

ALACHUA COUNTY ECOLOGICAL INVENTORY PROJECT

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EXECUTIVE SUMMARY

The purpose of this ecological inventory is to identify, inventory, map, describe, and evaluate the most significant natural biological communities, both upland and wetland, that remain in private ownership in Alachua County and make recommendations for protecting these natural resources. This study does not focus on the public water bodies and publicly owned lands in the county, as stated in our agreed-upon contract.

Guidance for identifying the sites to inventory was obtained from the upland inventory of Alachua County that was prepared by KBN Engineering and Applied Sciences, Inc. (KBN) in 1987, interviews with regional experts, and published and unpublished reports. However, most sites were selected through reviews of aerial photographs of the entire County. Three sets of aerial photographs were used: a 1986 set of infrared photographs (provided by the Alachua County Department of Environmental Services), a 1994 set of black and white photographs which included ownership information (located at the Alachua County Property Appraiser's Office), and a 1995 set of infrared photographs (located at the St. Johns River Water Management District Office). The information obtained for each site was drawn on U.S. Geological Survey (USGS) topographic quadrangle maps, including existing public conservation lands. Additional sites were identified to connect the larger areas and provide corridors for wildlife species that need large territories to maintain viable populations. In order to allow wildlife and surface water connections, site boundaries were drawn to include streams and drainage systems. A total of 47 sites were identified and mapped.

Property ownership information sufficient to obtain permission for access and for boundary delineation was obtained from the Property Appraiser's Office.

Field work on the sites was initiated as soon as access permission was obtained. In cases where access permission was not obtained, these areas were inventoried by sampling and observing the area from outer boundaries or from roads that crossed the area, and by the use of the aerial photographs. Some stream and river sites were accessed by canoe. Standardized forms were used to record information on

the ecological communities present and their quality, the species of plants and animals present in these communities, the presence of endangered species or habitat for endangered species, the presence of exotic species, and the condition of the wildlife habitats.

Definitions of ecological communities from the Florida Natural Areas Inventory (FNAI) 1990 publication were supplemented so that all of the biological communities of Alachua County, whether natural or human created, could be placed in a category that accurately described them.

Mapping of all of the biological communities on each site was done using field generated information, the sets of aerial photographs, and additional field checks as needed. Once completed, the total acreage of the site and the total acreage of each community on each site were calculated and added to the reports.

A numerical scoring and ranking system was developed to determine the relative importance of all the sites based on their ecological, hydrological, and management characteristics. Each site was evaluated and ranked for six parameters by consensus of three scientists familiar with the site. Sites were ranked by comparing their total scores (see Section 2.2.8 and Table 2-1).

The quality of the communities was found to be quite variable. Wetlands and hardwood forests were most often of good quality, whereas the fire-adapted communities such as sandhill and pine flatwoods were mostly of only fair or poor quality. This was usually due to two factors. The fire-adapted communities were usually not burned with prescribed fires often enough to maintain the native flora and fauna of the community or to maintain good-quality wildlife habitat, and these communities were often intentionally cleared of most native flora and fauna during the establishment of pine plantations.

Lists of species found on each site can be found in KBN's field reports (provided under separate cover to Alachua County). Information on the quality of the hydrological and wildlife connections between sites and/or public conservation lands was obtained from both the aerial photographs and from field observations. Most connections between sites were impacted negatively by paved roads. The type of stream crossing used when building roads and the amount of clearing at stream crossings could be altered to greatly improve the connectivity for wildlife.

A brief description of the geologic and hydrologic features of each site was prepared based on various published reports, maps, and personal knowledge. A type of hydrologic alteration frequently noticed

was small ditches constructed throughout most of the pine flatwoods areas of the County to enhance the drainage of isolated wetlands.

Information on rare, threatened, and endangered species was obtained from Florida Game and Fresh Water Fish Commission (FGFWFC) publications, maps, and personnel. Information on wildlife habitat was obtained from the field visits and field reports, from personal knowledge based on previous field visits, from interviews with regional experts, and from published reports. The information was summarized in the individual reports for each site.

Information on exotic species was obtained during the field inventories and from interviews. Exotic species of plants are reported in the site reports. Exotic plants are rapidly becoming a much greater threat to the biological resources of this and all other counties in North Florida.

Exotic animals are not generally mentioned, except where they are especially common or are causing a unique problem. Unlike plants, the exotic animals are not in discrete, stationary patches. Exotic animals are often highly mobile and tend to be spread throughout the county. Exotic animals already are well established in Alachua County. Examples of exotic animals already well established in Alachua County are armadillos (*Dasyopus novemcinctus*), starlings (*Sturnus vulgaris*), Asian tiger mosquitoes, and South American fire ants.

An evaluation of the restoration and management potential of each site was made. This often involved evaluating the feasibility of increasing the use of prescribed fire. Significant damage is being caused by the lack of prescribed burning. A public assistance program is recommended to aid and promote prescribed burning in fire-adapted ecological communities on private lands.

Threats to the continued existence of the natural resources of each site were reported, and conservation strategies were recommended. These strategies included purchase, purchase of conservation easements, cooperative efforts and programs, enforcement of dredge and fill regulations and wetlands regulations, use of planning and zoning strategies and regulations, adherence to the Forestry Best Management Practices, and public education. Some loss of the resources found in this inventory is inevitable with the continued growth in human population that is projected to occur. However, the use of these strategies on some of the sites can greatly affect the resulting condition of the natural resources of Alachua County.

ACKNOWLEDGMENTS

Many people and agencies aided in the preparation of this study and report. We would particularly like to thank Alice Reuman, Cathrin Smith, Kenneth Berk, and Michael Drummond for the long hours they spent and the constructive criticism they provided while serving on the steering committee. Michael Drummond was especially helpful in supplying aerial photographs, maps, and his own personal knowledge of Alachua County. We also want especially to thank the many private and corporate landowners who graciously allowed us to come onto their property. We owe special thanks to both Susan Swiers and Mary Ann Sikes at the Property Appraisers Office for their many offers of help while we worked to map the projects. We also owe a debt of gratitude to Greg Dambek at the St. Johns River Water Management District for supplying the 1995 infrared aerial photographs and the space and equipment for viewing them. We thank Steve Nesbitt, Paul Moler, and John Wooding of the Florida Game and Fresh Water Fish Commission, who spent several hours providing essential information. Other people who freely gave of their time and knowledge to provide information and who deserve thanks are Barbara Muschlitz, Don Jouvenaz, Richard Franz, Steve Humphrey, and John Hintermister.

1.0 INTRODUCTION

The purpose of this project is to obtain information about all the significant areas of natural and semi-natural lands that remain in Alachua County, both upland and wetland, and to evaluate, rank, and make recommendations on conservation strategies. A map showing the location of Alachua County is provided in Figure 1-1, and a map of the sites is provided in Figure 1-2. An inventory of the significant natural uplands was prepared in 1987 by KBN Engineering and Applied Sciences, Inc. (KBN). The current study is more comprehensive and more inclusive, covers a much larger area,

evaluates wetlands as well as uplands, and includes mapping of ecological connections and biological communities.

This report includes the following appendices:

Appendix A—List of the U.S. Geological Survey (USGS) topographic quadrangle maps of the sites inventories for this project.

Appendix B—Biological Sensitivity to Recreational Activity

Appendix C—Alachua County resource areas that were not inventoried.

Appendix D—Minutes of the Project Steering Committee meetings.

Appendix E—Examples of Field Data Sheets.

2.0 SCOPE OF WORK AND METHODOLOGY

The overall objective of this project was evaluate and mark the natural areas which occur in Alachua County. The following is a detailed description of the scope of work which was implemented to meet this objective.

2.1 SPECIFIC SCOPE OF WORK

- Task I. Define Natural Ecological Communities
1. Review Florida Natural Areas Inventory (FNAI) natural community/plant community classification system.
 2. Evaluate previous KBN (1987) natural ecological communities report to determine if the current status for retaining the designation as a resource conservation area is still valid.
 3. Establish an FNAI-compatible classification/descriptive system to be applied to both upland and wetland areas in Alachua County.
- Task II. Develop Ranking Criteria
1. Develop quantifiable ranking criteria and a system to rank natural ecological communities in Alachua County in terms of significance and ability to maintain

current or historic biodiversity. Multiple criteria weightings may be proposed; at least one will emphasize maximum water resource protection.

2. Submit the proposed quantifiable ranking criteria and system to the County, SJRWMD, and SRWMD for review and approval, based in part on evaluation of consistency of the proposed system with FNAI, state, regional, and local goals, objectives, policies, and regulations and incorporate requested modification as necessary.

Task III. Prepare Comprehensive Inventory

1. Identify and review existing data sources.
2. Conduct inventory on a county-wide basis.
 - a. Include incorporated and unincorporated areas,
 - b. Exclude areas held in public ownership for conservation purposes, except for consideration of relevance in the context of lands previously identified or land adjacent or connected to areas identified pursuant to the current inventory.
3. Review most current available color infra-red aerial photography of the County at a scale of 1:24,000. Review most current available aerial photography of the County at a scale of 1:3,600.
4. Conduct aerial truthing as necessary to confirm initial findings.
5. Conduct ground truthing as directed by the Project Steering Committee.
6. Conduct other reviews and studies, as appropriate.
7. Prioritize for evaluation areas that were preliminarily identified as significant natural ecological communities and which appear to be candidates for retention as resource conservation areas.
8. Apply the approved ranking criteria and system to preliminarily identified natural ecological communities in Alachua County utilizing best available existing data supplemented by additional data collection.

Task IV. Comprehensive Mapping and Digitization

1. Map initially using the U.S. Geological Survey (USGS) 7.5-minute topographic map series or other map series.

2. Complete final mapping using current rectified County digital line graph (DLG) township maps in State Plane coordinates, North Florida zone, 1983 data, overlaid on aerials on a scale of 1 inch = 1,000 ft.
3. Provide mapping electronically in a .DLG3 file format.
4. Convert to other desired coordinate systems and storage media, if possible.

Task V. Site Summaries

1. Produce site summary reports for each natural area and include the following:
 - a. Description, including total acres of site and acres per community within each site;
 - b. Viability of the community or communities of primary concern within each site, with emphasis on ecosystem management considerations;
 - c. Analysis of known or projected adverse impacts on each community and recommended strategies for addressing the impacts;
 - d. Identification of documented occurrences of rare, threatened, and endangered species and species of special concern as contained on current lists; and
 - e. Discussion of how the community relates to regional conservation priorities.

Task VI. County-Wide Ranking/Resource Protection Evaluation

1. Provide a priority listing of all sites inventoried, based on quantifiable ranking criteria.
2. Identify and provide a strategy for those areas for which a purchase mechanism is the only available method to preserve community viability.
3. Identify natural, viable landscape linkages between the identified areas.
4. Recommend appropriate strategies to maintain identified linkages.

2.2 SPECIFIC METHODOLOGIES

The following is a discussion of specific methods that were employed in carrying out the scope of work outlined in the previous section.

2.2.1 SITE IDENTIFICATION

Because the 1994 aerial photographs at the Property Appraiser's Office were not available when the project began, the 1986 infrared aerial photographs were used to initially identify potential study areas.

U.S. Geological Survey (USGS) topographic quadrangle maps were marked to indicate all the land in the county that was cleared of vegetation and/or developed. Some of the USGS maps had been updated as of 1993, showing new clearing and development. Potential sites were defined as those areas that were uncleared and undeveloped.

2.2.2 BOUNDARY IDENTIFICATION

Temporary Boundaries—Temporary boundaries were drawn around the sites. Consideration was given to the major floodplain and drainage features of the county, attempting to include all of them within sites. Boundary maps were obtained for all the public conservation lands in the county. These boundaries were added to the quad maps.

Connector Boundaries—Based on the natural lands patterns that emerged, boundaries for connectors between sites and/or public lands were added, primarily using streams and their floodplains and adjacent strips of upland for these connectors. Specifications in the contract required that these boundaries be delineated because the combined wetland and adjacent strip of upland along these streams would provide the best connectors for a broad spectrum of wildlife species (Noss, 1983) and because they are essential watershed connectors. The mapping of connectors necessitated that they be made part of sites or sites in their own right which then necessitated inventory and evaluation.

Boundary Finalization—Based on the 1994 tax assessor photographs, boundaries were finalized and ownerships determined. Boundaries are characterized as regular in shape or irregular in shape. Examples of regular shape are rectangles and other straight boundaries without multiple incursions. Boundaries are also characterized as conforming or not conforming to existing property boundaries, roads, section lines, or other surveyed lines.

2.2.3 LISTED SPECIES IDENTIFICATION

Consultations occurred with a number of local experts about the occurrence of listed species and important natural features of the sites. Steven Nesbitt, Paul Moler, and John Wooding of the Florida Game and Fresh Water Fish Commission provided locations, estimated population sizes, and population trends for most of the listed mammals, birds, reptiles, and amphibians. Steve Nesbitt provided up to date information on the location of every active bald eagle nest in the county, on every nesting area for Florida sandhill cranes, and on the two wood stork rookeries. He also provided information on other wading bird rookeries. Paul Moler provided similar information for reptiles and

amphibians, and John Wooding provided information on Sherman's fox squirrels and Florida black bears. Other people providing information are listed in the bibliography. The Florida Game and Fresh Water Fish Commission's Habitat Distribution Maps (Arnold, 1995) for selected listed species were also used as a source of information in the endangered species evaluations.

2.2.4 INVENTORY

The inventories were done by David Clayton and Bob Simons, working separately. Landowners were contacted where access was necessary for the survey work, and those lands where access was denied were inventoried using aerial photographs, outside sources of information, and whatever information could be obtained by observations from the property boundary. Initially, a review was made of the USGS topographic quadrangle maps (various dates) and aerial photographs (Alachua County Department of Environmental Services, 1986; Alachua County Property Appraisers Office, 1994; St. Johns River Water Management District, 1995) to determine access, location of communities, drainage features, and karst features. Next, vehicle or pedestrian surveys of all accessible areas were used to get an overall view; to discern as many biocommunities as possible; to look for exotic species, listed species, or signs or habitat for listed species; and to evaluate the overall wildlife habitat and the condition of the communities. Specific sites were chosen to inventory in more detail.

Limitations for this survey were the large number of sites, the vast acreage, and the restricted time available. Thousands of acres on 47 sites were surveyed within 8 weeks, necessitating limited survey time on the larger sites. Terrestrial species were emphasized because 90 percent of the area surveyed is terrestrial.

2.2.5 COMPILING SITE SUMMARY DATA

Definition of Community Quality Designations

The biological communities on each site were evaluated for overall ecosystem quality. While the scope of the project precluded certain statistical analyses, the approach taken combined limited site visits and judgment based on other sources of information. Some decisions were made on the basis of aerial photography combined with a judgment based on the general condition of such ecosystems throughout Alachua County. Most communities were visited in the field at least once. Evaluations of quality are based primarily on the biodiversity and functional integrity of the community as reported in the field data sheets or by the evaluators.

Community quality was determined to be *excellent* if:

1. It had all the functional components it would normally have in a natural situation (canopy habitat, cavities, structural diversity, micro-habitat diversity, and healthy and diverse ground cover are examples) and appeared to have nearly the full set of species it would normally have;
2. It was not being seriously invaded by exotic species; and
3. It had not been seriously altered by human impacts other than those that have impacted the entire county.

Community quality was determined to be *good* if:

1. It is still functioning as it should, for the most part;
2. It had a good representation of the plant and animal species it would have under natural conditions;
3. It had the potential to return to excellent condition in a few decades given adequate protection or if it was managed with commonly used management techniques such as prescribed burning, but without special and expensive restoration techniques such as the reintroduction of ground cover species.

Typical examples are second growth forests, old pine plantations on pine flatwoods sites with good ground cover and micro-site diversity, and little drainage of wetlands.

Community quality was determined to be *fair* if it had serious problems (i.e., heavily damaged ground cover, young pine plantation, bedded soil, or extensively drained wetlands) but could be returned to good condition in a few decades with a combination of commonly used management techniques and some restoration work.

Community quality was determined to be *poor* if it had been impacted by human activities to the point that it seemed unlikely that it could be returned to good condition without a full-scale restoration effort. An area that was sandhill or pine flatwoods, but that now has almost no native ground cover or native fauna would be an example.

Connections Definitions

In evaluating the quality of connections, a rating system was developed. The connections were rated as excellent, good, fair, or poor. Sometimes, a connection was rated as intermediate between two of

these categories and was given a rating such as fair/poor or good/fair. In order to be rated at all, the connection had to be short, generally less than 1/4 of a mile. Longer connections that are significant functional corridors were included in the report as separate sites and inventoried and evaluated as such.

An *excellent* connection is one that is not bisected by a paved road or has a bridge at the point of connection, is forested, and has a broad and continuous corridor with a stream and associated stream floodplain and also a continuous band or area of upland habitat.

A *good* connection may be bisected by a road or may lack one of the other attributes of an excellent connection, but is forested and has a functional corridor for aquatic, wetland, and upland species.

A *fair* connection is one that lacks some significant qualities but is still a functional corridor to some degree for many species. It may lack a stream, or it may lack a band of upland habitat, or it may be very narrow in part, or it may have such a large highway bisecting it that the corridor values are significantly reduced.

A *poor* connection is one that lacks most of the qualities of a good connection and would require restoration to be a functional corridor for most terrestrial, wetland, and aquatic species. A frequent condition of poor connections is that a major highway bisects the connection without there being a stream with a large culvert that would allow some animals to cross. Another example is a stream passing through an area that has been completely cleared of native habitat.

2.2.6 ECOLOGICAL MAPPING

After the sites were inventoried, the ecological mapping was begun. Three sets of aerial photographs (Alachua County Environmental Services, 1986; Alachua County Property Appraiser, 1994; St. Johns River Water Management District, 1995) were used in this effort, together with the inventory data. Wetlands vegetation maps obtained from the St. John's River Water Management District were used to check the field findings, and aerial photographs were used for all mapping.

The categories of communities used were based on the Florida Natural Areas Inventory (FNAI) categories. Most of the FNAI categories were not modified. However, it was necessary to add a few new categories, either because communities in the field did not fit any of the existing FNAI categories or because it was necessary to subdivide a category to give more complete and detailed information. For example, human-altered ecosystems are not covered by the FNAI system but exist on most sites and needed to be mapped. In addition, some natural communities categories were added because some

biocommunities were obviously distinctly different from any of the FNAI categories. For example, the forests of black willow and river birch along the Santa Fe River are different from the descriptions of any FNAI category. Similarly, the shrub swamp at Bird Island and several other shrub swamps in other parts of the county do not fit any FNAI category. Categories were added only to provide a more accurate and more detailed descriptions of the natural resources of the sites. Most of the designations are unaltered FNAI categories. All changes are noted and explained in the biological community descriptions. All non-FNAI categories are noted by an asterisk in the site descriptions.

2.2.7 MAP DIGITIZATION

A set of Geographic Information System (GIS) digitized maps of all sites including all of the biological communities that were mapped was constructed. The GIS provides the ability to accurately assess the acreage of each site, the acreage of each biocommunity type on each site, and the overall acreage of wetlands on each site.

2.2.8 SITE RANKING

A numerical scoring and ranking system was developed to determine the relative importance of the sites based on their ecological, hydrological, and management characteristics. Each site was evaluated and ranked by three project scientists for six ecological, hydrological, and management parameters. In some cases, a parameter was subdivided into subparameters to better define the relationship. Definitions were developed for each parameter and subparameter. Table 2-1 provides a list of these parameters and subparameters and their definitions. Based on these definitions, a score of 1 (low) to 5 (high) was assigned by consensus to each site based on the characteristics it exhibited. These scores were summed to obtain a total site score. Sites were ranked by comparing their total scores.

Since the number of parameters and subparameters have a built-in weighting, several types of summing were done to examine built-in parameter bias in the final rankings. A total score for each site based on all parameters and subparameters was calculated. In this scenario, each subparameter is of equal weight to any other subparameter. Subparameters are also of equal weight to parameters with no subparameters. For example, the parameter *Endangered Species Habitat Value* is equal in weight to *Species Diversity*, a subparameter of the *Vegetation Value* parameter. A second ranking was done where parameters were of given equal weight (average values were calculated for parameters with subparameters).

