

CONSERVATION ELEMENT

TABLE OF CONTENTS

SECTION	PAGE NO.
I. Introduction.....	1
II. Inventory.....	1
A. Conservation Sites.....	1
1. Rivers, Bays, Lakes, Wetlands including Estuarine systems and Air.....	1
2. Floodplains.....	1
3. Known Sources of Commercially Valuable Minerals.....	1
4. Known Erosion Problems.....	2
5. Fisheries, Wildlife, Marine Habitats, Vegetative Communities Including Forests.....	2
B. Existing Uses of Conservation Sites.....	2
1. Commercial Uses.....	2
2. Recreational Uses.....	3
3. Conservation Uses.....	3
C. Known Pollution Problems.....	3
D. Potential for Conservation Use or Protection.....	3
III. Analysis	3
A. Current Needs.....	3
B. Projected Needs.....	4
C. Sources for Next 10 years.....	4
D. Quality of Surface Waters.....	4
E. Quality of floodplains and Wetlands.....	4
F. Specific Water Quality Problems and Sources.....	4
G. Specific Non-point Pollution Problems.....	5
H. Potable Water Use.....	5
1. Quality and Quantity Available to Meet Demands.....	5
2. Existing Levels of Water Conservation.....	5
3. Analysis of Current Water Needs.....	5
I. Northwest Florida Water Management District Applicable Policies.....	6
1. 40A-2.801 Declaration of Area of Water Resources Concern.....	6
2. 40A2.802 Areas of Water Resources Concern.....	6

LIST OF TABLES

NUMBER	TITLE	PAGE NO.
1	Soils.....	10
2.	Erosion.....	14
3.	Panhandle Ecological Characterization.....	15

LIST OF FIGURES

FIGURE		PAGE NO.
1.	Soils Map.....	9

I. INTRODUCTION

The purpose of the Conservation Element is to promote the conservation, use, and protection of natural resources.

II. INVENTORY

A. CONSERVATION SITES

1. Rivers, Bays, Lakes, Wetlands including Estuarine systems and Air.

Although there are no rivers within Freeport., there are several large creeks, including Four-Mile Creek and Lafayette Creek, which flows into LaGrange Bayou, and Bear Creek which flows into the Choctawhatchee Bay.

There are no bays within the incorporated area of Freeport. Choctawhatchee Bay is adjacent to the City in the southwestern portion near Bay Loop Road. Freeport and the Bay are connected by LaGrange Bayou.

There are no lakes within Freeport.

There are approximately 1050 acres of wetlands within Freeport.

There are no estuarine systems in Freeport.

The air quality in Freeport is generally considered to be excellent. There are few industrial sites in Walton County, and those that are here have not had a major impact on our air quality.

2. Floodplains

Floodplains exist along the banks of LaGrange Bayou, Four-Mile and Bear Creeks and Lafayette Creek, and along their larger branches, including Thomas Branch.

3. Known Sources of Commercially Valuable Minerals

The geology of Freeport is generally Clayey Sand with large areas of Medium Fine Sand and Silt (See Soils and Minerals map). There are no know sources of commercially valuable minerals within the incorporated area of Freeport.

4. Known Erosion Problems.

There are no critical erosion problems known at this time within the incorporated area of Freeport (See Table of Erosion).

5. Fisheries, Wildlife, Marine Habitats, Vegetative Communities Including Forests.

- a. Fisheries: There are no fisheries within Freeport.
- b. The wildlife of Freeport is that common to Longleaf Flatwood forests.

Longleaf pine flatwoods are open woodlands that lie between the drier sandhill community up-slope and the evergreen shrub dominated wetlands downslope. In addition to the wiregrass and saw palmetto, runner oaks) low blueberry, ground huckleberry and bracken fern are dominant ground cover in the pine flatwoods.

Mammals of the flatwoods are most of the same species found in sandhills, such as shrews, moles, the cottontail and marsh rabbits, the cotton rat and cotton mouse, the harvest mouse, and white-tailed deer. Most mammalian carnivores, such as skunk) opossum, raccoon, bobcat., etc. not strictly associated with water are found in the flatwoods. Since watercourses meander through the flatwoods, aquatic mammals, such as otter, beaver, and mink occasionally enter the flatwoods. Endangered species, threatened species, and species of special concern are tabulated at the end of this element.

B. EXISTING USES OF CONSERVATION SITES

1. Commercial Uses

As there are no conservation areas within Freeport at this time, there are no conservation areas being used commercially. This Plan; however, proposes to establish 517 acres of floodplain and wetlands as conservation areas.

