

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Education
Advanced Subsidiary Examination
June 2011

Environmental Studies

ENVS1

Unit 1 The Living Environment

Tuesday 17 May 2011 9.00 am to 10.00 am

You will need no other materials.
You may use a calculator.

Time allowed

- 1 hour

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
Two of these marks are for the Quality of Written Communication.
- You will be marked on your ability to:
 - use good English
 - organise information clearly
 - use specialist vocabulary where appropriate.
- Question 6(b)(i) should be answered in continuous prose.
Quality of Written Communication will be assessed in this answer.

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
TOTAL	



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ENVS1

Answer **all** questions in the spaces provided.

- 1** The table defines some terms used when studying population dynamics.

Complete the table.

Definition	Term
	Mortality rate
Movement of individuals into or out of a population	
	Carrying capacity
Greatest number of individuals or biomass that can be taken from a population without causing long-term decline	
	Density dependent factor

(5 marks)

5



- 2** The photograph shows an endangered Northern Damselfly, *Coenagrion hastulatum*, that lives only in a few small water bodies in the Scottish Highlands.



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Source of photograph: © Thinkstock

- 2 (a) (i)** The Northern Damselfly is a weak flyer and has a narrow range of tolerance.

Explain how this may have led to the species becoming endangered.

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(2 marks)

- 2 (a) (ii)** Explain the term 'ecological niche'.

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(2 marks)

Turn over ►



- 2 (b) (i)** Suggest a conservation designation that may be used to protect the habitat of the Northern Damselfly.

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(1 mark)

- 2 (b) (ii)** Describe how the process of succession may threaten the Northern Damselfly.

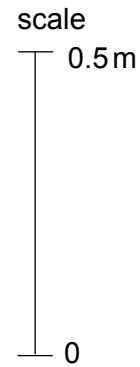
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(5 marks)

10



- 3 The photograph shows a Bornean orangutan, *Pongo pygmaeus*, an endangered species of ape.



Source of photograph: Getty Images

- 3 (a) Orangutans are listed under Appendix 1 of CITES.
- 3 (a) (i) Describe how CITES may help to conserve a species.

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(2 marks)

- 3 (a) (ii) Give **two** reasons why orangutans should be conserved.

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2

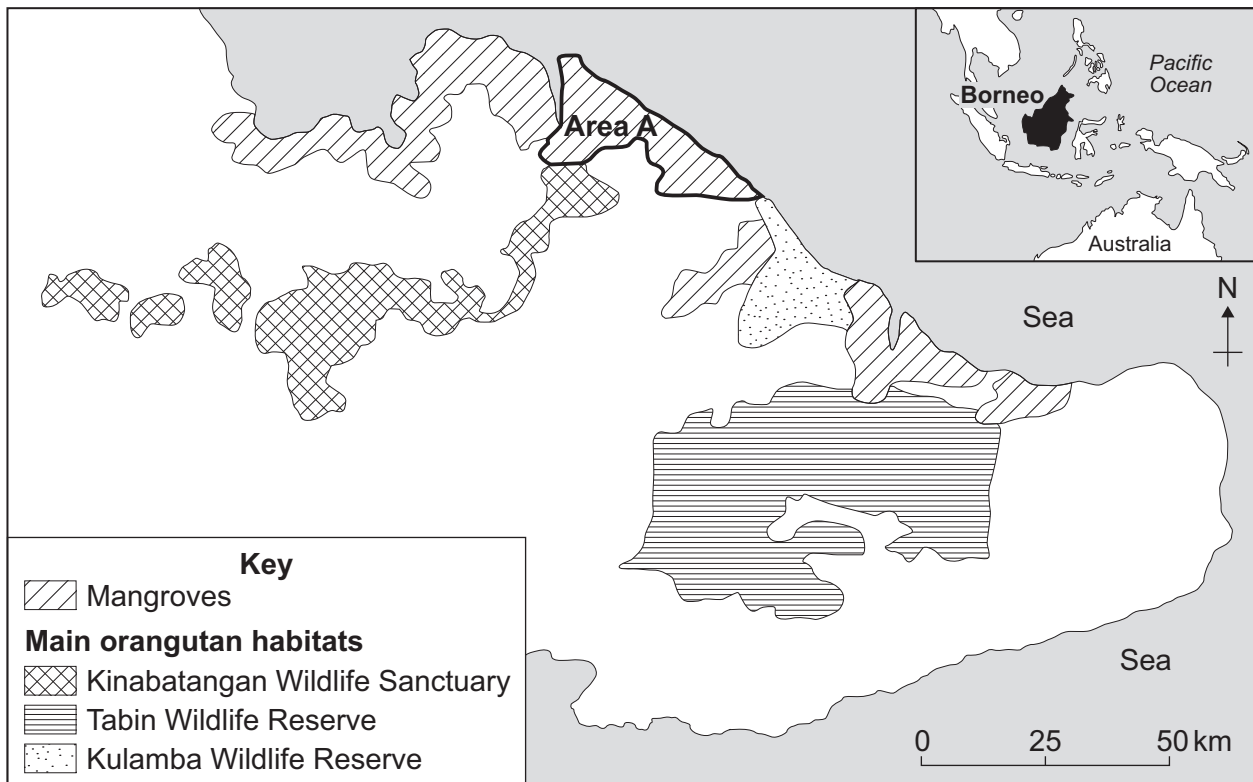
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(2 marks)

