Candidate 1 evidence

Urban - Geography Assignment

Title: How Perth fits the Burgess Model.

Research topic / issue: I investigated Perth to see if it fitted the Burgess Model and to do so I collected data on land use and traffic count on Dunkeld Road, Barrack Street and High Street

Research methods: I collected data on traffic count and used a clipboa tally chart, pencil and stopwatch. We used 6 minutes for traffic count and did no repeats. I stood at one end of Dunkeld Road (in the suburbs) and started the stopwatch. Everytime I saw a vehicle I marked a tally into my tallychart and also identified which type of vehicle it was: car, van, lorry, taxi or bus. Once the six minutes were up, I was driven to Barrack Street (in the inner city), 6oom ~~away~~ closer to the city centre, and repeated the method. After repeating it for Barrack Street, I repeated the method for High Street (in the CBD) which was another 6oom away.

The other method was for land use and I used a clipboard, tallychart and pencil. I started at one end of Dunkeld Road (in suburbs) and walked ~~4~~ cor along the road, counting the buildings on either side Of the road. Each time I saw a building, I mark a tally into my tally chart under the categories: residential, commercial, office, public building, open Space or industrial. Once I had reached the end of the road, I was driven to the next street (6oom away) called Barrack Street (in inner city) and repeated the method. After repeating the method for Barrack Street, I repeated it for High Street (in CBD)

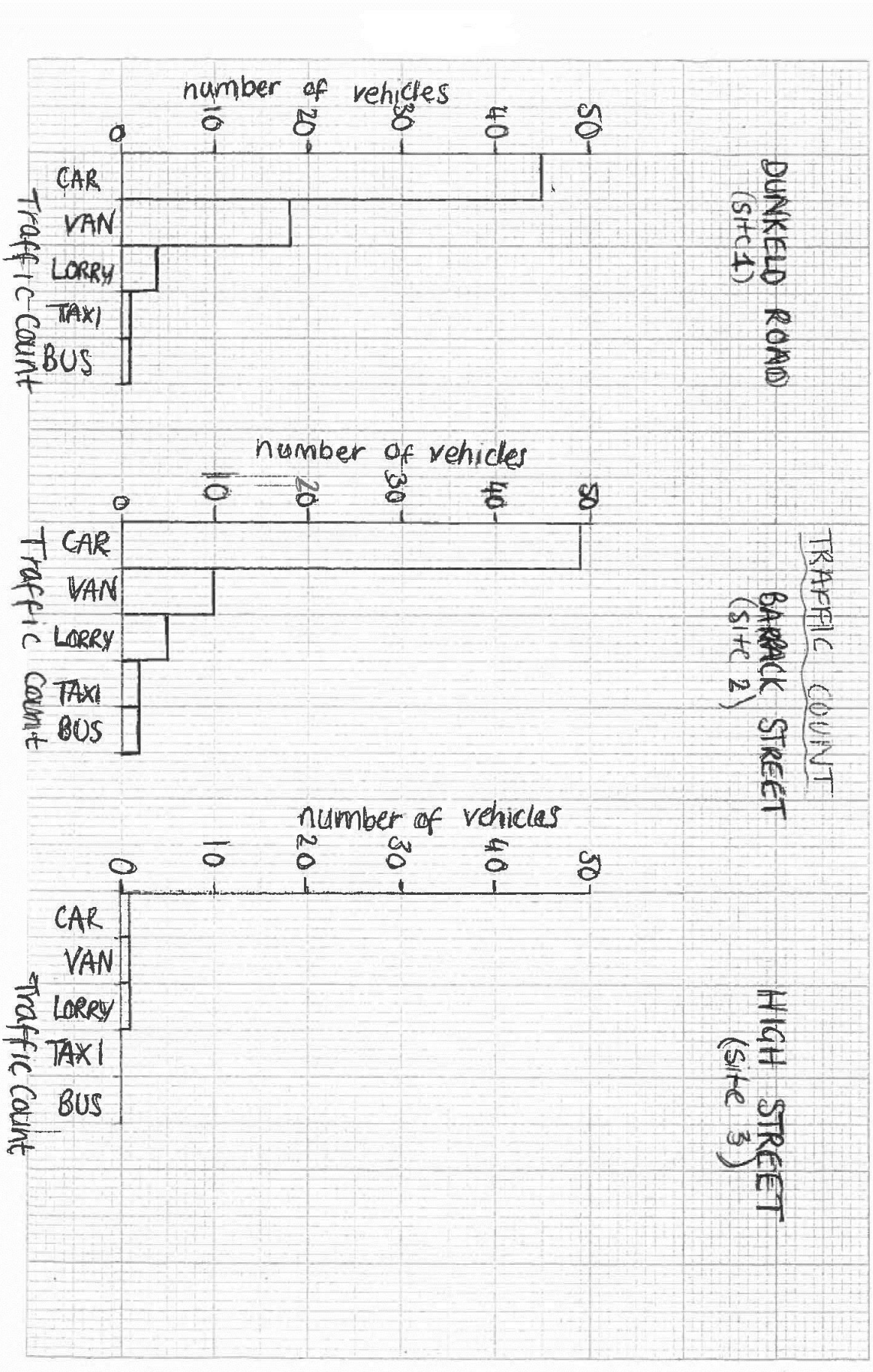
Research Findings:

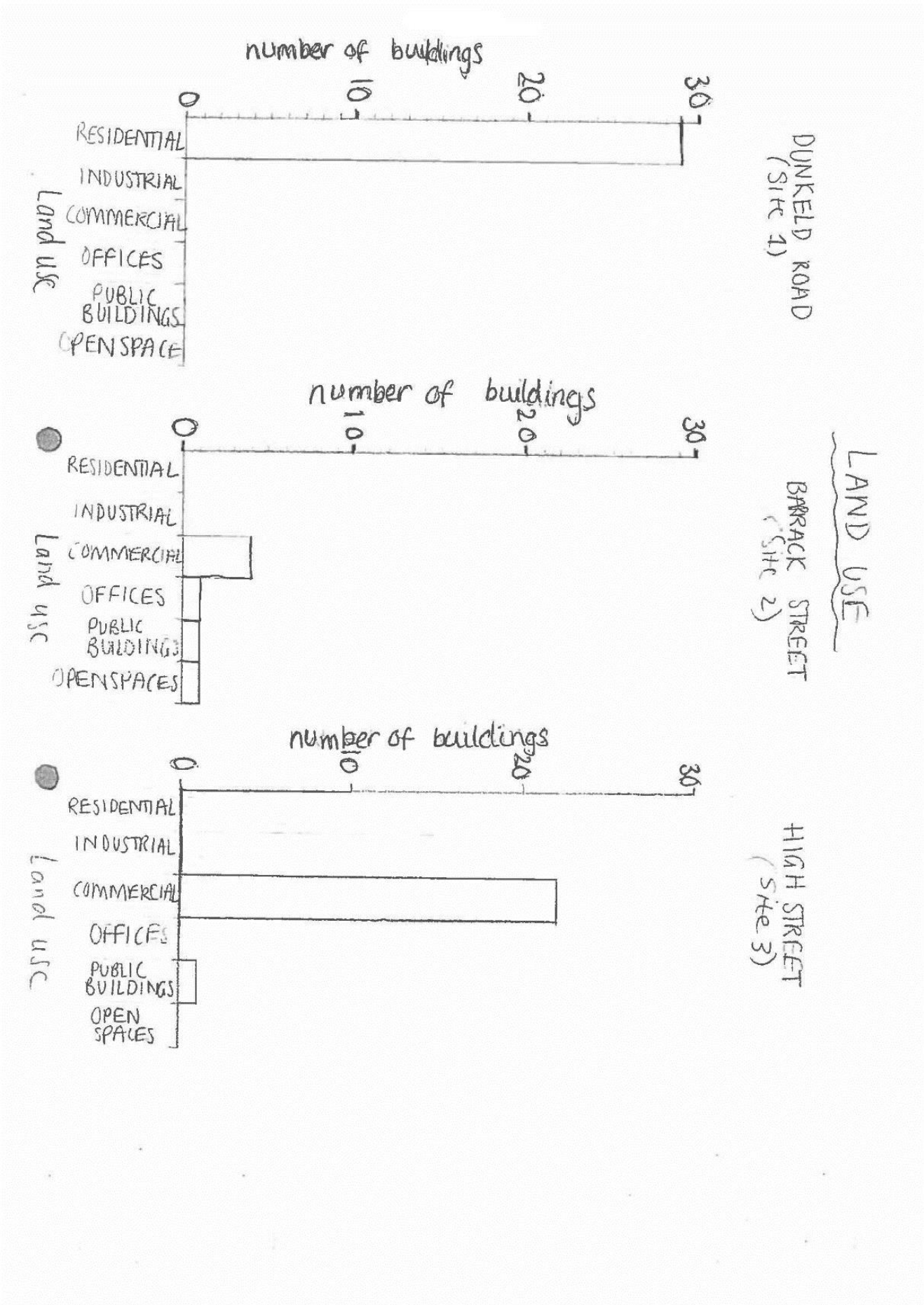
The main land use for Dunkeld Road was residential. All of the 29 buildings were for residential use. This is because Dunkeld Road is in the suburbs, where housing is cheaper as the land to build on is cheaper. The main land use for Barrack Street was commercial. 4 out of the 7 buildings were for commercial use. This is because St. Catherine's Retail Park is on this street (in the inner city) which means there are lots of customers. The main land use for High Street was also commercial.* This is because the high street is in the CBD where the main brand and chain stores are as they can afford to pay higher rents. The vehicle which appeared most for Dunkeld Road was cars. 45 out of the 69 vehicles were cars. This is because Dunkeld Road is in the suburbs which leads to the A9 (Edinburgh/Inverness) and so many people transporting to and from other cities. The vehicle which appeared most on Barrack Street was also cars. 49 out of the 68 vehicles were cars. This is because Barrack Street is in the inner city where St. Catherines Retail Park is so there are many customers and it also leads to the inner ring road around Perth's CBD. There were 3 vehicles which appeared on the High Street (in CBD): A lorry, a van and a car. The van and lorry would have been delivering goods to the shops but the car could have been a blue badge owner to make it easier to shop as the high street is a pedestrianised zone.

* 22 out of the 23 buildings were commercial.

(conclusion) Perth does fit the Burgess Model because Dunkeld Road, Barrack Street and High Street have similar properties to what the suburbs, inner city and CBD should contain. The number of residential buildings decreases from 29 to 0 from Dunkeld Road to High Street. High Street and Barrack Street had mostly commercial buildings (accept that Barrack Street had an office, open space and public building) which is what a Burgess Model would have. The traffic flow decreases from site 1 to site 3 as the roads become narrower, there are more bus lanes and more double yellow lines, which also fits the burgess Model. The number of cars decreased from site 1 to 2 by 4 and the decreased by 48 from site 2 to site 3, and you would expect (according to the Burgess Model) for the number of residential buildings to decrease from the suburbs to CBD and also the traffic flow to decrease from the suburbs to CBD. My result therefore show that Perth fits the Burgess Model.