2. Recreational Uses

As there are no conservation areas within Freeport at this time, there are no conservation areas being used recreationally. This Plan; however, proposes to establish 517 acres of floodplain and wetlands as conservation areas.

3. Conservation Uses.

As there are no conservation areas within Freeport at this time, there are no areas being conserved. This Plan; however, proposes to establish 517 acres of floodplain and wetlands as conservation areas.

C. KNOWN POLLUTION PROBLEMS.

The only pollution problems within Freeport are the typical littering and solid waste disposal, which will hopefully be alleviated by the new sewer system soon to be installed in Freeport.

D. POTENTIAL FOR CONSERVATION USE OR PROTECTION.

This Plan proposes to establish 517 acres of floodplains and wetlands associated with the various creeks within the City as Conservation Areas for protection against intensive development. These areas will, in general have development limitations, but will remain in private ownership and not be limited to use for passive recreation.

The City of Freeport; however, owns a 7-Acre site at the point of LaGrange Bayou which the City has designated recreation and open space in combination with conservation. Tentative plans have been made to construct a picnic area in conjunction with a nature trail for passive recreation and to conserve the existing natural vegetative communities (See Recreation and Open Space Element for Freeport).

III. ANALYSIS

A. CURRENT NEEDS

Freeport's current need for conservation will be filled with the construction of a new conservation/recreation area at the point of LaGrange Bayou. Also, levels of service and conservation practices will be developed by the City of Freeport.

B. PROJECTED NEEDS

Other than the planned conservation recreation area at LaGrange Bayou Point, there are no other conservation areas projected.

C. SOURCES FOR NEXT 10 YEARS

At this time no other conservation areas have been planned for the next 10 years. Others will be planned as the need arises.

D. QUALITY OF SURFACE WATERS

The City of Freeport is located within the area recognized as the Choctawhatchee Bay Basin. Choctawhatchee Bay Basin encompasses 699 square miles with the bay itself covering 129 square miles. The major land use within the basin is silviculture) however, urban development is occurring rapidly along the coast, and in the northwestern bay area. The major inflow into the bay is the Choctawhatchee River with an average annual flow of 7000cfs. The river carries a large sediment and organic load from throughout the basin, and deposits its into the eastern-most end of the bay.

E. QUALITY OF FLOODPLAINS AND WETLANDS

Marine wetlands typically provide nursing areas for fish and shellfish, and therefore it is important that salt marshes, inlets and other marine wetlands be protected. Freshwater wetlands, including floodplains are also unique in the coastal area, and provide flood storage, as well as assimilate nutrients, which improves water quality. Protection measures for wetlands shall include a limitation on dredging and filling; all such activities shall not be approved prior to proof of application from the U.S. Army Corps of Engineers and Department of Environmental Protection. Water quality of wetlands shall further be protected by stormwater management requirements.

F. SPECIFIC WATER QUALITY PROBLEMS AND SOURCES

Historically, water quality in this basin has been good. However, there have been several problem areas associated with rapid development occurring along the coast. In the 1970's, treated wastewater effluents caused eutrophication, fishkills and grass bed die offs in portions of the bay. The WWTPs have since been converted to spray irrigation discharge. A basin assessment conducted by the Northwest District DEP in 1984 indicated that water quality did improve since the WWTPs were upgraded.

Recently, however, water quality in the bay is again being degraded due to the continued development in the watershed area. The non-point pollution sources associated with this development include highway runoff, ditching and draining of water-cleansing swampland, and surficial water table seepage from package plant perc-ponds and WWTP sprayfields. (Standards and Monitoring Technical Report #110, July 1988)

G. SPECIFIC NONPOINT POLLUTION PROBLEMS

The eastern part of the bay in Walton County is in suspect condition, it is turbid and has high coliform counts following major storms. Agriculture is the main non-point source of pollution to the eastern bay, even though it is not a major land use activity in the bay basin.

Alaqua and LaGrange Bayous, located in the northeastern bay, are threatened by urbanization. Pollutants and symptoms common to both bayous are: sediments, nutrients, algae, turbidity, and habitat alteration. In addition, LaGrange Bayou is affected by oil and grease contamination, flow alteration, oxygen depletion, aquatic plant growth, and fish kills. Both bayous have extensive headwater systems, the lower reaches of which are in suspected condition as a result of urbanization. (Florida Non-Point Source Assessment Volume One, August 1988)

H. POTABLE WATER USE

1. Quality and Quantity Available to Meet Demands

Freeport historically has not had a problem with either quality or quantity of potable water, and does not anticipate shortages or quality problems. Measure will be addressed to anticipate problems should they occur, as set down in the goals, objectives and policies.

