GEOGRAPHY COURSEWORK

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VISITOR IMPACT ON EPPING FOREST

Contents

Visitor Impact on Epping Forest

Introduction
The purpose of this coursework is to find out about the impact which visitors have had on Epping Forest. Epping Forest has recreational, aesthetic and educational values, so is a perfect place for visitors. I feel that considerable damage has probably been caused to the environment due to the large number of visitors, and it is with this coursework where I will try to find out whether I am right. After analysis of my results I will also try to find ways in which any problems can be solved and bad situation can be improved.

Aims: To find out: what attracts people to Epping Forest?
             ,what activities do people do in Epping Forest?
             , what impact do visitors have on the environment?
             ,how well Epping Forest is being managed?

The Location
Epping Forest is located just north of London. It is the largest open space in the vicinity of London and Essex – in fact it is the largest open space near any capital city in the world that has never been ploughed or cultivated.

The A104 a main road goes right through Epping Forest. The main road which goes away from Epping Forest is M11 from Woodford (page 2). You can also take the central line eastbound. As you can see from this map, you can get to Epping from main stations such as Liverpool Street, Stratford and Bank.
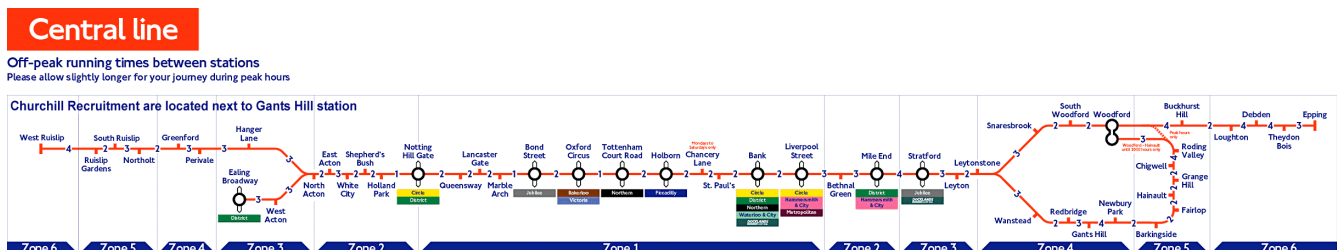

Figure 1.0

History

Prior to 1878, Epping Forest was used as a burial place, farming area, hunting area and for timber. In 1878 the corporation of London took over Epping's conservation for recreation and paths. They passed the Epping Forest act and Epping was made a protected area. They looked to maintain open space for recreation and maintain Epping's 'natural aspect'.

