**General Certificate of Education (A-level)
June 2011**

Environmental Studies   **ENVS1**

(Specification 2440)

Unit 1: The Living Environment

Report on the Examination

General

This paper may have been slightly less accessible than previous papers as the mean was two to three marks lower than most ENVS1 papers. However, the higher standard deviation suggests that it was more discriminating than the previous ENVS1 papers. Even the weakest candidates gained credit, and the most able candidates were appropriately challenged. More than 6% left the last two parts blank which suggests that some found it quite difficult to complete the whole paper.

As is usual for this component, the majority of candidates lost marks as a result of poor, imprecise expression and through not reading the questions sufficiently carefully. Scientific understanding, especially of the application of practical techniques, was generally weak.

Those candidates who write outside the scanned areas on the question paper run the risk of not having their work seen and therefore not marked. Legibility was also an issue on several scripts. Candidates who rewrite the stem often find themselves running out of space to write clearly. Poor examination technique, such as listing more alternatives than required, also loses marks.

Question 1

Over half the candidates gained two marks for this, with the most common correct answers being 'migration' and 'carrying capacity'. However, many did omit the concept of indefinitely or sustainably for the latter point. 'Maximum Sustainable Yield' was quite well known but 'Mortality rate' was not. Relatively few included the concept of time, and many described mortality in terms of humans only.

'Density dependent factor' was clearly too difficult to define for most. Only just over 2% scored full marks on this question. Many did not appear to realise that the *factor* does not change, rather it is the <u>effect</u> of the factor that changes in accordance with population size. Definitions that did not repeat the key terms in the stem were rare.

Question 2

(a)   (i)   About 30% got both marks and many good answers were seen. Misconceptions included those that thought that a 'narrow range of tolerance' means that they find it hard to get food or easily catch diseases and also that the Damselfly is not 'fit' for survival.

(a)   (ii)   Again about 30% got both marks and clearly demonstrated that they had learnt the definition. This is such an important concept that it has been a fairly common question. Those that got one mark generally knew that a niche refers to the role of an organism. So it is perhaps worth emphasising the other aspects of the definition, i.e. the biotic and abiotic interactions.

(b)   (i)   About 75% of candidates got this right. Those that did not often gave a conservation strategy or an organisation involved in conservation. Defra appeared frequently. It is worth noting that if they are going to write out the name of a designation, it MUST be correct. For example, we typically see Site of Special Scientific Interest (SSSI) written wrongly, which will not get a mark, when SSSI would get one.

(b)   (ii)   Only 50% got two or more marks on this five mark question. Similar questions have been asked before, so this reflects a fundamental misunderstanding of how succession affects organisms. There was confusion over the concepts of plagioclimax and range of tolerance. There were references to lichens and mosses as pioneer species and the impacts of forest fires. Sediment and soil were confused too. The overall impression is that many candidates simply try to learn a collection of disjointed facts rather than understanding a process that should be described with precise terminology.

Those that did demonstrate that they knew succession quite well, lost marks because they did not describe how it would threaten the Northern Damselfly.

Question 3

(a)   (i)   The majority knew that CITES bans trade and got one mark, but only 30% went on to say how this helps to conserve a species. Despite this question appearing on previous papers, many are under the impression that CITES bans hunting or actively conserves habitats or even carries out reintroduction programmes.

(a)   (ii)   Pleasingly, over 70% got both marks. It is worth pointing out that two ecological reasons will only get one mark. For example, they are important as predators and as prey species is just the 'food chain' point.

(b)   (i)   The impacts of habitat fragmentation were quite well known, and quite a few gave good answers relating to reduced gene pools leading to more inbreeding There were still many incorrect references to 'interbreeding' and inbreeding causing mutations'. Some did state that species are actually moved during fragmentation, while this may be true for one or two large flagship projects, it is certainly not the case for practically all others.

(b)   (ii)   Weaker candidates did not realise the significance of Area A as a wildlife corridor linking the nature reserves and assumed that mangroves were the preferred habitat of orangutans, despite the protected areas being a considerable distance from the sea. There were some very vague and fanciful answers, such as the mangroves would protect the orangutans from the sea, or would be a good source of water. Many candidates appeared to be confused about the difference between a habitat and a reserve, and did not appreciate that animals in reserves of the sizes depicted are not likely to be fenced off or be very actively managed. Some did appear to think that animals in a reserve are captive. Better candidates got the idea of a wildlife corridor, but rarely able to expanded on this for the second mark. This question proved to be a good discriminator.

(b)   (iii)   This question elicited many vague answers. Better candidates recognised that a long thin shape would make it harder to monitor borders and that there might be an increased biotic threat. Fewer mentioned edge effects and the effect of abiotic factors. Common misconceptions were that there would be a small area which would increase competition for food or that there would be a smaller surface area (surface area to volume ratio ought to be fairly common knowledge at this level). Some did not read the question properly and assumed that the long thin shape referred to a corridor, rather than the reserve itself.

