

# [Wye valley coursework essay](https://assignbuster.com/wye-valley-coursework-essay/)

The wood I visited was called Russell’s Inclosure.

It is located at 6110 on the OS map Wye Valley and Forest of Dean. It is 80 – 120 metres above sea level and 4 kilometres east of Coleford and 3/4 kilometres north east of Cinderford. Map showing the location of Russell’s InclosureHypothesis: “ The way a woodland is managed affects its ecosystem” Section One: What evidence of management is there in coniferous and deciduous woodland? Management is. There are four types of management. These are Habitat management, Estate management, Recreational management and Community and educational management.

Each type of management is undertaken for different reasons and is made for sustaining different things. The following chart shows you the work of the different managements in the woodland and shows the work that it does. Habitat ManagementReasons1. Sites for tree planting carefully chosen. Different trees require different habitats; therefore tree sites need to be carefully chosen to ensure that the tree receives the correct amount of sunshine, rainfall, and nutrients in order for them to grow healthy.

2. New planting areas fencedSome animals eat plants in order for survival; this could mean eating new plants, as they are easily edible due to their size. By fencing of new planting sites there will be fewer animals that can eat the new plants. Also, fences will prevent visitors walking over the plants and damaging them. 3. Weeding around young treesWeeds are usually plants that are growing were they are not wanted.

This means that they take essential nutrients and water, which causes a deficiency in water and nutrients especially for young trees as they need it the most because they are growing. Getting rid of weed means that the young trees will have all the nutrients and water available for them to grow healthy. 4. Coniferous trees thinned and brashedThis would leave more sunlight available for other trees because thinning and brashing trees means to remove the branches of trees, and less branches means more sunlight available for other trees as well as the ground cover growth.

5. Improve deciduous wood by thinningThis would mean fewer branches of the trees, which then results in more sunlight which encourages growth for the ground cover and the other trees in the woodland. 6. Control BrackenBracken is a plant which normally grows in woodlands like Russel’s Inclosure. The time we went, which was late spring, was the growing season for Bracken.

Controlling the growth of Bracken means that there is space for other varieties of plants to grow rather than just one. This also appeals to visitors as a greater variety of plants look attractive. 7. Deer and Squirrel control to limit damage to treesDeer’s and Squirrel’s create damage to trees, which could then result to a lack of trees in the woodland. Controlling Deer and Squirrel’s would mean that the damage to trees would be minimised, enabling trees to grow. Estate ManagementReasons1.

Empty litter binsThis will then prevent animals eating the litter, as it can be dangerous and harmful for them. Also, it makes the woodland look attractive and doesn’t draw things like flies. 2. Maintain barriers to stop illegal accessThis will prevent intruders damaging the woodland and will also prevent them disturbing wildlife. 3.

Division of wood into numbered sections to reduce fire riskThis means that if there was a fire then it will be easy for the fire fighters to locate the origin of the fire and prevent it spreading by putting water over it. 4. Maintain car parksThe car park will create a first impression on the visitors and by keeping it clean, it will create a positive impression on the visitors. Also, visitors will know where to park as the signs will show them the way to park.

Recreational ManagementReasons1. Maintain paths and cycle tracksBy creating walk and cycle paths, the damage to plants will be prevented because visitors will know where to walk and cycle as there will be paths for them to do so. Also, the paths lead them through the safe parts of the wood and prevent them not being lost in the wood, this sustains the idea of a safe environment. 2. Control horse and cycle accessHorses and cycles can cause damage to the plants and ground cover, and by controlling there access, the damage to the plants will be minimised.

Also, horses and cycles can be dangerous towards visitors so by controlling there access, especially at peak time, they will no longer be in the way of the visitors. 3. Maintain sign posts, information boards and leaflets to promote the woodThe sign posts and information boards will help the visitors to keep track where they are and also help them not to get lost in the woods. The leaflets will promote the visitors as well as attracting them for future visits. In addition the signs will insure that most tourists stay in one area and leave the ecosystem undisturbed. 4.

Develop an attractive environment using a variety of native treesThis will create an attractive environment for the visitors because the native trees create a diversity of animals which will then result in a diverse environment which visitors love to see in a woodland. Community and Educational ManagementReasons1. Encourage local people to participate in the management of the woodIf people volunteer to help manage the wood, then less money will be wasted on paying people and more money will be available for improving the wood for the visitors and wildlife. Also, if people are educated about the woodland and its content, then they will cause little damage as they are educated about the effects of damaging the ecosystem. 2.