1 Copt Hall Green
2 Ambresbury Banks
3 The Ditches
4 Wake Valley Pond
5 Great Monk Wood
6 High Beach
7 Loughton Camp
8 Fairmead Bottom
9 Gilwell Park
10 Chingford Plain
11 Connaught Water
12 Queen Elizabeth's
   Hunting Lodge
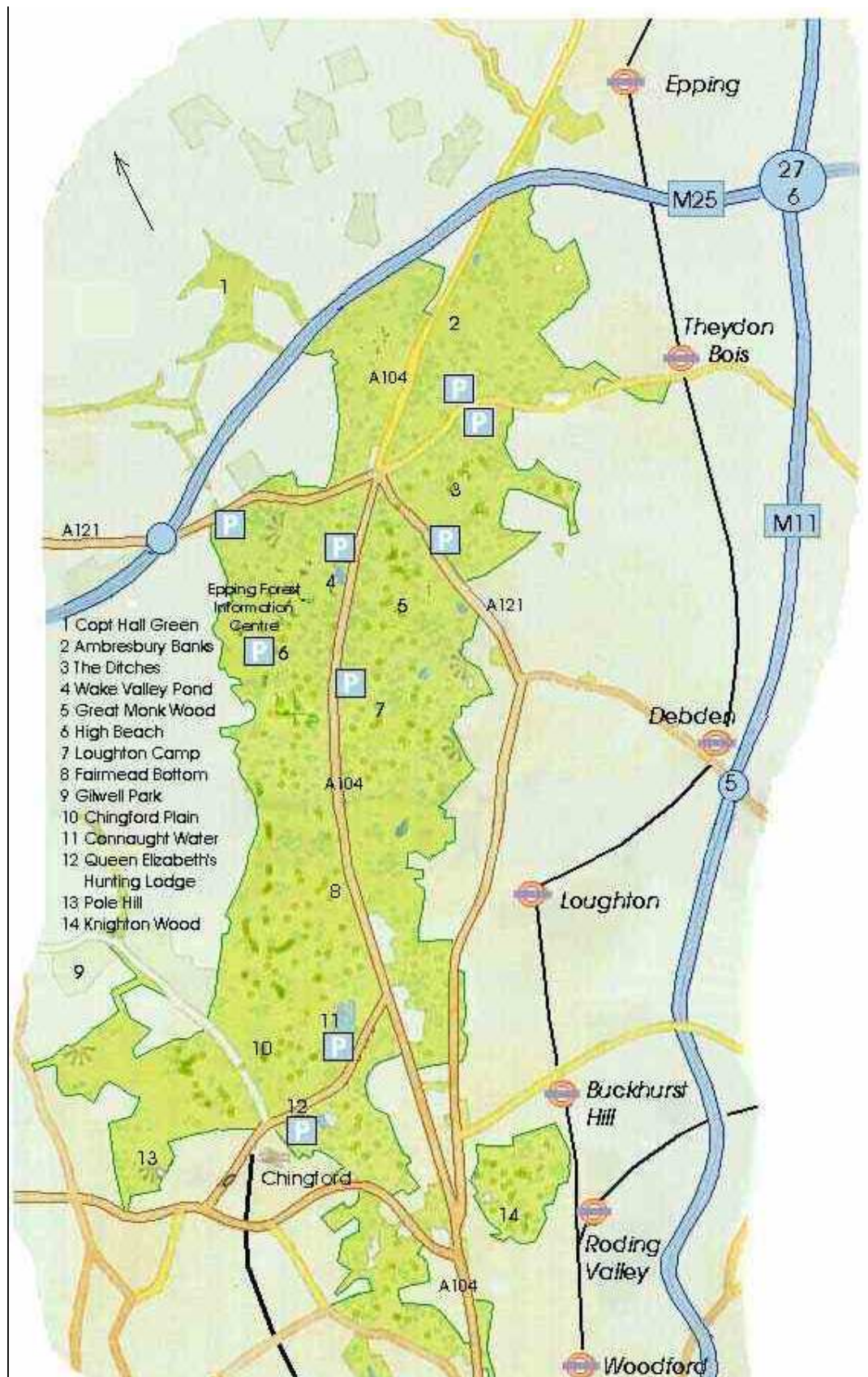13 Pole Hill
14 Knighton Wood

Figure 1.1 – Map of Epping Forest

Methodology

The First thing I had to do was to take an excursion to Epping Forest to find out the situation. In this excursion we took several measurements of information and observed the areas in two different parts of Epping Forest. We took recordings of the count of vegetation in a specific area, looked at the management of the Forest and evaluated the amount of Public Pressure on each area.

During the excursion I would be taking measurements of several different things which included natural and human factors.

Natural factor measurements:

Type & amount of vegetation: looking at these would help us determine whether or not humans have affected the area. This will be measured with a quadrant and the human eye.

Trampling Scale & Soil compactions: this will show how much of an impact that humans have made to the soil in an area, therefore telling us whether or not they have affected it. Trampling Scale will be measured on a scale of 1-6 and the Soil compaction will be measured with a Penetrometer.

Human Factor measurements:

Why/How/Where do tourists come to Epping Forest: All of these will be taken from questionnaires I will hand out during the excursion. They will help me to know what attracts people to Epping and what can be done to improve any problematic situations.

Management of Epping Forest: In this I will look at types of management undertaken in places, such as Car parks, Litter Bins, Footpaths and Toilets. I will use bi-polar measurements on scales from -3 to 3. These will help me to see how the council is coping with increasing numbers of tourists and their problems.

Public Pressure: this will help me to get information into perspective and makes data easy to make out. I will measure thing such as traffic, natural features and vandalism on a bi-polar scale.

What impact do visitors have on the environment?