Turn over ►



- 3 (b)** The map shows part of the habitat of the orangutan on the island of Borneo.



- 3 (b) (i)** Suggest how habitat fragmentation threatens wildlife.

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(2 marks)

- 3 (b) (ii)** Suggest why **Area A** on the map is of particular value for orangutan conservation.

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(2 marks)



3 (b) (iii) The protected area of Kinabatangan Wildlife Sanctuary contains some relatively narrow sections.

Explain why a long thin shape is usually less desirable for a nature reserve.

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(2 marks)

10

Turn over for the next question

Turn over ►



- 4 Wind farms are being developed in response to concern about the future of energy supplies.



- 4 (a) Suggest **two** reasons why there is opposition to the development of wind farms.

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(2 marks)



- 4 (b) (i)** The construction of wind farms in some areas may cause land use conflicts. Describe how planning regulations may be used to resolve conflicts.

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(4 marks)

- 4 (b) (ii)** Describe how an Environmental Impact Assessment may be used for a proposal to develop a wind farm.

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(4 marks)

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Turn over for the next question

Turn over ►

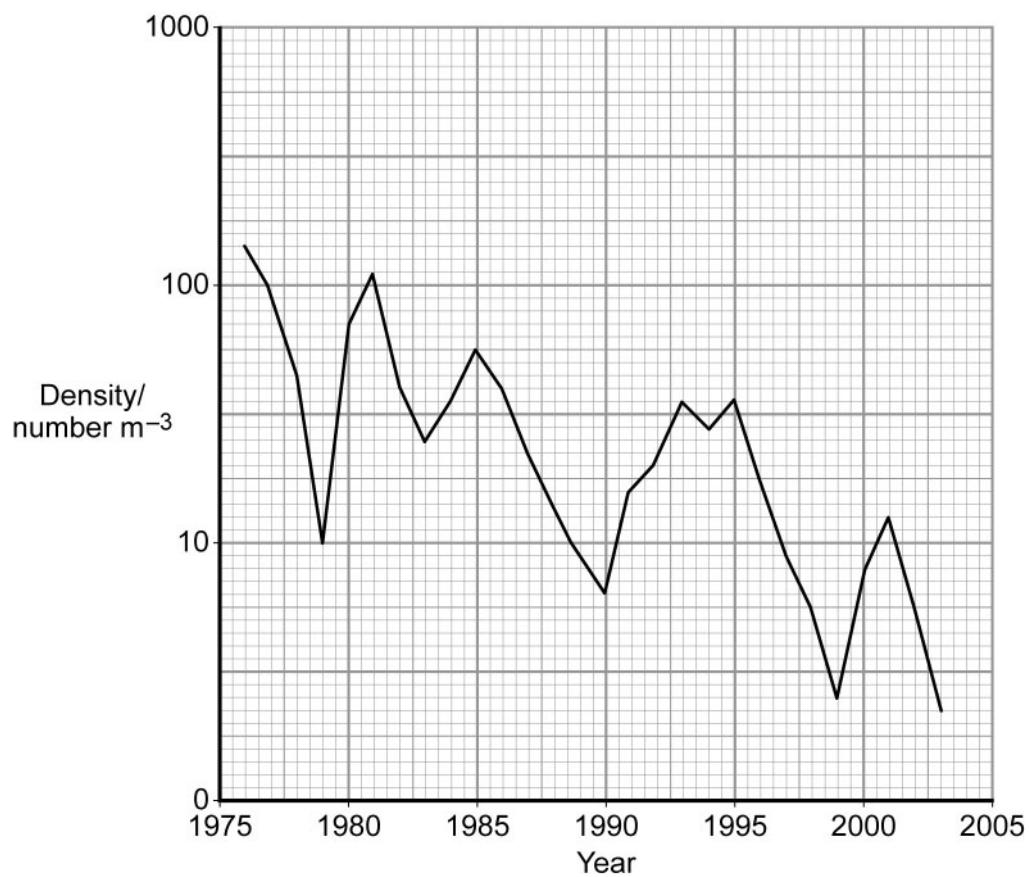


- 5 The photograph shows krill, *Euphausia* spp., a small crustacean that began to be harvested on a large scale in 1974.



Source of photograph: Getty Images

The graph shows the changes in the density of a krill population between 1976 and 2003.



5 (a) (i) Describe the trend shown in the graph.