Table 2-1. List of Parameters/Subparameters and Scoring Used for Site Rankings

- I. **VEGETATION VALUE**
 - A. **Species Diversity**
Based on relative numbers of species of vegetation recorded or estimated at site.
 1. Very low.
 2. Low.
 3. Moderate.
 4. High.
 5. Very high.
 - B. **Exotics**
 1. Area has extensive invasive exotics and extensive control required.
 2. Area has some invasive exotics, control is required and can be successful.
 3. Some exotics present and landscape is conducive for introduction of exotic plants and/or animals.
 4. Exotics not present but landscape is conducive for introduction of exotic plants and /or animals.
 5. Exotics not present and not easily introduced.
- II. **ENDANGERED SPECIES HABITAT VALUE (PLANTS AND ANIMALS)**
 - A. Habitat not conducive for listed species, or no species likely.
 - B. Habitat potential for listed species low, or not good habitat for any listed species, but occasional use or occurrence possible.
 - C. Habitat potential for some listed species moderate, or good habitat for one or more species.
 - D. Habitat potential for some listed species high, or very good habitat for one or more listed species.
 1. Habitat potential for many listed species excellent, or the best habitat for one or more listed species.
- III. **WILDLIFE HABITAT VALUE**
 - A. Sparse cover, high edge to area ratio and poor breeding, nesting and foraging habitat for game and non-game species.
 - B. Moderate cover, high edge to area ratio, nesting and foraging habitat, transient use by game and non-game animals.
 - C. Moderate cover, medium edge to area ratio, commonly used by game and non-game animals.
 - D. Moderate cover, with low edge to cover ratio, good foraging habitat.
 - E. High cover, low edge to area ratio, high cover and forage value, area used for breeding and feeding by game and non-game animals.

IV. HYDROLOGY

A. Floridan Aquifer Groundwater

Measure this value primarily by using water management district Floridan Aquifer recharge maps (SJRMD, 1993; SRWMD, 1995) combined with percent of ultimate stream destination which flows into the Floridan Aquifer. Evaluation will range from little value for the confined zone to great importance for the unconfined zone.

1. Little value for aquifer recharge.
2. Good value for aquifer recharge.
3. Significant importance for most values for aquifer recharge.
4. Great importance for aquifer recharge, some karst features.
5. Karst watershed, stream to sink system.

B. Surface Water and Surficial Aquifer Resource Protection and Flood Protection

Measure this value by estimating the amount of wetlands, the amount of area within the 100-year floodplain of streams, and the volume of water that can be stored.

Value = water storage ability of the particular property;

Protection of surface water = size of property.

1. Little value for water storage or protection of surface water quality.
2. Some value for water storage or protection of surface water quality.
3. Significant value for water storage or protection of surface water quality.
4. Significant importance for most values for water storage or protection of surface water quality.
5. Great importance for water storage or protection of surface water, especially if as a part of a karst watershed.

C. Vulnerability of Floridan Aquifer

Measure this value by assessment of possible contamination and use the Florida Geological Open File Report No. 21 (Macesich, 1988) for additional data.

1. Very low.
2. Low.
3. Moderate.
4. High.
5. Very High.

V. LANDSCAPE ECOLOGY

A. Community Diversity

1. One to three communities of good quality.
2. Four to seven communities of good quality.
3. Eight to eleven communities of good quality.
4. Twelve to fifteen communities of good quality.
5. Sixteen or more communities of good quality.

B. Ecological Quality

This value is based on the evaluations of community quality as defined in Section 2.2.8.

List any significant endemics and note maturity of community.

1. Community types in poor condition.
2. Community types in fair condition.
3. Community types in good condition.
4. Community types in excellent condition.
5. Extraordinary example due either to rarity or quality.

C. Community Rarity (see definition in Section 2.2.8)

1. Habitat secure, quite common in Florida.
2. Habitat frequent in Florida.
3. Habitat local, but not rare.
4. Habitat rare, 6 to 20 occurrences.
5. Habitat critically imperiled, less than 5 occurrences.

D. Functional Connectedness

Riparian corridor given slightly greater weight.

1. Isolated, no functional connections.
2. Connected to other natural areas, but connections narrow.
3. Connected to two or more other natural areas.
4. Connected to other natural areas, with wide connections (contiguous).
5. Provides important connection between two or more public natural lands.

VI. MANAGEMENT POTENTIAL

- A. Too small and/or degraded for maintenance or reestablishment of normal ecosystem processes, such as periodic burning or flooding. Highly vulnerable to uncontrollable external impacts. Probably beyond hope.
- B. Location and/or extent of degradation would make management difficult and expensive. Questionable whether protection/restoration programs would be successful.
- C. Could be maintained in or restored to good condition, but would require vigilant management. Location and/or historic use suggests chronic problems with trespassers and/or neighbors. Special programs such as exotic plant removal or hydrological restoration required. Difficult location for management.
- D. Habitats in good condition, but requiring regular attention, such as prescribed burning. Effective buffering from most external impacts possible. Location and surrounding land uses reasonably convenient for management.
- E. Low-maintenance habitat types in excellent condition. Inherently well buffered from most external impacts. Location minimizes problems with trespassers and neighbors and facilitates management access.

The following are more detailed discussions regarding some specific methods employed or assumptions used in scoring for these parameters.

Vegetation Value/Species Diversity—This was evaluated based on an estimate of the total number of plant species inhabiting the area. The species lists made during field visits were used as a guide, but were not the only guide, since some sites were inventoried more thoroughly than others due to access differences, size differences, etc. In other words, this value was assigned on the basis of a qualitative judgment rather than on a strictly numerical basis as originally planned. The most diverse sites got 5 points, the least diverse sites got 1 point, and the others fell in between.

Exotics—This was evaluated strictly according to the scoring system. Most of the data came from site visits and are reported in the site summaries, but information from knowledgeable people was also used. The evaluation is based almost entirely on exotic plants with one exception. There are exotic animals such as armadillos and fire ants on all the sites, and they have a dramatic effect on populations of native animals, but since they are already fully distributed throughout the County, there is no need to evaluate each area (Carr, 1971-1987; Jouvenaz, 1994). The one unique site is Bird Island. It has no habitat for armadillos or fire ants, which are on virtually all other sites, but is impacted significantly by cattle egrets.

Endangered Species Habitat Value—This evaluation was done strictly according to the ranking system. Most of the information used was obtained from the Florida Game and Fresh Water Fish Commission. Steven Nesbitt, Paul Moler, and John Wooding provided detailed, up-to-date information. In addition, the habitat distribution maps from this agency were consulted for each site (Arnold, 1995). However, some information was also gathered in the field, especially with regard to gopher tortoises and listed plants. The resulting evaluation for almost all the sites was determined by the listed animals, but listed plants did play a part on several and were the determining factor on at least two sites.

Wildlife Habitat Value—This was a qualitative evaluation based on multiple factors, including availability of cover, water, tree cavities, and burrows; production of mast and browse; diversity of habitats; the health of the ground cover, the ratio of edge to interior habitat; and the amount and diversity of wildlife seen using the area. The scoring system was intended to be qualitative, and was followed closely, adding some additional information such as the actual observed wildlife use. (Mast is defined as nuts and fruits used as food by wildlife. Browse is defined as leaves, twigs, and buds used as food by wildlife.)

Hydrology/Floridan Aquifer Recharge—This was based on an estimate of the percentage of the water of the area that ultimately recharges the Floridan aquifer combined with a determination of whether or not there is a concentrated karst recharge point at the end of some percentage of the streams that drain the area. The ranking system was followed without alteration.

Hydrology—Surface water and surficial aquifer protection and flood protection. This evaluation was based on a combined evaluation of the size and number and storage capacity of wetlands, and the size and number and length of streams. Karst watersheds were given higher ratings. The ranking system was followed without alteration.

Hydrology/Vulnerability of Floridan Aquifer—This was based on the combinations of whether or not the area is underlain by the Hawthorn formation, whether (and what fraction of) the down stream flow from the area enters a recharge point to the Floridan aquifer, and whether there is a direct karst opening to the aquifer on the site. This closely follows the intent of the ranking system.

Landscape Ecology/Community Diversity—This was based on a direct count of the native ecological communities in good condition on the site. This is the most quantitative of the scores. A change made was to increase the number of communities needed to achieve each score. The categories were changed from evaluation by twos to evaluation by threes.

Ecological Quality—This was based primarily on field evaluations of the quality of each community combined with photointerpretation of the current condition of the communities throughout the full expanse of the site. It was found that the upland pine, sandhill, mesic flatwoods, wet flatwoods, and wet prairie communities were generally highly altered by human uses, whereas the hardwood forests, most wetlands, and most aquatic communities were in relatively good condition. This is a qualitative evaluation that averages conditions for large areas. The scoring system was followed closely. Poor communities were those which were highly altered, and, for example, had little or no original ground cover, and altered soils. Fair communities were those with some original ground cover and little soil alteration. Good sites had most of the original ground cover and species present. Excellent communities had little disturbance and all of the original species present. Extraordinary sites had virtually no disturbance and the original species present.

Community Rarity—This was scored as to whether or not a relatively rare community existed on the site. The highest score, 5 points for a globally critically imperiled habitat, was not awarded to any

community. Four points for a Florida rare habitat were awarded only three times, once for the limerock outcrop fern habitat at Buzzards Roost, once for the first magnitude spring, major spring run, and major river at Hornsby Spring, and once for the major river at the Santa Fe River. Three points for local habitat that is not rare statewide were given to the following communities: slope forest, caves (either dry or aquatic, including swallow holes), uvalas, large seepage slopes, small springs, slough, swale, and strand swamp. Two points for communities common in Florida but not secure in Alachua County habitats were given to the following habitats: wading bird rookeries, scrub, scrubby flatwoods, restorable upland pine forest, calcareous mesic hammock, wet prairie, and sinkhole ponds. All other communities received one point. The score for the site as a whole was the highest score achieved by any one community.

Functional Connectedness—This was evaluated based on how well the area was connected to other areas, how many other areas to which it was connected, and whether or not the connected areas are protected in public ownership. The ranking system was followed exactly. Slightly greater weight was assigned if a riparian corridor was present.

Management Potential—This was an evaluation of how possible it would be to manage the area for protection of the natural resources. The instructions in the scoring system were followed.

3.0 NATURAL AREAS DESCRIPTIONS

The following community descriptions conform to those used by FNAI. Some adjustments have been made to more closely align the communities with the associations found in Alachua County (see Section 2.3.5, Specific Methodologies). Typical species have been listed for each community as found in Alachua County.

Occurrence of fires is highly variable. The terms used to describe fire frequency regardless of season in this report are:

1. Frequent = 1 to 3 years
2. Occasional = 3 to 8 years
3. Rare = 8 or more years (often much longer, e.g. 100 years).

UPLAND/TERRESTRIAL

XERIC UPLANDS

Very well-drained sands with poor water and nutrient holding capacity supporting xeric-adapted vegetation.

Sandhill

When managed with fire, this is a very open, sunny forest of pine and deciduous oak with a grass and wild flower ground cover. The low intensity ground fires occurred naturally every 1 to 3 years before the advent of fire suppression.

Characteristic plants are longleaf pine, turkey oak, wire grass, sandhill dropseed, blazing star, and bracken fern. There are several hundred other plant species that can occur in the ground cover of this community.

Characteristic animals are Sherman's fox squirrel, pocket gopher, gray fox, bobwhite quail, Southwestern kestrel (sparrow hawk), red-headed woodpecker, Bachman's sparrow, gopher tortoise, Florida pine snake, and Florida gopher frog.

Typical condition in Alachua County now is conversion to a slash pine plantation with remnants of sandhill ground cover flora, a few turkey oaks, and a few gopher tortoises.

Former Sandhill

This sandhill habitat is almost identical to sandhill. It is very open and has most of the same plant species, but has been invaded with water oak, sand live oak, upland laurel oak, and loblolly pine. When properly managed with fire, this former sandhill habitat will return to the open, sunny sandhill forest of longleaf pine and turkey oak with a grass and wild flower ground cover. Low intensity ground fires occurred naturally every 1 to 3 years before the advent of fire suppression.

Characteristic plants are similar to sandhill with the addition of water oak, sand live oak, upland laurel oak, and loblolly pine.

Characteristic animals are the same as those found in sandhills.

Scrub

This is a thicket of evergreen shrubs and small trees. It often has an overstory of sand pine in other places, but not in Alachua County, and has little in the way of ground cover except for lichens. Fires necessary to maintain this habitat often develop as very severe crown fires that occur on an erratic and variable cycle ranging from 5 to 100 years.

Characteristic plants include sand pine, sand live oak, myrtle oak, chapman oak, crookedwood, Florida rosemary, saw palmetto, scrub palmetto, and deer moss (terrestrial lichens). There are about 50 plant species that only grow in this habitat, but most of these do not occur in Alachua County.

Characteristic animals: spotted skunk, oldfield mouse, Florida scrub jay, rufous-sided towhee, coachwhip, mole skink, and scrub lizard. Other listed animals that occur here are gopher tortoise, Eastern indigo snake, and Florida mouse.

Xeric Hammock

This is a closed canopy forest with only moderate shade and an understory containing the characteristic shrubs listed below. Fire is infrequent or rare. Characteristic plants include sand live oak, saw palmetto, crooked- wood, sparkleberry, beautyberry, scrub beakrush, and bracken fern. Other plants often present include live oak, laurel oak, pignut hickory, magnolia, huckleberry, and deerberry.

Characteristic animals include spadefoot toad and southern hognosed snake. Other animals usually common here include gray squirrel, white-tailed deer, armadillo, Carolina wren, blue jay, and cardinal.

MESIC UPLANDS

These areas are well drained and have soils with moderate to good fertility and moisture holding capacity due to varying amounts of clay, phosphatic rock, and/or limerock in the subsoil and usually a fair amount of organic matter in the topsoil. Depending on both fire history and soil type, the forest may be a pine forest similar to sandhill or may be a tall, dense hardwood forest.

Slope Forest

This is a densely shaded hardwood/pine forest type that occurs on moderate to steep slopes with a clay subsoil underneath and adjacent to uplands with a clay layer underneath such that a continuous supply of water seeps down hill within reach of the plant roots. sand/clay substrate. Fire is very rare and never intense.

Characteristic plants are magnolia, beech, spruce pine, shumard oak, water oak, Florida maple, sweetgum and basswood.

Common animals are white-tailed deer, gray squirrel, pileated woodpecker, parula warbler, red-eyed vireo, red-shouldered hawk, and yellow rat snake.

Upland Mixed Forest

Usually called mesic hammock in this area, this is a tall, dense, closed canopy hardwood forest on level to moderately sloping fertile soil. Drainage may range from rather poor to excellent, but there is no flooding. Fire is rare and never intense.

Characteristic plants are pignut hickory, laurel oak, water oak, sweetgum, swamp chestnut oak, white ash, basswood and spruce pine in the overstory and hop-hornbeam in the understory. Many other plant species are usually present including many kinds of vines such as wild grape, poison-ivy, and Virginia creeper and many shade tolerant herbaceous plants such as violets, spike grass, woods grass, and partridge berry in the ground cover.

Common animals include white-tailed deer, armadillo, gray squirrel, wild turkey, pileated woodpecker, red-bellied woodpecker, red-eyed vireo, summer tanager, parula warbler, box turtle, and yellow rat snake.

Calcareous Mesic Hammock

This comes under the heading of upland mixed forest in the FNAI classification, but is distinct enough in north central Florida to warrant a separate category. The soils are moderately to well drained, sandy with varying amounts of organic matter and sometimes clay, overlying limerock that is near the surface. The forest is a densely shaded hardwood forest of high diversity and usually has a dense and diverse ground cover of herbaceous plants.

Characteristic plants are the same as for upland mixed forest except that laurel oak and water oak are not common and sugarberry, winged elm, shumard oak, and especially redbay are common. Some plants that are largely restricted to this habitat are soapberry, bluff oak, Florida maple, climbing buckthorn, Godfrey's privet, Carolina buckthorn, silver buckthorn, virgin's bower, and rouge berry.

Upland Pine Forest

When managed with fire, this is an open forest of pine and deciduous oaks and hickory with a ground cover of grasses and wild flowers. It is very similar in appearance and ecology to sandhill. However, the soil is more fertile, with some clay at least in the subsoil and sometimes throughout the soil profile and often with some limerock near the surface. The natural fire frequency and intensity is the same as in sandhill or slightly more frequent and hotter due to the greater fuel loads produced by the more fertile soil.

Characteristic plants are longleaf pine, southern red oak, post oak, mockernut hickory, chinquapin, sassafras, New Jersey tea, yellow hawthorn, rusty blackhaw, and wire grass.

Other common plants include bluejack oak, sand post oak, and a great many herbaceous plants. With protection from fire, this community quickly becomes invaded by laurel oak, live oak, water oak, sweetgum, loblolly pine, and many other hammock species.

Characteristic animals are the same as for sandhill. Indeed, these two habitats have historically been placed together in one main category called high pine.

ROCKLANDS

Biological communities having limerock exposed at the surface.

Sinkhole

This category includes all sinkholes that do not hold water up to the rim or near to it for most of the year. Those that hold water to the rim are in the sinkhole lake category. Those that hold water permanently, but have significant slope above the water fit in both this and the sinkhole lake category.

Some sinkholes do not have exposed limerock, but may have special habitat features, such as a different community of plants than the surrounding landscape or different microclimate. The plant community is often upland mixed forest. Those with steep limestone walls often have a very distinct flora of liverworts, mosses, ferns, herbs, shrubs, and hardwood trees.

FLATWOODS

Pine forests with dense herbaceous or dense evergreen shrub ground covers on flat poorly drained sandy soils with an admixture of organic material and often with a hard pan within three feet of the surface. The soil pH is often very low. Typical animals here include black bear, white-tailed deer, cottontail, cotton rat, towhee, yellowthroat, pine warbler, brown-headed nuthatch, black racer, diamondback rattlesnake, and pinewoods tree frog.

The typical conditions of all three kinds of pine flatwoods in Alachua County is slash pine plantations on sites that have been bedded.

Wet Flatwoods

Pine forest on seasonally flooded, sandy soil. Fires of low to moderate intensity every 2 to 5 years. Characteristic plants are slash pine, pond pine, loblolly bay, gallberry, fetterbush, wax-myrtle, redroot, Virginia chain fern.

Mesic Flatwoods

Pine forest on land that rarely floods, but has saturated soil during wet periods and low soil moisture throughout the root zone during droughts. The natural fire cycle of moderate intensity fires is every 1 to 4 years.

Characteristic plants are longleaf pine, saw palmetto, gallberry, dwarf blueberry, dwarf huckleberry, and wire grass. Slash pine has become the most common tree on most areas of this community due to fire protection and planting.

Scrubby Flatwoods

Pine forest above a dense woody shrub thicket growing on a layer of well drained sand that is on top of poorly drained, flat subsoil. The fire cycle of moderate to intense fires varies from every 2 to perhaps every 10 years.

Characteristic plants are longleaf pine, slash pine, (and sometimes pond pine here in Alachua County), sand live oak, myrtle oak, chapman oak, saw palmetto, fetterbush, huckleberry, crookedwood, tarflower, flatwoods pawpaw, scrub hedge-hyssop, and pennyroyal.

PALUSTRINE

Prairie Hammock

This is hammock forest occurring next to or surrounded by wet prairie on large, flat basins that are usually of karst origin. It is usually slightly elevated above the rest of the basin on sandy or organic soil over a marl or limestone substrate and its species composition is shaped in part by rare to occasional prolonged flooding and occasional fire.

Characteristic plants are live oak and cabbage palm.

Characteristic animals are bobcat, raccoon, barred owl, great horned owl, barn owl, red-shouldered hawk, yellow rat snake, and diamondback rattlesnake, all of which hunt the rodent population of the prairie and use the forest for cover, roosting, and nesting. King snakes, scarlet king snakes, scarlet snakes, coral snakes, Eastern indigo snakes, and corn snakes may also be common.

Hydric Hammock

These are mixed forests of hardwoods, pine, red cedar, and/or cabbage palm on low, flat land with sand or clay or organic soil, often over limestone. Conditions are mesic to mildly hydric with some occasional flooding. Fire is infrequent and generally mild, although hammocks dominated by cabbage palm can produce and withstand very hot fires.

Characteristic plants are live oak, water oak, swamp laurel oak, cabbage palm, southern red cedar, loblolly pine, Florida elm, sweetgum, red maple, sugarberry, sweetbay, persimmon, hornbeam, walter viburnum, green haw, rattan vine, greenbriar, and trumpet creeper.

Characteristic animals include white-tailed deer, gray squirrel, raccoon, wild hog, wild turkey, swallow-tailed kite, red-shouldered hawk, barred owl, acadian flycatcher, and box turtle.

Wet Prairie

These are small to vast expanses of grassland or shallow marsh occupying flat basins on sandy soils that often have a substantial clay or organic component. The main areas of this community in Alachua County are on the drier parts of karst prairies like Paynes Prairie and Kanapaha Prairie. However, flat, shallow wetlands of herbaceous vegetation in pine flatwoods areas are also included in this category. Under natural conditions, both fire and flooding are frequent.

The most characteristic plant is maidencane, but most karst prairies have been so altered by drainage, fire protection, cattle grazing, mowing, fertilizing, sewage effluent, etc. that a large assortment of native and exotic weedy plants often dominate. Karst prairies usually surround a basin marsh that occupies the center of the basin, whereas flatwoods prairies may or may not have deeper areas of marsh.

Characteristic animals of the prairie include marsh rabbit, round-tailed muskrat, cotton rat, sandhill crane, harrier (marsh hawk).

SEEPAGE WETLANDS

These are sloped or flat sands or peat with very stable, constant high moisture levels maintained by downslope or lateral seepage combined with good outlet drainage. Vegetation can be dominated by either forest, shrubs, or herbs, depending on fire history and the volume per unit area of seepage.