Equipment
- Gridded Quadrant 10x10
- Penetrometer
- 2, 20m Tape Measures
- Meter Rule

On arrival at pillow mounds, you must set out an area of 20m x 20m in the shape of an x, y graph. Like This:
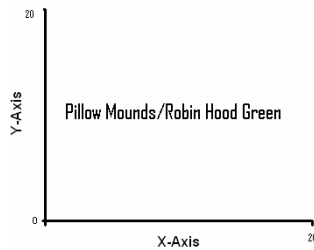

Figure 1.2a

Then pick two random co-ordinates from 0 – 20. These co-ordinates will be where you will be laying down the quadrant. When in place you must count the amount of exposed soil, Leaf Litter, Litter, Moss, Sorrel, Fine Grass, Broad Leaf Grass and Bramble there is on that piece of ground. After counting you come up with a percentage of how much of what there is on the ground, e.g. 30% Fine Grass, 40% Broad Leaf Grass, 5% Sorrel and 25% Moss (percentage must add up to 100%).

After, find the tallest plant and measure it in metres. The trampling scale can also be found by using a scale of 1 – 6 of how much exposed soil is present. When you have finally done that, you must measure the compaction of the soil with the Penetrometer.

After going through those steps, choose another 2 random co-ordinates and repeat.

You will then repeat the same steps on Robin Hood Green.

In figure 1.2b you can see us taking measurements of plant heights

Figure 1.2b

What attracts people to Epping Forest?

To find the answer to this question I decided that the best way to collect information would be to use questionnaires. I randomly asked 30 people of both sexes over the course of the day.

What activities do people do in Epping Forest?

I found that the best way to find this out was to use my questionnaires and also to look at secondary sources from the internet, and leaflets.

Figure 1.3
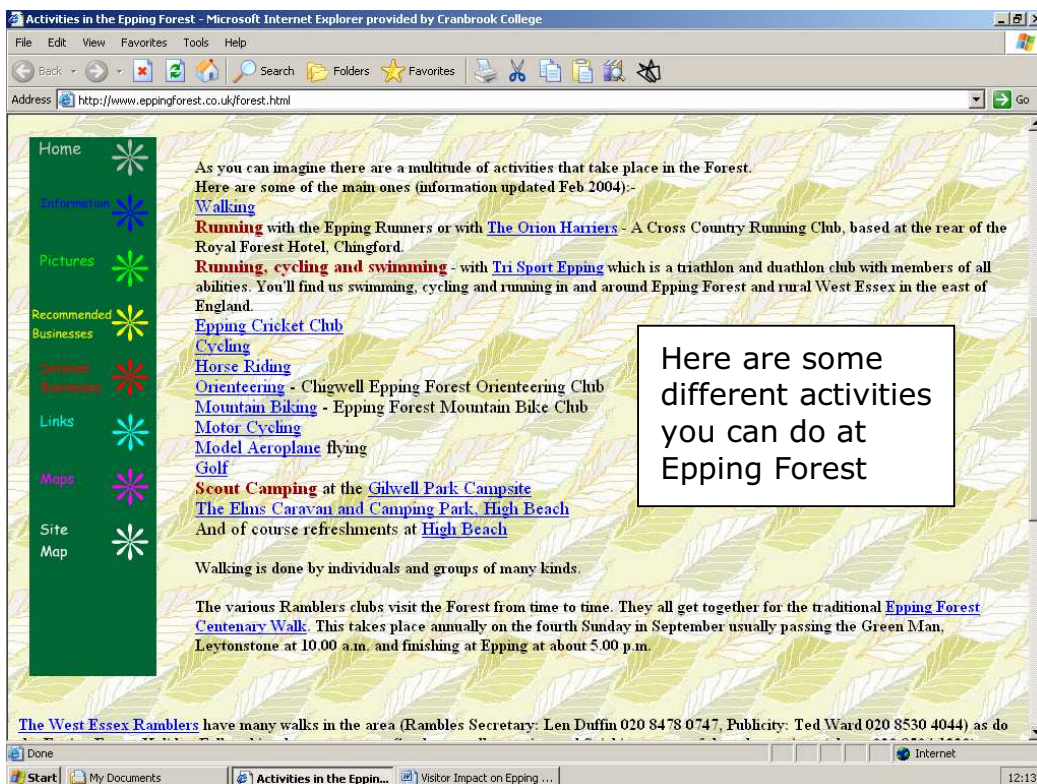
The only problem with secondary sources of data is that they may be outdated or inaccurate and there is no way that I can be sure that they are a reliable sources which relate to the present time.

<u>Hypothesis</u>
Vegetation – The height, type and variety of the vegetation will be Greater in Robin Hood Green because there are fewer visitors.

Soil – The compaction of the soil will be more so at Pillow Mounds because there are more visitors.

