Alex Graff

Aim: To find out how and why the plants growing on a heathland slope change and vary as I move downhill.

Introduction

The New Forest is situated in Hampshire on the South Coast of England, and it covers over 90000 acres. When William the Conqueror became King of England in 1066 he set the New Forest aside as a Royal hunting Forest in 1079, for private use only. He cleared the woodland to aid hunting, and heathland, scrub vegetation grew in place of the trees. Many types of plant grow on the heathland, heather is the most common and comes in three types. Various environmental factors affect the type of plant and it's location, I will be investigating these factors, such as soil type, weather, climate and aspect and drawing conclusions based on fieldwork carried out on Blackwell Common in late June.

Hypothesis

I predict the top of the slope will be dry because it is likely to be permeable due to gravel rocks beneath, and the bottom of the slope will be more moist because it is likely to be impermeable due to clay rocks beneath.

I predict the top of the slope will have less nutrients, lower pH because water has passed through, leached the nutrients the nutrients and left Hydrogen Ions, the bottom of the slope will have more nutrients, higher ph because water washes nutrients to the bottom of the slope.

I expect to find that the dry zone will be at the top of slope,
mid zone will be in the middle of slope,
wet zone will be at the bottom of slope.

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Method

Slope Profile

Measure:

- Slope angle
- Distance of facet

Equipment:

- Ranging pole x3
- Optical clinometer
- Tape measure

Soil Analysis

Equipment:

- Soil Auger
- pH kit
- Texture chart
- Moisture metre

a) Depth of sample
b) Colour
c) pH
d) Texture
e) Organic content
f) Moisture level

Metho d:

- Test tube > 2cm soil + 1cm Barium Sulphate
- Distilled water to 1st line
- Universal indicator to 2nd line
- Bung
- Shake
- Leave to settle

Slope Transect (plant content)

Equipment:

- Tape measure
- Quadrat
- Plant identification chart
- Moisture metre

- Every 5m lay quadrat
- Record plants in quadrat and % of ground covered by plant
- Record moisture

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Risk Assessment

There are many possible hazards and risks when carrying out fieldwork:

- Surface conditions, can cause injury.
- Exposure to weather, wind rain.
- Ticks can cause limes disease.
- Sunburn, sun cream needed.
- Dry for previous 2 months then torrential rain.

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Analysis

Slope Profile

Top: Steep slope, average decrease of -13°, highest decrease of -31°.

Middle: Gentle slope, average decrease of -5°, and highest decrease of -11°.

Bottom: Gentle slope, average decrease of -8°, highest decrease of -15°.

Soil

Depth of sample was kept constant at 9cm.

Colour was dark brown at top, purple in middle and light brown at bottom. Purple anomalous result was not expected and could be due to fertilizers or chemicals.

pH got higher as we went down the slope, due to water passing through the soil, leaching the nutrients and leaving hydrogen ions, causing the lower pH at top of slope.

Moisture increased from 0 at top in the Xerophyte zone, to 2 in Mesophyte zone and 3 at in the Hydrophyte zone because of the gradient of slope, and there is permeable gravel rocks beneath surface at top and impermeable clay at bottom.

Texture changed predictably from silt loam at top, clay loam in middle, to clay at bottom.

Soil at top contained small and large roots, rotted vegetation and peat, small roots were found in the Mesophyte zone, very little organic matter was found at the bottom save a few roots.

Slope transect (plant content)

Purple Moor Grass, Ling, Bracken, Bell Heather and small amounts of Cross-leaved heather, Bramble, Bent Grass, Bare ground and Tormentil were found near the top of slope.

More Tormentil, Bare Ground, Bent Grass, Ling, Purple Moor Grass and Cross-leaved Heather was found in the middle, Bog Myrtle, Gorse, Carnation Grass and Deer Grass was also found.

Bog Moss, Bog Myrtle, Sundew, Bare Ground, Cross-leaved heather, Purple Moor Grass, Bracken, Bent Grass, Tormentil, Carnation Grass and Deer Grass were all found in the Hydrophyte zone.

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Plant chart shows the different plants and where they are found on the slope extremely well using a helpful colour range.