Plants

What are They?

Plants are the primary producers of life on our planet, generating over 99.9% of the Earth's biomass. The growth and survival of plants depend on ecosystem characteristics including the amount of sunlight soil moisture, soil pH, flood depth, and salt tolerance. Plants provide a variety of ecosystem services

Wetland plants, for instance, help remove heavy metals and excessive levels of nutrients.

Medicine

Many medicines are derived or modelled upon compounds provided by the natural world.

to keep soils fertile.

Drinking Water Purity

Recovery from Natural Disasters

Tall Goldenrod

River Birch

Victoria Water Lily

Eastern Mosquito Fern

Azolla cristata

Victoria amazonica

Plants help protect soil from erosion and release nutrients

Thousands of species of plants have been cultivated for consumption throughout human history.

Through photosynthesis, dioxide, sunlight and water to create energy and release oxygen.

Cardinal Flower

Lobelia cardinalis

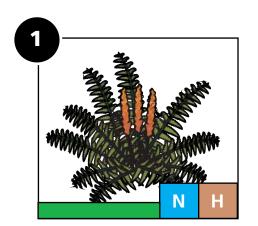
Paw-Paw

Asimina triloba

American Lotus

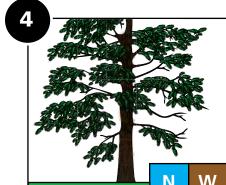
Nelumbo lutea

Iconic Plants of Kenilworth

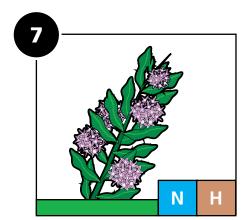


Cinnamon Fern

Osmundastrum

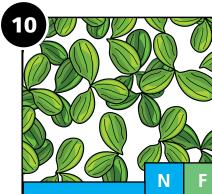


Bald Cypress



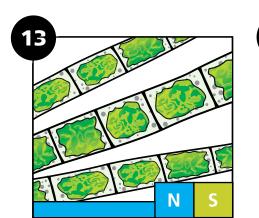
Milkweed

Asclepias syriaca



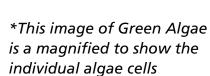
Small Duckweed

Lemna perpusilla



Green Algae

Phylum Chlorophyta*



National Park Service

U.S. Department of the Interior



Sago Pondweed

Stuckenia pectinata





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Najas minor

CENTER for CLIMATE CHANGE



Brittle Waternymph

Humped Bladderwort

Utricularia gibba



Floating

Aquatic

Terrestrial

Emergent

Submerged

Herbaceous

Woody

Floating

Types of Plants at Kenilworth

Herbaceous

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Floating plants have unanchored root systems that allow them to move freely with the bodies of water in which they reside. These plants vary in size from a few inches to over a foot in diameter.

Herbaceous plants are classified into three

categories- annuals, biennials, and perennials.

have tissue throughout the plant to exchange

water and minerals. They do not have woody

the plant typically dies in the winter.

They are vascular plants, which means that they

stems above the ground, and the top growth of

Emergent

Emergent plants are usually partially submerged in water and are found at the shorelines of bodies of water. These plants root in the soil and their stems are firm enough to hold their weight above water level.

Woody

Woody Plants are plants that have hard woody stems above the ground. The vascular system of the woody plants move water and nutrients from roots to leaves.

Woody plants are typically perennials, and are much larger than herbaceous plants. Unlike herbaceous plants, the top growth of woody plant does not die back in the winter. Most well known woody plants include trees and shrubs.

Submerged

Submerged plants are fully submerged in water and usually reside on the bottom of rivers, lakes, and ponds. They root in the soil and their stems are held up by the water around them.

Plant Adaptations

Aquatic and Terrestrial Plants

Aquatic and Terrestrial plants have their own ways to adapt to a changing climate. Annual plants can adapt much more quickly to a changing climate versus plants that have longer lifespans.

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Some plants, including beech trees, are more tolerant to climate related stressors and are capable of keeping their stomata open to absorb more carbon dioxide than other tree species.

Wetland Ecosytems

The wetland ecosystem has storm surge and flood protection capabilities. Wetlands slow the flow of water, reducing flood damage in areas downstream and around them.

Additionally, wetlands have erosion control capabilities, allowing the wetlands to absorb energy and store water during storms and reducing downstream flood damage and the risk of flash floods.

While plants are not immune to the impacts of climate change, the wetland ecosystem of which they are a part of has natural defenses to combat some of its negative impacts.

Increasing Temperatures

Chemical Balance

runoff of nutrients from the land) is a huge problem for aquatic plants because there is a change to the overall chemical balance of the ecosystem. Too much of one chemical, such as nitrogen, can stimulate the growth of algae, which deplete oxygen from the water and block sunlight.

In terrestrial plants, nitrogen is lost from the soil during flooding events. This is detrimental to plant survival as plants need a highly specific amount of nitrogen to survive.

Aquatic plants, especially **Eutrophication** (excessive

fully submerged plants, are highly vulnerable to temperature rises. Therefore, there may be changes in species compositions and decline in species richness. Changes in water temperature affects the plants physiological processes, growth rates, and reproductive

Climate Change Impacts on Plants

Increasing temperatures will lead to changes in the blooming season for terrestrial plants, and can also bring an increase in pathogens and invasive non-native species.

Many plants are adapted for certain temperatures; therefore, as temperatures increase and plants cannot adapt, they will have to move northward for more suitable climates. Flooding

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Flooding events can bring impurities into the water ecosystems. This leads to decreased water clarity, which can negatively affect photosynthesis rates. Increased flooding events can oversaturate the soil of land plants, which prevents air exchange and can lead to the

Sea Level Rise As sea level rises, water from

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the surrounding areas will intrude into the aquatic and terrestrial ecosystems. This can bring in increased risk of saltwater intrusion, which can be harmful to plants and disrupt the overall wetland ecosystem.





nps.gov/keag



iNaturalist.com

death of plant roots.

https://www.nps.gov/rlc/urbanecology/index.htm