Management and Visitor assessment – The management and visitor impact will be much greater at Pillow mounds. E.g. more litter & more erosion.

Data Limitations

Much of the data which was collected is quite limited. We were on a school trip and time was not exactly in our hands. If more time was given then maybe it would have been possible to collect more samples from the ground for more accurate results. Also the questionnaires may not be fully representative of Epping Forest since we only had a day to get the questionnaires, when to get a true representative sample we must have stayed for several days.

Data Presentation and Analysis next page....

Data Presentation - Results – Raw Data

Species	Pillow Mounds							
	17.9 18	13.7 14.1	12.9 12.9	0.0 0.0	2.0 3.5	16.1 1.2	13.6 6.3	19.2 6.1
Exposed topsoil	0	50	23	90	9	45	24	8
Leaf Litter	0.2	2	0	0	0	0	0	0
Litter	0.25	0	0	0	0	0	5	0
Moss	0	0	0	0	0	0	0	0
Sand spurry	0	0	0.1	0	0	0	18	12
Sorrel	0.5	16	25	0.2	0	1	3	0
Fine grass	28	12	1.5	4.9	10	4	2	2
Broad leaf grass	7	20	50	4.9	4	44	37	80
Bracken	0	0	0	0	41	0	0	0
Bramble	0	0	0	0		0	0	0
Young Tree	0	0	0	0		0	0	0
Total 100	35.95	100	99.6	100	64	94	89	102
Soil Compaction (kgf/cm^2)	2.25	5	4.5	5	5	5	5	4.5
Tallest Plant (m)	0.21	0.1	0.165	0.014	0.152	0.11	0.087	0.08
Trampling Scale	1	4	3	6	3	6	6	2

Figure 1.6

Species	Robin Hood Green							
	17.9 18	13.7 14.1	12.9 12.9	0.0 0.0	2.0 3.5	16.1 1.2	13.6 6.3	19.2 6.1
Exposed topsoil	0	9	0	0	10	0	1	0
Leaf Litter	5	5	0	0.2	0	0	0	0
Litter	0	0	0	0	0	0	1	0
Moss	50	0	35	30	25	0	0	0
Sand spurry	0	6	0	0	0	0	15	0
Sorrel	0	45	20	10	30	0	0	0
Fine grass	34	10	40	10	10	0	6	0
Broad leaf grass	10	20	5	50.8	25	0	77	0
Bracken	0	0	0	0	0	0	0	0
Bramble	1	0	0	0	0	100	0	100
Young Tree	0	0	0	0	0	0	0	0
Total 100	100	95	100	101	100	100	100	100
Soil Compaction (kgf/cm^2)	2.25	5	5	1.2	5	2	1.5	3
Tallest Plant (m)	0.21	0.1	0.01	0.001	0.0002	1.3	0.09	1.52
Trampling Scale	1	4	1	1	3	1	2	

Figure 1.7

Using the data I collected I can now answer the questions which I put forward

'What attracts people to Epping Forest?'
'What activities do people do in Epping Forest?'
'What impact do visitors have on the environment?'
'How well is Epping Forest being managed?'

The first two question 'What attracts people to Epping Forest?' &'What activities do people do in Epping Forest?' can be answered using the results from my Questionnaires. I asked a total of 30 people to fill in my questionnaires and here are the results to the question of '**What attracts you to Epping Forest?**'.

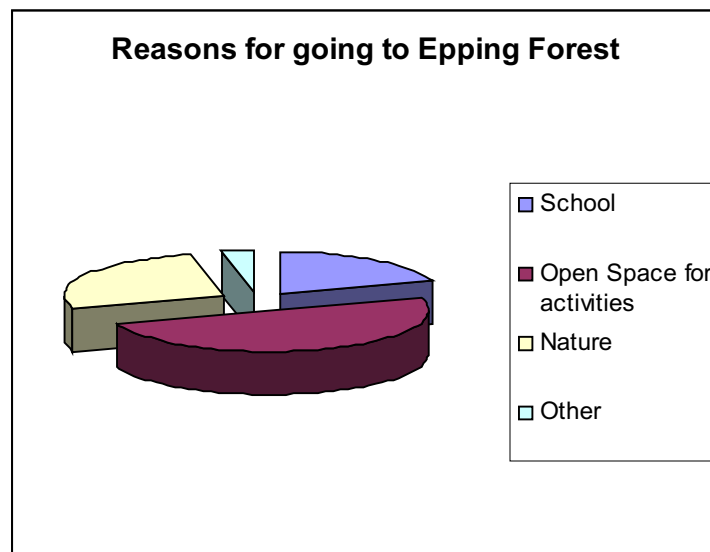| Attraction	Frequency
School	6
Open Spaces for Activities	15
Nature	8
Other	1

Figure 1.8

This chart shows that the 50% of the people who go to Epping Forest go there to exploit the Open Spaces for Activity. These activities could be Horse-riding, cycling or even fishing.

