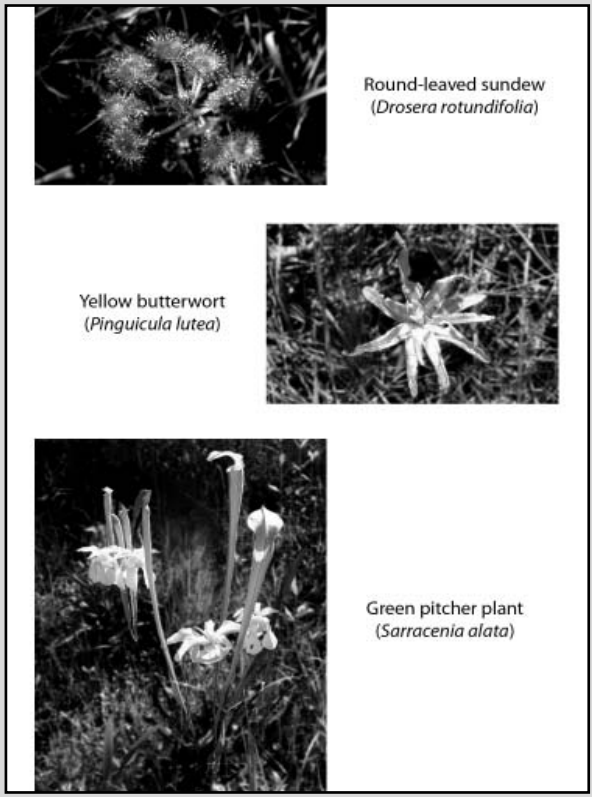
Box 2E Carnivorous Plants

A dog biting a man is not news, but a man biting a dog is news—at least according to newspaper writers. Perhaps it is the same logic that makes carnivorous plants fascinating to humans—the reversal of the everyday pattern of animals eating plants. Louisiana, like states along the rest of the gulf coast, has many species of carnivorous plants including pitcher plants (*Sarracenia*), sundews (*Drosera*), bladderworts (*Utricularia*) and butterworts (*Pinguicula*; see pictures).



In pine savannas soil nutrients, particularly nitrogen, are scarce. Several species of plants such as sundews (top), butterworts (middle) and pitcher plants (bottom) supplement available supplies with nutrients from captured insects (sundew from Lee Casebere/ USDA-NRCS PLANTS Database / USDA NRCS. 1995. Northeast wetland flora: Field office guide to plant species. Northeast National Technical Center, Chester).

The best known species of carnivorous plant, the Venus flytrap (*Dionaea muscipula*), is restricted to wet savannas and bogs along the east coast of North America[1] and does not occur in Louisiana. In Louisiana, the most dramatic species are the pitcher plants with their large tubular leaves filled with water. But why should a plant do such a strange thing? Charles Darwin[2] was actually one of the first biologists to study why carnivorous plants eat insects—he suspected it was to compensate for the low nutrient levels of the soils in which they grew. Modern experiments, using insects in which the elements nitrogen and phosphorus have radioactive labels, have now confirmed that carnivorous plants remove nitrogen and phosphorous from dead insects.[3] It is no coincidence that these plants also grow on Pleistocene terraces where the soils, having been burned and leached by rain for over 100,000 years, have little available nitrogen and phosphorus.

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1 USDA, NRCS. 2002. The PLANTS Database, Version 3.5. National Plant Data Center, Baton Rouge, LA. http://plants.usda.gov.

2 Darwin, C. 1888. Insectivorous Plants. 2nd ed. John Murray, London. Revised by F. Darwin.

3 Givnish, T. J. 1988. Ecology and evolution of carnivorous plants. p. 243-290. in W.B. Abrahamson (ed.). Plant-Animal Interactions. McGraw-Hill, New York.

Many of these are tropical groups that are well adapted to sterile sand plains. Some of the same genera can be found on rain-drenched mountaintops protruding out of the rainforest along the South American coast; these areas, called tepuis, seem to share floristic similarities with the coastal plain, perhaps because of infertile soils and seasonal droughts.

Within the longleaf pine savannas, another type of wetland may be prominent—bayhead swamps.[19] They develop in deeper depressions where there is seasonal flooding. In contrast to the longleaf forest and savanna, there is an almost closed canopy composed largely of deciduous trees, particularly sweet bay (*Magnolia virginiana*), black gum (*Nyssa biflora*), and laurel oak (*Quercus laurifolia*). Other less common tree species include red maple, sweetgum, slash pine, water oak, and baldcypress, depending upon the duration of the flooding, the soil type, and the particular region of Louisiana. Sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), and chain ferns (*Woodwardia areolata*, *W. virginica*) may all be found in the shade of the deciduous trees.

In savannas in the western segment of the flatwood region (figure 2-2), ponds, vegetated largely by tall grasses and sedges, are also characteristic. They likely occupy depressions left by streams that flowed during glacial times. Averaging one to five acres, some reach 40 acres and range from a few inches to five feet deep.