Conclusion: In conclusion, the main land use for site 1 (Dunkeld Road) was residential with 29 buildings. However, at site 2 and 3 (Barrack Street and High Street respectively) there were no residential buildings but mostly commercial. In contrast, site 1 had no commercial buildings. This is because site 1 is in the suburbs where housing is cheaper as the land to build on is cheaper and is also more popular as it is near the dual carriage way (so people can travel to and from other cities). Site 2 is in the inner city where, if there is any housing, it is smaller in size but taller in height ~~so~~ and rent is ~~there is~~ also more expensive, but there are more commercial buildings as there are lots of customers from St. Catherine's Retail Park. Site 3 is in the CBD where rent is more expensive so only chain stores or main brands can afford to pay it. The vehicle which appeared most for site 1 and 2 were cars with 45 for site 1 and 49 for site 2. However, site 3 only had one car (and a lorry and van). This is because site 1 (in the suburbs) is a dual carriage way and leads to A9, it is also a commuter centre, and it is the main enterance to Asda and McDonald's. Site 2 is in the inner city, where roads become narrower and traffic flow is heavier as there are plenty of cars trying to travel into the CBD to shop or work. Site 3 is in the CBD which is restricted to cars (only emergency services or blue badge owners can access the High Street) as it is a pedestrianized zone. As you get closer to the CBD, traffic flow becomes heavier as roads become narrower and there are more bus lanes and double yellow lines which put drivers off. The CBD and inner city are less driver-friendly as there are more bus lanes, and double yellow which make it harder to park.


TRAFFIC COUNT
DUNKELD ROAD (SITE 1)
number of vehicles
0
10
20
30
40
50
CAR
VAN
LORRY
TAXI
BUS
Traffic Count
BARRACK STREET (SITE 2)
number of vehicles
0
10
20
30
40
50
CAR
VAN
LORRY
TAXI
BUS
Traffic Count
HIGH STREET (SITE 3)
number of vehicles
0
10
20
30
40
50
CAR
VAN
LORRY
TAXI
BUS
Traffic Count


LAND USE
DUNKELD ROAD (SITE 1)
number of buildings
0
10
20
30
RESIDENTIAL
INDUSTRIAL
COMMERCIAL
OFFICES
PUBLIC BUILDINGS
OPEN SPACE
Land use
BARRACK STREET (SITE 2)
number of buildings
0
10
20
30
RESIDENTIAL
INDUSTRIAL
COMMERCIAL
OFFICES
PUBLIC BUILDINGS
OPEN SPACES
Land use
HIGH STREET (Site 3)
number of buildings
0
10
20
30
RESIDENTIAL
INDUSTRIAL
COMMERCIAL
OFFICES
PUBLIC BUILDINGS
OPEN SPACES
Land use

Candidate 2 evidence

What area is more popular, the High Street or Retail Park?

I stood outside the Howgate in the High Street to conduct questionnaires. I asked 11 people and asked questions such as why are you here, how close do you live, how often they visit, how they got there and what they thought of the area. This is an effective technique because you get information directly from the source and you get a lot of information in a short amount of time.

In the Retail Park I conducted a RICEPOTS land use survey. I only looked on the ground floor of each building and looked along both sides of the road. This is effective because it shows me what each building is used for and shows me which shops are more in demand and more popular. I sorted each building into the different RICEPOTS categorys to do this.

Figure 4 shows [redacted] that 100% of people travelling to the Retail Park got there by car. The most popular way of transport to the High Street is by public transport with 6 out of 11 people travelling this way. The reason that the most popular form of transport to the retail park is car might be because the retail park has over 2,500 free parking spaces. This might also be because the retail park has a supermarket, Tesco, and when buying things from here a car is the easiest way to get purchases home. The reason that public transport is the most

popular for the High Street is because there is a bus station nearby and elderly people over 60 get free bus passes.
Figure 9 shows that there was 64 more vehicles passing the high street than there was passing the retail park. This might be because more people are trying to go to the high street so create a lot of traffic compared to the Retail Park.
Figure 8 shows that the high street's customers preferred shopping at the high street, 4 out of 10, and customers at the retail park preffered shopping at a shopping centre, 2 out of 3. This might be because even though the Retail Park has a glass canopy to protect customers from the weather, there are panels missing meaning it doesn't do as good a job as a shopping centre would at keeping shoppers warm and dry.
Figure 5 shows that 100% of shoppers at the retail park don't shop here and the most popular things to buy at the high street was everyday goods, 4 out of 11, with only 3 out of eleven people not shopping there. This might be because there is a bigger variety of shops in the high street than the retail park which will cater to more people's needs.
Figure 2 and 10 show that both of the retail park and high streets customers mainly live within 5 miles of the area. 66% of the retail Park's customers live within 5 miles and 80% of the High street's customers live within 5 miles.

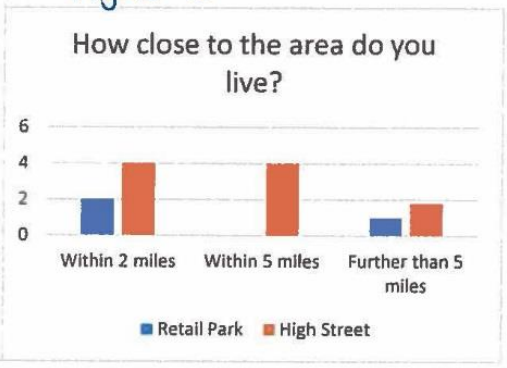
more of
The retail park's customers were willing to travel further than the high street's were. This might be because the retail park has more high order shops so people are willing to travel further to purchase high order products. There is also a few entertainment places and restaurants there that customers can spend the day at so are willing to travel far to stay for a long amount of time.
Figure 6 shows that 100% of the retail park's customers said that they thought the quality is good but only 8 out of 11 customers at the high street thought the quality there was good. This might be because there is less litter in the Retail Park and the area is more clean than it is in the high street.
Figure 1 shows that the most popular reason to be at both areas was for shopping with 6 out of 11 people at the high street being there for this and 66% of people at the retail park being there for this. This is likely to be because figure 7 shows that both areas most common type of building was a commercial shop so that is the reason why people will go there. *
In conclusion, both areas are popular for different things. The Retail Park is more popular for entertainment and high order purchases and the High Street is more popular for everyday goods.