2. Existing Levels of Water Conservation

There are no existing levels of conservation practiced in Freeport.

3. Analysis of Current Water Needs

A Table of Water Needs and Water Sources is included in the Potable Water Sub-Element of the Infrastructure Element, as well as a detailed analysis of those sources.

I. NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT APPLICABLE POLICIES

1 . 40A-2.801 Declaration of Area of Water Resources Concern

An Area of Water Resources Concern may be established to protect the water resources from depletion, salt water intrusion or man induced contamination or from any other activity which may substantially affect the quality and/or quantity of the area's water resources. Within such area, the Board may establish lower permitting thresholds, establish management and minimum levels, and stipulate any limiting conditions as necessary to manage, manage, and control the use of water. The Board (of NFWMD), as provided by Section 40A-2.331, Florida Administrative Code, may modify and condition any existing permit to provide for the protection of the water resources of the District.

Specific Authority: 373-044, 373-216, FS. Law Implemented: 373.246, FS. History-New 10-1-82; Amended 1-1-86, 8-1-89.

2. 40A2.802 Areas of Water Resources Concern

(1) Santa Rosa, Okaloosa, and Walton Counties

The District has determined that the coastal area of Santa Rosa, Okaloosa, and Walton county have limited potable water resources and is experiencing increasing water demands. To address the expanding demands on the area's limited potable water resources, the Board hereby declares the area south of the Eglin Air Force Base in Santa Rosa, Okaloosa, and Walton County, also the area extending south of SR-20 to the Bay County Line in Walton County, as an area of Water Resources Concern. By means of this designation the following criteria are stipulated:

- (a) A Standards Water Use Permit is required for all non-exempt water withdrawals as in area A. The only exempt withdrawals are those designated by Section 40A-2,501, Florida Administrative Code.
- (b) New and expanded uses of the Florida Aquifer for golf course and landscape irrigation and other non-essential uses are determined not to be consistent

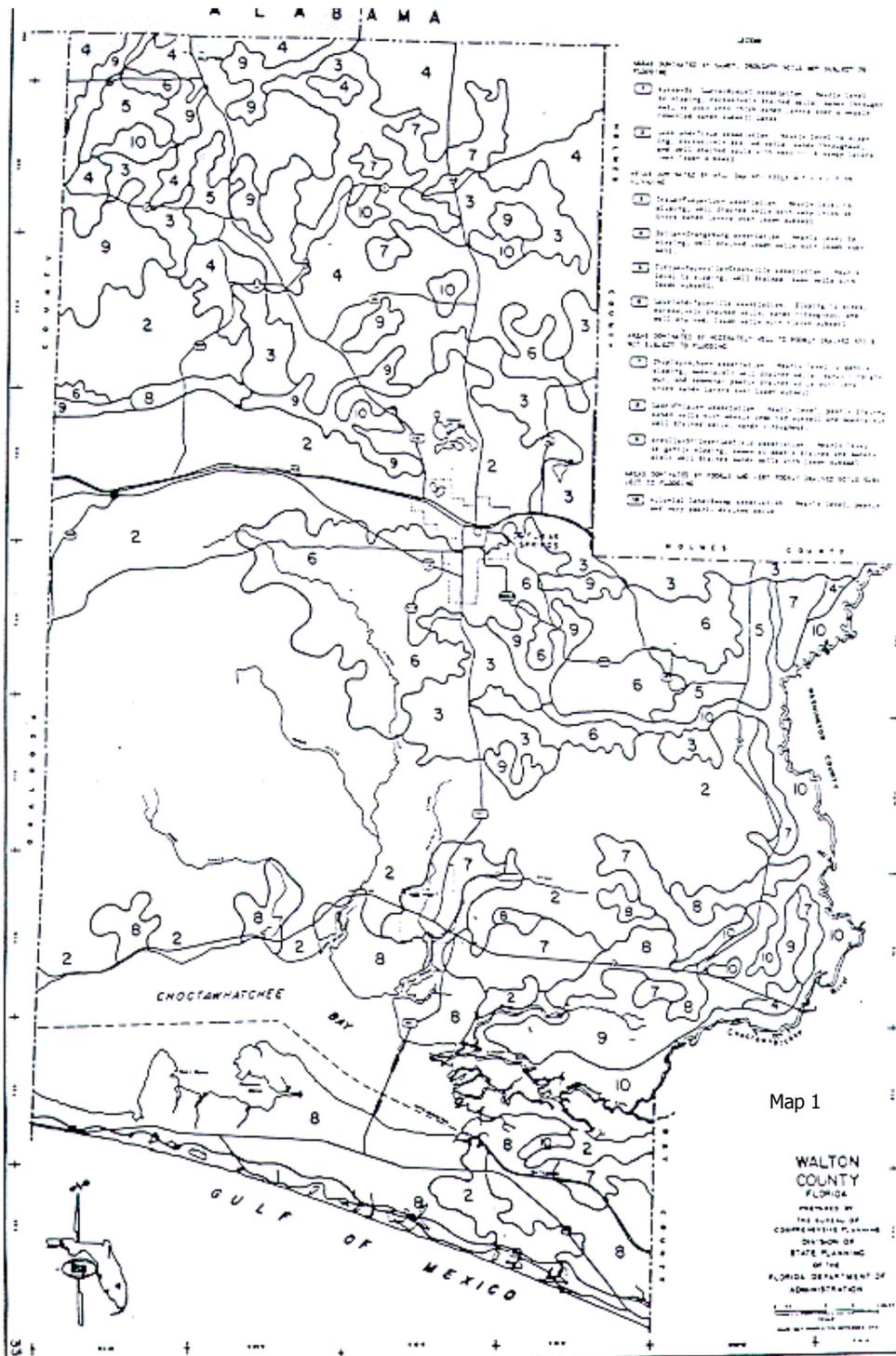
with the public interest, and as such are prohibited by the Board. However, the Governing Board may consider the granting of an exemption to provide for the issuance of a Standard water use permit if the following conditions are met:

1. The applicant request in writing an exemption for the use of the Floridan Aquifer. This request shall be made as part of its consumptive use permit application.
 2. The Sand-and-Gravel Aquifer is determined by the District to be unsuitable for its proposed use. This determination will be made from information available to the District, information obtained by the applicant from existing wells at the site or from information obtained from a test well constructed by the applicant of its informational needs to make this determination.
 3. The applicant as part of its exemption request must also demonstrate that they will experience an undue economic hardship if this request is not granted.
- (c) Public water supply systems shall be required to develop, adopt, and implement water conservation plans and measures to encourage and promote water conservation and efficiency in the sue of the area's water supplies. The required plans and measures shall specifically provide for the reduction of landscape irrigation water uses;
- (d) Public water supply systems shall be required to actively participate and aid in the implementation of the goals and plans of the Walton-Okaloosa-Santa Rosa Regional Utility Authority.

Specific Authority:373-044, 373.216, FS.
Law Implemented:373.246, FS.
History: New 8-1-89.

(NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT RULES; CHAPTER 40A-2, FLORIDA ADMINISTRATIVE CODE, CONSUMPTIVE USES OF WATER, AUGUST 1, 1989)

As Freeport is centered on SR-20, this designation would apply to that portion of Freeport which is south of SR-20.



MAP 2
SEE EXISTING AND FUTURE LAND USE MAPS
FOR EXISTING AND FUTURE CONSERVATION

TABLE 1
SOILS

<u>SOIL ASSOCIATION/DEVELOPMENT LIMITATIONS¹</u> Walton County			DEVELOPMENT LIMITATIONS						
Map Symbol	Name of Association with Component Soils ²	Percent of Association ³	SANITARY FACILITIES			COMMUNITY DEVELOPMENT			
			Septic Tank Absorption Fields	Sewage Lagoons	Sanitary Landfill (Trench Type)	Shallow Excavations	Dwellings	Light Industry	Local Roads and Streets
1	Kureb - St. Lucie – Rimini (3%)								
	Kureb	30	SLIGHT Slight	SEVERE Severe PR	SEVERE Severe PR, TS	SEVERE Severe CC	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight
	St. Lucie	20	Slight	Severe PR, TS	Severe CC	Severe	Slight	Slight	Slight
	Rimini	10	Slight	Severe PR	Severe PR, TS	Severe CC	Slight	Slight	Slight
	Others	40							
2	Lakeland – Troup (39%)								
	Lakeland	75	SLIGHT Slight	SEVERE Severe PR	SEVERE Severe PR, TS	SEVERE Severe CC	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight
	Troup	15	Slight	Severe PR	Severe PR, TS	Severe CC	Slight	Slight	Slight
	Others	10							
3	Troup – Fuqua – Lucy (10%)								
	Troup	33	SLIGHT Slight	SEVERE Severe PR	SEVERE Severe PR, TS	SEVERE Severe CC	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight
	Fuque	32	Moderate PWT	Slight	Slight	Moderate CC	Slight	Slight	Slight
	Lucy	20	Slight	Severe PR	Slight	Slight	Slight	Slight	Slight
	Others	15							
4	Dothan – Orangeburg (8%)								
	Dothan	40	SEVERE Severe PS	MODERATE Moderate RS	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight	SLIGHT Slight
	Orangeburg	30	Slight	Moderate PR	Slight	Slight	Slight	Slight	Slight
	Others	30							