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(1 mark)

5 (a) (ii) Explain this trend.

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(1 mark)

5 (b) Give **two** pieces of information needed to calculate the Maximum Sustainable Yield of krill.

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(2 marks)

5 (c) Krill eggs are damaged by the increased levels of UV light caused by ozone depletion.

Describe how the presence of early life on Earth brought about the development of the ozone layer.

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(2 marks)

Question 5 continues on the next page

Turn over ►



5 (d) Describe **two** ways in which species survival depends upon the presence of other species.

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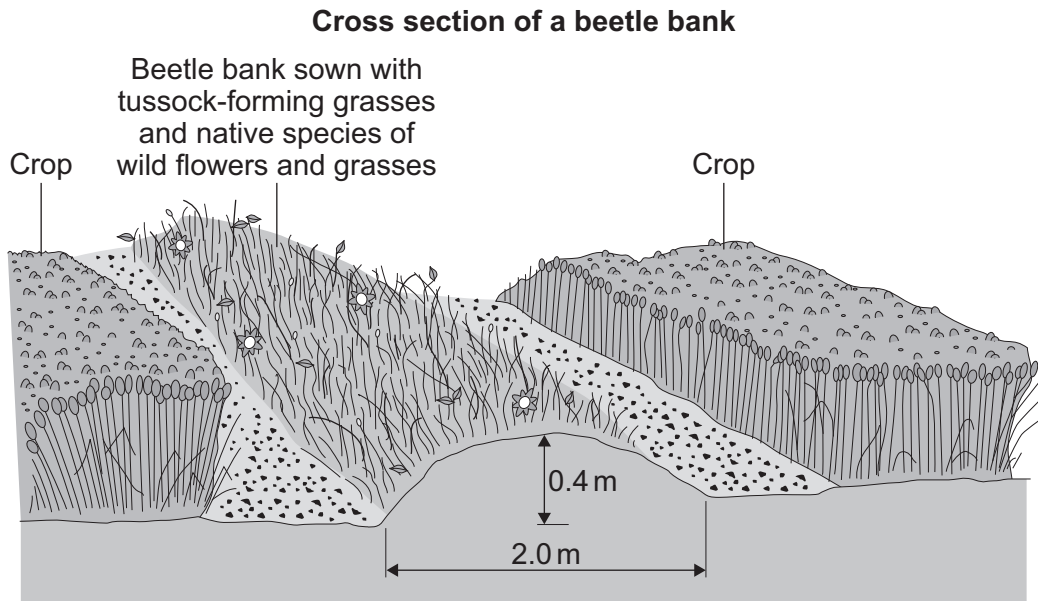
(4 marks)

10



- 6 The drawing shows a beetle bank.

Beetle banks are used in fields to provide a habitat for predators of crop pests.



- 6 (a) (i) Name a government scheme designed to promote such developments.

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(1 mark)

- 6 (a) (ii) Explain **two other** methods which create habitats and so increase wildlife diversity in farmland.

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(4 marks)

Turn over ►



- 6 (b) (i)** Describe how a belt transect may be used to estimate the distribution of plant species through a beetle bank.

Quality of Written Communication will be assessed in this answer.

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(6 marks)

- 6 (b) (ii)** Outline how a beating tray is used to sample invertebrates on vegetation.

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(4 marks)

END OF QUESTIONS

15



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