Coastal Landscaping; Building Resilience Using Native Plants and Permaculture
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Introduction

Permaculture is a holistic design system utilized to create sustainable human settlements and food production systems. It is a movement concerned with sustainable, environmentally sound land use and the building of stable communities through the harmonious interrelationship of humans, plants, animals and the environment.

Resilience is the ability of a system, or in this case, ability of a plant to be able to withstand and recover from any challenge or adversity.

Methods

An initial rectangle plot of 100 x 30 feet was selected to be surveyed behind the Dining Hall area as a baseline to see what plant material was already growing here. It was seven feet from the high water mark and ran parallel with the high water mark. The data collected indicates that native plants with climate resilient traits are the most beneficial for use in the landscaping of the coastal zone on the Island School Campus.

Plants to Avoid: Invasive species that have adapted to local climatic conditions also compete with native species for space, nutrients and water.

Discussion

The data collected indicates that native plants with climate resilient traits are the most beneficial for use in the landscaping of the coastal zone on the Island School Campus.

Beneficial Groundcovers: All three of these groundcovers have long fibrous roots to hold together soil to prevent erosion.

Invasive trees such as casuarinas have needle like leaves that create a thick layer over the ground. This prevents smaller plants from sprouting out from underneath.

Results

The results are based on an analysis of the data from all five plots. All plants were counted and categorized according to their habit, function, and climate resilient traits. A total of 31 trees and 186 shrubs were counted on the 5 plots. 25 different species were identified. 6 were exotic and 3 of the 6 were invasive species.

Climate resilient traits are traits that render the plant more resistant to climate impacts such as drought, strong winds, salinity and flooding. Several traits can be found in one plant species. Because of the climatic conditions plants are exposed to on beaches these plants are better adapted to climate change impacts.

Plants provide food, fiber, shelter, medicine, and fuel. They also provide ecological services such as pollination, erosion and flood control, carbon storage and climate regulation. The most prevalent functions of the plants that were studied were erosion control at 40.0%, windbreak at 35.0%, food and pollination at 12.0%, insect repellent at 8.0%, and timber, medicine, and nitrogen fixation at 4.0%.

References


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