TABLE 1 – SOIL ASSOCIATIONS

SOIL ASSOCIATION/DEVELOPMENT LIMITATIONS ¹ Walton County Page Two			DEVELOPMENT LIMITATIONS						
			SANITARY FACILITIES			COMMUNITY DEVELOPMENT			
Map Symbol	Name of Association with Component Soils ²	Percent of Association ³	Septic Tank Absorption Fields	Sewage Lagoons	Sanitary Landfill (Trench Type)	Shallow Excavations	Dwellings	Light Industry	Local Roads and Streets
5	Tifton – Faceville – Greenville (4%)	30	MODERATE	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
	Tifton		Moderate	Slight	Slight	Slight	Slight	Slight	Slight
	Faceville	25	PS						
			Slight	Slight	Slight	Slight	Slight	Slight	Moderate
6	Lakeland – Faceville (8%)	40	SLIGHT	SEVERE	SEVERE	SEVERE	SLIGHT	SLIGHT	SLIGHT
	Lakeland		Slight	Severe	Severe	Severe	Slight	Slight	Slight
	Faceville	25		PR	PR, TS	CC			
			Slight	Moderate	Slight	Slight	Slight	Slight	Moderate
7	Chipley – Albany (5%)	50	MODERATE	SEVERE	SEVERE	SEVERE	MODERATE	MODERATE	MODERATE
	Chipley		Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate
	Albany	35	WT	PR	TS, PR, WT	CC	WT	WT	WT
			Severe	Severe	Severe	Severe	Moderate	Moderate	Moderate
8	Leon – Chipley (11%)	45	SEVERE	SEVERE	SEVERE	SEVERE	SEVERE	SEVERE	SEVERE
	Leon		Severe	Severe	Severe	Severe	Severe	Severe	Severe
	Chipley	25	WT	PR	TS, PR, WT	CC	WT	WT	WT
			Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate
8	Other	30	WT	PR	TS, PR, WT	CC	WT	WT	WT

TABLE 1 - SOIL ASSOCIATIONS

SOIL ASSOCIATION?DEVELOPMENT LIMITATIONS ¹			DEVELOPMENT LIMITATIONS						
Walton County Page Three			SANITARY FACILITIES			COMMUNITY DEVELOPMENT			
Map Symbol	Name of Association with Component Soils ²	Percent of Association ³	Septic Tank Absorption Fields	Sewage Lagoons	Sanitary Landfill (Trench Type)	Shallow Excavations	Dwellings	Light Industry	Local Roads and Streets
9	Ardilla – Stilson – Leefield (7%) Ardilla	35	SEVERE Severe WT, PS	SEVERE Severe WT	SEVERE Severe WT	SLIGHT Slight	SEVERE Severe WT	SEVERE Severe WT	Moderate Moderate WT
	Stilson	25	Moderate WT	Moderate PR, HS	Severe WT, Pr	Moderate CC	Slight	Slight	Slight PC, EE
	Leefield	20	Severe WT	Moderate HS	Severe WT	Moderate CC	Moderate WT	Moderate WT	Moderate WT
	Others	20							
10	Alluvial Land – Swamp (6%) Alluvial Land	40	SEVERE Severe	SEVERE Severe	SEVERE Severe	SEVERE Severe	SEVERE Severe	SEVERE Severe	SEVERE Severe
	Swamp	35	FL, WT	FL, WT	FL, WT	FL, WT	FL, WT	FL, WT	FL, WT
	Swamp	25	V. Severe FL, WT	V. Severe FL, WT	V. Severe FL, WT	V. Severe FL, WT	V. Severe FL, WT	V. Severe FL, WT	V. Severe FL, WT
	Others								

- The overall rating for the association is based on the rating for the dominant soil (soil that makes up the greatest percentage of the association) or soils if more than one soil has the same rating.
- Others represents minor soils in the association. No one of the individual minor soils makes up as large a percentage of the association as the major soil with the lowest percentage. The percentage in parentheses following each of the soil associations represents the percentage of the county covered by that association.
- The percentages are estimates and are not based on measured acreage.