Bog

Bogs occur on deep peat kept saturated by lateral seepage and capillary action. There is little fluctuation in water levels, and the plant growth is floating on the surface, so that it goes up and down to some extent with the water level. Fire is quite variable, from none to occasional, and can be severe.

Characteristic plants are sphagnum moss, fetterbush, bamboo-vine, loblolly bay, and sometimes slash pine.

Other plants often present are pond-cypress, swamp tupelo, hooded pitcher plant, and tall blackberry.

Bogs are great escape cover for black bears and support some alligators, frogs, crayfish, etc.

Baygall

Usually called bayheads, these seepage wetlands may be on the side or base of a slope on either inorganic or organic soil. They are usually at the head of or beside a stream or tributary that provides good outflow drainage. The soil is kept saturated by downslope or lateral seepage. Flooding does not occur or is very mild and fire is rare or infrequent.

Characteristic plants are swamp tupelo, loblolly bay, sweetbay, and swamp bay, with evergreen shrubs and several kinds of ferns common in the understory.

Seepage Slope

Another name for this community is shrub bog. It occurs where massive downslope or lateral seepage continually comes to the surface on the side of a hill or at the head of a small stream. The soil is almost always very wet but never floods above the normal level. Fire is frequent, occasional, or rare.

Characteristic plants include sphagnum moss, fetterbush, gallberry, titi, poison sumac, white wild azalea, highbush blueberry, maleberry, Virginia willow, chokeberry, elderberry, tall blackberry, and bamboo-vine. Many other interesting plant species occur in this habitat in Clay County and in the Florida panhandle, but these do not occur in Alachua County.

Seepage Slope Forest

Seepage slope forests are wetlands characterized by forested slopes with moisture maintained by downslope seepage such that the ground is usually saturated but rarely inundated. They generally occur where water percolating down through the sand hits an impermeable layer. Instead of being in discrete pockets like baygalls, these forests often occur along the entire slope of a stream.

Characteristic plants include swamp tupelo, water oak, sweetgum, red maple, sweetbay, wax-myrtle, pond pine, large gallberry, dahoon holly, cinnamon fern, Virginia chain fern, yellow-eyed-grass, and various other grasses and sedges.

FLOODPLAIN WETLANDS

These are flat, sand, silt, clay, or muck soils associated with flowing water courses and subjected to flooding but not permanent inundation. Floodplain wetlands support wetland or mesic woody and herbaceous vegetation.

Bottomland Forest

This is a tall, dense floodplain forest adjacent to a stream that has a defined channel. The stream rarely floods then never for very long. The soil is always moist due to a high water table, lateral seepage, and abundant organic matter in the soil. Fire rarely if ever occurs.

Characteristic plants are water oak, swamp laurel oak, spruce pine, loblolly pine, red maple, magnolia, sweetgum, sweetbay, swamp tupelo, Florida elm, swamp dogwood, and hornbeam.

Floodplain Forest

These are tall, majestic hardwood forests on river floodplains with either alluvial soil or fertile soil over limerock or fertile soil adjacent to a spring fed river. Flooding is occasional with varying hydroperiods depending on location and topography. Fire is rare or absent.

Characteristic trees are water hickory, water locust, overcup oak, live oak, water oak, swamp laurel oak, swamp chestnut oak, river birch, and swamp privet.

Characteristic animals include beaver, gray squirrel, raccoon, white-tailed deer, prothonotary warbler, acadian flycatcher, barred owl, red-shouldered hawk, pileated woodpecker, yellow rat snake, brown water snake, and red-bellied water snake.

Floodplain Marsh

This is a fresh water marsh that occurs in the floodplain of a river. Fire may be frequent to rare. Characteristic plants are maidencane, saw-grass, pickerel-weed, arrowhead, buttonbush, and sand cord grass.

Floodplain Swamp

This is a bald-cypress, tupelo, ash, maple swamp located in the floodplain of a stream. Flooding duration is usually longer than six months. Fire occurs rarely or never.

Characteristic plants are bald-cypress, swamp tupelo, water tupelo, pumpkin ash, green ash, cabbage palm, and red maple.

Characteristic animals include beaver, wood duck, barred owl, red-shouldered hawk, and cottonmouth.

Willow/Birch Swamp

A pioneer association of coastal plain willow and river birch beside major rivers on alluvial deposits.

Slough

This is a low, open forest of short, crooked, stout-trunked deciduous trees growing in a broad, shallow channel in the center of a linear wetland that has flowing water except during the dry seasons. At the beginning of a dry season, the water may be stagnant for a month or more before evaporating completely. This same association sometimes occupies sinkhole ponds located at the downstream end of creeks that have widely fluctuating water levels.

Characteristic plants are pop ash, water-elm, ogeechee tupelo, buttonbush, greenfly orchid, Bartram's airplant, and water-lily. Other plants sometimes present are overcup oak, swamp privet, Carolina willow, duckweed, and floating ferns.

Characteristic animals include river otter, barred owl, red-shouldered hawk, prothonotary warbler, and cottonmouth.

Strand Swamp

This is a linear cypress/hardwood swamp in an elongated depression that has flowing water most of the year, but no definite channel.

Characteristic plants are bald-cypress or pond-cypress, swamp tupelo, green ash, pumpkin ash, red maple, sweetbay, swamp laurel oak, coastal plain willow, buttonbush, swamp dogwood, and wax-myrtle.

Characteristic animals are raccoon, river otter, white ibis, barred owl, wood duck, cottonmouth.

Swale

This is a fresh water marsh occupying a broad, shallow channel flooded seasonally with flowing water.

Fire is frequent or occasional or rare.

Characteristic plants include saw-grass, sagittaria, maidencane, pickerel-weed, and wax-myrtle.

Characteristic animals are those listed for basin marsh.

BASIN WETLANDS

These are shallow, closed basin wetlands with outlet usually only in time of high water; peat or sand substrate, usually inundated; wetland woody and/or herbaceous vegetation.

Basin Marsh

This is a large fresh water marsh in a large basin such as Paynes Prairie with peat on top of sand or clay. Inundation is for the greater part of the year. Fire is occasional but can be intense and is an important part of the ecology.

Characteristic plants are maidencane, pickerel-weed, saw-grass, cat-tail, primrose-willow, lotus, water-lily, spatter-dock, etc.

Characteristic animals include river otter, raccoon, round tailed muskrat, wood stork, sandhill crane, white ibis, herons and egrets, rails, mottled duck, blue-winged teal, harrier (marsh hawk), snipe, moorhen, purple gallinule, red-winged blackbird, boat-tailed grackle, alligator, stripped mud turtle, stinkpot, chicken turtle, green water snake, mud snake, stripped swamp snake, pig frog, Florida cricket frog, and a whole host of small fish species such as the mosquito fish, golden top minnow, pirate perch,

Depression Marsh

This is a fresh water marsh in a small rounded depression in sandy soil with peat accumulating toward the center. It is seasonally inundated with still water, but usually goes completely dry every year or at least periodically, and has frequent to occasional fire.

Characteristic plants are Virginia chain fern, redroot, maidencane, pickerel-weed, spatter-dock, St. John's-wort, and yellow-eyed-grass.

Characteristic animals include wading birds, softshell turtle, chicken turtle, striped newt, and a host of salamanders, toads, frogs, and tree frogs that use these wetlands for breeding.

Basin Swamp

This is a hardwood/pond cypress swamp in a large basin with peat substrate that is seasonally inundated with still water. Fire is occasional to rare. Characteristic plants are pond-cypress, swamp tupelo, and fetterbush. Basin swamps strongly dominated by swamp tupelo are often called gum swamps. Green ash and red maple may also be present, and slash pine and bay trees often occur in shallow areas or on the edge. Characteristic animals are raccoon, white ibis, barred owl, prothonotary warbler, and cottonmouth.

Shrub Swamp

This is a swamp in a basin with peat substrate that is seasonally inundated with still water and vegetated with shrubs that can withstand an extended hydroperiod. Fire is occasional to rare.

Characteristic plants are elderberry, wax-myrtle, buttonbush, and/or coastal plain willow.

Characteristic animals are raccoon, white ibis, and cottonmouth.

Lake Shore Swamp

Lake shores of built-up peat deposits often form distinct swamps dominated by pond or bald cypress. Fires seldom extend into these deposits.

Characteristic plants include pond and bald cypress, pennywort, soft rush, wax-myrtle, buttonbush, low panicums, and spikerushes.

Typical animals are various frogs, snakes, and turtles, barred owl, songbirds, gray squirrel, and white-tailed deer.

Dome Swamp

Usually called cypress domes, these small, somewhat rounded depressions within pine flatwoods forests often occupy 20 to 30 percent of the pine flatwoods region. These swamps are dominated by

pond-cypress trees. The tallest trees are often in the center of the dome and tree height decreases gradually toward the edge. There is usually a well developed understory of shrubs or a herbaceous ground cover of depression marsh plants or both. The soil is usually sand underlain with a clay lens, and usually has some peat accumulating toward the center. These depressions remain inundated with still, soft, acidic water for several months to most of the year. Fire varies from rare to frequent. Characteristic trees are pond-cypress, blackgum, and slash pine, with some sweet bay, swamp bay, and/or loblolly bay around the edge. Fetterbush is usually the dominant shrub, and Virginia chain fern, redroot, and maidencane are characteristic ground cover.

Characteristic animals include raccoon, green-backed heron, white ibis, yellow-rumped warbler, banded water snake, glossy crayfish snake, black swamp snake, pine woods snake, dwarf siren, striped newt, southern dusky salamander, and little grass frog.

LACUSTRINE

Clastic Upland Lake

Generally irregular basin in clay uplands; predominantly with inflows, frequently without surface outflow; clay or organic substrate; colored, acidic, soft water with low mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Farm Pond

This is a pond formed by damming a stream or digging.

Flatwoods/ Prairie Lake

Generally shallow basin in flatlands with high water table; frequently with a broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline, soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Marsh Lake

Generally shallow, open water area with wide expanses of fresh water marsh; still water or flow-through; peat, sand or clay substrate; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Floodplain Lake

Meander scar, backwater, or larger flow-through body within major river floodplains; sand, alluvial or organic substrate; colored, alkaline or slightly acidic, hard or moderately hard water with high mineral content (sulfate, sodium, chloride, calcium, magnesium); mesotrophic eutrophic.

Sandhill Upland Lake

Generally rounded solution depression in deep sandy uplands or sandy uplands shallowly underlain by limestone; predominantly without surface inflows/outflows; typically sand substrate with organic accumulations toward middle; clear, acidic moderately soft water with varying mineral content; ultra-oligotrophic to mesotrophic.

Sinkhole Lake

Typically deep, funnel-shaped depression in limestone base; predominantly without surface inflows/outflows, but frequently with connection to the aquifer, clear, alkaline, hard water with; high mineral content (calcium, bicarbonate, magnesium).

Mine Pit Lake

A pond or lake in a mine pit.

Swamp Lake

Generally shallow, open water area within basin swamps; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic eutrophic.

RIVERINE**Alluvial Stream**

Lower perennial or intermittent/seasonal water course characterized by turbid water with suspended silt, clay, sand and small gravel; generally with a distinct, sediment-derived (alluvial) floodplain and a sandy, elevated natural levee just inland from the bank.

Blackwater Stream

Perennial or intermittent/seasonal water course characterized by tea-colored water with a high content of particulate and dissolved organic matter derived from drainage through swamps and marshes; generally lacking an alluvial floodplain.

Seepage Stream

Upper perennial or intermittent/seasonal water course characterized by clear to lightly colored water derived from shallow groundwater seepage.

Spring-Run Stream

Perennial water course with deep aquifer headwaters and characterized by clear water, circumneutral pH and, frequently, a solid limestone bottom.

Spring-Fed River

Combination of water from blackwater streams and springs and spring runs in a major river.

SUBTERRANEAN

The cave systems in this karst region are numerous and provide very vulnerable openings to the drinking water aquifers and to very fragile and critical habitat for specialized endemic species of invertebrates. The known cave passages are but a very small fraction of the total.

Terrestrial Cave

These are limerock caves above water, often beginning at the bottom at a sink hole, and sometimes leading to aquatic caves. Caves provide specialized and often critical habitat for bats and some specialized invertebrates.

Aquatic Cave

These are the cave systems that are submerged in aquifer waters. Where the surface of a terrestrial cave meets an aquatic cave system, there are often populations of highly specialized cave dwelling invertebrates.

Old Field Pine Plantation

Old fields which have been planted with any species of pine.

Old Field Succession Pine

Old fields which have been invaded by volunteer pine or have a mature plantation of pine.

Site Conversion Pine Plantation

Upland habitat such as a hammock or wetlands such as a basin swamp which have been cleared and then planted with pine.

Rough Pasture

This habitat is a pasture which retains some of its native ground cover or which has numerous scattered trees or both.

Improved Pasture

Improved pastures are those which are almost completely covered by exotic grasses and lack significant tree cover.

Cropland

This habitat consists of row crops, freshly cleared land, or fallow fields.

Active Mining

Any area with active mining.

Low Impact Development

Homes or camp sites which have been allowed to remain wooded are designated low impact.

High Impact Development

Any major alteration or construction.

4.0 RESULTS AND CONCLUSIONS

4.1 SITE RANKINGS

Based on the inventory, 47 sites were identified for evaluation and ranking. These sites include the sites that were evaluated in 1988 as well as additional sites reflecting the expanded scope to include wetland as well as upland sites.

Based in the site characteristics, the 47 sites were ranked according to the methods described in Section 2.2.8 and shown in Table 2-1. Table 4-1 presents a summary of the individual subparameter score for each site. Table 4-2 presents a ranking of each site with equal weight given to each of the six parameters:

- Vegetation Value
- Endangered Species Value
- Wildlife Habitat Value
- Hydrological Characteristics
- Landscape Ecology Characteristics
- Management Potential

Table 4-3 presents a ranking of each site with equal weight given to each of the subparameters within each major parameter. Several conclusions can be drawn from these rankings. Overall, the highest ranked sites (e.g., Santa Fe River, Hornsby Spring, Hogtown Prairie, etc.) are ranked high regardless of the weighting, and the lowest ranked sites (e.g., Buda Sandhills, Beech Valley, Morans Prairie, Hasan Flatwoods, etc.) ranked low regardless of the weighting. There are shifts in individual ranks, but the relative relationships of high- and low-ranked sites remain unchanged, allowing for confidence based on this methodology. As discussed in the methods section, this type of ranking shows a continuum of high- versus low-ranked sites. Significant differences exist between the highest and lowest ranked sites, but these differences are less important between any two sites or among groups of sites with similar ranks.

The conservation strategy discussion in the individual site descriptions provides the best guide to the results of this study. The overall result is that there are many large areas in Alachua County that have great value as watershed and wildlife resources, and that conservation strategies can be used to protect these resources. The sites are mostly connected by stream systems, but many of the connections need improving and protecting.

Table 4-2. Site Rankings Based on Subparameter Scores

<u>Rank</u>	<u>Site</u>	<u>Total Score</u>
1	Santa Fe River	50
2	Hornsby Springs	46
3	Hogtown Prairie (Sugarfoot Hammock)	44
4	Lochloosa Forest West	43
5	Fox Pond	41
6	Prairie Creek	40
6	Levy Lake (Barr Hammock)	40
8	Gum Root Swamp	39
9	Lochloosa Creek Headwaters Flatwoods	38
9	Lochloosa Forest Additions	38
9	Mill Creek	38
9	Kanapaha Prairie	38
13	East Side Newnans Lake	37
14	East Side Greenway	36
15	Chacala Pond	35
15	Austin Cary Flatwoods	35
15	Lochloosa Slough	35
15	Northeast Flatwoods	35
15	Watermelon Pond	35
20	Buck Bay Flatwoods	34
20	Lochloosa Creek	34
20	Buzzards Roost	34
23	North San Felasco Hammock	33
23	Millhopper Flatwoods	33
23	Hague Flatwoods	33
26	East Lochloosa Forest	32
26	Domino Hammock	32
28	Bird Island	31
28	Serenola Forest	31
28	East San Felasco Hammock	31
31	Hatchet Creek	30
31	Lake Alto Swamp	30
31	Paynes Prairie West	30
31	South Melrose Flatwoods	30
31	Rocky Creek	30
36	Hickory Sink	29
36	Saluda Swamp	29
36	Pine Hill Forest	29
39	Monteocha Creek	28
39	South LaCrosse Forest	28
39	Little Orange Creek	28
39	Fred Bear Hammock	28
43	Santa Fe Creek	26
44	Hasan Flatwoods	25
45	Morans Prairie	24
46	Buda Sandhills	22
47	Bech Valley	20

Table 4-3. Site Rankings Based on Parameter Scores

<u>Rank</u>	<u>Site</u>	<u>Total Score</u>
1	Santa Fe River	31
2	Hornsby Springs	28
3	Hogtown Prairie (Sugarfoot Hammock)	27
4	Lochloosa Forest West	26
5	Fox Pond	25
6	Levy Lake (Barr Hammock)	24
6	Gum Root Swamp	24
6	Lochloosa Creek Headwaters Flatwoods	24
9	Prairie Creek	23
9	Lochloosa Forest Additions	23
9	East Side Newnans Lake	23
12	Mill Creek	22
12	Lochloosa Slough	22
12	Northeast Flatwoods	22
15	Kanapaha Prairie	21
15	East Side Greenway	21
15	Austin Cary Flatwoods	21
15	Watermelon Pond	21
15	Buck Bay Flatwoods	21
15	Lochloosa Creek	21
15	East Lochloosa Forest	21
22	Chacala Pond	20
23	Bird Island	20
23	Buzzards Roost	20
25	Hague Flatwoods	19
25	Domino Hammock	19
25	Serenola Forest	19
25	South Melrose Flatwoods	19
29	North San Felasco Hammock	18
29	Millhopper Flatwoods	18
29	Hatchet Creek	18
29	Lake Alto Swamp	18
29	Paynes Prairie West	18
29	Rocky Creek	18
29	Hickory Sink	18
29	Saluda Swamp	18
29	Monteocha Creek	18
38	East San Felasco Hammock	17
38	Little Orange Creek	17
38	Santa Fe Creek	17
41	South LaCrosse Forest	16
41	Fred Bear Hammock	16
41	Pine Hill Forest	16
44	Hasan Flatwoods	15
45	Morans Prairie	15
46	Beech Valley	13
47	Buda Sandhills	12

The greatest threats to the natural areas in Alachua County are:

1. The gradual losses of land to development;
2. The loss of quality of the natural resources due to various factors, including lack of prescribed burning;
3. The loss of connectivity, mostly as a result of paved highways and the concentration of development at the most critical points of connection; and
4. The gradual loss of plant and animal habitat quality due to the continued increase in the number of species and the size of the populations of invasive exotic plants and animals.

Loss of connectivity can be addressed in part with better planning and better highway construction. Control of invasive exotic plants can be begun by forming a low-cost program of cooperative eradication of especially ominous infestations and by outlawing the sale of some threatening species. Although the loss of land to development is inevitable, it can be moderated somewhat by good planning. Encouraging more prescribed burning is difficult and to some extent beyond local control due to such factors as national air quality standards and the structure of the legal system (liability laws). However, it is possible to have some effect by providing incentives and by setting a good example on public lands.

To conserve many of the most valuable resources identified in this report, some of the lands will need to be purchased, and conservation easements will need to be purchased on others. This recommendation is costly but necessary if some of the resources are to remain intact.

4.2 SITE SUMMARIES

The site summaries provide a description of the following aspects for each site: key features, USGS quadrangle sheet location, overall size, biocommunity types and acreages, general condition of these biocommunities, connections to adjacent areas, general condition of these connections, site boundary conditions, description of biophysical conditions, restoration and management potential, conservation strategies, and comprehensive plan considerations. Individual site scores for each parameter or subparameter are included at the end of each site summary.

5.0 SUMMARY OF FINDINGS

Alachua County has a long history of human habitation, agriculture, and other types of development, yet is still rich in natural resources. There are large areas of high-quality watersheds which serve in part to provide stream flow in the creeks and rivers of this area and in part to recharge the Floridan aquifer with good-quality water. There are large areas of habitats which support a diversity of native plants and animals, and there are habitats for significant populations of several endangered species.

The 47 largest and most significant areas of ecological communities (or land that could be reclaimed to restore natural ecological communities) were identified and inventoried. Individual site summaries are included in Section 4.0. Brief descriptions for other areas that were not inventoried but which have some significant resources are included in Appendix B.

There are about 50 natural communities identified in Alachua County. The conditions of these communities vary widely, many being in good condition. Wetlands and hardwood forests were most often in good condition, whereas the fire-adapted communities such as sandhill and pine flatwoods were mostly only fair or poor in quality. This condition was usually caused by two factors. The fire-adapted communities are usually not burned with prescribed fires often enough to maintain the native flora and fauna of the community or to maintain good-quality wildlife habitat. Also, these communities are often intentionally cleared of most native flora and fauna during the establishment of pine plantations.