Develop links with volunteer groupsDeveloping links with volunteer groups would mean that a large number of people will be managing the ecosystem and this will give them the ownership of the wood and therefore they will try there best to cause minimal damage as possible to the wood and its ecosystem. 3. Develop educational linksThis will result in people’s knowledge of the woodland increasing, and with this they will learn the damage created to the ecosystem thus they will prevent this damage being caused to the woodland. Section Two: Compare and explain differences in the deciduous and coniferous woodland in Russel’s Inclosure.

My predictions: I predict that there will be more light available in the coniferous wood. This is because the coniferous leaves are smaller in size and this means that they will block less sunlight resulting in more sunlight for the ground cover. Deciduous trees have broader leaves, which take up more light than the coniferous leaves, so this will mean less light available on the ground cover for a deciduous wood. I predict that it will be warmer in the coniferous wood rather than the deciduous wood because of the leaf shape, which allows more sunlight to the groundcover.

This means that the temperature should be warmer in the coniferous wood because the heat will be shone on the ground cover and then it will rise from the ground, as heat is light in weight and rises. As the heat rises, it warms the wood up, which should then result in a higher temperature in the coniferous wood than the deciduous wood. I predict that it will moister in the deciduous wood rather than the coniferous wood. I expect this because the leaves of the deciduous wood are much bigger in shape than the coniferous leaves; therefore they block more light, which then results in less heat in the deciduous wood.

This links with the moisture of the soil in the deciduous wood because if it were to rain, the water will be absorbed into the ground, which will cause moisture in the soil. Moisture goes away by heat, and I’ve predicted that because of the leaf shape, there will be less light in the deciduous wood, and if there is less light then the moisture will go slowly so therefore there will be a higher rate of moisture in the deciduous wood rather than the coniferous wood. I predict that the coniferous wood will be more acidic than the deciduous wood. This is because coniferous leaves are acidic and the leaf litter in the coniferous wood will make it more acidic than the deciduous wood. Also acid rain occurs and this is basically rain which has impurities, such as sulphur dioxide, which then make the rain acidic. This rain falls to the ground and makes it acidic and this could change the pH of the soil in the coniferous wood even more acidic than the deciduous wood.

How data was collected? In the Russell’s Inclosure wood we collected our data from the various types of woodlands. We measured ground cover by measuring a 12 metre transect along the floor and placed a 50cm x 50cm quadrat at the 0 metres, 4 metres, 8 metres and 12 metres of the ground cover, and recorded it in percentage. The temperature was measured by using a thermometer, and the result was recorded in degrees Celsius. Light was measured using a light meter, and this was also recorded in percentage. We measured soil moisture by using a soil moisture meter and this was measured by placing one end of the meter into the soil and measuring the moisture on a scale of 1 – 10, were 1 is dry and 10 is wet.

We also measured the pH of the soil by taking a little amount of soil and placing it into a test tube, along with some Universal Indicator, Barium Sulphate and distilled water. We then shook the test tube and after a while we observed the colour of the mixture and matched it with a colour on the pH scale and this was how we came up with our pH reading. This reading wasn’t accurate, however if we had used a specialised piece of equipment, which told us an accurate reading of the soil pH, we would have a much more precise and reliable set of data. Also, we measured the height of the tree by measuring 150cm of the ground, with a tape measure, and then measured the circumference of the tree, to come up with the tree size in centimetres. The transect through the old coniferous woodThere was Moss in every quadrat of the twelve metre transect.

This ranged from 95% at 4 metres to 30 % at 12 metres. I was surprised by the results. For Moss to grow temperature and light need to be low and moisture should be high. However, in my results the temperature was high at 13. 1oC and so was the light as it was 80% but the moisture was low at 5/10. Reasons for this could be that our readings were taken in late spring and the weather was getting warmer and drier.

The Moss would’ve begun to slow down in growth and production as the weather was becoming inappropriate for the Moss to grow. Twigs were also present in every quadrat of the transect. This ranged from 60% at 0 metres and 8 metres to 25% at 4 metres. I would’ve expected this because in a wood, twigs are usually on the ground below or near to the tree. This could be because the thinning of trees could lead to twigs being left on the floor and because the temperature is low and so is moisture, it would take a long time for the Twigs to actually be decomposed by bacteria. Also, animals could also be the reason why Twigs are on the ground cover because some animals end up breaking the Twigs in order to make shelters.

