STAGE 2 OUTDOOR EDUCATION

ASSESSMENT TYPE 1: FOLIO

Dune study

Pigface Plant

Pigface also known as Carpobratus glaucescens comes from the family Aizoaceae. It is a crawling succulent that grows from the ground that covers sandy areas. It has long sprawling stems that are approximately two meters long which roots at joins along the stem. The roots are a structural adaptation as they collect the water across wide areas covering a lot of ground. The low lying creeping succulent presents a structural adaptation to hide from windy conditions and can absorb water more efficiently being closer to the ground. The thick, smooth, fleshy leaves that grow from the branches are 2 to 3 centimeters long. The leaves of this plant form a triangular - appearance which helps the plant form a groundcover that covers a large surface area. The waxy leaves of this plant reflect from the sun which also prevents evaporation.

Pigface helps to bind the sand which helps other stabilizers. It grows in well drained places and grows easily in full sun or partial shade; because it can tolerate full sun it can tolerate dry periods throughout the year.

The plant is very tolerant; it can withstand salt spray, strong winds and sand blowing everywhere. Results show no matter how covered this plant is in sand and salt, it can still grow. Therefore this plant is an excellent colonization plant in a sand dune habitat such as the Somerton sand dunes.

Pigface not only lives on coasts, it also is used by people in their gardens. With housing situated on the sea front with a lot of wind this plant is very suitable for that positioning, it's an attractive plant and low maintenance. It is useful for wind erosion.

Below are two diagrams which show what Pigface looks like.

South African Boxthorn Plant

Lycium Ferocissimum is a plant that is commonly known as the South African boxthorn. It is a shrub which can get up to 3 meters high and 3 meters wide. They have stems and branches that spread in all directions which are covered in spikes like needles. The spikes and thorns are a structural adaptation as they act as protection from predators. The leaves are very small, waxy and the shape of a football. The flowers spread out on stalks off of the stems and are purple or yellow, mostly yellow. This plant produces berries that grow on this plant are red. The berries are sometimes eaten by native animals such as small birds. The roots grow deep into the ground which helps them to live in the sand dunes as the soil that they salvage from the deeper level of the ground is better for them.

Due to the fact that the boxthorn can establish on light soils, it is ideal for the Somerton Sand Dunes. The seeds are spread by either birds or other native animals. You can tell when a box thorn has been created by droppings at they are situated near fences, poles or trees as they are the most common places for animals to poo. Although the seeds are not always dispersed by four legged animals, birds such as the Cape Barron Goose is a predator to this shrub and therefore disposes its waste as they fly, dropping them all over the place.

The seeds that begin the production of the boxthorn can grow at any time in the year. It depends on what location that boxthorns are planted as to how long it takes to grow in size, to flower and to produce berries.

In conclusion, the box thorn can successfully survive the in the sand dunes as they can survive easily on any kind of soils, preferably sandy soils.

Below are two pictures which give an example of what a Boxthorns description looks like.

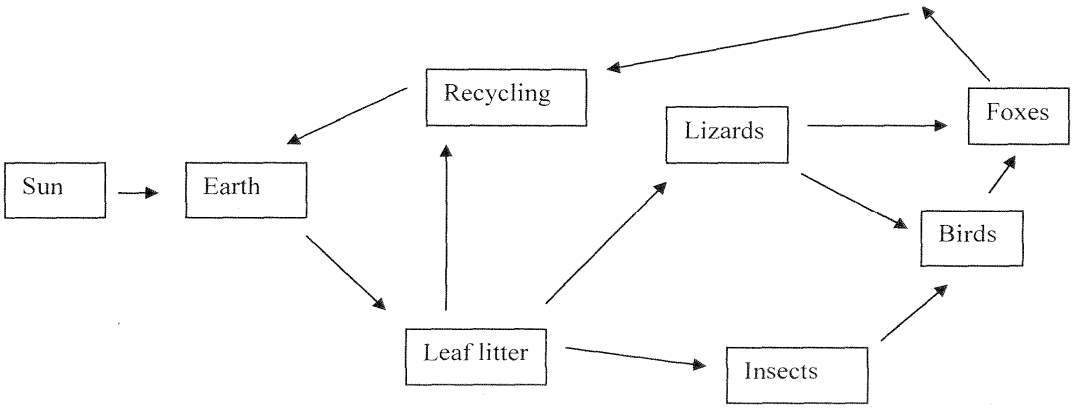
Evidence of Fauna

As we travelled around the sand dunes we noticed very little fauna. Although scattered over the dunes we came across some broken down bones which may belong to a bird or another small organism. Walking through the dunes I also observed a lot of rubbish litter around.

