare* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rush | *Juncus spp.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Number of Species** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Choose your abiotic factor to investigate.** You will be examining how this factor affects the number of species present. You can now fill in the table with the data linking your abiotic factor and species number.

These results can be represented as a scatter graph.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \_\_\_\_\_\_\_\_\_  (x) | Rank | No of species (y) | Rank | d | d2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

When writing your report you should examine your graph and consider the following questions:

* Is there correlation between your abiotic factor and the number of species?
* What could the biological explanation for this be?
* How strong is this correlation? You can now calculate Spearman’s Rank **correlation coefficient.** The other columns in the table are for you to assign ranks, and calculate the difference between them (*d)* and then square this number *(d2)*. See the helpsheet on how to calculate Spearman’s Rank Correlation Coefficient if you are unsure.

Correlation coefficient, rs:

$$r=1-\frac{6Σd^{2}}{n^{3}-n}$$

Your value of *rs* will give you some indication of the correlation between your abiotic factor and the number of species, but is it *statistically significant?* You should use the table of critical values to work out a probability that your result occurred by chance. Add a section to your writeup explaining the statistical tests you have done, and what these numbers tell you about your results.