8 People because of the nature, as it is known for its beautiful scenery and wildlife.

From this I can come to a conclusion that the majority of people are attracted to Epping Forest because of the amount of Space which is available, and which probably doesn't exist in the city.

What activities do people do in Epping Forest?

Yet again I used my questionnaires for this question.

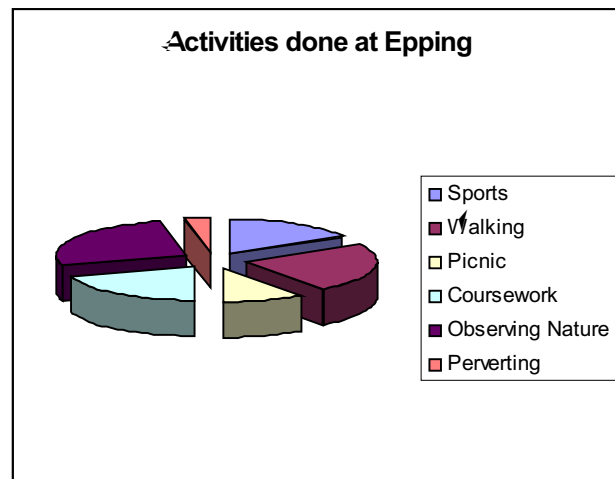| Activity	Frequency
Sports	5
Walking	7
Picnic	3
Coursework	6
Observing Nature	8
Perverting	1

Figure 1.9

This chart shows that the activities which are done at Epping are much spread. 26% of people use the forest to observe nature and close behind it is walking with 23% due to the various numbers of routes which you can walk through. Many of the activities require open space, this links to the original aim of Epping Forest in which they looked to keep open spaces for recreation.

From this I can conclude that Epping is a very versatile place as people use the forest for different purposes and there isn't really one activity that stands out. This is probably due to the large number of different facilities which are ever-present throughout the forest.

<u>What means of Transport do you take to come to Epping Forest?</u>

Here I decided to see what form of transport most people take to Epping Forest. By looking at this I may be able to see how the management of the forest is and even a possible reason of why people come to Epping.
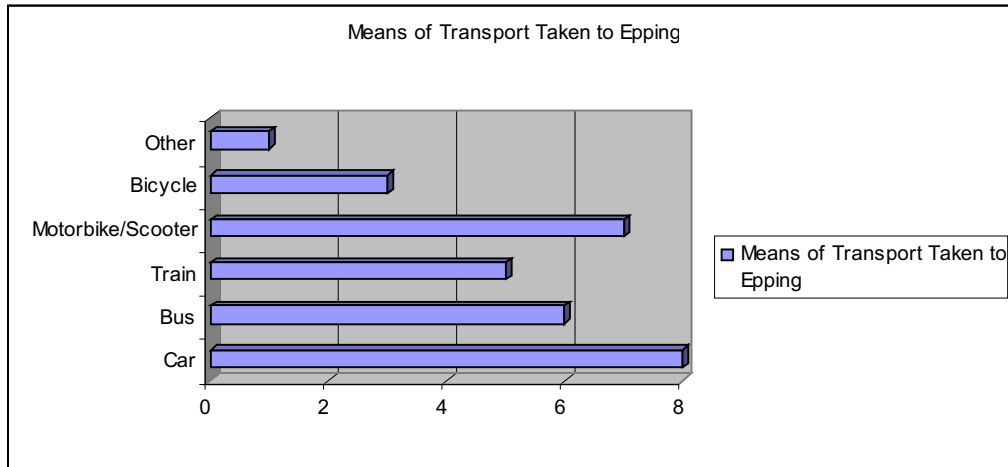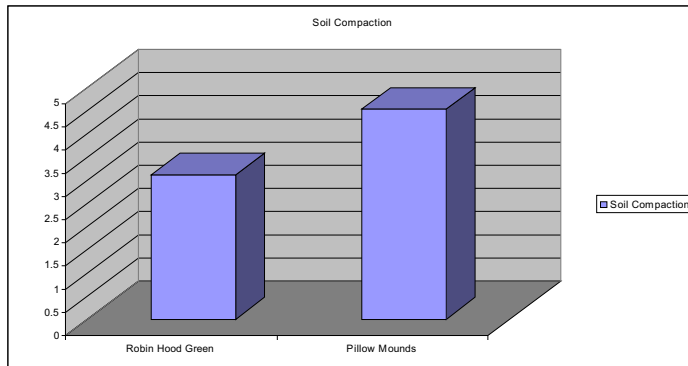