* Figure 3 shows that the most [redacted] common amount of times they visit the area in the Retail Park is 1 or 2 times a week, [redacted], and everyday for customers in the High Street, 5 out of 11. This is likely to be because the things sold at the high street are more everyday items so it is needed to be visited very often and the things sold at the Retail Park are more high order goods and entertainment facilities which don't need to be visited quite as much as people shopping in the High Street.

** [redacted] Both areas most common type of vehicle to pass by was a car. [redacted]

Figure 1

Figure 2



igure 3

Figure 4

Figure 5

Figure 6

Figure 7

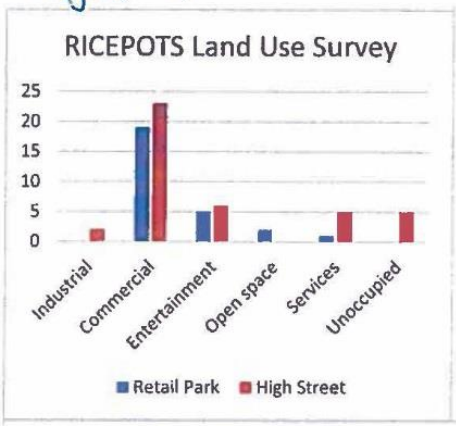


Figure 8

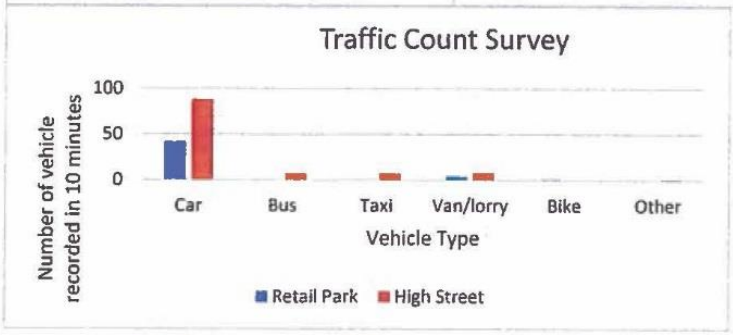
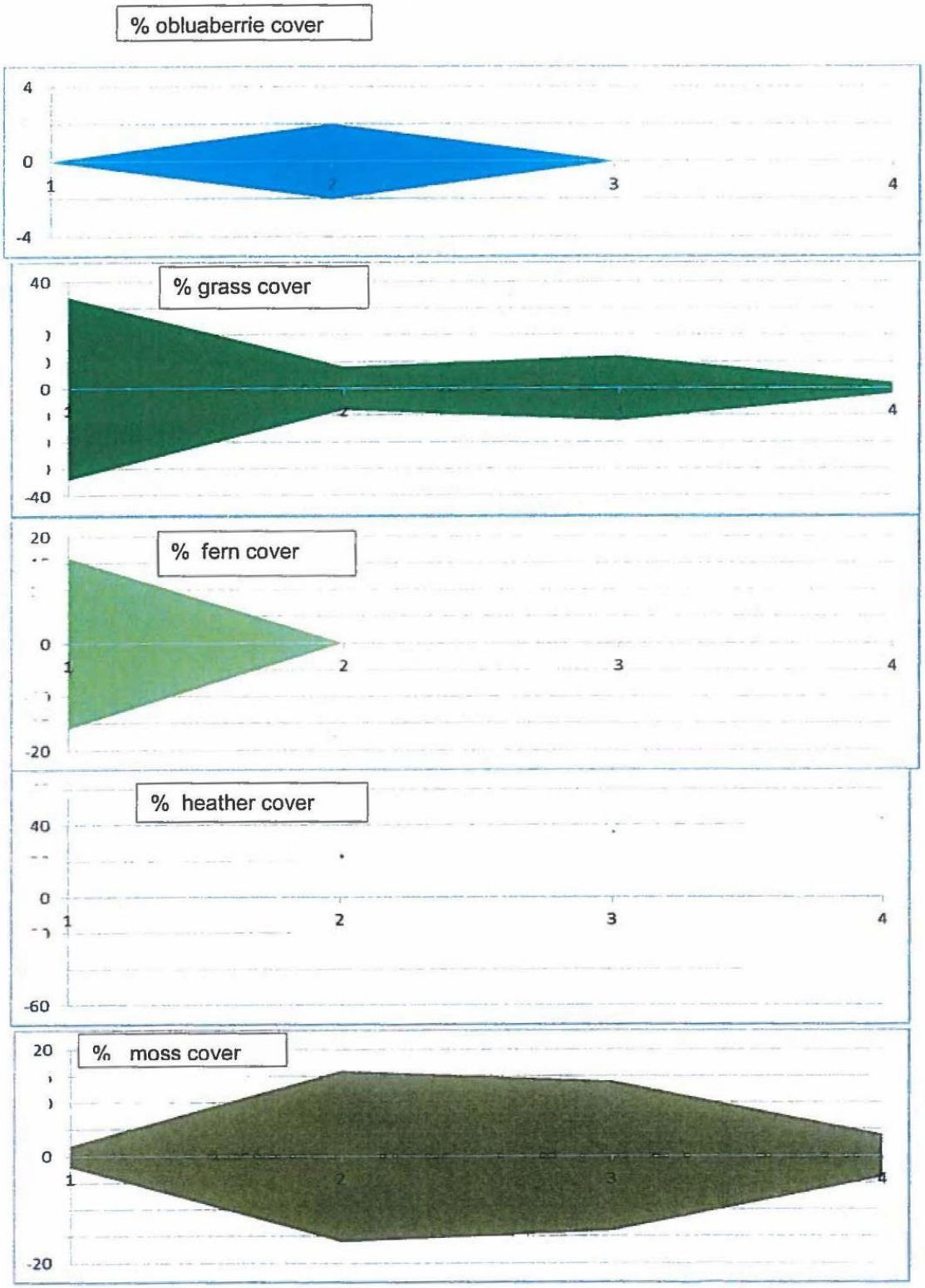