In the past, small ditches to isolated wetlands had been constructed throughout most of the pine flatwoods areas of north Florida to increase accessibility, increase timber production, and help control mosquitos. Some selective filling of these ditches that would not significantly conflict with these objectives would be beneficial to the wildlife habitat and surface water storage values of these wetlands.

Connections between individual sites are often impacted negatively by paved roads. The type of stream crossing used when building the road and the amount of clearing at stream crossings could be changed to greatly improve the connectivity for wildlife. Connections are often damaged by residential development as well. Residential development is often clustered in exactly the wrong place

from the point of view of trying to maintain connections between potential conservation areas. This problem could be addressed to some extent by changes in land use planning.

The status of endangered species varies from one species to the next. For instance, bald eagles (*Haliaeetus leucocephala*) are doing well here. Their population density has been increasing steadily and is one of the highest of any area in the United States outside of Alaska. Gopher tortoises (*Gopherus polyphemus*) were found to occur in low numbers in most of the suitable habitats that occurred on the individual sites. The several species of wading birds that are listed as endangered, threatened, or of special concern and that occur in Alachua County are all surviving, but are mostly declining in numbers. The most important wood stork (*Mycteria americana*) rookery in this region of Florida is well protected and in good health on the Lochloosa Forest West site. (It has been monitored and protected since 1910.) Unfortunately, the only heron/egret rookery of similar status is not doing as well. The Bird Island rookery in Orange Lake, which has been owned and protected by the Audubon Society since 1910, has been damaged in the last few years by the deaths of most of the bushes in which the birds nest. In the opinion of the investigators, this shrub death is probably caused by the herbicide applications used for exotic weed control.

Exotic plants are rapidly becoming a much greater threat to the biological resources of this and all other counties in north Florida. A particularly problematic exotic infestation found in Alachua County is skunk vine (*Paederia foetida*), which was found during the field work on the Buda Sandhill site. This and other infestations of destructive exotic plants indicate that some concerted actions by the public agencies responsible for conserving natural resources are warranted. A program by a public agency or a cooperative group of public agencies to assist private landowners in the control and extermination of skunk vine, cogon grass (*Imperata* spp.), and a few other especially destructive exotic plants is recommended. Also, a law prohibiting the sale of these same plants is suggested. The situation regarding exotic animals is different. Unlike plants, the exotic animals are not in discrete, stationary patches. Exotic animals are often highly mobile and tend to be spread throughout the county. Examples of exotic animals already well established in Alachua County are armadillos (*Dasypos novemcinctus*), starlings (*Sturnus vulgaris*), Asian tiger mosquitos (*Aedes albopictus*), and South American fire ants (*Solenopsis invicta*). However, there are some animals that are currently invading and are not yet spread throughout the county. One is the capybara (*Hydrochoerus hydrochaeris*), a rodent that can grow to more than 100 pounds, which has established a population in the northeastern corner of Alachua County (Doonan, 1996). Another is the nutria (*Myocastor coypus*), a somewhat smaller rodent that is established in Duval County and in Louisiana.

So much damage to natural communities is being caused by the lack of prescribed burning that it is recommended that a public assistance program be established to aid and promote prescribed burning in fire-adapted ecological communities on private lands. The Florida Division of Forestry has a program that enables them to conduct burns for land owners at reasonable rates. This program is in need of increased funding and should be promoted on a larger scale.

Recommended conservation strategies include full purchase, purchase of conservation easements, cooperative efforts and programs, enforcement of dredge and fill regulations and other wetlands regulations, the use of planning and zoning strategies and regulations, and public education. Some loss of the resources found in this inventory is inevitable due to the projected continued growth in human population. However, the use of some of these strategies on some of these sites can greatly affect the resulting state of natural resources in the future. There are possible strategies to help protect the resources and generally a number of options from which to choose. However, to fully protect the top priority areas, full purchase is often the preferred option. For most of the large areas, many of which ranked quite high, the opposite is true. In these cases, conservation easements, cooperative agreements, and providing landowners with other options are the recommended strategies.

LITERATURE REVIEW

- Alachua County Comprehensive Plan, Conservation/Aquifer Recharge Element. 1991.
- Alachua County Department of Environmental Services. 1986. Set of infrared aerial photographs of all of Alachua County at a scale of 1:24000 taken in April, 1986. Gainesville, FL.
- Alachua County Department of Environmental Services. 1987. Set of USGS Topographic Quadrangle Maps submitted with the 1987 Comprehensive Inventory of Natural Ecological Communities. Scale - 1:24000
- Alachua County Property Appraiser's Office. 1994. Set of black and white aerial photos covering all of Alachua County taken in November and December, 1994, at a scale of 1:3600, with property boundaries and parcel numbers delineated.
- Arnold, S.B. 1995. Map. Alachua County, Florida. Florida Gopher Frog Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Wood Stork Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720

- Arnold, S.B. 1995. Map. Alachua County, Florida. Snowy Egret Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Little Blue Heron Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. White Ibis Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Tricolored Heron Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Limpkin Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Black Bear Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Sandhill Crane Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. Bald Eagle Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Arnold, S.B. 1995. Map. Alachua County, Florida. American Alligator Habitat Distribution. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. Scale - 1:126720
- Austin, D.F., *et al.* 1995. Exotic Pest Plant Council's 1995 List of Florida's Most Invasive Species. EPPC Committee on Invasive Species. Dept. of Biological Sciences, Florida Atlantic University, Boca Raton. 10 pp.
- Bohall, P.G. 1984. Habitat Selection, Seasonal Abundance, and Foraging Ecology of American Kestrel Subspecies in North Florida. M.S. Thesis. University of Florida, Gainesville, FL. 97 pp.
- Brown, R. 1996. Personal Communication regarding the exotic plants at the North San Felasco Hammock project area.
- Brown, T.W. 1963. Ecology of Cypress Heads in North-Central Florida. M.S. Thesis. University of Florida, Gainesville, FL. 59 pp.
- Burns, J., M. Finley, D. Goodman, L. Harris, et al. 1990. Integrating Parks into Larger Units. Section Vi. In: Dottavio, Brussard, and McCrone, Eds. Protecting Biological Diversity in the National Parks: Workshop Recommendations. Transactions and Proceedings Series No. 9. USDI National Park Service, Washington, DC.
- Carr, A. 1971-1987. Personal Communication and extensive discussion and education regarding the community ecology of North Florida; the impact of armadillos, cattle egrets, and fire ants on the fauna of North Florida; the ecology of alligators, Suwannee cooters, and various other reptiles in North Florida; the history, ecology, and active management of Paynes Prairie; and the inter-relationship of Paynes Prairie, Levy Lake, Newnans Lake, Chacala Pond, and Lake Wauberg.

- Coile, N.C. 1993. Florida's Endangered and Threatened Plants. Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Bureau of Entomology, Nematology and Plant Pathology - Botany Section, Contribution No. 29. Gainesville, FL. 50 pp.
- Conant, R., and J.T. Collins. 1991. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. Houghton Mifflin Co., Boston. 450 pp.
- Cox, J., R. Kautz, M. MacLaughlin, and T. Gilbert. 1994. Closing the Gaps in Florida's Wildlife Habitat Conservation System. Office of Environmental Services, Florida Game and Fresh Water Fish Commission. Tallahassee, FL. 239 pp.
- Cronquist, A. 1980. Vascular Flora of the Southeastern United States. Volume I: Asteraceae. The University of North Carolina Press, Chapel Hill. 261 pp.
- Culotta, E. 1996. Exploring Biodiversity's Benefits. *Science*. 273(5278): 1045-1046.
- Deuver, L.C., R.W. Simons, R.F. Noss, and J.R. Newman. 1987. Final Report: Comprehensive Inventory of Natural Ecological Communities in Alachua County. KBN Engineering and Applied Sciences, Gainesville, FL. 140 pp. + appendices.
- Doonan, T. 1996. Personal communication regarding caves and cave fauna in Alachua County, the status of vertebrate exotics, and the location and status of wading bird rookeries.
- Dressler, R.L., D.W. Hall, K.D. Perkins, and N.H. Williams. 1987. Identification Manual for Wetland Plant Species of Florida, SP-35. Institute of Food and Agricultural Sciences, Florida Agricultural Experiment Station, Florida Cooperative Extension Service, University of Florida, Gainesville, FL. 297 pp.
- Drummond, M. 1996. Personal Communication regarding the ferns at Buzzard's Roost.
- Edmisten, J. A. 1963. Ecology of the Florida Pine Flatwoods. Ph.D. Dissertation. University of Florida, Gainesville, FL. 108 pp.
- Ewel, K.C., and W.J. Mitsch. 1978. Effects of Fire on Species Composition in Cypress Dome Ecosystems. *Fla. Sci.* 41:25-31.
- Faircloth, D., R. Heeke, and R. Rocco. 1996. Suwannee River Water Management District Land Acquisition and Management Plan. Suwannee River Water Management District, Live Oak, FL. 76 pp.
- Florida Game and Fresh Water Fish Commission. 1994. Map. Alachua County, Florida. Priority Wetlands for Listed Species. Office of Environmental Services, Tallahassee, FL. Scale - 1:126720
- Florida Natural Areas Inventory/Florida Department of Natural Resources. 1990. Guide to the Natural Communities of Florida. FNAI/FDNR, Tallahassee, FL. 111 pp.
- Franz, R. 1996. Personal Communication regarding the location and fauna of various caves in Alachua County.
- Franz, R., J. Bauer, and T. Morris. 1994. Caves and Their Faunas in Florida and South Georgia. *Brimleyana - J. North Carolina State Museum of Natural Sciences* No. 20. 109 pp.

- Godfrey, R.K. 1988. Trees, Shrubs, and Woody Vines of Northern Florida and Adjacent Georgia and Alabama. The University of Georgia Press, Athens. 734 pp.
- Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and Wetland Plants of Southeastern United States: Monocotyledons. The University of Georgia Press, Athens. 712 pp.
- Godfrey R.K. and J.W. Wooten. 1981. Aquatic and Wetland Plants of Southeastern United States: Dicotyledons. The University of Georgia Press, Athens. 933 pp.
- Hall, D.W. 1993. Illustrated Plants of Florida and the Coastal Plain. Maupin House, Gainesville, FL. 431 pp.
- Hallbourg, R., et al. 1996. A Comprehensive Contaminant Source and Well Inventory Near Wellfield Areas of Alachua County, Final Project Report. Alachua County Environmental Protection Department, Gainesville, FL. 129 pp. + appendices.
- Harris, L.D. 1985. Conservation Corridors, A Highway System for Wildlife. ENFO. Florida Conservation Foundation, Environmental Information Center, Winter Park, FL. 1-4.
- Harris, L.D. and K. Atkins. 1991. Faunal Movement Corridors in Florida. *In*: Hudson, Ed. Landscape Linkages and Biodiversity. Island Press. Washington, DC. 117-134.
- Harris, L.D. and J.F. Eisenberg. 1989. Enhanced Linkages: Necessary Steps for Success in Conservation of Faunal Diversity. *In*: Western and Pearl, Eds. Conservation for the 21st Century. Oxford University Press, Oxford, England. 166-181.
- Harris, L.D. and P.B. Gallagher. 1989. New Initiatives of Wildlife Conservation, The Need for Movement Corridors. *In*: Mackintosh, Ed. In Defense of Wildlife: Preserving Communities and Corridors. Defenders of Wildlife, Washington, DC. 11-34.
- Harris, L.D. and J. Scheck. 1991. From Implications to Applications: The Dispersal Corridor Principle Applied to the Conservation of Biological Diversity. *In*: Saunders and Hobbs, Eds. Nature Conservation 2: The Role of Corridors. 189-220.
- Hintermister, J. 1996. Personal Communication regarding the location of wading bird rookeries in the county, the habitat value of various biological communities for various birds, the location of burrowing owls in Alachua County, the state of the rookeries in Orange Lake, and the general health of the marsh habitat in Lochloosa and Orange Lakes.
- Hovis, J. 1996. Personal Communication regarding caves and cave fauna in Alachua County.
- Hoyer, M.V., D.E. Canfield, Jr., C.A. Horsburgh, and K. Brown. 1996. Florida Freshwater Plants: A Handbook of Common Aquatic Plants in Florida Lakes, SP189. University of Florida, Institute of Food and Agricultural Sciences, Gainesville, FL. 264 pp.
- Humphrey, S.R. 1992. Rare and Endangered Biota of Florida. Vol. I. Mammals. R.E. Ashton, Jr., Series Editor. University Presses of Florida, Gainesville, FL. 392 pp.
- Humphrey, S.R. 1996. Personal Communication regarding the bat caves of Alachua County.

- Isely, D. 1990. Vascular Flora of the Southeastern United States. Volume 3, Part 2: Leguminosae (Fabaceae). The University of North Carolina Press, Chapel Hill. 258 pp.
- Jouvenaz, D. 1994. Personal Communication regarding the impact of fire ants on the fauna of North Florida.
- Lakela, O. and R.W. Long. 1976. Ferns of Florida: An Illustrated Manual and Identification Guide. Banyan Books, Miami, FL. 178 pp.
- Macesich, Milena. 1988. Geologic Interpretation of the Aquifer Pollution Potential in Alachua County, Florida. Florida Geological Survey Open File Report 21.
- Mann, C.C. and M.L. Plummer. 1993. The High Cost of Biodiversity. *Science*. 260: 1868-1871.
- Moler, P.E. 1985. Home range and seasonal activity of the eastern indigo snake, *Drymarchon corais couperi*, in northern Florida. Florida Game and Fresh Water Fish Commission. 25 pp. Unpubl. Ms.
- Moler, P.E. 1996. Personal Communication regarding the locations, population sizes, and population trends of rare, threatened, and endangered reptiles and amphibians in Alachua County, including detailed information on indigo snakes at Kanapaha Prairie, indigo snake occurrences throughout the county, alligator snapping turtle populations in the Santa Fe River, Canebrake rattlesnake distribution in the county, and short-tailed snake records for specific project areas.
- Moler, P.E. and R. Franz. 1987. Wildlife values of small, isolated wetlands in the southeastern coastal plain. Pages 234-241 in Proceedings 3rd southeastern nongame and endangered wildlife symposium. Ga. Dep. Resour., Game Fish Comm. Tech. Bull. Atlanta.
- Muschlitz, B. 1996. Personal Communication regarding the population status and nesting locations for swallow-tailed kites and Mississippi kites in Alachua County.
- Myers, R.L. and J.J. Ewel, Eds. 1990. Ecosystems of Florida. University of Central Florida Press, Orlando. 765 pp.
- National Wetlands Inventory. 1984. Set of wetlands inventory maps of all of Alachua County. U.S. Fish and Wildlife Service, Dept. of the Interior.
- Nesbitt, S. 1996. Personal Communication regarding the location of bald eagle nests throughout the county, the location of breeding sites for Florida sandhill cranes, the population status of the wood stork rookery at River Styx, and the location and status of wading bird rookeries throughout the county.

- Noss, R.F. 1983. A Regional Landscape Approach to Maintaining Diversity. *Bioscience* 33:700-706.
- Noss, R.F. 1991. Effects of Edge and Internal Patchiness on Avian Habitat Use in Old-growth Florida Hammock. *Nat. Areas J.* 11(1):34-47.
- Pearson, G.T. 1941. Orange Lake - An Inspiration. *The Florida Naturalist* (15)1:1-6.
- Pritchard, P., gen. ed. 1979-1982. Rare and Endangered Biota of Florida. Florida Committee on Rare and Endangered Plants and Animals. University Presses of Florida, Gainesville, FL.
 Vol. 1 - Mammals. J.N. Layne, Ed. 1979.
 Vol. 2 - Birds. H.W. Kale III, Ed. 1979.
 Vol. 3 - Amphibians and Reptiles. R.W. McDiarmid, Ed. 1979.
 Vol. 4 - Fishes. C.R. Gilbert, Ed. 1979.
 Vol. 5 - Plants. D.B. Ward, Ed. 1979.
 Vol. 6 - Invertebrates. R. Franz, Ed. 1982.
- Repenning, R.W., and R.F. Labisky. 1985. Effects of Even-aged Timber Management on Bird Communities of the Longleaf Pine Forest in Northern Florida. *J. Wildl. Manage.* 49(4):1088-1098.
- Rice, D.W. 1957. Life History and Ecology of *Myotis austroriparius* in Florida. *J. Mammology* 38:15-32.
- Simons, R.W. 1990. Terrestrial and Freshwater Habitats. Pages 99-157 and 243-295 in Steven H. Wolfe, Ed.: *An Ecological Characterization of the Florida Springs Coast*. U.S. Fish and Wildlife Service Biological Report 90(21). 323 pp.
- Small, J.K. 1933. *Manual of the Southeastern Flora*. The University of North Carolina Press, Chapel Hill. 1554 pp.
- Smallwood, J. 1990-94. Personal Communication regarding the locations and population status of Southeastern American Kestrels in North Florida, including Alachua County, and the impact of fire ants on nesting success, and the use of nest boxes to increase population levels.
- St. Johns River Water Management District. 1993. Recharge Areas of the Floridan Aquifer, Alachua County, Florida. Map.
- St. Johns River Water Management District. 1995. Set of infrared aerial photos covering the southeastern two-thirds of Alachua County taken in January, 1995, at a scale of 1:24000. Palatka, FL.
- Suwannee River Water Management District. 1995. General Hydrogeologic Conditions of the Floridan Aquifer. Map.
- Suwannee River Water Management District. 1995. Recharge Potential of the Floridan Aquifer in the Suwannee River Water Management District. Map.
- Suwannee River Water Management District. 1995. Water Management Plan. Suwannee River Water Management District, Live Oak, FL. 238 pp.
- U.S. Geological Survey (USGS). Various dates. Set of topographic quadrangle maps of all of Alachua County. U.S. Dept of Interior. Scale - 1:24000

- Vince, S.W., S.R. Humphrey, and R.W. Simons. 1989. The Ecology of Hydric Hammocks: a Community Profile. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.26): 81 pp.
- Wood, D.A. 1996. Florida's Endangered Species, Threatened Species and Species of Special Concern, Official Lists. Bureau of Nongame Wildlife, Division of Wildlife, Florida Game and Freshwater Fish Commission, Tallahassee, FL. 14 pp.
- Winn, J. 1996. Personal Communication regarding the wildlife at Lake Alto and the LEAFS Tract.
- Wooding, J. 1996. Personal Communication regarding the location and population status of Sherman's fox squirrels and Florida black bears in Alachua County.
- Wunderlin, R.P. 1983. Guide to the Vascular Plants of Central Florida. University Presses of Florida, Gainesville, FL. 480 pp.

APPENDIX A

ALACHUA COUNTY INVENTORY SITES

Site	Quad Maps ^a
1. Austin Cary Flatwoods	Orange Hts., Waldo
2. Levy Lake - Barr Hammock	Arredo., Mican., Will., Flem.
3. Beech Valley	Worthington Springs
4. Bird Island	McIntosh
5. Buck Bay Flatwoods	Gainesville East, Monteocha
6. Buda Sandhills	High Springs SW, Waters Lake
7. Buzzards Roost	Gainesville West
8. Chacala Pond	Micanopy
9. Domino Hammock	Bronson NE
10. East Lochloosa Forest	Citra, Hawthorn
11. East San Felasco Hammock	Alachua, Gainesville West
12. East Side Greenway	G'ville East, Micanopy, Orange Hts.
13. East Side Newnans Lake	Orange Hts., Rochelle
14. Fox Pond	Gainesville West
15. Fred Bear Hammock	Arredondo
16. Gum Root Swamp	Gainesville East, Orange Heights
17. Hague Flatwoods	Alachua, Monteocha, G'ville E., G'ville W.
18. Hasan Flatwoods	Alachua
19. Hatchet Creek	G'ville East, Orange Hts., Waldo
20. Hickory Sink	Arredondo, Gainesville West Hogtown Prairie (see # 46)
21. Hornsby Springs	High Springs
22. Kanapaha Prairie	Arredondo
23. Lake Alto Swamp	Waldo Levy Lake - (see #2)
24. Little Orange Creek	Hawthorn, Melrose
25. Lochloosa Creek	Rochelle

26. Lochloosa Creek Flatwoods	Melrose, Orange Hts., Rochelle
27. Lochloosa Forest Additions	Rochelle
28. Lochloosa Forest West	Micanopy, Rochelle
29. Lochloosa Slough	Citra
30. Mill Creek	Mikesville, Worth.Sp., High Sp., Alachua
31. Millhopper Flatwoods	Gainesville East, Gainesville West
32. Montechoa Creek	Montechoa
33. Morans Prairie	Melrose, Orange Heights
34. Northeast Flatwoods	Montechoa, Waldo
35. North San Felasco Hammock	Alachua
36. Paynes Prairie West	Arredondo
37. Pine Hill Forest	Gainesville West
38. Prairie Creek	Micanopy, Rochelle
39. Rocky Creek	Alachua, Montechoa, Worth.Sp., Brooker
40. Saluda Swamp	Keystone Hts., Melrose, Orange Hts., Waldo
41. Santa Fe Creek	Worthington Springs
42. Santa Fe River	Brooker, Mikesville, Monteo., Waldo, Worth.Sp.
43. Serenola Forest	Micanopy
44. South LaCrosse Forest	Alachua
45. South Melrose Flatwoods	Melrose
46. Hogtown Prairie - Sugarfoot	Arredondo, G'ville E., G'vl. W.
47. Watermelon Pond	Archer, Newberry SW, Bronson NE

^aThese maps have been provided to Alachua County under separate cover.

