

Ecosystems essay sample



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An ecosystem is the interaction between biotic and abiotic features. Each element of an ecosystem relies on one another in order to maintain the ecosystem. The interacting biophysical elements include the atmosphere, lithosphere, hydrosphere and biosphere. This is shown at the Towra Point Estuarine Wetlands ecosystem, located on the southern shores of Botany Bay at Kurnell. Towra point is constructed from sea grass, salt marsh vegetation and mangrove. It is a major breeding ground for many vulnerable, protected and endangered species. Such as mammals, crustaceans fish and birds.

Presently, the Federal Government as well as several additional international agreements protects it. The atmosphere is the envelope of gases that border the Earth. Atmospheric elements consist of temperature, wind, humidity and sunlight. For sea grass, mangroves and salt marsh to survive within the ecosystem they must have precise climatic conditions. These specific conditions are known as microclimates. Microclimates are small specific places within an area, as contrasted with the climate of the entire area. Microclimates ensure the best survival of organisms.

An example that shows this is that mangroves survive best in the tropical regions. Mangroves need protection from winds, with access to sunlight. Mangroves have a wide spread root system that clings into the soil, therefore without protection from winds they may be pushed over and die. Sunlight is just as essential as the pneumatophores stick out of the soil, so that the mangroves can collect sunlight. However, salt marshes, which are present in similar ecosystems, are able to withstand higher temperatures. One issue that impacts on salt marshes includes human impact.

This air pollution comes from the nearby Kingsford Smith Airport runway. This has seen to place stress on the salt marshes. The biosphere is the collection of all living organisms on earth. Towra Point Wetlands are home to a large variety of biotic organisms such as fish, insects, birds and crustaceans. Sea grass beds are a popular breeding ground for fish and small crustaceans to lay their eggs. This is because the sea grass offers protection from predatory birds and strong winds. Mangroves are another popular nesting place for birds.

The relationships between the organisms in the biosphere are extremely important. The hydrosphere is the combined mass of water on earth. Because Towra Point is a wetland ecosystem, it must have water to survive. The salinity levels in the water take part in the survival of the river mangrove. The salinity is affected by the tidal fluctuations. A key impact is the desalination pipe which puts excess salt into Botany Bay, affecting Towra Point. This excess salt has negative effects on the ecosystem as organisms can become dehydrated and either migrate or die.

This can be seen through the decreasing levels of whale and fish population. In contrast, some organisms have managed to adapt to this level of excess salt. An example of this is how the river mangrove excretes excess salt through its leaves, in order to stop the plant becoming dehydrated. The mangrove concentrates the salt into its leaves and then sacrifices them. The lithosphere is the outer layer of the earth's crust. At Towra point essential elements for a wetland to survive are appropriate soil conditions and good levels of salinity. Mangroves usually grow in muddy river slits.

The soil is a clay mix, which smells strong of sulfide compounds. Mangroves are able to survive in unstable soil because of their widespread root system. The extension of the Kingsford Smith runway has lead to changes in the wave patterns and increased erosion. The outcome of this is the erosion of sediment, which is cast off onto the sea grass beds. This then kills the sea grass. It is clear that the inter-reliant elements of the atmosphere, biosphere, lithosphere and hydrosphere and their interactions are crucial to developing and maintaining the diverse Towra Point Wetland ecosystem.