 Figure 2.0

From this Graph I can see that Cars and Motorbikes/scooters Take up the Majority of the transports. Cars are probably due to Families and friends coming to the forest, and also the availability of Cars Park Spaces. I was quite surprised by the number of people who travelled by bus. Epping Forest, being known as 'the countryside' to many urban people, is quite scarce of buses. But the management of Epping Forest has probably placed bus stops to make it easier to reach the area. This is a sign of good management from the forest managers.

What impact do visitors have on the environment? –analysing raw data

For this question I can use the raw data which I collected to compare the environments of each area and this will show the impact which visitors have on each area. I can then use the results to answer the question.

Firstly I will compare the soil compaction of each area. This is the measurement of how hard the ground was at each site measured with a Penetrometer.


Comparison of Soil Compaction

Figure 2.1

From the graph (figure 2.1) on the previous page you can see that the compaction of the soil is much higher at Pillow Mounds than it is at Robin Hood Green, meaning that the soil is harder at Pillow Mounds.

From this piece of evidence I can conclude that more people go to Pillow Mounds then Robin Hood Green, since the constant pounding of the soil from people's feet makes the ground harder. This supports my hypothesis that the compaction of the soil will be more so at Pillow Mounds because there are more visitors.

This second comparison is of the vegetation heights at the two places. We measured the tallest plant in each random lot with a ruler.
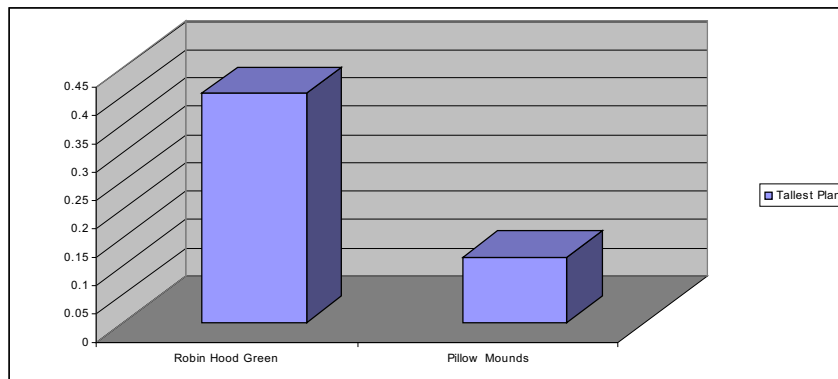
Comparison of vegetation height

Figure 2.2

From this graph I can see that the vegetation at Robin Hood Green is much taller. I feel that this is because there are much more visitors at pillow mounds and this

doesn't give the grass time to grow. Also I feel that this is because there are more trees blocking the light at Robin Hood Green so the grass has to grow taller.

The third comparison which I have chosen to make is that of the **trampling scale.**

I measured this on a scale of 1 – 5, 1 being a no of erosion on the ground a 5 being an extreme amount of erosion.
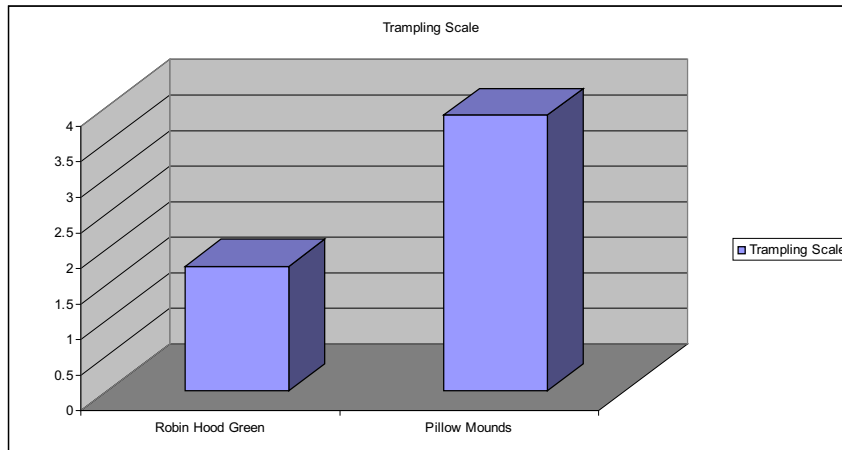

