**Identifying Healthy Outdoor Environments –Taylors Creek Excursion**



**How can I assess water quality?**

This most simple way you can do this is by assessing how clear and clean it is, the cleaner and clearer it is generally equates to the healthier it is. If it is drinkable it is usually a good hint to it being a healthy source. If there are a lot of organisms living in the water, it shows that the water source can sustain these and therefore is also in a healthy state.

The smaller amount of organisms, the cloudier (more turbulent) and the dirtier the water is, can correlate with how unhealthy it is. Oil smears on the water surface, rubbish and suspended solids can also indicate an unhealthy water quality.

**How can I assess air quality?**

This is most easily seen through a smell and visual observance of the air in your local vicinity. A healthy air source with be free of pollution related smells such as exhaust fumes and toxins. It will also allow you to see far into the distance without smog or pollution based haze (fog isn’t an indicator of health). The easiest way to asses this is through distinct visibility of stars in the night sky. In city based environments this is often restricted with a much larger clarity and amount of stars visible in healthy environments (such as the Grampians).

**How can I assess soil quality?**

Soil quality is often assessed by the level of nutrients present within it. This is not assessable by simply picking up the dirt but is given away by what is able to grow in it. Good soil will usually be well covered with vibrant, luscious and generally healthy looking vegetation along with plants free of nutrient based disease. It can also be seen with a large presence of worms which reflect healthy, nutrient rich soil.

Unhealthy soil is often poor in nutrients and this is again reflected by the plants that grow within it. This is evident through plants with a stunted growth or dull foliage (when healthy varieties are vibrant). Soil with high levels of salt (salinity issues) also causes it to be categorised as unhealthy as it isn’t suitable for many organisms or usual plant life. This is evident through high levels of salt tolerant plants being present, such as the ‘Pig face’ plant we found around Fyanns Lake in the Grampians.

**How can I assess the quality of biodiversity?**

This is purely assessed through the presence and amount of biodiversity in a location over the three levels of *Genetic, Species and Ecosystem* biodiversity.

Genetic:

Genetic diversity refers to the variety of the genes that occur within the individuals of a particular species. With the lowest amount of genetic diversity occurring between cloned individuals. Natural occurring populations generally have a greater genetic biodiversity.

Species:

This is simply the variety of species present in a particular environment. With Eastern Grey Kangaroos, Koalas, Red-necked Wallabies, and Emus all being present on our Grampians trip, it is an indicator of healthy species diversity in this area. The opposite of this would be a farm environment where single species are present. Eg sheep farm, cattle farm etc.

Ecosystem:

This refers to the variety of habitats, natural communities and ecological processes that exist in a natural environment. This occurs only over large natural environments and places we would refer to as wilderness. It is often measured on a much larger scale where we can assess the variety of ecosystems in a region.

In general Victoria can be seen to have an unhealthy level of biodiversity due a large loss of animals through extinction.

**How can I assess the health via levels of pest or introduced species?**

An environment can be assessed by looking at the number of pest or introduced species. Low to no introduced species within an ecosystem generally indicates a healthy environment as native species are normally thriving with no threat from external predators. Numbers of introduced species can also identify an unhealthy environment. In the Grampians we saw blackberry bushes behind Brambuk and also deer in the forest. Although they were present, due to the low number and variety of these species seen it could be said to be representation of a healthy environment.

**Taylor’s creek and lakes**

**Elements that enable us to determine healthy environments**

**Quality and adequacy of water**

How have physically assessed this?

What is the quality of the water? (Circle one)

**VERY POOR POOR AVERAGE GOOD VERY GOOD**

What factors have resulted in you giving this verdict?

Are there any scientific ways this could be further assessed?

**Air quality**

How have physically assessed this?

What is the quality of the air? (Circle one)

**VERY POOR POOR AVERAGE GOOD VERY GOOD**

What factors have resulted in you giving this verdict?

Are there any scientific ways this could be further assessed?

**Soil quality (inc impacts of salinity)**

How have physically assessed this?

What is the quality of the soil? (Circle one)

**VERY POOR POOR AVERAGE GOOD VERY GOOD**

What specific factors/findings have resulted in you giving this verdict?

Are there any scientific ways this could be further assessed?

**Biodiversity (gene, species, ecosystems)**

How have physically assessed this?

What is the quality of the biodiversity taking into account genetic, species and ecosystem bidiversity? (Circle one)

**VERY POOR POOR AVERAGE GOOD VERY GOOD**

What factors have resulted in you giving this verdict?

Are there any scientific ways this could be further assessed?

**Pest and introduced species levels**

How have physically assessed this?

What is state of pest/introduced species in the area? (Circle one)

**VERY POOR POOR AVERAGE GOOD VERY GOOD**

What factors have resulted in you giving this verdict?

Are there any scientific ways this could be further assessed?

**Overview**

Taking all of these factors into consideration, evaluate the overall health of Taylor’s creek and surrounding banks?

**Indicators of healthy environments questions from the 2012 and 2007 exams**

**2012 Examination**

**Question 8**

The amount of vegetation is one indicator used in evaluating the health of an environment.

1. Name an outdoor environment that you have studied and describe two **other** indicators that could be used to determine its health.

Outdoor environment \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Question Breakdown**Firstly, what information is the question asking you to provide? (rephrase the question)What ‘indicator’ can you not talk about?Considering how many marks is it worth and the need to provide an environment, how do you feel the marks be divided?Now.. Answer the question ☺ |

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4 marks **(2012 Exam)**

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| **2012 Assessor report****Question 8.** Students needed to name an outdoor environment and use this as the basis for their response. Two marks each were awarded for naming and accurately describing two indicators of the health of an outdoor environment. The amount of vegetation was not an acceptable answer as it was already stipulated in the question. A possible response would be: water quality – if the water quality is clear, free of algae and drinkable this would suggest that the environment is healthy. The environment at Wilson’s Promontory is healthy as the streams are clear and the water is drinkable  biodiversity – if the environment can sustain a wide range of biodiversity it is a good indicator that it is healthy. Wilson’s Promontory supports a vast range of flora and fauna, from kangaroos, wombats and birds to tea-trees and eucalypts, suggesting it is a very healthy environment. *How would you mark your own response?* |

**2007 Examination**

**Question 5.** (5a. is irrelevant to this key knowledge area so has been removed)

Outdoor environment visited or studied 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Outdoor environment visited or studied 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Identify** three components of biodiversity that could be used to assess the health of these environments.

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| **Question Breakdown**Firstly, what information is the question asking you to provide? (rephrase the question)Considering how many marks is it worth how do you feel the marks be divided?Now.. Answer the question ☺ |

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3 marks **(2007 Exam)**

1. Using the components identified in **part b.**, **compare** the biodiversity of two natural environments you have visited or studied this year.

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| **Question Breakdown**What information is the question asking you to provide and what restrictions have been imposed on your response? What is the instructional word of this question and how will this impact your response?Considering how many marks is it worth how do you feel the marks be divided?Now.. Answer the question ☺ |

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9 marks

Biodiversity is one measure that can be used to determine the health of a natural environment.

1. Using three other measures, **evaluate** the health of the two natural environments you have visited or studied this year.

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| **Question Breakdown**What information is the question asking you to provide and what restrictions have been imposed on your response? (skeleton out what will be required)\What is the instructional word (in **bold**) of this question and how will this impact your response?Considering how many marks is it worth and the instructional word used in this question, how do you feel the marks be divided? |

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14 marks

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| **2007 Assessor report** |