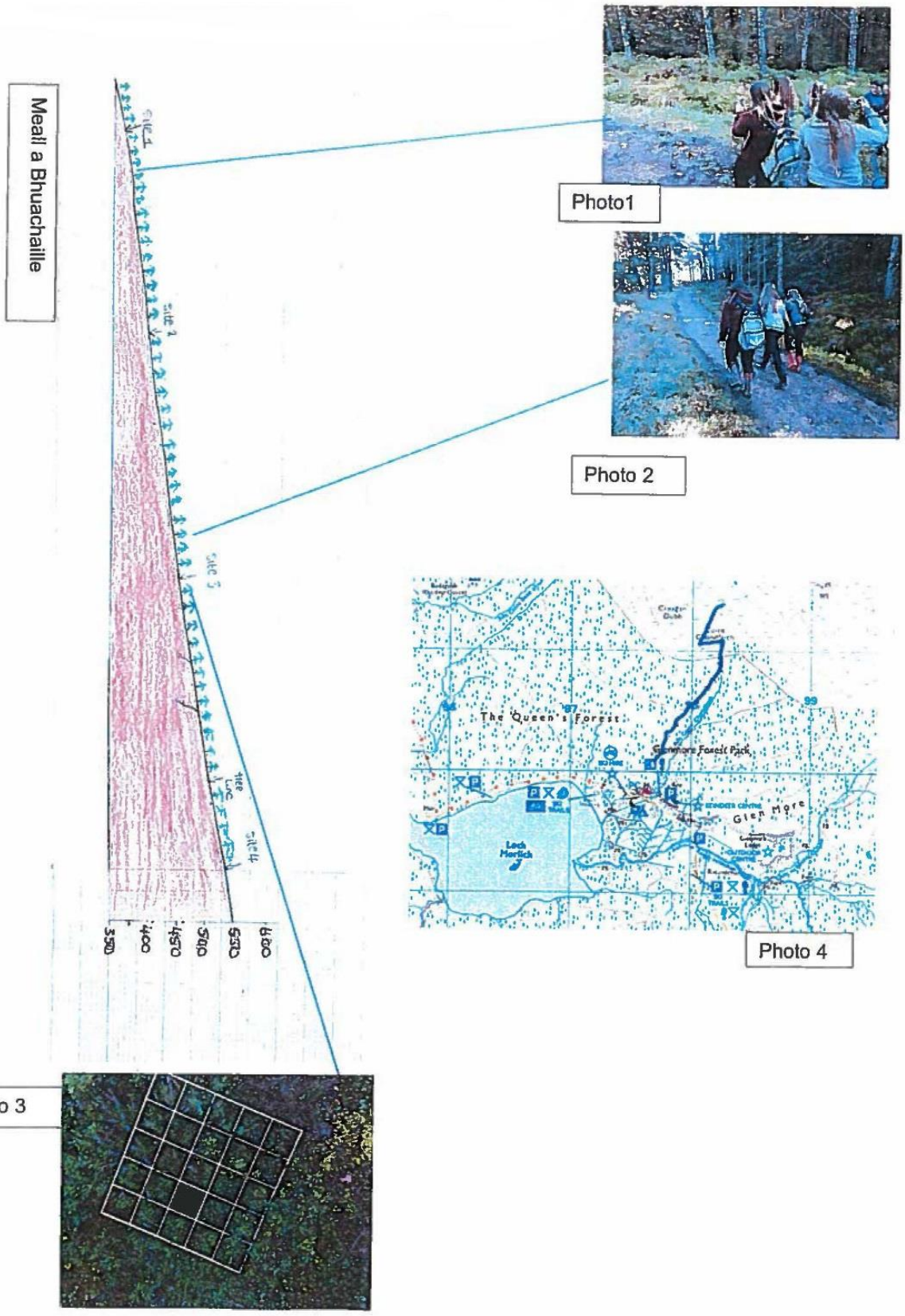
Figure 9

Figure 10

Candidate 3 evidence

How does vegetation change as the height increases?




Meall a Bhuachaille
Photo1
Photo 2
Photo 3
Photo 4
The Queen's Forest
Glen More
Loch Morlich

Name: _____ **Candidate number:** _____

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State the topic or issue which you have researched

How does vegetation change as the height increases?

Research methods: **6 marks**
Describe two research methods you used to collect information about your topic or issue.

Me and my class went to aviemore for a two clay feild trip. I chose to research about hill transect and how vegetation changes as the height increases. The first method we used was using a clinometer, we got two people to go up the hill and stop when the rest of the group went out of sight. The clinometer meaied the slope of the hill from the group to the two peopies eyes. We carried out this twice so we got a more accurate reading. The second method we uied was a trundle wheel to measure the distance from the rest of the group, where we stopped to the two people, where they were standing. Again two people measered up the slope with the trundle wheel to give an more accurate reading of the distance.

Continue on next page if needed.