LEGEND

- | | | |
|----------------------|-------------------------|---------------------------|
| CC - Cutbanke Cave | LS - Low Strength | PWT - Perched Water Table |
| EE - Erodes Easily | PC - Piping | TS - Too Sandy |
| FL - Floods | PR - Percolates Rapidly | WT - Wet |
| HS - Lateral Seepage | PS - Percolates Slowly | |

Table 3
Panhandle Ecological Characterization

Table 6. Panhandle plants listed as Endangered (E), Threatened (T), Commercially Exploited (C), and Under Review (UR) by the State of Florida (FDA) and USFWS (from Wood 1986) and counties where they are found (from Ward 1978).

			B A Y	C A L H O U N	E S C A M B I A	F R A N K L I N	G A D S D E N	G U L F	H O L M E S	J A C K S O N	L E O N	L I B E R T Y	O K A L O O S A	S A N T A R O S A	W A L T O N	W A S H I N G T O N
<i>Actaea pachypoda</i>	T															
<i>Adiantum capillus-veneris</i>	E		•	•		•	•	•		•						•
<i>Aquilegia Canadensis</i>	E	UR								•						•
<i>Baptisia hirsuta</i>	T	UR							•				•	•	•	
<i>Baptisia megacarpa</i>	T	UR		•			•		•	•						
<i>Brickellia cordifolia</i>	T	UR								•						
<i>Bumelia lycioides</i>	T			•												
<i>Callirhoe papaver</i>	T															
<i>Cheilanthes microphylla</i>	T															•
<i>Chysopsis cruiseana</i>	E	UR											•	•		
<i>Conradina glabra</i>	T	UR														
<i>Cornus alternifolia</i>	T			•			•									
<i>Croomia pauciflora</i>	E	UR					•									
<i>Cryptotaenia canadensis</i>	T						•									
<i>Drosera intermedia</i>	T		•	•	•	•		•					•	•	•	•
<i>Epigaea repens</i>	E				•								•	•		
<i>Erythronium umbilicatum</i>	T						•									
<i>Gentiana pennelliana</i>	E	UR	•	•		•	•	•							•	
<i>Harperocallis flava</i>	E	E				•										
<i>Hedeoma graveolens</i>	E	UR	•													
<i>Heptica nobilis obtusa</i> (=americana)	E						•									
Heterrotheca (=Chysopsis) Cruiseana	E	UR			•								•	•	•	
<i>Hexastylis arifolia</i>	T				•		•						•	•	•	•
<i>Hydrangea arborescens</i>	T															
<i>Hypericum lissophioeus</i>	E	UR	•													•
<i>Juncus gymnocarpus</i>	UR														•	
<i>Kalmia latifolia</i>	T			•	•		•		•	•			•	•	•	•
<i>Liatris provincialis</i>	E	UR				•		•								
<i>Leitneria floridana</i>	T	UR				•										
<i>Lilium iridollae</i>	E	UR		•									•	•	•	
<i>Linum westii</i>	T	UR		•		•		•		•						
<i>Litsea aestivalis</i>	T	UR											•			

Table 3. Continued

			B A Y	C A L H O U N	E S C A M B I A	F R A N K L I N	G A D S D E N	G U L F	H O L M E S	J A C K S O N	L E O N	L I B E R T Y	O K A L O O S A	S A N T A R O S A	W A L T O N	W A S H I N G T O N
<i>Lupinus westianus</i>	E	UR	•			•		•					•	•	•	
<i>Macbridea alba</i>	E	UR	•			•		•								
<i>Magnolia acuminata</i>	T								•							
<i>Magnolia ashei</i>	E	UR					•				•	•	•	•	•	•
<i>Malaxis unifolia</i>	T						•					•				
<i>Matelea alabamensis</i>	E	UR										•				
<i>Medaoia virginiana</i>	T						•			•				•		
<i>Melanthium (=Veratrum)</i>	E						•			•						
<i>Woodii</i>							•									
<i>Nolina atopocarpa</i>	E	UR				•						•				
<i>Oxypolis greenmanii</i>	E	UR	•	•				•								
<i>Pachysandra procumbens</i>	E									•						
<i>Parnassia grandifolia</i>	E					•										
<i>Polygoneila macrophylla</i>	T	UR	•		•	•		•					•	•	•	
<i>Polygonum meisnerianum</i>	T										•					
<i>Rhapidophyllum hystrix</i>	C	UR					•			•	•	•			•	
<i>Rhexia salicifolia</i>	UR		•								•	•			•	•
<i>Rhododendron austrinum</i>	E	UR	•	•	•		•	•	•	•	•	•	•	•	•	•
<i>Rhododendron chapmanii</i>	E	E					•	•				•				
<i>Salix floridana</i>	T	UR								•						
<i>Sarracenia leucophylla</i>	E		•	•	•			•	•	•		•	•	•	•	•
<i>Sarracenia rubra</i>	E	UR	•		•					•			•	•	•	
<i>Schisandra glabra</i>	T	UR					•			•		•				
<i>Staphylea trifolia</i>	T											•				
<i>Stewartia malacodendron</i>	E		•	•	•		•		•	•		•	•	•	•	•
<i>Taxus floridana</i>	E	UR					•					•				
<i>Thalictrum (=Anemonella)</i>	T						•									
<i>Thalictroides</i>							•									
<i>Torreya taxifolia</i>	E	E					•			•						
<i>Trillium lancifolium</i>	E						•									
<i>Verbesian chapmanii</i>	T	UR	•					•				•				
<i>Viola hastata</i>	E						•									
<i>Xyris longisepala</i>	E	UR	•								•				•	