APPENDIX B

BIOLOGICAL SENSITIVITY TO RECREATIONAL ACTIVITY

From a biological perspective, almost all of the project areas in this inventory can withstand low intensity, resource based recreational activities so long as they do not require significant alteration of the environment and do not exceed the carrying capacity of the site. Only the smallest project area, Buzzards Roost, would need complete protection from recreational activity.

Buzzards Roost is a limerock outcrop area with rare ferns and other plants that could be extirpated from the site by plant collecting, rock climbing, or excessive foot traffic. It needs the complete protection it currently gets as a private homesite.

There are parts of several other project areas that would need either some restrictions or complete protection. The most obvious ones are the two major wading bird rookeries. The two islands at the Bird Island project area in Orange Lake need total protection. This occurs to a large extent naturally due to the nearly inaccessible nature of the islands. The open water and bonnet beds of the Bird Island project area are frequently used for fishing, which is an appropriate use that is no threat to the birds. Frog gigging from air boats at night in the marsh vegetation around the islands may be a serious threat to the birds. Unfortunately, it would be nearly impossible to enforce a restriction on this activity.

The wood stork rookery on the Lochloosa Forest West project area needs total protection from disturbance. This is a deep and nearly inaccessible swamp that it is not a desirable place for recreational use. This swamp is a small fraction of the total area of Lochloosa Forest West.

The various areas throughout the County identified as sandhill crane nesting spots and bald eagle nest sites need protection from human disturbance during the nesting seasons for these birds. Almost all of these nesting sites are in places that are not very accessible or well suited for most kinds of recreational use. The exceptions are mostly bald eagle nests that are on the edges of lakes. Some of these lake edge nests are in places that are used sparingly for fishing. This is not a threat, because these particular birds are habituated to this use. If they weren't they wouldn't be nesting in these locations.

The bat cave at Hickory Sink needs strong protection from human disturbance. Indeed, caves in general, both terrestrial and aquatic, need protection due to the fragile nature of their fauna. Very few of the caves of Alachua County are mentioned in this inventory, in part because mentioning them would further endanger them, but Alachua County has many important caves worthy of protection.

In the near future, the stream and river projects may need some protection from the more destructive forms of aquatic recreation, such as jet skis and high speed motor boats, because these activities cause bank and stream channel erosion, dislodge submerged aquatic vegetation, disturb and displace wildlife, and disturb and displace other, more compatible forms of recreation. The Santa Fe River throughout Alachua County and elsewhere could use increased protection from indiscriminate recreational killing of snakes, turtles, alligators, otters, wading birds, and other wildlife species. Most of this killing is illegal but occurs due to insufficient law enforcement and/or insufficient environmental education.

APPENDIX C

ALACHUA COUNTY RESOURCE AREAS THAT WERE NOT INVENTORIED

LAKES: Orange Lake, Lochloosa Lake, Newnans Lake, Lake Wauberg, Bivens Arm, and Georges Pond were not inventoried directly. Some of their resources were inventoried as the result of inventorying areas adjacent to or in these lakes. All of these lakes are naturally fertile and have become more eutrophic due to human impacts. The water storage value of these lakes is high, and they all provide some recharge to the Floridan aquifer. The percentage of recharge from Georges Pond, Lake Wauberg, and Bivens Arm is the highest, since they drain to Paynes Prairie, which drains into Alachua Sink and the Floridan aquifer. The percentage of recharge from Newnans Lake is somewhat lower, since some water goes to Alachua Sink and the rest to Orange Lake. The water in Orange Lake goes partially into Orange Creek and partially into the Floridan aquifer by way of sinkholes in the southwestern corner of the lake. Lake Lochloosa has the lowest percentage of water

recharging the Floridan aquifer, but some water flows into Orange Lake and thus a portion flows to the sinkholes that allow water to discharge downward; the rest drains into Orange Creek, which flows into the Ocklawaha River.

These lakes are all used for fishing and have good populations of largemouth bass (*Micropterus salmoides*), speckled perch (black crappie) (*Pomoxis nigromaculatus*), and bream (bluegill) (*Lepomis macrochirus*). They also have large gizzard shad (*Dorosoma cepedianum*) populations, which are not used by anglers but help support some significant populations of bald eagles (*Haliaeetus leucocephalus*) and ospreys (*Pandion haliaetus*). Ospreys are abundant on these lakes, and the population of bald eagles that nests around these lakes and obtains fish, ducks, and other food from them is one of the largest in the United States outside of Alaska. The alligator (*Alligator mississippiensis*) population is also large and supports a large alligator harvest. There are also people who harvest pig frogs (*Rana grilio*) from these lakes to obtain frog legs. The habitat for wading birds, ducks, coots (*Fulica americana*), grebes, moorhens (*Gallinula chloropus*), and boat-tailed grackles (*Quiscalus major*) is also significant. The marsh areas at Orange Lake also support rails (*Rallus* spp.), bitterns (*Botaurus lentiginosus* and *Ixobrychus exilis*), and red-winged blackbirds (*Agelaius phoeniceus*).

Lake Santa Fe is a large, oligotrophic to mesotrophic lake in the northeastern corner of the County. It is the headwaters of the Santa Fe River and is a significant water resource. It is a discharge area for the surficial aquifer of this area. It is used for fishing and supports good populations of largemouth bass, bream (bluegill), shellcrackers (*Lepomis microlophus*), and speckled perch (black crappie). The lake is also used for swimming, boating, sailing, and water skiing.

SMALL LAKES AND MARSHES: Lake Tuscawilla is a marsh and wet prairie on the south side of Micanopy that provides some habitat for sandhill cranes (*Grus canadensis*), ducks, grebes, and wading birds and supports two or three pairs of Florida sandhill cranes (*Grus canadensis pratensis*) that nest here (Nesbitt, 1996). Lake Elizabeth is a small, mesotrophic lake at the headwaters of Lochloosa Creek. Burnetts Lake is a small lake on the east side of Alachua at the downstream end of a small stream system and discharges to the Floridan aquifer. Parchman Pond, Jake White Pond, and Blue Pete Lake are small lakes south of Archer. Lake Jeffords is a small mesotrophic Lake south of Hawthorn. Grass Prairie is a small prairie south of Kanapaha Prairie.

WADING BIRD ROOKERIES: In addition to the rookeries that are part of the areas that were inventoried, there are several that were not inventoried. There are two such rookeries in Orange Lake, one on Redbird Island, which is near Bird Island, and one at PG Run in the southeast corner of the

lake. Both of these rookeries are fairly new and appear to be the result of birds leaving Bird Island in search of an alternative rookery site. There are some rookeries in the northern part of the county that have moved around considerably. Sometimes they are on public land, such as San Felasco Hammock State Preserve, and sometimes on private land.

CAVES: There are numerous caves, both terrestrial and aquatic, in western Alachua County. Some of these support significant populations of rare, specialized cave invertebrates. The most significant and well known of these caves are reported in *Caves and Their Faunas in Florida and South Georgia* (Franz *et al.*, 1994). Information about most other caves in the county has been compiled by Albert Krause but is not available to the public due to the need to protect the fragile ecosystems of these caves. By far the most significant cave from a vertebrate fauna perspective is Grants Cave, which is on private property in western Alachua County near Newberry. It is fenced and carefully guarded by the owner. It supports the only known active bat maternity in Alachua County (Hovis, 1996). There are tens of thousands of southeastern brown bats (*Myotis austroriparius*) there at the peak of the breeding season.

CROSS CREEK: The narrow strip of land between Lakes Orange and Lochloosa has the highest density of bald eagle nests found anywhere in Alachua County and probably the rest of the United States outside of Alaska.

HOGTOWN CREEK: Hogtown Creek and its tributaries drain a large portion of the western half of Gainesville. There are many valuable natural resources along the creek and its tributaries, including a high diversity of plant species and some interesting animals. The Rock Creek subdivision and adjacent creek bottom is one spot where there is still a good diversity of species, including a rare dragonfly, Say's spiketail dragonfly (*Cordulegaster sayi*) (Drummond, 1996). Farther downstream, there are populations of *Trillium maculatum* and solomon's-seal (*Polygonatum biflorum*). Both species are at or near the southern end of their range. The Hogtown Creek watershed is also important because this creek flows directly down into the Floridan aquifer at Haile Sink on Hogtown Prairie and is, therefore, a creek system that should be carefully protected from pollution. Unfortunately, it has been seriously polluted in the past, and it still serves as a storm sewer for much of Gainesville. There is a continuing need to provide more stormwater detention and retention throughout this watershed, for both water quality improvement and flood protection.

ROBINSON SINKS: This is an interesting cluster of sink holes in the northwestern part of the county near the Santa Fe River. The native flora and fauna have been removed from most of this site.

HAILE QUARRY: This is an active limerock quarry in the western part of the county that will become be a cluster of deep-water lakes in a setting of limerock outcrop soil. Some mine pit lakes occur on the site. The water in the lakes is Floridan aquifer water; therefore, protection from pollution is important. There were originally some interesting limerock outcrop plant species present that could return after mining. This area could potentially become high-value wildlife habitat.

APPENDIX D- ALACHUA COUNTY ECOLOGICAL INVENTORY RANKING SYSTEM PROJECT STEERING COMMITTEE

26 January 1996 Meeting Minutes

Committee met at 9:00 am in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall (KBN Engineering and Applied Sciences, Inc.), Robert Simons (independent contractor with KBN).

Discussion: Centered on the ranking system to be used to evaluate the natural lands. The following items were discussed and carried over to the next meeting:

Ranking system to consider:

- I. Vegetation Value
 - A. Species diversity
 - B. Exotics
- II. Endangered Species Habitat Value
- III. Wildlife Habitat Value
- IV. Hydrology
 - A. Ground water
 - B. Surface water
 - C. Vulnerability
- V. Landscape Ecology
 - A. Community diversity

- B. Ecological quality
- C. Functional connectedness
- VI. Management Potential
- VII. Land Use
 - A. Allowable land use category
 - B. Passive use potential
 - C. Scientific, historical, cultural, and archaeological features

Modification were made to the draft presented and comments requested prior to the next meeting.

22 March 1996 Meeting Minutes

Committee met at 9:00 am in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall (KBN Engineering and Applied Sciences, Inc.), Richard Burges (Alachua County Natural Resources Supervisor), Robert Simons (independent contractor with KBN).

Discussion: As during the 26 Jan. meeting the discussion centered on the ranking system to be used to evaluate the natural lands. Agreement was obtained on most of the items carried over from the last meeting. The hydrology evaluations for ground water and surface water were left to be modified by consulting with Ron Ceryak of the Suwannee River Water Management District. When a suitable hydrology evaluation can be devised, the entire ranking system will then be sent to all parties for a sign off to indicate agreement.

The ranking system is set as listed below. A method to evaluate each of these categories was also discussed and consensus achieved.

- I. Vegetation Value
 - A. Species diversity
 - B. Exotics
- II. Endangered Species Habitat Value
- III. Wildlife Habitat Value
- IV. Hydrology

- A. Ground water^a
- B. Surface water^a
- C. Vulnerability
- V. Landscape Ecology
 - A. Community diversity
 - B. Ecological quality
 - C. Community rarity
 - D. Functional connectedness
- VI. Management Potential

^a Undergoing final modification.

Agenda items for the next meeting set for 19 April at the same location and time are: decision on natural lands which have been selected for evaluation, and land owner notification.

Deferred for a later meeting was weighting of the various elements in the ranking system.

15 April 1996 Meeting Minutes

Committee met at 1:30 pm in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall (KBN Engineering and Applied Sciences, Inc.), Richard Burges (Alachua County Natural Resources Supervisor).

Discussion: As during the 26 Jan. and 22 March meetings the discussion centered on the ranking system to be used to evaluate the natural lands. The hydrology evaluations for ground water and surface water were better defined after consulting with Ron Ceryak of the Suwannee River Water Management District and Robin Hallbourg with the Alachua County Environmental Protection Department. It was decided that 'ground water' and 'vulnerability' would refer to the Floridan Aquifer, and that 'surface water' would refer to water at the surface and the Surficial Aquifer. After suitable adjustments have been made the ranking will be sent to all parties for a sign off to indicate agreement.

Deferred for a later meeting after much of the field work has been accomplished was weighting of the various elements in the ranking system.

The next meeting for this committee is scheduled for May 22, 1996, in the conference room of the Environmental Protection Department.

30 April 1996 Meeting Minutes

Subcommittee met at 9:30 pm in the conference room of the Environmental Protection Department.

Attending: Michael Drummond (Alachua County Environmental Protection Department), David Hall and Bob Simons (KBN Engineering and Applied Sciences, Inc.).

Discussion: Bob Simons has made numerous assumptions concerning size and connectedness in order to determine the natural areas to be evaluated. This meeting was requested for input from Mike Drummond. Mike was able to combine his information with Bob's in order to eliminate those areas which are slated for eminent development and to help determine if any hope was foreseeable for connections with some areas. Substantial areas of the county were reviewed.

22 May 1996 Meeting Minutes

Committee met at 9:30 pm in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall and Bob Simons (KBN Engineering and Applied Sciences, Inc.).

Discussion: The Scoring System for Site Priority Ranking was addressed to settle any remaining questions. Some discomfort was felt concerning Floridan Aquifer Ground Water in the Hydrology section. It was noted the aquifer recharge and protection of ground water were not compatible and ground water protection was placed into a separate category for evaluation.

Bob Simons explained the mapping of natural areas which he has nearly finished. He related the earlier meeting with Mike Drummond to help with connectedness and size decisions. The committee

discussed these evaluations and provided a few suggestions, the most notable being by Kenneth Berk that hard boundaries (section lines, quarter sections, property boundaries, etc.) be used as project boundaries so that decisions for purchasing could be made more easily.

Alice Reuman agreed to take the property owner names generated by Bob Simons and obtain phone numbers.

The next tasks are to create a field form for evaluation, to set up a property owner notification form, and to begin evaluation. One property has been field evaluated.

The next meeting for this committee is scheduled for July 1, 1996, in the second floor conference room of the Codes Building.

1 July 1996 Meeting Minutes

Committee met at 1:00 pm in the conference room of the Department of Growth Management.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall and Bob Simons (KBN Engineering and Applied Sciences, Inc.).

A draft of the Phase I Preliminary Report has been completed and was distributed at this meeting for comment. The draft contained: 1. scope of work to be performed, 2. preliminary report, 3. work schedule, 4. budget report, 5. analysis and definition of natural ecological communities, 6. proposed ranking system, 7. minutes of progress meetings of this committee, and 8. field record forms.

A discussion of the method of notification of property owners mentioned that upon owner contact the preferred method would be to mention that a review of the natural areas on their property is being undertaken as a part of a contract between Alachua County and KBN Engineering. Various maps and other data sources are being used but we would like to improve our accuracy by actually accessing the property to better determine the boundaries of the various habitats and to list the species which are found in them.

If a property owner would like to have a copy of the survey they may have one sent directly to them from KBN or have a copy sent at the completion of the project. We should make sure to have the owner's name, address, and phone number listed for mailing a report.

Bob Simons explained the mapping of natural areas which he has now finished. He showed quad maps with all of the project areas defined and explained several problems he faced and the solutions he worked out. Field work is progressing.

The next meeting for this committee is scheduled for August 9, 1996, in the conference room of the Environmental Protection Department.

9 August 1996 Meeting Minutes

Committee met at 1:00 pm in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall and Bob Simons (KBN Engineering and Applied Sciences, Inc.).

As we have called property owners and requested permission to enter and survey their land, some owners asked to be notified in writing. An example of the letter used for notification was discussed. We have obtained permission for most of the lands selected. A few owners have asked us to stay off their property.

Some property owners have requested a copy of the survey. It will either be sent directly to them from KBN or a copy will be sent by Alachua County at the completion of the project. KBN will make sure the owner's name, address, and phone number is listed.

Bob Simons explained the mapping of natural areas which he has now finished. He discussed several problems using quad maps for orientation. Field work is still progressing and should be finished by the end of August. GIS will have attributes which list the habitats by number. Habitat descriptions should have the typical species for each habitat listed.

The next meeting for this committee is scheduled for September 13, 1996, in the conference room of the Environmental Protection Department. We will try to have rough drafts of all deliverables present including the ranking system.

13 September 1996 Meeting Minutes

Committee met at 1:00 pm in the conference room of the Environmental Protection Department.

Attending: Alice Reuman (Alachua County Office of Planning & Development), Michael Drummond (Alachua County Environmental Protection Department), Cathrin Smith (Suwannee River Water Management District), Kenneth Berk (St. Johns River Water Management District), David Hall and Bob Simons (KBN Engineering and Applied Sciences, Inc.).

Drafts of all remaining deliverables were presented to the committee with the exception of GIS mapping.

Field work and all field write-ups have been finished.

All natural lands project areas evaluations have been completed with only the acreage of the various habitats remaining to be added.

Minutes of all progress meetings are up-to-date.

Budget data is up-to-date.

Evaluation of the natural lands has been completed with two weightings: neutral and wetland. GIS mapping of project boundaries has been completed. Habitat boundaries to date have been digitized on only a few quads. Attributes which list the habitats by number also remain to be added.

Comments on all deliverables presented to the committee as of this date are to be given to either Alice Reuman or David Hall on or before September 20, 1996.

A final meeting for this committee will be scheduled to present the results for the entire project to the community.

Table 2-1. List of Parameters/Subparameters and Scoring Used for Site Rankings**VII. VEGETATION VALUE****A. Species Diversity**

Based on relative numbers of species of vegetation recorded or estimated at site.

1. Very low.
2. Low.
3. Moderate.
4. High.
5. Very high.

B. Exotics

1. Area has extensive invasive exotics and extensive control required.
2. Area has some invasive exotics, control is required and can be successful.
3. Some exotics present and landscape is conducive for introduction of exotic plants and/or animals.
4. Exotics not present but landscape is conducive for introduction of exotic plants and /or animals.
5. Exotics not present and not easily introduced.

VIII. ENDANGERED SPECIES HABITAT VALUE (PLANTS AND ANIMALS)

- A. Habitat not conducive for listed species, or no species likely.
- B. Habitat potential for listed species low, or not good habitat for any listed species, but occasional use or occurrence possible.
- C. Habitat potential for some listed species moderate, or good habitat for one or more species.
- D. Habitat potential for some listed species high, or very good habitat for one or more listed species.
 1. Habitat potential for many listed species excellent, or the best habitat for one or more listed species.

IX. WILDLIFE HABITAT VALUE

- A. Sparse cover, high edge to area ratio and poor breeding, nesting and foraging habitat for game and non-game species.
- B. Moderate cover, high edge to area ratio, nesting and foraging habitat, transient use by game and non-game animals.
- C. Moderate cover, medium edge to area ratio, commonly used by game and non-game animals.
- D. Moderate cover, with low edge to cover ratio, good foraging habitat.

E. High cover, low edge to area ratio, high cover and forage value, area used for breeding and feeding by game and non-game animals.

F.

X. HYDROLOGY

A. Floridan Aquifer Groundwater

Measure this value primarily by using water management district Floridan Aquifer recharge maps (SJRMD, 1993; SRWMD, 1995) combined with percent of ultimate stream destination which flows into the Floridan Aquifer. Evaluation will range from little value for the confined zone to great importance for the unconfined zone.

1. Little value for aquifer recharge.
2. Good value for aquifer recharge.
3. Significant importance for most values for aquifer recharge.
4. Great importance for aquifer recharge, some karst features.
5. Karst watershed, stream to sink system.

B. Surface Water and Surficial Aquifer Resource Protection and Flood Protection

Measure this value by estimating the amount of wetlands, the amount of area within the 100-year floodplain of streams, and the volume of water that can be stored.

Value = water storage ability of the particular property;

Protection of surface water = size of property.

1. Little value for water storage or protection of surface water quality.
2. Some value for water storage or protection of surface water quality.
3. Significant value for water storage or protection of surface water quality.
4. Significant importance for most values for water storage or protection of surface water quality.
5. Great importance for water storage or protection of surface water, especially if as a part of a karst watershed.

C. Vulnerability of Floridan Aquifer

Measure this value by assessment of possible contamination and use the Florida Geological Open File Report No. 21 (Macesich, 1988) for additional data.

1. Very low.
2. Low.
3. Moderate.
4. High.
5. Very High.

XI. LANDSCAPE ECOLOGY

A. Community Diversity

1. One to three communities of good quality.
2. Four to seven communities of good quality.
3. Eight to eleven communities of good quality.

