

Big Thicket

National Preserve
National Park Service
U.S. Department of the Interior

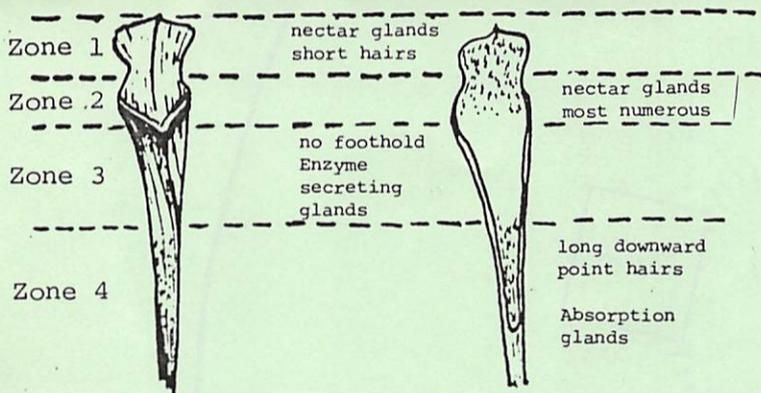
PITCHER PLANT TRAIL

THE TRAIL

Welcome to the Pitcher Plant Trail. This trail leads a short distance through the mixed pine forest to the edge of a wetland savannah. From there a boardwalk takes you into a field of carnivorous plants. The wetland savannah is home for a large number of

plants that require special growing conditions, including orchids of several types. The boardwalk permits you to view at close range while protecting these fragile plants. Please stay on the boardwalk.

PITCHER PLANTS



The thought of a plant preying upon animals has stirred man's imagination for years. Tales of man-eating plants compete with the less spectacular truth which is that the diet of carnivorous plants actually consists of insects.

What is a carnivorous plant? In many ways they are like all green plants. They have chlorophyll and can make their own food. The major difference is that carnivorous plants grow in soils low in important minerals. They have to supplement their mineral diet somehow.

Carnivorous plants are adapted to do this through their special leaves shaped to trap insects. Trapped insects are digested providing minerals which are lacking in the soil.

The pitcher plant (*Sarracenia alata*), with its long, narrow funnel-shaped leaves represents the pitfall type of trap. The outside surface of the leaves are dotted with nectar glands which are most numerous at the funnel's open end. The nectar attracts insects to the opening and once inside they find it difficult to escape.

Escape is difficult because of specialized tissues on the inner surface of the tube-like leaves. The leaf can be thought of as containing special zones, each with specific roles in capturing, digesting, and absorbing the prey. Once the prey has lost its foothold in Zone 3 and fallen into Zone 4, downward pointing hairs prevent escape and digestion begins. Digestive enzymes (similar to those in our stomachs) from glands in Zone 3, and naturally occurring bacteria, aid in digestion leaving only the insect's tough shell and wings. The dissolved minerals from the rest of the insect are absorbed into the plant by glands in Zone 4.

Experiments which deprived the pitcher plant of prey show that its growth and reproductive vigor are reduced, but the plant will continue to live.

There are several kinds of carnivorous plants found in the Big Thicket. You will find pitcher plants, bladderworts, butterworts, and sundews. Most of Big Thicket's carnivorous plants can compete with other plants in only a few areas, where special conditions give them some sort of advantage. One advantage is its carnivorous diet, but there are others, such as being tolerant of wet soil.

Pitcher plants were once more numerous than they are today. Man altered many of the suitable wetland habitats by drainage, livestock grazing, and even fire suppression. In the past, periodic wildfires prevented many trees and shrubs from growing in the wetlands.

In the absence of fire the taller plants spread into the wetlands and shaded out the pitcher plants. The pitcher plants had survived the fires for centuries, but could not survive the loss of sunlight. In order to reintroduce the natural role of fire the National Park Service has begun a carefully monitored program of prescribed fire in areas where pitcher plants still grow in the Preserve. These fires eliminate and prevent the taller growing trees and shrubs from gaining a foothold. This wetland savannah is now maintained by these periodic fires and allows the pitcher plants to thrive.