Panhandle Ecological Characterization

Vertebrate animals of Panhandle Florida whose status is threatened (T), endangered (E), under review (UR), or of special concern (SSC) (after Wood 1986).

Scientific name	Common name	Status	
		State	Federal
Fish			
<i>Acipenser oxyrhynchus desotoi</i>	Atlantic sturgeon	SSC	UR
<i>Ammocrypta asprella</i>	Crystal darter	T	UR
<i>Etheostoma histrio</i>	Harlequin darter	SSC	
<i>Etheostoma ckaicosae</i>	Okaloosa darter	E	E
<i>Fundulus jenkinsi</i>	Saltmarsh topminnow	SSC	
<i>Micropterus notius</i>	Suwannee bass	SSC	
<i>Micropterus</i> sp. (undescribed)	Shoal bass	SSC	
<i>Natropis callitaenia</i>	Bluestripe shiner	SSC	UR
<i>Notropis</i> sp. (undescribed)	Blackmouth shiner	E	UR
Amphibians			
<i>Ambystoma cingulatum</i>	Flatwoods salamander		UR
<i>Haideotriton wallacei</i>	Georgia blind salamander		UR
<i>Hyla andersonii</i>	Pine barrens treefrog	SSC	
<i>Rana areolata</i>	Gopher frog	SSC	UR
<i>Rana okaloosae</i>	Bog frog	SSC	UR
Reptiles			
<i>Alligator mississippiensis</i>	American alligator	SSC	T (S/A) ³
<i>Caretta caretta caretta</i>	Atlantic loggerhead turtle	T	T
<i>Chrysemys (=Pseudemys) concinna suwanniensis</i>	Suwannee cooter	SSC	UR
<i>Dermochelys coriacea</i>	Leatherback turtle	E	E
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	T
<i>Gopherus polyphemus</i>	Gopher tortoise	SSC	UR
<i>Graptemys barbouri</i>	Barbour's map turtle	SSC	UR
<i>Lepidochelys kempii</i>	Atlantic ridley turtle	E	E
<i>Macrolemys temmincki</i>	Alligator snapping turtle	SSC	UR
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	SSC	UR
Birds			
<i>Aimophila aestivalis</i>	Bachman's sparrow		UR
<i>Ammodramus maritimus juncicalus</i>	Wakulla seaside sparrow	SSC	UR
<i>Aramus guarana</i>	Limpkin	SSC	

Table 3. Continued

Scientific Name	Common Name	Status	
		State	Federal
Birds (continued)			
<i>Buteo swainsoni</i>	Swainson's hawk		UR
<i>Campephilus principalis</i>	Ivory-billed woodpecker	E	E
<i>Charadrius alexandrinus tenuirostris</i>	Southeastern snowy plover	T	UR
<i>Charadrius melodus</i>	Piping plover	T	T
<i>Cistothorus palustris marianae</i>	Marian's marsh wren	SSC	
<i>Dendroica dominica stoddardi</i>	Stoddard's yellow-throated warbler		UR
<i>Dendroica kirtlandi</i>	Kirtland's warbler	E	E
<i>Egretta caerulea</i>	Little blue heron	SSC	
<i>Egretta thula</i>	Snowy egret	SSC	
<i>Egretta tricolor</i>	Tricolored heron	SSC	
<i>Elanoides forficatus</i>	Swallow-tailed kite		UR
<i>Falco peregrinus tundrius</i>	Arctic peregrine falcon	E	T
<i>Falco sparverius paulus</i>	Southeastern kestrel	T	UR
<i>Grus canadensis pratensis</i>	Florida sandhill crane	T	
<i>Haematopus palliatus</i>	American oystercatcher	SSC	
<i>Haliaeetus leucocephalus</i>	Bald eagle	T	E
<i>Lanius ludovicianus migrans</i>	Migrant loggerhead shrike		UR
<i>Mycteria americana</i>	Wood stork	E	E
<i>Pelecanus occidentalis</i>	Brown pelican	SSC	
<i>Picoides borealis</i>	Red-cockaded woodpecker	T	E
<i>Rostrhamus sociabilis</i>	Snail kite	E	E
<i>Sterna antillarum</i>	Least tern	T	
<i>Vermivora bachmanii</i>	Bachman's warbler	E	E
Mammals			
<i>Felis concolor coryi</i>	Florida panther	E	E
<i>Myotis austrariparius</i>	Southeastern bat		UR
<i>Mustela vison lutensis</i>	Florida mink		UR
<i>Myotis grisescens</i>	Gray bat	E	E
<i>Myotis scdalis</i>	Indiana bat	E	E
<i>Neofiber alleni</i>	Round-tailed muskrat		UR
<i>Peromyscus floridanus</i>	Florida mouse	SSC	UR
<i>Peromyscus polionotus allophrys</i>	Choctawhatchee beach mouse	T	E
<i>Peromyscus polionotus leucocephalus</i>	Santa Rosa beach mouse		UR
<i>Peromyscus polionotus peninsularis</i>	St. Andrews beach mouse		UR
<i>Peromyscus polionotus trissyllepsis</i>	Perdido Bay beach mouse	E	E
<i>Plecotus rafinesquii</i>	Southeastern big-eared bat		UR