4. Twelve to fifteen communities of good quality.
5. Sixteen or more communities of good quality.

B. Ecological Quality

This value is based on the evaluations of community quality as defined in Section 2.2.8.

List any significant endemics and note maturity of community.

1. Community types in poor condition.
2. Community types in fair condition.
3. Community types in good condition.
4. Community types in excellent condition.
5. Extraordinary example due either to rarity or quality.

C. Community Rarity (see definition in Section 2.2.8)

1. Habitat secure, quite common in Florida.
2. Habitat frequent in Florida.
3. Habitat local, but not rare.
4. Habitat rare, 6 to 20 occurrences.
5. Habitat critically imperiled, less than 5 occurrences.

D. Functional Connectedness

Riparian corridor given slightly greater weight.

1. Isolated, no functional connections.
2. Connected to other natural areas, but connections narrow.
3. Connected to two or more other natural areas.
4. Connected to other natural areas, with wide connections (contiguous).
5. Provides important connection between two or more public natural lands.

XII. MANAGEMENT POTENTIAL

- A. Too small and/or degraded for maintenance or reestablishment of normal ecosystem processes, such as periodic burning or flooding. Highly vulnerable to uncontrollable external impacts. Probably beyond hope.
- B. Location and/or extent of degradation would make management difficult and expensive. Questionable whether protection/restoration programs would be successful.
- C. Could be maintained in or restored to good condition, but would require vigilant management. Location and/or historic use suggests chronic problems with trespassers and/or neighbors. Special programs such as exotic plant removal or hydrological restoration required. Difficult location for management.
- D. Habitats in good condition, but requiring regular attention, such as prescribed burning. Effective buffering from most external impacts possible. Location and surrounding land uses reasonably convenient for management.

- E. Low-maintenance habitat types in excellent condition. Inherently well buffered from most external impacts. Location minimizes problems with trespassers and neighbors and facilitates management access.

Table 4-2. Site Rankings Based on Subparameter Scores

<u>Rank</u>	<u>Site</u>	<u>Total Score</u>
1	Santa Fe River	50
2	Hornsby Springs	46
3	Hogtown Prairie (Sugarfoot Hammock)	44
4	Lochloosa Forest West	43
5	Fox Pond	41
6	Prairie Creek	40
6	Levy Lake (Barr Hammock)	40
8	Gum Root Swamp	39
9	Lochloosa Creek Headwaters Flatwoods	38
9	Lochloosa Forest Additions	38
9	Mill Creek	38
9	Kanapaha Prairie	38
13	East Side Newnans Lake	37
14	East Side Greenway	36
15	Chacala Pond	35
15	Austin Cary Flatwoods	35
15	Lochloosa Slough	35
15	Northeast Flatwoods	35
15	Watermelon Pond	35
20	Buck Bay Flatwoods	34
20	Lochloosa Creek	34
20	Buzzards Roost	34
23	North San Felasco Hammock	33
23	Millhopper Flatwoods	33
23	Hague Flatwoods	33
26	East Lochloosa Forest	32
26	Domino Hammock	32
28	Bird Island	31
28	Serenola Forest	31
28	East San Felasco Hammock	31
31	Hatchet Creek	30
31	Lake Alto Swamp	30
31	Paynes Prairie West	30
31	South Melrose Flatwoods	30
31	Rocky Creek	30

36	Hickory Sink	29
36	Saluda Swamp	29
36	Pine Hill Forest	29
39	Monteocha Creek	28
39	South LaCrosse Forest	28
39	Little Orange Creek	28
39	Fred Bear Hammock	28
43	Santa Fe Creek	26
44	Hasan Flatwoods	25
45	Morans Prairie	24
46	Buda Sandhills	22
47	Beech Valley	20

Table 4-3. Site Rankings Based on Parameter Scores

<u>Rank</u>	<u>Site</u>	<u>Total Score</u>
1	Santa Fe River	31
2	Hornsby Springs	28
3	Hogtown Prairie (Sugarfoot Hammock)	27
4	Lochloosa Forest West	26
5	Fox Pond	25
6	Levy Lake (Barr Hammock)	24
6	Gum Root Swamp	24
6	Lochloosa Creek Headwaters Flatwoods	24
9	Prairie Creek	23
9	Lochloosa Forest Additions	23
9	East Side Newnans Lake	23
12	Mill Creek	22
12	Lochloosa Slough	22
12	Northeast Flatwoods	22
15	Kanapaha Prairie	21
15	East Side Greenway	21
15	Austin Cary Flatwoods	21
15	Watermelon Pond	21
15	Buck Bay Flatwoods	21
15	Lochloosa Creek	21
15	East Lochloosa Forest	21
22	Chacala Pond	20
23	Bird Island	20
23	Buzzards Roost	20
25	Hague Flatwoods	19
25	Domino Hammock	19
25	Serenola Forest	19

25	South Melrose Flatwoods	19
29	North San Felasco Hammock	18
29	Millhopper Flatwoods	18
29	Hatchet Creek	18
29	Lake Alto Swamp	18
29	Paynes Prairie West	18
29	Rocky Creek	18
29	Hickory Sink	18
29	Saluda Swamp	18
29	Monteocha Creek	18
38	East San Felasco Hammock	17
38	Little Orange Creek	17
38	Santa Fe Creek	17
41	South LaCrosse Forest	16
41	Fred Bear Hammock	16
41	Pine Hill Forest	16
44	Hasan Flatwoods	15
45	Morans Prairie	15
46	Beech Valley	13
47	Buda Sandhills	12

AUSTIN CARY FLATWOODS

PRIORITY: 15 (slightly above average) (from unweighted sub-parameter score)

KEY FEATURES: This is a large site of mostly pine flatwoods habitat used for commercial forestry. The mesic flatwoods has been converted to slash pine plantation and the sites have been bedded. It varies from fairly poor habitat to fairly good habitat. The wetland sites of creek bottoms, cypress domes, and basin swamps that are scattered throughout the flatwoods are mostly in good condition. A significant part of Hatchet Creek and its watershed is here, making this a significant surface water resource area.

USGS QUAD: Orange Heights, Waldo

SIZE: 12,477 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	206	fair to poor
Former Sandhill	16	poor
Wet Flatwoods	269	fair to poor

Mesic Flatwoods	9317	fair to some poor
Hydric Hammock	3	Fair
Bog	6	good
Baygall	514	good
Seepage Slope Forest *	142	good
Bottomland Forest	147	good
Floodplain Swamp	517	good
Depression Marsh	31	good
Basin Swamp	292	good
Dome Swamp	369	good to fair
Farm Pond *	8	
Flatwoods pond	1	good
Blackwater Stream		good
Rough Pasture *	354	
Row crops *	177	
Active Mining *	9	
Low Impact Development *	18	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Hatchet Creek	excellent
Gumroot Swamp	excellent
Austin Cary Forest	excellent
Saluda Swamp	fair
Lake Alto Swamp	fair to poor
Northeast Flatwoods	fair
Lochloosa Creek HQ Flatwoods	fair

(Some of these connections could be improved with highway wildlife underpasses, especially where small streams cross.)

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to property boundaries, roads, section lines, or other surveyed lines except for the western boundary just south of the Austin Cary Memorial Forest. There are two small inholdings.

GEOLOGIC/HYDROLOGIC FEATURES: This site is underlain by the Hawthorn formation, which is fairly thick here and impervious to water percolation. The relatively flat topography is dotted with shallow depressions that hold water. The surface drainage is into Hatchet Creek, which flows into Newnan's Lake, which flows into Paynes Prairie and Orange Lake, both of

which provide direct input into the Floridan Aquifer.

WILDLIFE HABITAT: Most of the habitat is mesic flatwoods of low to moderate wildlife habitat value. However, there is a lot of it, and there are wetlands with good habitat values scattered throughout. There is abundant browse, abundant cover, a good supply of water, but few cavities or burrows. Some of the most abundant, or at least noticeable, animals include white-tailed deer (*Odocoileus virginianus*), turkey (*Meleagris gallopavo*), cottontail rabbit (*Sylvilagus floridanus*), black racer (*Coluber constrictor*), mourning dove (*Zenaida macroura*), common crow (*Corvus brachyrhynchos*), cardinal (*Cardinalis cardinalis*), yellow throat (*Geothlypis trichas*), and rufous-sided towhee (*Pipilo erythrophthalmus*). A much less common species, the swallow-tailed kite (*Elanoides forficatus*), has been observed nesting here in recent years (Muschlitz, 1996). The many small isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The Game and Fish Commission's habitat use maps show a small amount of use by wood storks (*Mycteria americana*) (Arnold, 1995). We observed a small flock of them on the site. The maps show greater use for snowy egrets (*Egretta thula*) and tricolored herons (*Egretta tricolor*), and a small amount of use by little blue herons (*Egretta caerulea*) (Arnold, 1995). There is some use by bald eagles (*Haliaeetus leucocephalus*) indicated (Arnold, 1995), but there is almost no open water and there are no nests, so this seems a bit odd. There are alligators (*Alligator mississippiensis*), canebrake rattlesnakes (*Crotalus horridus*), gopher tortoises (*Gopherus polyphemus*), gopher frogs (*Rana capito*), and at least one record for a short-tailed snake (*Stilosoma extenuatum*) (on the Austin Cary Forest near the boundary beside even better habitat on the site) (Moler, 1996). Black bears (*Ursus americanus*) are observed here rarely (Wooding, 1996). The habitat could be reclaimed to support both Sherman's fox squirrels (*Sciurus niger Shermanni*) and red-cockaded woodpeckers (*Picoides borealis*) (Simons, 1996). Listed plants observed on the site include: hooded pitcher plant (*Sarracenia minor*), bearded grass-pink (*Calopogon barbatus*), yellow butterwort (*Pinguicula lutea*), and blue butterwort (*Pinguicula caerulea*). Plants listed as commercially exploited that were observed on the site are wild azalea (*Rhododendron canescens*), royal fern (*Osmunda regalis*), and cinnamon fern (*Osmunda cinnamomea*).

EXOTICS: There are few exotic plants on the site. Those found in small numbers are mimosa (*Albizia julibrissin*), camphor tree (*Cinnamomum camphora*), and Spanish gold (*Sesbania punicea*).

RESTORATION AND MANAGEMENT POTENTIAL: Most of the mesic and wet flatwoods has been bedded and planted with slash pine, but some has good ground cover due to less intense site preparation and/or more prescribed burning and/or longer time since planting to recover. With more frequent prescribed burning and by allowing some trees to reach old age, the habitats for native plants and animals could be greatly improved (Simons, 1990). The key is prescribed burning, which is possible here due to the large size of the site, but is somewhat constrained by

US 301 on the east side, and by SR 24 on the NW side, and by the Gainesville Regional Airport to the southwest.

RECOMMENDED CONSERVATION STRATEGIES: One of the main threats to this site is a gradual decline in the quality of the upland habitats due to infrequent prescribed burning. This degrades the quality of the ground cover vegetation through increased competition and shading by trees and shrubs. Intense site preparation methods such as the use of herbicides when sites are reforested is also causing some ground cover degradation. The major long term threat is real estate development.

This site is so large and so valuable for timber production, that the only appropriate strategies are ones that allow private owners to continue to profitably grow timber. Continued support for the agricultural exemption is a must for this strategy to work. Another strategy would be to seek conservation easements to protect the resource values. A third strategy would be to seek cooperative agreements with the private landowners to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of connection to other sites are particularly important to protect. Enforcement of dredge and fill regulations to protect isolated wetlands is also important. It is also important for Forestry Best Management Practices to be followed.

COMPREHENSIVE PLAN CONSIDERATIONS: This site has large areas of wetlands and is a important water storage and watershed area. It also has several streams with some broad floodplain areas that include both 10 year and 100 year floodplains. There is only a small amount of open water.

SITE VISITS: Bob Simons, 6/25/96; David Clayton, 8/15/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3

Endangered Species Habitat	3
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Wildlife Habitat	3
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Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	3
Ecological Quality	2.5

Community Rarity	1
Functional Connectedness	4
<u>Management Potential</u>	<u>3.5</u>

Note: See Table 2-1 for parameter descriptions.

BEECH VALLEY

PRIORITY: 47 (lowest rated site) (from unweighted sub-parameter score)

KEY FEATURES: This valley once contained the finest example of slope forest on the peninsula of Florida, including the largest population of beech trees (*Fagus grandifolia*) and a population of Christmas fern (*Polystichum acrostichoides*). There are still spruce pines (*Pinus glabra*), swamp chestnut oaks (*Quercus michauxii*), laurel oaks (*Quercus laurifolia*), pignut hickory trees (*Carya glabra*), and sweetgums (*Liquidambar styraciflua*), but the beech trees and the original character of the slope forest are gone. The soil and topography are still intact, but the forest has been partially cleared and grazed by cattle for more than twenty years.

USGS QUAD: Worthington Springs

SIZE: 378 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Slope Forest	102	good to poor (variable)
Mixed Upland Forest	114	good to fair (Mesic Hammock)
Upland Pine Forest	7	poor
Baygall	4	good
Bottomland Forest	18	good
Farm Pond *	1	fair
Seepage Stream		fair
Rough Pasture *	114	
Row Crops *	14	
Low Impact Development *	2	

* Categories not used by FNAI

CONNECTIONS: None

SITE BOUNDARY CONDITIONS: With a minor exception, the boundaries are irregular and do

not follow property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is a large valley with a small stream in an area underlain by the Hawthorn Formation which precludes much percolation down into the Floridan Aquifer. The resulting runoff is to the small stream in this valley and from there into the Santa Fe River.

WILDLIFE HABITAT: The mix of hardwood forest and healthy pasture land is good potential habitat for white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), and wild turkey (*Meleagris gallopavo*). The mesic hammock and slope forest provides good habitat for migrating song birds. Birds seen during the inventory include pileated woodpecker (*Dryocopus pileatus*), common crow (*Corvus brachyrhynchos*), Carolina wren (*Thryothorus*), parula warbler (*Parula americana*), and red-eyed vireo (*Vireo olivaceus*). The habitat diversity is not high, the browse production is low due to the cattle, but there is good mast production, abundant water, and some tree cavities. There are no burrows except for a few armadillo (*Dasypus novemcinctus*) burrows, and there is little cover.

RARE, THREATENED, AND ENDANGERED SPECIES: None.

EXOTICS: There are a few chinaberry (*Melia azedarach*) and mimosa (*Albizia julibrissin*) trees at the north end and west side.

RESTORATION AND MANAGEMENT POTENTIAL: If an individual, agency, or organization wanted to buy this property and restore the slope forest to its former grandeur, it would be possible to do, although the site has been subdivided. Once purchased, one would have to establish a few beech seedlings grown from other Alachua County beech trees and protect the site from invasive exotics, logging, grazing, and other potentially destructive activities for many decades.

RECOMMENDED CONSERVATION STRATEGIES: The main threat in the distant past has been clearing for cattle pasture and the grazing of cattle. The main threat in the recent past has been subdividing for low density residential development, and this continues at present to be the main threat. Maintaining the low density character of development in this site would help conserve the watershed values. To restore and protect the biodiversity of the site, it would have to be purchased. Purchase is not recommended as a strategy for public agencies to pursue.

COMPREHENSIVE PLAN CONSIDERATIONS: There are some small wetlands here. There is also a small creek with some 10 year and 100 year floodplain area.

SITE VISITS: Bob Simons 6/15/96, 1987, 1980, 1962

SITE EVALUATION SCORING

Vegetation:	
Species Diversity	2
Exotics	3
Endangered Species Habitat	1
Wildlife Habitat	1
Hydrology:	
Floridan Aquifer	1
Surficial Aquifer Resource Protection	1.5
Vulnerability of Aquifer	1
Landscape Ecology:	
Community Diversity	1
Ecological Quality	1
Community Rarity	3
Functional Connectedness	1
Management Potential	3

Note: See Table 2-1 for parameter descriptions.

BIRD ISLAND

PRIORITY: 28 (slightly below average) (from unweighted sub-parameter score)

KEY FEATURES: This is a major heron - egret rookery site on two small islands in the middle of Orange Lake. It is the oldest Audubon Sanctuary on earth, having been purchased in 1910 by the National Association of Audubon Societies (Pearson, 1941). It is currently owned by Florida Audubon. It is the oldest continually successful heron - egret rookery in Florida and is the only rookery successfully defended against the plume hunters in the early part of the twentieth century (Pearson, 1941). The success of this rookery inspired the early Audubon members to press on with their efforts to protect wild birds after having suffered disastrous setbacks between 1900 and 1910; it provided the emotional spark that resulted eventually in a highly successful conservation effort (Pearson, 1941)

USGS QUAD: McIntosh

SIZE: 737 acres (One 13-acre island, one 1-acre island, 41 acres of marsh, and 600 acres of surrounding lake).

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Basin Marsh	41	fair
Shrub Swamp *	14	poor
Marsh Lake	681	fair

* Categories not used by FNAI

CONNECTIONS: This is in the middle of Orange Lake, and is thus connected by water to sites adjacent to both Orange and Lochloosa Lakes. Because its main value is as a heron/egret rookery, connections on the ground or water are not especially pertinent, since these birds are all good long distance fliers. However, there are less mobile species using the islands and surrounding thick beds of bonnets (spatterdock) (*Nuphar lutea*) and surrounding open water such as alligators (*Alligator mississippiensis*), river otters (*Lutra canadensis*), turtles, fish, rails and gallinules. These animals have good, if somewhat long distance, access by water to the following sites and conservation lands:

Lochloosa Slough/Orange Creek

Lochloosa Lake/SJRWMD South Lochloosa Lake

Lochloosa Forest (SJRWMD owned and conservation easement lands)

Lochloosa Forest West

SITE BOUNDARY CONDITIONS: The boundaries around the Bird Island site are somewhat arbitrary, and are meant to be the boundaries of Section 22, T12S, R21E. They are thus regular in shape and follow the section line. (The acreage may be slightly overestimated.) The idea is to include all the bonnet beds around the islands, since they provide an important buffer for the rookery, and to include enough open water to provide a buffer area for protection from potential damage by herbicides or other causes.

GEOLOGIC\HYDROLOGIC FEATURES: The islands are low, not always even reaching the surface. The surrounding lake bottom is shallow, gradually sloping away from the islands. The lake itself is partially perched on Hawthorn Formation clays, but there are sink holes in the lake bottom that breach this formation, allowing interchange of water between Orange Lake and the Floridan Aquifer. Orange Lake receives water from the River Styx drainage, which is artificially enhanced by Camp's Canal, bringing drainage from Newnan's Lake that comes from the Hatchet Creek and Little Hatchet Creek watersheds. Orange Lake also receives water from Lake Lochloosa and the Lochloosa Creek watershed. Water from Orange Lake goes into Orange Creek, into the Floridan Aquifer, and is evaporated.

WILDLIFE HABITAT: The main value of this site is that it supports a major rookery that is now dominated by cattle egrets (*Bubulcus ibis*), but also supports moderate numbers (10 to 100 each) of white ibis (*Eudocimus albus*), snowy egrets (*Eudocimus albus*), little blue herons (*Egretta caerulea*), and anhingas (*Anhinga anhinga*) (Nesbitt, 1996). There is also some nesting, at least in some years, by great egrets (*Casmerodius albus*), tricolor herons (*Egretta tricolor*), black crowned night herons (*Nycticorax nycticorax*), yellow crowned night herons (*Nyctanassa*

violacea), green-backed herons (*Butorides striatus*), glossy ibis (*Plegadis falcinellus*), boat-tailed grackles (*Quiscalus major*), and red-winged blackbirds (*Agelaius phoeniceus*) (Simons, Alachua Audubon Society Sanctuary Chairman, personal observation). There is also some use by moorhens (*Gallinula chloropus*), purple gallinules (*Porphyrula martinica*), king rails (*Rallus elegans*), America bitterns (*Botaurus lentiginosus*), and least bitterns (*Ixobrychus exilis*), some of which probably also nest here (Simons, personal observation). All of this wildlife value is dependent on the vegetation, especially the shrubs, but also the bonnets and other marsh vegetation. The shrub thicket was originally dominated by elderberry (*Sambucus canadensis*), with some buttonbush (*Cephalanthus occidentalis*) and coastal plain willow (*Salix caroliniana*) mixed in. There were also four bald cypress trees (*Taxodium distichum*).

Unfortunately, there has been a dramatic reduction of this vegetation accompanied by a dramatic reduction in use of this rookery in the last six years. In the first half of this century, thousands of little blue herons, snowy egrets, and other birds nested here (Pearson, 1941). Six years ago, there were still hundreds of white ibis, little blue herons, and snowy egrets along with perhaps a thousand cattle egrets (Simons, personal observation). Now, the bird counts at the rookery are down well below these numbers.

The bald cypress trees that supported nests of great blue herons (*Ardea herodias*) and anhingas are all dead, and most of the shrubs that supported the nests of the other herons and egrets are also dead or gone.

