

ASSESSMENT OF ENVIRONMENTAL CONDITIONS
EAST LAKE WELL FIELD

On November 19, 1981, the Southwest Florida Water Management District Environmental Section conducted a field evaluation of the environmental conditions of wetlands within the East Lake Well Field. Seven cypress sites in various areas of the well field were evaluated in some detail. These sites were numbered and marked on aerial maps for future reference. In addition to sites given a detailed evaluation, several other sites were briefly evaluated to give a better overall estimation of well field condition.

Our methods of investigation can generally be grouped under the following categories:

1. Water Levels. The height of cypress buttresses was observed as evidence of historic water levels. In contrast to historic information, current water marks on tree bases are evidence of water levels during the past several years.
2. Vegetation. In contrast to what is generally considered healthy wetland vegetation, leaning and fallen cypress trees, signs of severe fire, excessive tree rot, replacement of aquatic plants by terrestrial ones and high litter accumulation usually indicate abnormally low recent wetland water levels.
3. Soil. In contrast to moist, spongy and peaty soils of healthy wetlands, dry, cracked and compacted soil typically indicate a water deficiency in wetland areas.
4. Soil Levels. In contrast to what is generally considered normal wetland soil levels, soil subsidence of from 1/2 to several feet from the level of tree rooting is typically caused by deficient surface water levels. The dry conditions cause the organic matter of the soil to oxidize and shrink. Eventually, decreased soil volume leads to overall wetland soil subsidence. Dry conditions also favor fire which destroys large amounts of organic matter and hastens soil subsidence.

Utilizing these methods, all seven cypress sites were judged to be in good to excellent condition. During the past several years, water levels at all sites seemed to be rising regularly to about their historic levels. It is also of interest that standing water was present in November in five of the seven wetlands investigated. Considering the generally deficient rainfall during the current year, the presence of surface water in November is additional evidence that water levels in the cypress sites have been rising close to historic levels during the rainy season. Although information on water levels over the course of the year is not available, it appears likely that yearly hydroperiods have been close to normal in recent years.

Vegetation at the five wetland sites with surface water at the time of investigation all had a good representation of wetland plant species in the cypress understory. Representative wetland species included Arrow-Heads (*Sagittaria*

sp.), Pickerelweed (*Pontederia* sp.), Rush (*Juncus repens*), Bladderworts (*Utricularia* sp.), Water Hyssop (*Bacopa caroliniana*), and Chain Fern (*Woodwardia virginica*). Scarcely any terrestrial species were found in these very wet sites. The understory was predominantly bare ground with little vegetative cover and little accumulation of litter. A relatively clear understory is typical of cypress sites which regularly experience normal surface water levels. One wet site did have an abundance of wetland shrubs, mostly Fetter Bush and Wax Myrtle, but this dense shrub growth is attributed to the absence of burning in recent years rather than low water levels.

Wetland species were also well represented in the cypress understory at the two sites that did not have surface water in November. These two sites were basically shallow-water cypress domes that typically dry out more quickly than deep-water sites. In addition to wetland species, one site had a moderate understory cover of pasture grasses while the other showed some invasion by slash pines and a rather heavy accumulation of cypress needle litter. Invasion of the cypress understory by terrestrial species and a general build-up of litter are detrimental to the well-being of cypress areas since these changes can lead to severe fires. Despite these detrimental signs, the two cypress domes were still judged to be in good condition on the basis of the wetland species present, recent water levels, healthy cypress appearance, little or no evidence of soil subsidence and general absence of severe fire scars.

CONCLUSIONS

Wetlands at East Lake Well Field are in good to excellent condition. Surface water levels have been rising regularly to about historic levels and yearly hydroperiods appear to have been close to normal. Wetland plant species were found to be common in the cypress understory, soils showed very few instances of subsidence and there was no evidence of severe fire in recent years. All these signs are indicative of healthy cypress wetlands at East Lake Well Field.