

last several decades. The Alafia River is soon to follow. No regulatory program no matter how good, can reverse the trends of deterioration of water quality and loss of quantity in the Peace and Alafia rivers without addressing past and present activities in their headwaters.

Changing Ecological Systems

The landscape is a patchwork of micro climatic, hydrological, and chemical conditions that define physical environments to which various plant species are adapted. Some areas are extremely well drained, with a hot dry micro climate and plant species adapted to life in "desert like" conditions even though there is abundant rainfall. Other areas are periodically inundated with nutrient rich acidic waters, and still others are inundated with almost pure rain water. Some areas have standing water year round, others, for only short periods of time. The vegetation that grows in each of these environments is adapted to the set of physical conditions (or energy signature) that is characteristic. Alteration of these physical conditions causes shifts in the species composition of the plant community. The degree of alteration and the tolerances of the original plant species to change determine the extent of the change in the community composition. In some cases the responses to alterations in environmental parameters are subtle, in others quite complex. Some well documented changes in community structure are known and others can be inferred from trends noted as a result of natural succession.

The drying of the landscape causes shorter hydroperiods and shallower depths of inundation in isolated wetlands. These conditions favor plant species adapted to dryer conditions, build greater accumulations of organic matter, and favor more frequent fires. In areas that do not burn, cypress seem to be replaced with several species of bays as the dryer conditions may favor bays and their seeds move more readily around the landscape. Where fire is frequent the dryer conditions result in "peat fires" within the wetland killing most trees and reversing succession re-establishing a deeper wetland back in contact with ground waters. Table 1 compares several characteristics of a "natural" wetland