The third method we used was a Quadrat. A Quadrat is made out of 25 boxes, each box representing 4%. We threw the Quadrat down randomly and took a photo of it for further research at home. A Quadrat gives an percentage of vegatation there is on the peice of land we threw it on. The Fourth method we wed was Vegatation Cards. When we threw the Quadrat we got out the Vegatation Cards to have a look and to identify what type of Vegatation it was. The Vegatation Cards explainded what we were looking at to give us a clearer image. It was either Bleaberrie, grass, heather or moss. Me and My class went to auiemore to do this information insted of reading books and maps as it ~~Worked~~ would have been harder to read. It was better us going and doing it for ourselves, like we did so it was clearer to us what we had to do.

Conclusions: 14 marks
For this section you must:
(i) Describe and explain, in detail, the main findings of your research. You must include reference to the Processed Information you have brought into the assessment.
(ii) State what conclusions you have reached about your topic or issue.

As shown on the kite diagrams as vegitation changes as the height increases. Bleaberrie started at 0% Coverage at the bottom of ~~Meal a buchle~~ meall a bhuiachaille, ~~It then increased~~ At site 1. At site 2 it increased to 4%. Then decreaded again back to the same as site 1 clow to 0% and site 4 was the same 0%. Bleaberrie likes shady conditions so it was mostly found at site 2 as it was where the most trees were so it was darker as the sunlight didnt get through the trees. Bleaberrie also likes acidic soils and as you can see site 2 was where it was mostly. Grass as shown on figure 2 started at 64% at site 1, Site 2 it increased hugly by 46% as it was 18% at site 2. Site 3 it slightly increased again to 24%., then a further increase in site 4 with 4%. Grass likes to be above 6°C so it was mostly found at the bottom ~~where~~ at site 1 where the seeds are planted and water gets on to them first. Nearer up the hill, Site 3 and 4 there was alot of trees up to between 500 m and 550 m. Grass grows mostly between

Continue on next page if needed

450 m so there wasnt alot of tree as it began to get nearer the top of the hill. ~~The~~ when it rained most rain got through site 2 as the trees had gaps between them so it was easy for water to travel through. As shown on a diagram the tree line of Meall a Bhuachaille it started very low at site 1 it was inbetween / through the middle of 350m and 400 at 350.5m. at site 2 it went up to 400.2 m, Increased again to site 3 at 450.2 m and site 4 at 550 m at the very top. The tree line varied ~~to~~ from starting at site 1 at 350.5m to 550 m at site 4.

TO Conclude how vegatation decreases as you go up hill except from Heather. Heather does the opposite. The cause of the vegatation is to do with change of weather each month and the altitude as you go up hill. Heather dosent decrease as Heather gets shorter as you go up the slope and soils also get thinner as you go up aswell. All down to weather the soils get thinner and the Heather gets shorter so it survives the bare

Strong winds it has to face 550 m at the top of the slope. As you go ~~up~~ down the slope the altitude goes up. As figure the Bleaberrie, grass, moss they did change wn the height increased. ~~Only heater €~~ even else decreased again as you went up the slope but heather increased.

Candidate 4 evidence

National 5 Geography Assignment

This investigation is too see if the Keltney Burn follow the bradshaw model.

Methods

Speed of river

To calculate the speed of the river you will need 4 people, a piece of wood, a tape measure and a stopwatch. Firstly you streatch a 2 meter tape measure across the river bank. Get a person to stand at the start and end of the tape. The another persan stands a bit back from the start of the tape measure, so when the wood comes down, its going at the speed of the river. When the wood goes past the start of the tape, shout go and the person on the bank will start the timer. Then try to keep it to the area you are measuring the speed for (far, near or middle bank) and when the float of wood gets to the end, shout stop so the timer can record how long it took. Repeat 3 times for the far, near and middle parts of the river, then take an average to eliminate sources of error. Then take an overall average for each site for reliable results.

Bedload

To calculate the bedload you will need a tape measure, a meter stick and a ruler. Firstly,

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you stretch the measuring tape from 1 side of the river to the other. Then, at regular intervals (eg. every 20cm) place your meter stick in the water, then the first stone you hit, pick it up and place on the river bank. Then once you have 10, measure the x, Y and Z axis for each rock and record. Then calculate an average for each rock, and multiply them together to get an overall average volume of rocks for each site.

Results

Depth.

According to the bradshaw model, the depth of the river should increase as you go further downstream. This is because there will be more water going into the river, with more tributarys going in. Because there is more water, it will cause more erosion to happen, such as corrasion and lateral erosion, making the river deeper. From my results I can see that from sites 0-2 this is the case, but sites 3 and 4 are not, as site 3 is deeper than site 4. This could be down to pools and riffles. They are naturally occouring in rivers, and cause areas of shallower and deeper water. It could just be that site 3 is in a pool section, and site 4 in a riffle area. Based on

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this, I would say that the depth does follow the bradshaw model. For results, see Fig 1.

Width.

According to the bradshaw model, the width of the river ~~see~~ should increase as you go further downstream. This is because there will be more tributarys going into the river, which means more water, causing more erosion. From my results I can see that sites 0, 3 and 4 all follow this trend, but there is a slight difference between sites 1 and 2. As its only a small difference, this could be down to ~~inaccuracy~~ faults in our measurements, or there could be a ~~bolder~~ bolder at site 2, meaning it is difficult to erode past it causing site 1 to be wider. As there is only a small difference, the width also follows the bradshaw model. See Fig 1 (cross section) for results.

Discharge

'further downstream' - According to the bradshaw model, the discharge of the river should increase*. This is because there will be more water in the river, due to there being more tributarys, and smoother river ~~banks~~ beds due to more erosion. These two things combined means overall a larger discharge. From my results I can see that this is the case, as the discharge steadily increase from site 0 to site 4.