RARE, THREATENED, AND ENDANGERED SPECIES: This is a significant rookery for white ibis, tricolored heron, little blue heron, and snowy egret. Limpkins (*Aramus guarauna*) occasionally visit Bird Island. Bird Island and its satellite rookeries elsewhere in Orange Lake at Redbird Island and P.G. Run are the only rookeries in Alachua County that were found to be active in 1996 and 1996 for Snowy egrets, little blue herons, and tricolored herons (Hintermister, 1996).

EXOTICS: Cattle egrets have been dominating this rookery for several decades, to the probable detriment of the other nesting species. Wild taro (*Colocasia esculenta*), an invasive exotic plant, is abundant on Bird Island. Hydrilla (*Hydrilla verticillata*) is abundant in the open water throughout this site and the rest of Orange Lake.

RESTORATION AND MANAGEMENT POTENTIAL: The most obvious problem is the death of most of the vegetation that supported the rookery in the past. The first observed change was the death of the bald cypress trees on the east side of the island about four to six years ago (observed by Simons and reported to several public agencies and private conservation organizations at the time). This has been followed by the mortality of about 95 % of the shrubs and a similar percentage of the bonnet marsh at the edge of the Bird Island (Simons, personal observation, 1996). Currently, the shrubs on the small island are completely gone, most of the shrubs on Bird Island are dead and/or gone, most of the ring of bonnet marsh around Bird Island

is gone, but the large bonnet marsh to the south of Bird Island is still present (Simons, personal observation).

In order to plan for the restoration and future management of this resource, it is necessary to try to determine the cause or causes for the death of the vegetation, so that the appropriate actions can be recommended for protecting the resource in the future and for restoration. Several possible causes have been proposed for the deaths of the bald cypress trees: lightning strikes, diseases, insects, and herbicide damage. Proposed possible causes of the death of the shrubs are guano buildup from the rookery, the breaking of branches and other wear and tear by the nesting birds, water level fluctuations, old age, and herbicide applications. This woody vegetation has continuously occupied this site for at least 90 years. The nearly complete mortality of the woody vegetation has occurred at a time when the rookery was being used by fewer birds than in the past, and at a time of less extreme water level fluctuation than has occurred in the past. Similar woody plant death in Orange Lake on other islands and in marsh areas near shore which have had no rookery activity may point to a common cause. Recent herbicide applications may have had some effect. The water levels in Orange Lake have been unusually low in the early 1990's, which could allow for more impact on the vegetation from guano than would occur otherwise. More than one factor may be at work.

The damage to the bonnet beds around the islands might be due to herbicide applications. It is true that the bonnet beds have been expanding and colonizing new areas for a long time, and that some reduction of the bonnet beds is proper. It is also true that a great reduction of bonnets could have negative consequences for fish and wildlife. The bonnet beds not only provide feeding habitat for birds and breeding habitat for fish, but the bonnets around Bird Island served as a buffer for the rookery, reducing disturbance to the rookery by keeping boats and people farther away (Simons, personal opinion).

RECOMMENDED CONSERVATION STRATEGIES: There is a possibility that the biological resources of Bird Island are threatened by the effort to control aquatic weeds with herbicide applications. The operation of air boats next to Bird Island during the nesting season may be a threat as well.

A concerted, cooperative effort to protect Bird Island by the public agencies responsible for this lake may be needed to prevent further damage and allow for recovery to begin. This situation should be carefully evaluated by qualified experts. A restoration effort to re-establish the shrub swamp and the bonnet beds at both Bird Island and the small island may be needed, if the wildlife habitat values of Bird Island are to be restored and maintained.

COMPREHENSIVE PLAN CONSIDERATIONS: This site is all open water or wetland.

SENSITIVITY TO RECREATIONAL USE: The rookery is sensitive to disturbance from anyone entering the rookery on foot during the nesting season. This has not been a problem in the past due to the nearly inaccessible nature of the shrub swamp and surrounding marsh. With the death of much of this vegetation, it might now be more of a potential problem. Frog gigging at night from air boats at the edge

of the islands might be a serious threat to the birds during nesting season due to the loud noise and strong wind blast of these boats. The open water and bonnet bed areas are frequently used for fishing, which is an appropriate use that is no threat to the birds.

SITE VISITS: Bob Simons, 10/18/96 and many previous visits.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	1
Exotics	2
Endangered Species Habitat	5
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	1
Ecological Quality	2
Community Rarity	2
Functional Connectedness	1
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

BUCK BAY FLATWOODS

PRIORITY: 20 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is a large site of commercial pine flatwoods forest and associated wetlands directly north of Gainesville. It is a major headwaters area, rather like a miniature Green Swamp, supporting the following creek systems to varying degrees: Rocky Creek, Montechoa Creek, Rhuda Branch, Hatchet Creek, Little Hatchet Creek, and a bit of Hogtown Creek. The entire Rhuda Branch system is on this site as well as Sunshine Lake at the north end

of the site. Wetlands occupy large areas and provide a lot of surface water storage and wildlife habitat.

USGS QUAD: Gainesville East, Montechoa

SIZE: 18,018 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	72	fair
Former Sandhill	19	poor
Upland Mixed Forest	17	fair
Wet Flatwoods	538	fair
Mesic Flatwoods	11770	fair
Hydric Hammock	75	good
Wet Prairie	24	fair
Bog	45	good
Baygall	897	good
Seepage Slope Forest *	194	good
Bottomland Forest	33	good
Floodplain Swamp	119	good
Basin Marsh	168	good
Depression Marsh	160	good
Basin Swamp	1431	good
Dome Swamp	968	good
Prairie Lake	215	fair
Swamp Lake	1	good
Blackwater Stream		good
Old Field Pine Plantation *	12	
Site Conversion Pine Plantation *	15	
Rough Pasture *	597	
Improved Pasture *	245	
Row Crops *	107	
Low Impact Development *	147	
<u>High Impact Development *</u>	42	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Hague Flatwoods	good
Hatchet Creek	good
Rocky Creek	fair
Montechoa Creek	fair

Northeast Flatwoods fair

SITE BOUNDARY CONDITIONS: The boundaries are generally regular in shape and generally follow property boundaries, roads, section lines, and other surveyed lines except at the north end along Rhuda Branch and on the east side beside Hatchet Creek, where inholdings complicate the boundaries and interrupt connectivity.

GEOLOGIC/HYDROLOGIC FEATURES: This site is underlain by the relatively impermeable Hawthorn Formation which restricts percolation of water down into the Floridan Aquifer. The main body of this site has flat topography with abundant wetlands that store large supplies of surface water. It is mostly between 155 and 175 feet in elevation above mean sea level. The drainage is to many different creek systems. Rocky Creek and Montechoa Creek drain to the north into the Santa Fe River. Hatchet Creek and Little Hatchet Creek drain into Newnans Lake which in turn drains, in part, into Alachua Sink on Paynes Prairie, where the water enters the Floridan Aquifer, and in part into Orange Lake, where some water enters the Floridan Aquifer and some goes into the St. Johns River Basin. Rhuda Branch, which is entirely on the site, drains into Sunshine Lake, which has no outlet and presumably percolates down into the Floridan Aquifer. A small area drains into Hogtown Creek, which flows into Hail Sink, where it enters the Floridan Aquifer.

WILDLIFE HABITAT: The pine flatwoods areas are almost all slash pine plantations on sites that have been bedded, resulting in less than ideal habitat. Some of the wet flatwoods is poorly drained, providing poor site quality for pine growth but diverse and dense herbaceous ground cover that provides habitat for wildlife and native plants. There is no evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The wetlands are mostly good quality basin swamp or bayhead with some cypress domes and some creeks. Some noticeable wildlife species include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax vireescens*), and cottonmouth (*Agkistrodon piscivorus*). Overall, the diversity is fairly good, there is a lot of wildlife cover, browse is fair to good, mast production is low, the upland ground cover is fair, there are some tree cavities in the wetlands, and there are a few burrows. The many isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The Florida Game and Fresh Water Fish Commission's habitat maps for Alachua County (Arnold, 1995) show a small habitat for Florida gopher frog (*Rana capito aesopus*) on the edges of the site in two places, indicating the presence of this species and the presence of gopher tortoises. There is some suitable sandhill

habitat west of Fairbanks between two branches of Hatchet Creek. Gopher tortoises (*Gopherus polyphemus*) were observed during the inventory in the middle of the site in mesic flatwoods. However, the vast majority of this site is not suitable for these species. The same set of maps (Arnold, 1995) show a good amount of habitat here for wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), and alligator (*Alligator mississippiensis*), and a lesser amount for tricolored heron (*Egretta tricolor*). This site is large enough to be potential habitat for red-cockaded woodpeckers (*Picoides borealis*), but is not close to being suitable in its present condition due to the young age of the pine trees. It is also potential habitat for a number of listed terrestrial orchids, butterworts, and rare wildflowers. Observed listed plants include Catesby's lily (*Lilium catesbaei*) as well as the common royal fern (*Osmunda regalis*), and cinnamon fern (*Osmunda cinnamomea*) (which are listed as commercially exploited).

EXOTICS: Two potentially destructive invasive exotics were found: taro (*Colocasia esculenta*) and Chinese tallow (*Sapium sebifum*). The taro was not on the site but was observed about 200 yards south of the site on the Ironwood Golf Course property. Chinese tallow was observed in a spot or two on the site boundary. The vast middle of the site is free of invasive exotic plants.

RESTORATION AND MANAGEMENT POTENTIAL: The wildlife habitat values of the uplands would benefit greatly by a program of frequent prescribed fire, which could be accomplished on this large site, where there is plenty of room to do smoke management. The wetlands are in reasonable shape but are threatened by a potential invasion of taro and Chinese tallow. The Chinese tallow is going to continually be a nuisance due to the large seed source from residential areas, and should be eliminated whenever possible. The taro is on the Ironwood Golf Course property. Taro is invasive and destructive of native wetland ground cover vegetation, and should therefore be aggressively targeted for eradication by the County or by the city of Gainesville before it gets to the site.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this site include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods, and incremental loss of habitat to real estate development.

This site is so large and so valuable for timber production, that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would have the effect of banning clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowner and public agencies equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of connection to other sites are particularly important to protect. Enforcing dredge and fill regulations is

important here for the protection of the resource values of the many isolated and poorly connected wetlands. It is also important that Forestry Best Management Practices be followed.

COMPREHENSIVE PLAN CONSIDERATIONS: This is a large headwaters area with many wetlands (perhaps 20 to 30% of the site). Most wetlands are connected, but many smaller ones are isolated. There is a small amount of open water, and there are some small creeks with adjacent floodplains.

SITE VISITS: David Clayton, 1996; Bob Simons, 8/23/96

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2.5
Exotics	4
Endangered Species Habitat	3
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	2
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	3
Ecological Quality	2
Community Rarity	1
Functional Connectedness	3

Management Potential	4
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Note: See Table 2-1 for parameter descriptions.

BUZZARD'S ROOST

PRIORITY: 20 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is the smallest site in the County. It contains a major limerock outcrop ridge with a shallow ravine, a dry sinkhole with a flat bottom, and one or two small caves. An intermittent stream enters the Floridan Aquifer here through a swallow hole. The forest on the

limerock outcrop part is high quality, mature, calcareous mesic hammock containing fine specimens of Shumard oak (*Quercus shumardii*), sugarberry (*Celtis laevigata*), white ash (*Fraxinus americana*), winged elm (*Ulmus alata*) and box elder (*Acer negundo*). The exposed limerock walls and boulders are covered with ferns, including several uncommon species, two of which are listed by the state as endangered. There are four houses on the site. Most of the site and most of the valuable rare plant habitat is on one ownership.

USGS QUAD: Gainesville West
SIZE: 27 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Calc. mesic hammock *	14	excellent - mature forest
Floodplain forest	1	good
Sinkhole	10	good
Cave		good
Seepage Stream		poor
Low Impact Development *	2	

* Categories not used by FNAI

CONNECTIONS: None

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and follow existing property boundaries and roads.

GEOLOGIC/HYDROLOGIC FEATURES: This is a active and important karst solution feature. A small stream enters the Floridan Aquifer here, and there is an exposed limerock ridge, a small ravine, a sinkhole, and a cave.

WILDLIFE HABITAT: This site is so small and so isolated from any large area of wild land that the wildlife here, at least above ground, is the wildlife of suburban Gainesville. The cave system below ground may have some special significance for specialized cave invertebrates.

RARE, THREATENED, AND ENDANGERED SPECIES: Several uncommon fern species have been collected here in the past, and two species, creeping fern (*Thelypteris reptans*) and delicate spleenwort (*Asplenium abscissum*), both listed as endangered by the State, still occur here (Michael Drummond, 1996).

EXOTICS: Several exotic plants are common on the disturbed and landscaped front part of the site. These include tung tree (*Aleurites fordii*), mimosa (*Albizia julibrissin*), hedge bamboo (*Bambusa multiplex*), Japanese honeysuckle (*Lonicera japonica*), and Japanese climbing fern (*Lygodium japonicum*).

RESTORATION AND MANAGEMENT POTENTIAL: The current protection provided by the homeowners is working fine. The only improvement to suggest is the eradication of the exotic plants, which could be done with hand tools.

RECOMMENDED CONSERVATION STRATEGIES: The main threats to the rare plants here are the many invasive exotic plants. The County should offer aid to the landowners for the eradication of invasive exotic plants. The main threat to the aquifer recharge values of this site is real estate development off site in the upstream part of the watershed. This should be addressed by requiring adequate detention and retention areas for all future development in this watershed. A future potential threat is the possibility that the main parcel of land might be further subdivided and more houses constructed. The potential negative impact of such development should be considered by the Alachua County Office of Planning and Development.

COMPREHENSIVE PLAN CONSIDERATIONS: This is the downstream end of a small stream. It has some 10 year and 100 year floodplain area, and it has a combination of sinkhole, ravine, and cave where the water goes down into the Floridan Aquifer.

SENSITIVITY TO RECREATIONAL USE: Buzzards Roost is a small limerock outcrop site with a high concentration of rare ferns and other herbaceous plants that are easily damaged by foot traffic and would be seriously threatened by rock climbing or plant collecting. For these reasons, it needs complete protection from public access and is not an appropriate site for public recreation. It is currently protected as a private homesite.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987; David Hall, prior to 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	2
Endangered Species Habitat	5
Wildlife Habitat	1

Hydrology:

Floridan Aquifer	5
Surficial Aquifer Resource Protection	1
Vulnerability of Aquifer	5

Landscape Ecology:

Community Diversity	1
Ecological Quality	3.5
Community Rarity	4

Functional Connectedness	1
Management Potential	3

Note: See Table 2-1 for parameter descriptions.

CHACALA POND

PRIORITY: 15 (slightly above average) (from unweighted sub-parameter score)

KEY FEATURES: Chacala Pond is part of a chain of wetlands that is important to the wildlife communities of Paynes Prairie and Lake Wauberg. In addition, there is a diversity of wetland and upland habitats on the property, including some prairie, marsh, swamp, pine flatwoods, and hammock.

USGS QUAD: Micanopy

SIZE: 1,261 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Xeric Hammock	60	good to fair
Upland Mixed Forest	35	good to fair (Mesic Hammock)
Mesic Flatwoods	13	fair
Prairie Hammock	8	good to fair
Hydric Hammock	370	good
Wet Prairie	250	fair
Baygall	8	good
Basin Marsh	117	good
Depression Marsh	13	good
Basin Swamp	36	good
Dome Swamp	3	good
Prairie Lake	84	good
Blackwater Creek		fair
Old-field Pine Plantation *	24	
Rough Pasture *	34	
Improved Pasture *	169	
Low Impact Development *	36	

* Categories not used by FNAI

CONNECTIONS: This property is solidly connected to Paynes Prairie and is an important part

of a wildlife corridor from the Paynes Prairie basin to Lake Wauberg (Carr, 1971-87). It is a connecting link between two parts of Paynes Prairie State Preserve. It is also connected weakly to the Lochloosa Forest.

SITE BOUNDARY CONDITIONS: The boundaries are generally regular in shape and generally follow existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This property straddles the edge of Paynes Prairie, which is a large flat basin of karst origin. This site is underlain by the Hawthorn Formation, which is near its western edge and fairly thin. There are surface wetlands connected to a small stream that flows onto Paynes Prairie, which in turn drains into Alachua Sink and adjacent sinkholes where the water enters the upper layers of the Floridan Aquifer.

WILDLIFE HABITAT: The most critical wildlife habitat feature of this property is the link it occupies in the chain of wetlands that begin at Georges Pond and Lake Wauberg and proceed downstream to Sawgrass Pond and then Chacala Pond and then Paynes Prairie and Alachua Lake and Alachua Sink. This series of wetlands supports or helps to support large populations of alligators (*Alligator mississippiensis*), bald eagles (*Haliaeetus leucocephalus*), ospreys (*Pandion haliaetus*), wading birds, river otters (*Lutra canadensis*), turtles, snakes, frogs, and fish. The alligators and many of the other species benefit greatly by having the large and fertile Paynes Prairie basin for a feeding area during wet and intermediate times and Lake Wauberg for a dependable refuge during serious droughts (Carr, 1971-87). Newnans Lake used to have this same relationship to Paynes Prairie on an even greater scale, but the dike on the east edge of Paynes Prairie seriously interrupts the functioning at present. Biven's Arm serves this same sort of function to some extent, but not nearly as well due to two major highway crossings built with culverts that are not designed to allow easy passage by wild creatures.

Another benefit of this property is the wet prairie habitat in the basin which is managed as a pasture area, and is important to wildlife in part because it is managed differently than the prairie habitat on the preserve, causing it to sometimes be more attractive to cranes and wading birds than the habitat on the preserve due to the different type and timing of management techniques, especially those techniques which keep the vegetation short (Nesbitt, 1996).

Forest areas here are important habitat for birds such as hawks and owls that feed on the open prairie but need trees for nesting and roosting. The hardwood canopy is important feeding habitat for migrating songbirds. The xeric uplands here are important areas for the nesting of turtles that spend the rest of their lives in Chacala Pond or the wetlands of the prairie.

RARE, THREATENED, AND ENDANGERED SPECIES: There are three active bald eagle nests within one mile of this property in three different directions (Nesbitt, 1996). There is also usually a gathering of nearly 100 immature bald eagles at Lake Wauberg in the winter (Nesbitt, 1996). This high concentration of eagles in this small site is due in large part to the healthy

wetland ecosystem described under wildlife habitat, of which Chacala Pond is an essential part. Chacala Pond also supports two nesting pairs of Florida sandhill cranes (*Grus canadensis pratensis*) (Nesbitt, 1996). The value of this wetland link to alligators was already mentioned. Other listed animals using this property include wood stork (*Mycteria americana*), white ibis (*Eudocimus albus*), snowy egret (*Egretta thula*), tricolor heron (*Egretta tricolor*), and little blue heron (*Egretta caerulea*) (Arnold, 1995). There are indigo snakes (*Drymarchon corais couperi*) here, there may be gopher tortoises (*Gopherus polyphemus*) in some of the pasture or xeric hammock areas, and the southeastern American kestrel (*Falco sparverius paulus*) would do well here if provided with kestrel boxes (Smallwood, 1990-94). Chacala Pond is one of the areas mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox et al., 1994).

The following plants listed as commercially exploited are here: cinnamon fern (*Osmunda cinnamomea*) and royal fern (*Osmunda regalis*) in the edges of the basin swamps, and some greenfly orchids (*Epidendrum conopseum*) on trees in the hammocks.

EXOTICS: Invasive exotic plants present here include Chinese tallow (*Sapium sebiferum*), and camphor tree (*Cinnamomum camphora*). Bahia grass (*Paspalum notatum*) is planted in the pasture areas, and is probably more beneficial than harmful at present.

RESTORATION AND MANAGEMENT POTENTIAL: This site is a important wildlife habitat area in its present condition. The most important issue is to maintain the functioning of the Chacala Pond wetland system. The wildlife corridor connection from Paynes Prairie to Chacala Pond could be improved. The whole site, or any part of it, could easily be managed in conjunction with the management of Paynes Prairie State Preserve.

RECOMMENDED CONSERVATION STRATEGIES: The main threat to this site is real estate development, which could devastate not only the wildlife values of this property, but seriously damage the wildlife values of Paynes Prairie and Lake Wauberg. The State should continue to seek to purchase this site to add it to Paynes Prairie State Preserve. Cooperative agreements and less than fee simple purchase might be pursued as interim measures, but this site clearly warrants fee simple purchase in order to provide the full control and full range of management options needed to provide full protection to this valuable wildlife resource.

COMPREHENSIVE PLAN CONSIDERATIONS: There is an open water lake with a stable shore line, and there are several kinds of wetlands. There is a small stream with little associated floodplain. However, a large area on the northwest side is in the 100 year floodplain of Paynes Prairie.

SENSITIVITY TO RECREATIONAL ACTIVITY: The marsh at the east end of Chacala Pond provides nesting habitat for two pairs of Florida sandhill cranes. These birds are sensitive to disturbance, making this area inappropriate for human access during the nesting season for these

birds.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	2
Endangered Species Habitat	3
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	2
Ecological Quality	2
Community Rarity	2
Functional Connectedness	4

Management Potential	4
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Note: See Table 2-1 for parameter descriptions.