Leaf litter was also present in each quadrat. It ranged from 50% at 8 metres to 30% at 0 and 12 metres. Leaf litter was present because coniferous trees shed their leaves all year round and due to the temperature being low, it took longer for the leaf litter to get decomposed, as bacteria works affectively at 25oC. Needles are the leaves that grow on the coniferous trees. They were present in all of the quadrats except for the 8m one. It ranged from 2% at 4m and 12m to 1% at 0m.

I was surprised by these results because I expected more needles on the ground cover, as coniferous trees shed their needle like leaves all year round. Leaves were only present in the 12m quadrat. It had a 5% ground cover in the quadrat. The leaves could be from the surrounding plants and trees in the old coniferous wood.

They could be exported by the wind, animal’s etc. Due to the low temperature, which was 13. 1oC, the leaves didn’t decompose as affectively and fast as they should. Bluebells were also present in the 12m-quadrat covering 3%. Bluebells are bulbous plants, which are abundant to growing in woods. They thrive in good soil and grow in partial shade.

This is why Bluebells are found in the coniferous wood because of the thriving soil and partial shade, although the light was 80%. The transect through the new coniferous woodLeaf litter was present in each quadrat. It ranged from 95% at 4m and 12m to 85% at 8m. I expected leaf litter in the wood because surrounding plants and trees loose leaves, which then die to form leaf litter. Because the temperature was low for bacteria to work, there is more leaf litter available. Twigs were also present in each quadrat.

They ranged from 20% at 8m to 2% at 0m. Twigs are present in the new coniferous wood for the same reason they were available in the old coniferous wood. Moss was also present in all of the four quadrats. It ranges from 15% at 0m and 8m to 2% at 12m.

There was less Moss in the new coniferous wood because the moisture is lower than the old coniferous wood, meaning that the wood was less damp resulting in less Moss growing. Bracken was present at 0m covering 7%. Bracken normally grows in the woods and dies in autumn. Therefore, going in late spring meant that the Bracken was in its growing season. Fern Cones were also present at 0m, 4m, and 12m. It ranged from 5% at 4m to 1% at 0m.

Grass was also present in the 8m-quadrat covering 15%. I was surprised to see grass because there isn’t any management to look after the grass or even the right amount off temperature for the grass to grow. There was Ivy in the 8m quadrat, covering 2%. This could’ve fallen from the trees as it wraps around trees and damages them. The transect through the old deciduous woodLeaf litter was in all of the quadrats and ranged from 40% at 4m to 5% at 0m.

The reason why it is present in the old deciduous wood is the same reason why it is available in the Coniferous wood. Twigs are also in all the quadrats and ranged from 40% at 8m to 2% at 4m. This is in the deciduous wood for the same reason it is in the old coniferous wood. Grass is present in all four quadrats and ranges from 80% at 4m to 20% at 12m.

It is present because the soil is just right, as it has a high temperature of 12. 2oC, and low moisture of 2 and a high percentage on light on 90%. The grass grows in the deciduous wood because it has the right conditions for the grass to grow. Bluebells are present in all of the quadrats except for the 12m one. It ranged from 4% at 4m to 2% at 0m and 8m.

It is present for the same reason for its presence in the coniferous wood. Soil was also present in all of the quadrats except for 4m. It ranges from 60% at 0m to 2% at 8m. Soil is present because ground is covered by soil but the old deciduous wood ground cover has less ground cover exposing the soil. Bracken was also present in the 8m and 12m quadrat.

It ranged from 25% at 12m to 10% at 8m. It is present for the same reason it is present in the coniferous wood. Bramble was present in the 8m and 12m quadrat. It ranged from 10% at 12m to 7% at 8m. It is present in the deciduous wood because it is adapted to growing in conditions such as a deciduous wood.

Moss is present in the 0m quadrat covering 1%. It is present due to the dampness as it is adapted to growing in damp conditions. Rocks were also present in the 0m quadrat covering 2%. These could’ve come from footpaths or from the hills or even could’ve been transported by human, e.

g. by foot. Hazel was present in the in the 4m quadrat covering 7%. It would’ve come from the Oakwood’s, as this is what they produce. Due to the temperature being low, bacteria decompose such things as hazel very slowly.