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this means that the discharge follows the bradshaw model. See fig 1 for results

Volume of rocks. (Bedload)

According to the bradshaw model, the volume of rocks should decrease as you go further downstream. This is because there will be more erosion as you go further downstream, so the rocks will become smaller and smoother. From my results I can see that from sites 0-2 this is the case, and sites 3 and 4 dont follow this trend. This could be because there is a tributary near site 3, and the rocks coming in from the tributary are not as eroded as ones from the main river, meaning it pushes the average up. This means the volume of rocks dose follow the bradshaw model. For results see fig 3.

Average speed

According to the bradshaw model the speed of the river should increase as you go further downstream. This is because as there will be less big rocks and smoother river beds, allowing the water to flow faster. From my results I can see that sites 0 and 1 follow this trend, but sites 2-4 are a bit all over the place! This is because our method for measuring the

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speed was highly inaccurate, as the wood didnt always stay where it needed to be, or it would get caught by the bank ect. For this reason I cannot say that the speed follows the bradshaw model. For results see fig 4.

Average Angularity

According to the bradshaw model, the angularity of rocks should decrease as you go further downstream. This is because there will be more erosion, such as attrition, causing the rocks to break up into smaller pieces. From my results I can see that this is the case, and from sites 0-4 the angularity decreases. ~~For results see fig 5.~~ This means the angularity does follow the bradshaw model. See fig 5 for my results.

Efficiency

According to the bradshaw model the efficiency of the river should increase as you go further downstream. This is because smoother River ~~beds~~ beds and less rocks allow water to flow faster, and wider, deeper rivers allow it to carry more water, meaning the river is more efficient. From my results I can see that from sites 0-2 it follows this trend, and sites 3 and 4 do not. This could also be down to inaccuracys in our speed measurment

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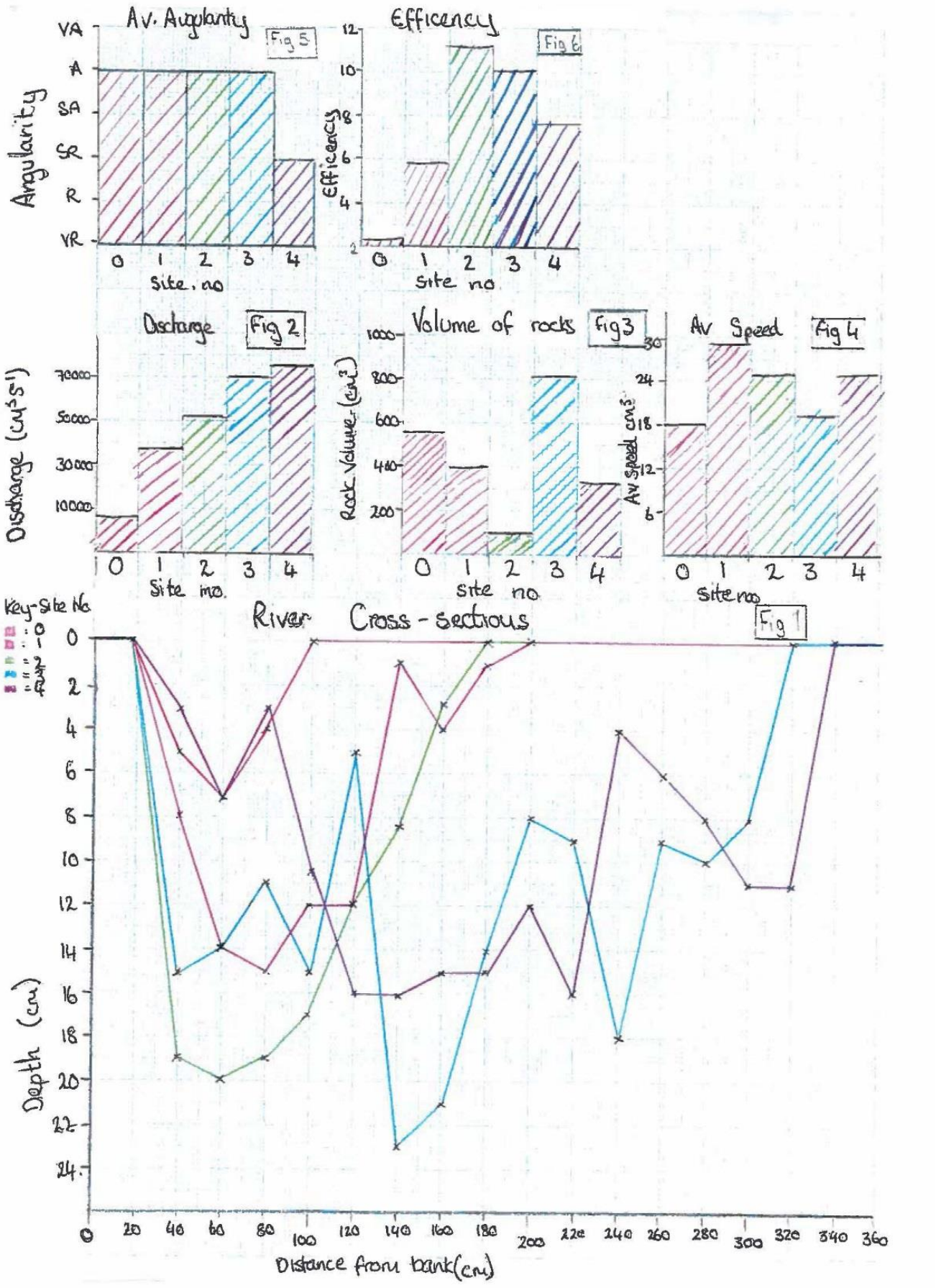
upsetting on my results. For that reason I cannot say that the efficiency of the river follows the bradshaw model. For results see fig 6.

