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## **General Certificate of Education**

# **Environmental Studies 1441**

**ENVS1 The Living Environment**

## **Report on the Examination**

*2009 examination - January series*

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## General

This was the first paper of the new specification and reflected the slight change in emphasis. The main objective of Unit 1 (the Living Environment) is to apply the scientific understanding of the biosphere to wildlife conservation. Centres are therefore advised to encourage candidates to become familiar with a wide range of examples of wildlife conservation strategies.

The majority of the candidates attempted all of the questions, and many gave comprehensive and accurate answers. There were relatively few excellent scripts that had detailed well-explained answers, but there were also not very many really poor scripts. So both the most able and weaker candidates had opportunities to demonstrate their understanding. Nearly every candidate completed the paper within the time allowed.

Typically, most candidates lost marks as a result of their generally poor standard of English. Casual reading of the questions, and imprecise, vague answers limited the marks a candidate could gain. It is notable how few candidates confidently and accurately use the terminology of the subject. It was common to see the repetition of the question stem which wastes time and reduces the space available for the candidates' answers. There were too many fundamental errors, reflecting a weak grasp of basic GCSE science.

## Question 1

This question was generally well answered, with many candidates gaining full marks. The most common mistakes were to confuse the three gases and to state that the energy source for photosynthesis was CO<sub>2</sub>.

## Question 2

- (a) This was a straightforward question and most candidates scored both marks. Those candidates who did not refer to orchids only scored one mark. Relatively few candidates mentioned specific climatic or other ecological factors.
- (b) (i) Nearly every candidate gained both marks for this.
- (b) (ii) This was often done well, with a pleasing number giving more correct points than there were marks. It was a familiar question from previous ESC 3 papers and required similar points. Few candidates offered an appropriate alternative method and some seemed to have no concept of what a small mammal is. Common inappropriate suggestions ranged from the use of quadrats and counting brazil nut trees or nuts eaten.
- (b) (iii) Most candidates got this right. 'Insects' and 'invertebrates' and even 'producers' were common incorrect responses.
- (c) This question proved to be a useful discriminator, because very few candidates gained both marks, although the majority scored one.

### Question 3

- (a) Many candidates did not seem to understand what is meant by 'evidence' and wrote irrelevant and vague waffle. Those that knew about the process of a public inquiry gave details of environmental impact assessments and cost-benefit analyses and easily gained three marks.
- (b) This question illustrated the need for candidates to read carefully the stem of the question. Many did not gain marks because they referred to wildlife and wildlife habitats despite them being asked to give **other** conflicts. It was quite common to see the source of the conflict (eg between the development and shipping) rather than saying what the conflict is (eg shipping may be restricted).
- (c) The answer to this question was known or not. Ramsar rather than SPA was the most common correct response. SSSI was the most frequent wrong answer.
- (d) There were many confused responses to this question, and although four marks was rare, most candidates managed to score two or even three. It was often not clear whether the candidates were describing impacts above or below the barrage.

### Question 4

- (a) (i) Although there were many good answers to this question, a significant proportion of candidates ignored the request for **economic** reasons. References to education, ethics or aesthetics, gained no marks without specific explanations of financial gains.
- (a) (ii) There were some vague answers, but most candidates managed to gain marks by referring to food chains, predation or sharing the same protected habitat. There were too many inappropriate explanations involving the 'balance of nature'. It should be pointed out that 'symbiosis' is not synonymous with 'mutualism', not that this confusion affected any candidates. Symbiosis refers to an intimate relationship between two organisms which could be parasitic or commensal as well as mutualistic.
- (b) The answers to this question appeared to be centre specific, since candidates from some centres failed to state that CITES bans international trade, and instead wrote that CITES bans hunting or sets up nature reserves. Some of those who did know that trade was banned, failed to get the second mark by relating this to the context of the question and explaining how this would reduce hunting.
- (c) Most candidates described a trend shown by one of the graphs, although weak candidates frequently made vague reference to, for instance, the mean age/mean mass having *changed*, without saying in which direction. Inexplicably, many of those who correctly stated that the mean age of the population had decreased, thought that this meant that younger elephants had been targeted by hunters. Some candidates clearly thought that ivory hunters (and conservationists) saw off the tusks from living elephants, which explained why the proportion of tuskless elephants had increased. Rhinos have been 'dehorned' in an effort to reduce their hunting, but elephants cannot be 'detusked'. It is understood that candidates are not expected to know this so they were credited for sensible explanations. However, there were references to elephants

'adapting' or 'evolving' to have no tusks and comments such as these were not to be worthy of marks.