Oak was present in the 4m quadrat, covering 10%. It could come from the thinning of Oak trees and also the slow bacteria are decomposing slower than usual. Acorn was present in the 8m-quadrat covering 17%. I would’ve expected more as many of the trees were Oak trees, and Acorn is the fruit produced by the Oak trees. Whitebells were also present in the 12m quadrat, covering 3% of ground cover. Whitebells are usually found growing in woodland such as a deciduous wood.

The transect through the new deciduous woodLeaf litter was present in all four quadrats, ranging from 80% at 0m to 5% at 4m and 8m. It is present for the same reason it is present in the old deciduous wood. Bluebells were present in all four quadrats. It ranged from 30% at 12m to 5% at 0m. It is present for the same reason for its presence in the old deciduous wood. Bracken was present in all four quadrats except for the 4m and 12m one.

It ranged from 10% at 0m to 7% at 8m. Bramble was present at 4m, covering 7%. Both Bracken and Bramble are present for the same reason for there presence in the old deciduous wood. Bluebell leaves were present in all four quadrats. It ranged from 95% at 4m, 8m and 12m to 20% at 0m.

I wasn’t surprised to see Bluebell leaves, as they don’t decompose quickly due to the temperature and the slow working bacteria. Also, the young deciduous trees let in more light because of their size, and this means that the Bluebell leaves live longer due to the amount of light available for photosynthesis. The Results: I predicted that the light in the coniferous wood would be greater than the light in the deciduous wood. This prediction turned out to be false. In the deciduous wood the light was 90% in the old deciduous wood whereas it was only 80% in the old coniferous wood.

There are several reasons for this. Firstly, coniferous trees were planted close together, which resulted in less light available because the trees blocked light accessing the ground. Also, the thinning of the deciduous trees meant that less light was being blocked by the trees as the tree itself had fewer branches to block the sunlight reaching the ground. In addition, the deciduous trees were planted further away from each other which meant that more light was available to travel through the trees and reach the ground without having a number of trees blocking its way.

I predicted that in the coniferous wood, it will be warmer than it will be in the deciduous wood. This prediction turned out to be true. The coniferous wood had an average temperature of 13oC whereas the deciduous wood had an average temperature of 13. 05oC.

this could be because in the coniferous wood, the heat wasn’t blocked by many leaves, because of there sleek size, the heat could travel easily to the ground and then heating it up, which would make the heat rise and warm up the coniferous wood. Also, the coniferous trees were thin in shape compared to deciduous trees, which were thick, and this meant they would block less sunlight because of there slim size allowing sunlight to pass through and convert this to heat. I predicted that the pH of the soil in the coniferous wood would be lower when compared with the pH of the soil in the deciduous wood. This prediction turned out to be true. The deciduous trees on average had 6 as the soil pH but the coniferous wood had an average of 4.

5 pH for the soil. This is because the coniferous leaves are naturally acidic, which then means that the soil will be acidic due to the acidic content of the coniferous leaves. Also, the slim shape of the trees lets in a lot of rain, which is acidic, and this means that the coniferous woodland will have an even lower pH than the one in the deciduous wood because acid rain is easily reached to the ground because of the tree shape. Section three: To what extent do you think that differences in the ecosystems in the two woodlands are the result of management strategies? As trees grow older they become bigger, which means that they will block more light and as a whole, there will be less light available for the vegetation to grow healthy. Also, as trees grow older they need more nutrients and water and this results in more vegetation due to the high intake of nutrients and water.

As the trees grow older, they have more leaves, which mean that they will have more leaf litter. This then decomposes by the aid of bacteria and becomes nutrients for the trees. This then results in more nutrients for the vegetation. Coniferous woods have a lower soil pH because coniferous leaves make soil acidic.

This acidity then results in less ground cover because the acid will be taken in by surrounding vegetation and it will eventually die as plants are not suitable in acidic conditions. In my results, the coniferous woods have a lower pH of 5 in the old coniferous and 4 in the new coniferous, whereas in the old deciduous wood, the pH is high at 5 and in the new deciduous wood the pH is also high at 7, which is neutral. The reason for this is justified in the above statement.