Potential Energy – Recycling and Food Chains Recycling

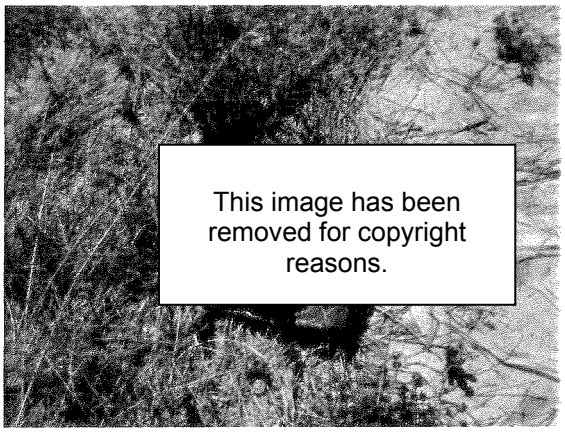
Food Chains

Throughout the entire time spent at Somerton Sand Dunes, from taking down notes and taking photos I managed to find a food chain cycle through the dunes. Due to lack of living organisms I guessed what a food chain may look like in these dunes. An example of a food chain in these types of dunes may look something like what is below.



At the back of the sand dunes there were vehicle tracks. This is probably one of the largest problems for the sand dunes because a vehicle is the biggest threat being able to squash everything. Leaving tracks in the sand destroys the impact of the soil and creates damage, it loses its sustainability. Tracks make a dent which can cause erosion in some areas. This is another sign of destruction.

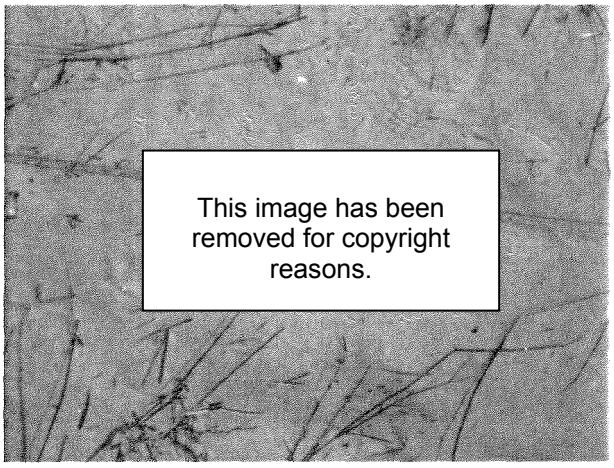
Throughout the dunes everyone notices the amount of litter there was lying around. This is destructive because it harms the plants by reducing the amount of available water and threats the living organisms because they may eat it. A picture below shows a destructive feature in the sand dunes at Somerton.



Investigation and Critical Analysis
Informed investigation and considered analysis of environmental issues and experiences.

I noticed that there was a lot of rubbish lying throughout the fore dunes, primary dunes, swale dunes and secondary dunes. Most of the rubbish discovered was in among the shrubs and tall grasses. Most pieces of rubbish were seen in the swale dunes. The only piece of rubbish that was seen in the primary dune was alcoholic bottles and this may have been because it's where people have been walking as a short-cut across the parkland. As proved above, the swale dune was much more covered with litter. This is seen as a destructive influence on the sand dunes. The rubbish that was discovered in the dunes affects the vegetation, environment and the living organisms in this area. It can harm the plants because with deterioration over the years it has a certain extent to the soil.

Below is a picture which shows some litter from the Somerton Sand Dunes and a picture of a living organism, this footprint may be part of the food chain which takes place in these sand dunes



Strategies for Sustainable Use:

Although there may be a lot of destructive features about the sand dunes there are also come constructive ones too. One strategy for sustainable use, a fence which ran along the whole beach protecting the sand dunes from humans.

Communication
Mostly clear recording of relevant planning, data, and observations.

I said in destructive section that those fences are bad but they sit on the boarder line. Fences act as a guide line to where people can and can't go. The fence which I saw prevented any unwanted things to appear in the sand dunes. The fence also allows build up of sand to help protect the dunes, this is also constructive. The build up of sand is seen as a block or wall of protection: Its acts the same as a brick wall but it didn't cost anything. Signs were placed all around the dunes. Some signs read what types of plant species were, other signs were signs warning the users to stay away etc. below you find an example of a sign which is around the Somerton Sand Dunes.

Investigation and Critical Analysis
Thoughtful critical analysis of activities and effective strategies for the sustainable management of natural environments.

To conclude the constructive state on the sand dunes man has had some degree of helping the environment by putting things in place.

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Additional comments

A review of the student's response provides evidence of:

- detailed expression of ideas, opinions, and information in a variety of forms, mostly using appropriate language (**Communication**)
- mostly organised and clear presentation of investigative report (**Communication**).