- (d) This question proved to be a good discriminator. Many candidates scored one mark by realising that two habitats would need to be conserved rather than one, or that the two species would require different resources. Relatively few candidates mentioned the risk of hybridisation (presumably and understandably confused due to the common definition of a 'species') and the need to breed the two species separately to maintain distinct gene pools. It was uncommon to see references to appropriate reintroduction.

### Question 5

The better candidates were more likely to score full marks on this question. It was astonishing that there were many candidates who appeared to believe that lemmings actually do commit suicide by jumping off cliffs.

- (a) This question proved to be relatively easy and the majority of candidates scored two or three marks. Those who did not score well gave vague answers without specific reference to organisms or just made sweeping statements like 'the lemming population would change' with no reference as to why. There was a minority of candidates who stated that lemmings were predators of weasels, yet were predated upon by arctic foxes and skuas. Perhaps they thought that this was because the weasels were below the lemmings on the diagram (even though the arrow clearly points to the weasels).
- (b) (i) Candidates who gave a list of alternative reasons only gained one mark. To get both marks a more detailed account of the effect of one factor was required. Most did manage to score one mark.
- (b) (ii) Despite some confusing the diversity index with the Lincoln index, most candidates managed to get at least one mark. There were a significant number of very strange formulae. Many do appear to equate 'species' with 'animals'.
- (b) (iii) There were three easy marks for linking slow nutrient cycling with slow plant growth and relating this to the food supply for the lemmings. A substantial minority of candidates did not understand these links and made comments such as 'more food would be available as the grasses and sedges would take longer to rot so lemmings could feed on them for longer'. Many candidates did not include reference to soil nutrients or plant growth but thought that the lemming carcasses would rot slowly so predators could eat those instead of taking live lemmings. There were also comments such as 'dead lemmings would cause disease'.

## Question 6

The answers to this question suffered from waffle, the majority of responses seen were vague, imprecise and lacking significant detail. Quite a few candidates did not appear to understand what was required in parts a) and b) and often transposed or duplicated their answers for both sections. 'Wildlife value' was apparently a source of confusion to some, essentially it means the overall diversity of, or the range of species (especially rare species) in, a patch of habitat.

- (a) Good candidates wrote clear, intelligent accounts of: biological corridors, the lack of suitable areas for wildlife in urban areas, and the fact that gardens often provide supplementary resources or relative safety from predators. Weak candidates wrote vague and general accounts referring to gardens having habitats and food but without any reference to the lack of these in the wider environment or the variety available in gardens. Similarly, many said that the wildlife were 'safe' or had 'shelter' but without explaining from what (eg weather, predation, competition).
- (b) Not very many candidates gained both of the marks for this question. Few seemed to appreciate that they needed to be reasonably precise and suggest what it was about a particular plant that might make it useful or otherwise for other organisms.
- (c) There were relatively few good answers to this question, which ought to have been quite straightforward. This was either known or not, the answers tended to be centre specific. Many candidates lost marks through poor examination technique by making statements such as 'results could be recorded' without saying exactly what would be recorded, ie numbers or species. Some did not understand what 'surveyed' meant and appeared to think that it meant an assessment of whether the garden would be a good place for moths to live. A worrying minority thought that light traps kill moths.
- (d) Typical answers described eutrophication rather than succession or described succession from bare rock with frequent references to lichens or *primary* succession in the pond. Consequently, it seems as though most candidates just did not bother to read the stem with sufficient care. It was rare to see detailed examples from candidates with a clear understanding of the processes. Far too many candidates were let down by the standard of their written English. Vague assertions, lack of clarity, poor use of scientific terminology and insufficient detail were the norm. Those few candidates that sketched a plan, usually produced clear, logical and organised answers.

### Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.