Conclusion

To conclude, the majority of the Kelfneyburn does follow the bradshaw model. The width, depth, discharge, bedload, and angularity all follow the bradshaw model, however the Average speed and Efficency do not.

Improvements

If I was to do this investagation again I would make a few changes Firstly I would ~~by~~ use a flowmeter to calculate the speed, as the method we used was highly inaccurate. ~~This would make my results more accurate~~. I would also do the survey on a larger section of the river, as it would give me a better overview of the whole of the Kelfneyburn.


Av. Angularity
Fig 5
Angularity
VA
A
SA
SR
R
VR
0 1 2 3 4
site. no
Efficency
Fig 6
Efficency
12
10
8
6
4
2
0 1 2 3 4
site no
Discharge
Fig 2
Discharge (cu³s⁻¹)
70000
50000
30000
10000
0 1 2 3 4
Site no.
Volume of rocks
Fig 3
Rock Volume (cm³)
1000
800
600
400
200
0 1 2 3 4
site no
Av Speed
Fig 4
Av Speed cm/s
30
24
18
12
6
0 1 2 3 4
site no
River Cross-sections
Fig 1
Key-Site No
0
1
2
Depth (cm)
0 2 4 6 8 10 12 14 16 18 20 22 24
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360
Distance from bank(cm)

Candidate 5 evidence

Research topic/issue:

How a burn changes from source to mouth

Research methods: **6 marks**

Describe two research methods you used to collect information about your topic or issue.

One method we used to gather data was by measuring speed. Firstly, we used a measuring tape to measure out 10m of our chosen area. One person stood at the start and dropped a float (dog biscuit) mid stream. They signalled to the person at the end with a stopwatch when they did so. The timer at the end started the stopwatch when they recieved the signal, and stopped it when it crossed the 10m mark. One problem we faced when trying to gather data was that the dog biscuit got stuck under the enbankment and behind rocks and vegetation. This meant that we would have to nudge it out, but if it got stuck for too long, we would just have to restart. Another problem we faced was that we were only measuring the surface speed, which factors like wind could have an effect on. We did 5 runs at each site to allow us to see how it changed from source to mouth, and also allowed us to work out averages. Another method we used to gather data was by measuring the depth. At each site, we used a measuring tape to measure the entire width of the stream. We used a meter stick to measure the depth from bed to surface at 25cm incriments the entire width of the stream. A problem we faced whilst trying to gather data was when the stream became too deep to measure.

*compare to Bradshaw's model

Research Findings and Conclusions: **14 marks**

For this section you must
(i) Describe and explain, in detail, the main findings of your research. You must include reference to the Processed Information you have brought into the assessment.
(ii) State what conclusions you have reached about your topic or issue.

The Aim of our fieldwork was to investigate how the stream changes throughout it's course, from source downstream to mouth, using Bradshaw's model as a guide. Bradshaw's model soggests that the width, depth, wetted perimiter, discharge and speed all increase as you move downstream.

The width almost correlated with Bradshaw's model, except for points 2 and 6. (see photos 2 and 6). Site 2 didn't correlate, as point 1 was wider, at 94 cm and so too was point 3, at 122 cm when site 2 was only 55 cm. Bradshaw's model would suggest that it would have been between 94 and 122 cm. I think that this site didn't correlate because it had clearly been dug out by the farmer This was most likely to cut away over-hanging embankment to allow for better drainage, and to allow the stream to flow

Site 6 also didn't correlate, only being 163 cm wide, where points 5 and 7 were both higher, at 237 and 276 cm respectively. Bradshaw's model would suggest that it would have been between 237 and 276 cm, but I suspect it wasn't because of the overhanging bank, which prevented us from measuring the true width of the stream at this site ~~we couldn't measure the wetted perimiter at sites 6 and 7 however, as it was too deep~~.

Research Findings and Conclusions: **14 marks**

For this section you must
(i) Describe and explain, in detail, the main findings of your research. You must include reference to the Processed Information you have brought into the assessment.
(ii) State what conclusions you have reached about your topic or issue.

The same goes for wetted perimiter. It is in exactly the same order as the width. - (see graphs) this is because of the same reasons. We couldn't measure the wetted perimiter at sites 6 and 7 because it was too deep.
The depth did correlate with Bradshaw's model, which suggests that the depth increases as you go downstream. E.g. at point 1, the depth was 3cm. at point 4 it was 16cm, and at point 7 it was 22cm There were a few irregularities, mainly because of rocks, overhanging vegetation and debris making it harder to measure the bottom.

The Speed did not correlate with Bradshaw's model, which suggests that the speed increases as you go downstream. This was because the dog biscuit would frequently get stuck under embankements or behind rocks and vegetation, (see photo) and we would have to nudge it out. We would often take a while to find it under the bank, e.g. at site 1, where run 1 was 83 seconds, run 2 was 85 seconds, run 3 was 83 seconds but run 4 was 102 seconds this was again because of it getting stuck. Another reason that the sites were different was that some areas were flatter than others, and therefore slower. E.g. site 7 was flatter (see photos) which meant that it was considerably slower than the rest.

Research Findings and Conclusions: **14 marks**

For this section you must
(i) Describe and explain, in detail, the main findings of your research. You must include reference to the Processed Information you have brought into the assessment.
(ii) State what conclusions you have reached about your topic or issue.

In general, our findings correlated well with Bradshaw's model, with only a few minor exceptions, e.g. site 1 for speed or sites 2 and 6 for width.

Bradshaw's model is the 'ideal stream' however, and it would be almost impossible to find a stream which matched exactly, so I think we were very close to accurate, seeing that certainly width, depth and wetted perimiter all increased as you went downstream from source towards mouth