Performance Standards for Stage 2 Outdoor Education

	Practical Knowledge and Skills	Investigation and Critical Analysis	Reflection and Evaluation	Communication
A	Proactive and focused use of highly proficient outdoor skills with sustained and astute risk and safety management in complex situations. Significant initiative, self-reliance, and leadership, and a consistently high level of responsibility in individual and/or group activities. Consistent and constructive application of the most appropriate strategies to ensure the sustainable use of natural environments. Comprehensive and insightful planning for a self-reliant expedition, and/or contribution to planning an outdoor journey.	Discerning critical analysis of activities and effective strategies for the sustainable management of natural environments. Insightful investigation and perceptive analysis of environmental issues and experiences. Perceptive explanation of the technical, interpersonal, and risk and safety management skills needed for a self-reliant expedition and/or outdoor journey.	Insightful reflection on emotional and cognitive responses to a self-reliant expedition and/or outdoor journey. Meaningful evaluation of the student's knowledge and understanding of, and relationship with, natural environments. Highly sophisticated evaluation of personal and group risk and safety management practices.	Sophisticated expression of ideas, opinions, and information in a variety of forms, using appropriate language. Fluent and logical structure and presentation of investigative report. Comprehensive and effective recording of relevant planning, data, and observations.
B	Active and well-considered use of proficient outdoor skills with consistent and effective risk and safety management practices in various situations. Sound initiative, self-reliance, and leadership, and a mostly high level of responsibility displayed in individual and/or group activities. Well-considered application of appropriate strategies to ensure the sustainable use of natural environments. Detailed and thoughtful planning for a self-reliant expedition, and/or contribution to planning an outdoor journey.	Thoughtful critical analysis of activities and effective strategies for the sustainable management of natural environments. Well-considered investigation and thoughtful analysis of environmental issues and experiences. Thoughtful explanation of the technical, interpersonal, and risk and safety management skills needed for outdoor journeys.	Thoughtful reflection on emotional and cognitive responses to a self-reliant expedition and/or outdoor journey. Logical evaluation of the student's knowledge and understanding of, and relationship with, natural environments. Detailed evaluation of personal and group risk and safety management practices.	Detailed expression of ideas, opinions, and information in a variety of forms, mostly using appropriate language. Well-structured and clear presentation of investigative report. Detailed recording of relevant planning, data, and observations.
C	Some active and considered use of outdoor skills, with competent and appropriate risk and safety management. Appropriate initiative, self-reliance, and responsibility, and/or some leadership in individual and group activities. Competent application of appropriate strategies to ensure the sustainable use of natural environments. Generally organised and appropriate planning for a self-reliant expedition, and/or contribution to planning an outdoor journey.	Competent critical analysis of activities and strategies for the sustainable management of natural environments. Informed investigation and considered analysis of environmental issues and experiences. Considered explanation of the technical, interpersonal, and risk and safety management skills needed for a self-reliant expedition and/or outdoor journey.	Competent reflection on emotional or personal and some cognitive responses to a self-reliant expedition and/or outdoor journey. Generally thoughtful evaluation of the student's knowledge and understanding of, and relationship with, natural environments. Considered evaluation of personal and group risk and safety management practices.	Usually appropriate expression of ideas, opinions, and information in a variety of forms, generally using appropriate language. Mostly organised and clear presentation of investigative report. Mostly clear recording of relevant planning, data, and observations.
D	Basic outdoor skills with aspects of risk and safety management. Some initiative or responsibility displayed in individual or group activities. Restricted application of one or more strategies to ensure the sustainable use of natural environments. Some endeavour to appropriately plan for a self-reliant expedition, and/or to contribute to planning an outdoor journey.	Some description of activities and strategies for the sustainable management of natural environments. Some identification and analysis of environmental issues and experiences with some relevance. Restricted explanation of the technical, interpersonal, and risk and safety management skills needed for a self-reliant expedition and/or outdoor journey.	Basic reflection on emotional and personal responses to a self-reliant expedition and/or outdoor journey. Superficial reflection on the student's knowledge and understanding of, and relationship with, natural environments. Some identification and discussion of personal and group risk and safety management practices.	Some appropriate expression of ideas, opinions, and information, occasionally using appropriate language. Presentation of the elements of an investigative report. Some recording of planning, data, and observations.
E	Limited outdoor skills with restricted risk or safety management. Limited responsibility during individual or group activities. Attempted application of one or more strategies to ensure the sustainable use of natural environments. Emerging skills in planning a self-reliant expedition, and/or in contributing to planning an outdoor journey.	Limited description of an activity or strategy for sustainable management of natural environments. Attempted identification or description of environmental issues or experiences. Undeveloped identification of the technical, interpersonal, and risk and safety management skills needed for a self-reliant expedition and/or outdoor journey.	Brief communication of personal responses to a self-reliant expedition and/or outdoor journey. Some description of the student's knowledge and understanding of, and relationship with, natural environments. Attempted description of personal or group risk and safety management practices.	Expression of some emerging ideas, opinions, or information, with some attempted use of appropriate language. Emerging presentation skills. Limited recording of planning, data, and observations.

Stage 2 Outdoor Education student response
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