Question 4

(a)   About 65% got both marks with the most common responses being aesthetic impact and noise. It must be emphasised that candidates must stick to the number of answers asked for. A third response that is incorrect will cancel out one of the two correct answers. Economic arguments against wind farms are not appropriate in the context of the question.

(b)   (i)   Fewer than 18% got two or more marks out of this four mark question. Most simply did not read the stem carefully enough to realise that the question was about planning regulations. Those that did score typically managed to get an easy mark by saying that planning permission was needed. Many did give detailed explanations of how a public inquiry could be set up, which only gained one mark. Most answers gave details of time or space zoning, Environmental Impact Assessments or cost-benefit analyses, illustrating that the candidate had not understood what was required.

(b)   (ii) This was answered better than the previous question but was often confused with the process of cost-benefit analysis, of which there were some good explanations. There were many vague references to harmful 'impacts', but with insufficient detail to gain credit. Those that did score frequently knew that a Leopold Matrix is used and could name an impact and that the magnitude of impacts are assessed. Mention of alternatives or modifications or even that a report is produced were more rarely seen.

Question 5

(a)   (i)   Nearly 90% got this mark. It is not strictly a negative correlation, but recognition of the downward (ie negative) trend was credited.

(a)   (ii) 40% gave a reasonable explanation, but the rest did not appreciate that 'explain' means **give a reason why** there is a negative trend and usually gave further descriptions or repeated their answers to 5(a)(i). Quite a few candidates gave intelligent responses suggesting that increased UV levels due to ozone depletion cause population decline, but sadly these answers do not address the fluctuations in the population density.

(b)   Some teachers were concerned that this question required knowledge that is not on the specification, even though it has been asked twice before. An understanding of population dynamics, sufficient to know that it is important in assessing the Maximum Sustainable Yield of a species, is all that is required. 55% of candidates got both marks and 86% got at least one, suggesting that most candidates found the question to be quite straightforward. Those candidates who wrote more than the required two responses often penalised themselves, as an incorrect answer negates a correct one. Answers that were not creditworthy included: size of the habitat; food available; number of predators; and density (unless related to area/ volume). Some seemed to have no clear idea and gave diversity index.

(c)   It was sad to see that only 19% got both marks for what should have been a relatively easy question. There were some excellent clear and detailed answers but far too much basic ignorance was evident. There was much confusion about whether the origin of oxygen is respiration or photosynthesis and many hedged their bets and included both! Some did not read/ understand the question and wrote about how the ozone layer is protective, or described the Greenhouse Effect. A significant number thought that 'early life' meant plants and even trees. Some were even concerned that humans released carbon dioxide so that plants could turn it into oxygen! Living things (other than humans) do not split oxygen atoms, despite the responses of several.

(d)   This relatively easy question produced some very detailed and well described answers. Pleasingly, over 34% got all four marks. Many gave decomposers and/ or detritivores as a suitable example to get one mark but failed to get a second, because they did not describe their role in nutrient supply.
A significant number do not appear to understand the difference between seed dispersal and pollination. Seeds and pollen seem to be synonymous for some.

Question 6

(a)   (i)   This was an easy question that only about 50% got right. Conservation designations, national and internationals NGOs and various Governmental Organisations were given.

(a)   (ii)   A wide range of responses were seen for this question and about 30% got all four marks. Most gave appropriate ways of creating habitats, but fewer said why these methods increase diversity. Please note, provision of nest boxes or nesting materials is not 'creating a habitat', but merely enhancing the resource availability for specific organisms. There were too many vague responses that simply repeated parts of the stem, ie 'create habitats' and 'increases wildlife diversity' given as the effect.

(b)   (i)   Only about 30% got three or more marks on this straightforward six mark question. There were some very well expressed, detailed and concise answers, but less than 4% got full marks and nearly 23% failed to get any. Usually marks were lost for vague statements such as: 'results will be recorded', 'collect your data' or 'see what you find'. Many had clearly not read the question and gave details of animal sampling, usually involving pitfall traps, or described the process of random sampling along the transect. Many did not use the information in the diagram and described transects that were 10 or 20 metres long.

Please can it be emphasised that repeating sampling does not increase accuracy. Repeats increase reliability of conclusions or averages.

(b)   (ii)   Unfortunately, many do not seem to know what a beating tray is. Only 5% got four marks and more than 30% failed to get any. If candidates are struggling to complete the paper in time, they ought to realise that it is good exam technique to try to answer every question, even if some answers are too brief.

The first two marking points were easy to access for most candidates. The need for a standardised technique was only mentioned by the best candidates. Many lost marks by saying that the invertebrates would be observed or recorded but <u>not</u> counted or identified. Tüllgren funnels and sieves were frequently described. Species diversity indices or the Lincoln index were irrelevant here.

Mark Ranges and Award of Grades
Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.

UMS conversion calculator www.aqa.org.uk/umsconversion