Panhandle Ecological Characterization

Table 3. Concluded

Scientific Name	Common Name	Status	
		State	Federal
Mammals (continued)			
<i>Tamias striatus</i>	Eastern chipmunk	SSC	
<i>Trichechus manatus latirostris</i>	West Indian manatee	E	E
<i>Ursus americanus floridanus</i>	Florida black bear	T	UR

*S/A - similarity of appearance

mostly as woody herbs in the groundcover. At best they were small trees of the understory, probably rarely attaining 30 years of age.

The second-growth forests of this community type today are somewhat different from their pre-settlement prototypes in several important ways. First, the age-class composition of clayhill longleaf forests is truncated; most stands are less than 60 years old, containing no trees 350-400 years old as is possible for longleaf pine (Wahlenberg 1946). Second, the cycle of summer fires has been halted or, in the case of controlled burning, shifted to winter burns. Alteration of the fire cycle has had a dramatic effect upon the reproduction of many of the species of plants in longleaf communities. Because many plants require fires in summer to stimulate flowering (Parrrott 1967, Davis 1965, Means and Grow 1985), the absence of fire or the shifting of fire to the season of plant dormancy has prevented these species from reproducing. Moreover, many of these same species, and others that do not require summer fires for flowering, have vastly diminished recruitment because their seeds require a bare mineral soil on which to germinate. Longleaf pine itself has this requirement; summer burns open the rank ground-cover and create bare mineral soil which lies exposed when longleaf seeds normally fall to the ground during fall and winter.

b. Ecology. The life cycle of the longleaf pine is important to the ecology of the clayhills, sandhills, and Flatwoods ecosystems it inhabits and will be discussed to provide an understanding of the functioning of these ecosystems. Even though fully grown specimens of most of the species of southern pines can withstand fire, they are killed in the seedling and sapling stage. Longleaf pine alone, is physically adapted to tolerate fire when young. Instead of growing upward right away as most saplings do, longleaf seedlings stay flat on the ground for periods of 3 to 15 years (Crocker and Boyer 1975).

During the "grass stage," the young tree grows a long, heavy taproot that probably helps it reach far down into the sandy soil toward moisture; this taproot also serves as a nutrient storage organ. When the young plant finally starts to grow tall, the stored food in the taproot helps it shoot rapidly upward. At the same time that it is racing skyward, the tree delays putting out branches, giving young saplings of this species a distinctive bottlebrush appearance. By growing rapidly upward in a single spurt, the young tree minimizes the amount of time its growing tip is vulnerable to destruction by ground fires. A young tree growing steadily year by year and putting out multiple branches would be vulnerable to ground fires over a far longer period of time. Moreover, longleaf pines have thick, corky bark and dense tufts of needles surrounding its apical buds. These two characteristics insulate the young longleaf pine and are obvious adaptations for resisting heat.

Like many conifers, the seeds of the longleaf require open sunlight and bare mineral soil on which to germinate. Beneath longleaf pines, however, the ground is densely carpeted with wiregrass and many other native grasses and forbs. The only open places readily available to longleaf seeds are very small bare patches of soil created by burrowing animals (e.g., gopher tortoise, *Gopherus polyphemus*; pocket gopher, *Geomyspinetus*) and the tip-up