 Figure 2.2

From the graph on the previous page we can see that the trampling scale is much higher at the pillow mounds, yet again due to the higher number of visitors. I also noticed that there is a relationship between the trampling scale, vegetation height and also the soil compaction. These are:

The higher the trampling scale the higher the compaction of the soil.
The higher the trampling scale/soil compaction the lower the vegetation height.

ROBIN HOOD GREEN	Average
SPECIES	
Exposed Topsoil	2.5
Leaf Litter	1.275
Litter	0.125

Figure 2.3

PILLOW MOUNDS Species	Average
Exposed Topsoil	31.125
Leaf Litter	0.275
Litter	0.65625
Moss	0
Sand Spurry	3.7625
Sorrel	5.7125
Fine Grass	8.05
Broad Leaf Grass	30.8625
Bracken	5.125
Bramble	0
Young Tree	0

Figure 2.4

These two tables show the average vegetation counts of each type of vegetation from the raw data.

<u>What does this information tell us?</u>

The data from figures 2.1,2.2 and 2.3 all relate and link to each other. Pillow Mounds has a lot of exposed top soil (29% more than Robin Hood Green), a high soil compaction and low plant height. This tells us that this area experiences a lot of visitors. During my trip to pillow mounds I found this to be quite obvious as I saw many picnickers and young children playing. Robin Hood Green is practically the opposite. It has very little exposed top soil, a soft soil compaction and high plant height. This tells me that there are only few visitors to the area. Yet again I experienced this during the trip as the area had only other GCSE students and no tourists. The path towards the plot of land was small and worn away and there wasn't even a litter bin.

<u>Bi Polar Sheet Analysis</u>

The two Bi-polar evaluation sheets I included in the data presentation section, both show and back up the evidence I have found.

The first sheet 'Management of Epping Forest' shows that Pillow Mounds has had almost all management tactics used onto it. Car parking, Litter Bins and Ditches are a few of the additions made to it. The extra resources available at this place have attracted more people and meant that the area can handle more people. This links to figure 2.2 since there are more people visiting Pillow Mounds the compaction of its soil has greatened.

The second sheet 'Evaluation of Public Pressure Recording Sheet' is a measurement of the positive and negative features of each area; Robin Hood Green & Pillow Mounds. Erosion and Natural Features in each area contradicted each other. I was surprised that Pillow Mounds got a low 'natural features' mark as I know that many people are attracted to the area. I was also surprised that noise and traffic were both low.

Conclusion

At the beginning of this investigation I made 3 hypotheses

Vegetation – The height and variety of the vegetation will be Greater in Robin Hood Green because there are fewer visitors.

These predictions were all proved right as the height, type and variety was much higher at Robin Hood Green than in Pillow Mounds, as the Visitors at pillow mounds had eroded the ground.

Soil – The compaction of the soil will be more so at Pillow Mounds because there are more visitors.

This was also proved right since the soil at pillow mounds was almost impossible to penetrate with the penetrometer. The large amount of people walking on the surface of Pillow Mounds compacted the soil and made it harder.

Management and Visitor assessment – The management and visitor impact will be much greater at Pillow mounds.

This was also proved right. When at Pillow mounds there were many signs of management actions being undertaken, such as more car parks, an information centre, and even a ditch next to the car park to stop the cars going onto the grass. When at Robin Hood Green there was no litter bin in sight and only a motorbike park.

Evaluation

I feel that this investigation has gone very well since I have managed to prove my predictions. The methods of which I used to collect my data gave me reliable results and I believe that I presented these results with a range of statistical diagrams and rigorously analysed my data.

My main problem was to do with time. I only had a few hours in which I had to collect all my data. If I were to do this investigation I would have spent more time collecting data and even distributed more questionnaires, I would have taken more measurements so that my data would have been more reliable.