DOMINO HAMMOCK

PRIORITY: 26 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is a small patch of limestone outcrop hammock that is a mix of mature forest and thickets of shrubs and small trees. It has some large live oaks (*Quercus virginiana*) and redbays (*Persea borbonia*). Some of the forest was originally upland pine forest, but has long ago reverted to hammock due to fire exclusion. The forest has been impacted by grazing. There is a great diversity of plant species. There are also several sinkholes and several caves. One sinkhole is open to the Floridan aquifer at the bottom.

USGS QUAD: Bronson NE

SIZE: 217 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Calc. Mesic Hammock *	164	good
Sinkhole	4	good
Sinkhole Pond	4	good
Terrestrial Cave		good
Aquatic Cave		good
Old Field Pine Pl. *	11	
Improved Pasture *	35	

* Categories not used by FNAI

CONNECTIONS: None

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape, but mostly don't follow existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: There are some clay lenses beneath the surface, allowing for some sinkholes and depressions to hold water, but most of the site does not have a clay cap on top of the Floridan Aquifer. Therefore, there is no stream formation, and surface water seeps directly down into the Floridan Aquifer. There is limerock near the surface here, and sinkhole and cave formations are abundant.

WILDLIFE HABITAT: The site is small and surrounded by cleared land. There is some diversity of habitats due to the ponds, hardwood forest, and surrounding pasture and pine plantations. There is fairly good browse and good mast production. There are abundant holes in the ground and a number of tree cavities. The hardwood canopy is good habitat for migrating song birds. Wildlife species frequently seen here include gray squirrel (*Sciurus carolinensis*), armadillo (*Dasypus novemcinctus*), red-bellied woodpecker (*Melanerpes carolinus*), Carolina wren (*Thryothorus ludovicianus*), parula warbler (*Parula americana*), cardinal (*Cardinalis cardinalis*), and black racer (*Coluber constrictor*). The ponds are potentially important breeding sites for amphibians (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: None reported by the Florida Game and Fresh Water Fish Commission and none observed. There is a good possibility that there are specialized cave invertebrates in the aquatic caves under the property.

EXOTICS: Chinaberry (*Melia azedarach*) is quite common and there is some mimosa (*Albizia julibrissin*), but these will gradually disappear if the forest is left to recover on its own.

RESTORATION AND MANAGEMENT POTENTIAL: This site is so small and isolated that it is vulnerable to several kinds of problems. It is too small to maintain populations of many forest species. It is vulnerable to severe damage by invading exotic plants. And, finally, it is so small

that it is mostly edge from the point of view of forest interior species such as the hooded warbler (*Wilsonia citrina*) or acadian flycatcher (*Empidonax virescens*) (Noss, 1991). If left to mature and protected from invasive exotic plants, it could become a magnificent patch of forest that would serve migrating song birds well and provide habitat for other species that are mobile enough or small enough to survive here.

RECOMMENDED CONSERVATION STRATEGIES: The main threat to this site is conversion to either agriculture or real estate development. Because of its small size, and because the hardwood forest would be devastated if converted to plantation forestry, improved pasture, or a subdivision, and because of the sensitive nature of the caves here, the only strategy likely to provide adequate protection would be full purchase. Whether or not the site is valuable enough to warrant purchase would have to be determined by the potential purchasing agencies.

COMPREHENSIVE PLAN CONSIDERATIONS: There are sinkhole ponds, some of which have some open water. There are numerous dry sinkholes and several caves.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3

Endangered Species Habitat	3
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Wildlife Habitat	2
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Hydrology:

Floridan Aquifer	4
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Surficial Aquifer Resource Protection	2
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Vulnerability of Aquifer	4
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Landscape Ecology:

Community Diversity	2
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Ecological Quality	3
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Community Rarity	3
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Functional Connectedness	1
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Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

EAST SIDE GREENWAY (MORNINGSIDE GREENWAY)

PRIORITY: 14 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This is a complex site designed to connect Paynes Prairie State Preserve, Morningside Nature Center, Gum Root Swamp, and at the west shore of Newnans Lake at Sunland Park, at Palm Point, and at a third point farther south together by greenways while also including some high quality natural areas such as Palm Point Hill and several large swamps. The diversity of habitats is high and the significance for Morningside Nature Center of remaining connected to the larger areas of wildlife habitat is also high.

USGS QUAD: Gainesville East, Micanopy, Orange Heights

SIZE: 3,221 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	84	fair
Scrub	7	fair
Xeric Hammock	111	fair to good
Upland Mixed Forest	553	good (Mesic Hammock)
Wet Flatwoods	56	poor to fair
Mesic Flatwoods	801	poor to fair
Scrubby Flatwoods	17	fair to good
Hydric Hammock	42	good
Bog	18	fair
Baygall (bayhead)	128	fair to good
Bottomland Forest	129	good
Floodplain Swamp	88	good
Basin Marsh	48	fair
Depression Marsh	37	good
Basin Swamp	533	fair to good
Shrub Swamp *	4	good
Lake Shore Swamp *	40	good
Dome Swamp	30	fair to good
Farm Pond *	5	
Marsh Pond	17	fair
Sinkhole Pond	23	fair
Blackwater Creeks		good
Old Field Pine Plantation *	54	
Rough Pasture *	139	
Improved Pasture *	146	
Row Crops *	72	

Low Impact Development * 3
 High Impact Development * 29
 * Categories not used by FNAI

CONNECTIONS:

This site makes the following connections:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Morningside Nature Center	good
Paynes Prairie State Preserve	good
Gum Root Swamp	fair
Newnans Lake (3 places)	good

SITE BOUNDARY CONDITIONS: This site involves a large number of owners and is bisected by three major roads. The boundaries are irregular in shape and sometimes don't follow existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is an area that has a thick Hawthorn Formation and a perched aquifer above the Floridan Aquifer. There are three small streams that drain to Newnans Lake, and several swamps that serve as headwaters areas for the streams. Newnans Lake is perched above the Floridan Aquifer, and drains by way of Prairie Creek both into Alachua sink and thus the Floridan Aquifer (its natural drainage basin) and into Orange Lake by way of Camp's Canal (which also discharges to some extent to the Floridan Aquifer).

WILDLIFE HABITAT: The diversity of habitats is high, the habitat quality varies from poor to excellent, and there is a surprising abundance and diversity of wildlife here, considering how close this site is to downtown Gainesville. One reason for this is the proximity and good connections to the large, good quality habitat areas at Paynes Prairie State Preserve, Newnans Lake, and Morningside Nature Center. The other reason is the diversity and fair to good quality of the habitats on the site itself.

This site provides an abundance of cover, potential mast production, tree cavities, gopher burrows, hardwood forest canopy, and structural diversity. An indication of the health of the wildlife community here is that several predators and large mammals were seen in the short time taken to inventory the site: alligator (*Alligator mississippiensis*), raccoon (*Procyon lotor*), and bobcat (*Lynx rufus*) tracks along one of the creeks (which also indicate its value as a connector), white-tailed deer (*Odocoileus virginianus*) tracks in several upland areas, a pair of Mississippi kites (*Ictinia mississippiensis*) over the connector to Paynes Prairie, and a pair of red-shouldered hawks (*Buteo lineatus*) over the same connector. Other birds of interest that occur at Morningside and probably also on adjacent land include wild turkey (*Meleagris gallopavo*), brown-headed nuthatch (*Sitta pusilla*), and Bachman's sparrow (*Aimophila aestivalis*). In the fall

and spring, the hardwood canopy of the hammock forest areas is important feeding habitat for migrating song birds.

RARE, THREATENED, AND ENDANGERED SPECIES: Alligators are abundant in Newnans Lake and travel throughout the greenway wetlands. Gopher tortoises (*Gopherus polyphemus*) are abundant at Morningside Nature Center and occur in the nearby greenway sandhill areas. Florida gopher frogs (*Rana capito aesopus*) and Florida pine snakes (*Pituophis melanoleucus mugitus*) also occur at Morningside and thus probably on the nearby site. A few Sherman's fox squirrels (*Sciurus niger shermani*) still occur at Morningside and in the adjacent upland areas of the greenway. Eastern indigo snakes (*Drymarchon corais couperi*) occur in low numbers at Paynes Prairie and have been seen at Morningside, where they probably need the greenway areas to continue to survive. Two active bald eagle (*Haliaeetus leucocephalus*) nests are on the site near Palm Point Hill (Nesbitt, 1996). The Florida Game and Fresh Water Fish Commission habitat distribution maps show habitat here for wood storks (*Mycteria americana*), limpkins (*Aramus guarauna*), snowy egrets (*Egretta thula*), tricolor herons (*Egretta tricolor*), little blue herons (*Egretta caerulea*), sandhill cranes (*Grus canadensis*), bald eagles, gopher frogs and alligators (Arnold, 1995). Parts of the area near Newnan's Lake are mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox et al., 1994).

There are several listed plants at Morningside that could also occur in identical habitat to the north if it were managed with fire. These include Catesby's lily (*Lilium catesbaei*), yellow-fringed orchid (*Platanthera ciliaris*), and rosebud orchid (*Cleistes divaricata*). State listed plants that are quite common on this site include royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and greenfly orchid (*Epidendrum conopseum*).

EXOTICS: There are quite a few invasive exotic plants established on various parts of the site. Paper mulberry (*Broussonetia papyrifera*), Chinese tallow tree (*Sapium sebiferum*), camphor tree (*Cinnamomum camphora*), mimosa (*Albizia julibrissin*), air-potato (*Dioscorea bulbifera*), and elephant ear (*Xanthosoma sagittifolium*) all occur in spots and are invasive. Other exotics that were noticed, but that do not pose a threat to the ecology, are chinaberry (*Melia azedarach*), Spanish gold (*Sesbania punicea*), wax begonia (*Begonia cucullata* var. *hookeri*), centipede grass (*Eremochloa ophiuroides*), and bahia grass (*Paspalum notatum*).

RESTORATION AND MANAGEMENT POTENTIAL: Some of the lands on the greenway site are in good condition. The swamp and some of the hammock areas are doing fine with no management. However, even here, the need for control of invasive exotics will eventually require some management effort if the natural values are to be maintained. The sandhill and flatwoods areas need to be managed with fire to provide the habitat values needed by such animals as fox squirrels and gopher tortoises, and to maintain the native plant community. There are hundreds of species of native wildflowers that occur in these fire dependent habitats when they burn regularly, but which are eliminated completely if no fires occur for many decades. The ideal fire frequency is about once every other year on average, with most of the burning done in

the months of April, May, June, and July, and some done in January, February, and March.

RECOMMENDED CONSERVATION STRATEGIES: The main threat to the private lands within this site is real estate development. The main threat on the public lands is additional construction that has not been planned to take into account the biological and hydrological values of the County. Invasive exotic plants pose a threat to both the private and the public lands.

This is a complex and difficult site, but it is also one of potential high value. The land between Paynes Prairie State Preserve and Morningside Nature Center is the most valuable and important connector. To maintain its high biological value, the best option would be to purchase it and add it to the preserve. The lands by Newnans Lake would also be best protected by purchase, probably by a cooperative effort involving the St. Johns River Water Management District, and C.A.R.L. Committee, and perhaps the City and/or County. The lands owned by the prison system, Tacachale, and other public agencies could be managed by cooperative agreement.

COMPREHENSIVE PLAN CONSIDERATIONS: There are large areas of wetlands including some small, isolated wetlands, and there is some open water. There are several creeks and some areas where the creeks have wide areas within the 10 and 100 year floodplains.

SENSITIVITY TO RECREATIONAL ACTIVITY: The vast majority of this site would be conducive for resource based recreation and would be an ideal site for the development of a recreational trail system. However, the two bald eagle nest sites require protection from disturbance during the nesting season.

SITE VISITS: Bob Simons 8/8/96, 8/11/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	4
Exotics	2

Endangered Species Habitat	4
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Wildlife Habitat	3
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Hydrology:

Floridan Aquifer	3
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Surficial Aquifer Resource Protection	2
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Vulnerability of Aquifer	2
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Landscape Ecology:

Community Diversity	3
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Ecological Quality	2.5
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Community Rarity	3
Functional Connectedness	5
<u>Management Potential</u>	<u>2.5</u>

Note: See Table 2-1 for parameter descriptions.

EAST LOCHLOOSA FOREST

PRIORITY: 26 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is commercial forestry land with a lot of mesic flatwoods that is mostly bedded for slash pine (*Pinus elliottii*) plantations, some sandhills planted to slash pine, and a lot of basin swamps and marshes and baygalls. Most of it is wetlands. It has a good diversity of wildlife habitats and it serves as an important connector for large animals such as black bears between the Lochloosa Wildlife Management Area and the Orange Creek and Ocklawaha River basins.

USGS QUAD: Citra, Hawthorn

SIZE: 6,340 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	282	fair to poor
Former Sandhill *	93	poor
Scrub	7	unknown
Xeric Hammock	13	good
Wet Flatwoods	252	fair
Mesic Flatwoods	3110	good to fair
Bog	291	good
Baygall	244	good
Basin Marsh	223	good
Depression Marsh	112	good
Basin Swamp	977	good
Shrub Swamp *	29	good
Dome Swamp	138	good
Flatwoods Lake 85	85	good
Old Field Pine Pl. *	178	
Rough Pasture *	108	
Improved Pasture *	9	

* Categories not used by FNAI

CONNECTIONS: This area serves as the main connection between the Orange Creek area to the SW in Putnam County and the Lochloosa Wildlife Management Area to the NW. The connection to Orange Creek is mostly through unprotected Putnam County lands which include tributaries of Orange Creek.

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Lochloosa Wildlife Mgt. Area	fair
Lochloosa Slough	fair
Orange Creek	good but out of Alachua County

SITE BOUNDARY CONDITIONS: The boundaries are fairly regular in shape and mostly follow existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the relatively impermeable Hawthorn Formation which supports a perched water table and allows for the existence of the abundant wetlands that are here. These wetlands form the headwaters of small creeks. Some of the flow is into Lake Lochloosa and some into Lochloosa Slough, but the vast majority of the flow is into tributaries of Orange Creek in Putnam County. In any case, since both the lake and the slough also drain into Orange Creek, the surface flow of the site is into Orange Creek which flows into the Ocklawaha River which flows into the St. Johns River.

WILDLIFE HABITAT: The wetlands here are quite variable and mostly of good quality, supplying habitat for a large number of species. The uplands are mostly slash pine plantations of varying habitat quality, mostly on pine flatwoods habitat, but some also on sandhill. Overall, there is good habitat diversity, an abundance of water, a modest amount of good forage, lots of cover, only a modest amount of mast, and a small number of burrows and tree cavities.

Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). Some noticeable wildlife species in the wetlands include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). The many isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: This is the main avenue of entry for black bears (*Ursus americanus*) that wander into Alachua County from the Ocala National

Forest. They come through the wild lands along Orange Creek and then onto and sometimes through this area and across US 301 to the Lochloosa Forest area and along Lochloosa Creek to the lands east and north of Newnans Lake. The Florida Game and Fresh Water Fish Commission's habitat distribution maps show this site as having most of the currently used black bear habitat in the county (Arnold, 1995), which, combined with the corridor value of the site for the bears, makes this by far the most important site for black bears in Alachua County.

As to the other listed animal species, a small amount of bald eagle (*Haliaeetus leucocephalus*) and sandhill crane (*Grus canadensis*) habitat is mapped here (Arnold, 1995). There is one active bald eagle nest on the inholding in the middle of the site (Nesbitt, 1996). The maps show somewhat more feeding habitat for wood storks (*Mycteria americana*), tricolored herons (*Egretta tricolor*), little blue herons (*Egretta caerulea*), and snowy egrets (*Egretta thula*) (Arnold, 1995). Finally, the maps show a fairly large amount of alligator (*Alligator mississippiensis*) and Florida gopher frog habitat (*Rana capito aesopus*) (Arnold, 1995), and there is also a fair amount of gopher tortoise (*Gopherus polyphemus*) habitat, with some active gopher burrows being located during this study. The sandhill habitat areas are not in good condition, but if reclaimed for wildlife, could support a number of other sandhill species such as Sherman's fox squirrels (*Sciurus niger shermani*), Southeastern American kestrels (*Falco sparverius paulus*), Florida Mice (*Podomys floridanus*), and Florida Pine Snake (*Pituophis melanoleucus mugitus*), some of which may still be here in small numbers.

The listed plants that were found here are the ones listed as commercially exploited: royal fern (*Osmunda regalis*) and cinnamon fern (*Osmunda cinnamomea*). There are probably hooded pitcher plants (*Sarracenia minor*) in some of the bogs, and, if the flatwoods and adjacent transition areas were burned on a regular basis, there are some terrestrial orchids and butterworts that would have habitat here.

EXOTICS: There is alligator weed (*Alternanthera philoxeroides*) in a few spots, one camphor tree (*Cinnomomum camphora*), and a few mimosa trees (*Albizia julibrissin*). The alligator weed takes care of itself. The others should be removed.

RESTORATION AND MANAGEMENT POTENTIAL: The wetlands are mostly in good condition. More prescribed burning on a regular basis in the pine flatwoods would greatly improve the wildlife habitat and ground cover flora. There is ample wild land to the east to allow for good smoke management. The sandhill areas have been damaged the most severely by site preparation work for pine plantation establishment. They would need a concerted effort at restoration and a schedule of frequent prescribed burns if they are to have good wildlife habitat values for the suite of species that normally live in this habitat type.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine

flatwoods, and incremental loss of habitat to real estate development.

This area is so large and so valuable for timber production, that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would prohibit clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. The connection to the Lochloosa Wildlife Management Area is particularly important to protect. Enforcing dredge and fill regulations is important here for the protection of the resource values of the many isolated and poorly connected wetlands. It is also important that Forestry Best Management Practices be followed.

COMPREHENSIVE PLAN CONSIDERATION: This area has numerous wetlands, many of them small isolated ones. It has some open water in small ponds, and there are some small creeks which have small areas of floodplain.

SITE VISITS: David Clayton, 1996; Bob Simons 8/18/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2.5
Exotics	3
Endangered Species Habitat	4
Wildlife Habitat	4

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	1

Landscape Ecology:

Community Diversity	3
Ecological Quality	3
Community Rarity	1
Functional Connectedness	3.5
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

EAST SAN FELASCO HAMMOCK

PRIORITY: 28 (slightly below average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of ponds, marshes, creeks, scenic pastures, and hardwood forest on the east side of San Felasco State Preserve. It also contains a large and valuable house and several smaller homes.

USGS QUAD: Gainesville West, Alachua

SIZE: 760 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	237	good (Mesic Hammock)
Sinkhole	10	fair
Basin Marsh	11	fair
Depression Marsh	2	fair
Sinkhole Pond	25	good
Seepage Stream		good
Old Field Pine Plantation *	41	
Site Conversion Pine Plantation *	84	
Rough Pasture *	231	
Improved pasture *	19	
Row Crops *	20	
Low Impact Development *	80	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Millhopper Flatwoods	fair
San Felasco Hammock State Preserve	excellent

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in shape, but they mostly follow existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is an active karst area with several sinkholes. It is underlain by the Hawthorn Formation, which provides for a perched water table (ponds,

wetlands, and streams), but this formation is thin here, allowing for sinkhole formation. The formation is also at or near the surface, thus providing for the fertile soil that the mesic hammock vegetation requires.

WILDLIFE HABITAT: The hammock forest in this area is fertile and productive, supplying good mast and browse quality and quantity. There are few burrows, but quite a few tree cavities. The diversity of habitats is fair, and there is abundant water. The hardwood canopy here is excellent habitat for gray squirrels (*Sciurus carolinensis*), migrating songbirds, summer resident birds such as red-eyed vireo (*Vireo griseus*), parula warbler (*Parula americana*), blue-gray gnatcatcher (*Polioptila caerulea*), and yellow-billed cuckoo (*Coccyzus americanus*), winter residents such as the yellow-bellied sapsucker (*Sphyrapicus varius*), and permanent residents such as Carolina wren (*Thryothorus ludovicianus*), pileated woodpecker (*Dryocophus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), and cardinal (*Cardinalis cardinalis*). The pastures are valuable for wild turkeys (*Meleagris gallopavo*) and white-tailed deer (*Odocoileus virginianus*).

RARE, THREATENED, AND ENDANGERED SPECIES: There are a few gopher tortoises (*Gopherus polyphemus*) and eastern indigo snakes (*Drymarchon corais couperi*) here. The Florida Game and Fresh Water Fish Commission's habitat distribution maps show habitat here for Florida gopher frog (*Rana capito aesopus*), wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), and alligator (*Alligator mississippiensis*) (Arnold, 1995). Florida pine snake (*Pituophis melanoleucus mugitus*) and Sherman's fox squirrel (*Sciurus niger shermani*) are possibilities here. Cardinal flower (*Lobelia cardinalis*) was observed along the creek.

EXOTICS: Mimosa (*Albizia julibrissin*) and chinaberry (*Melia azedarach*) are common on the edge.

RESTORATION AND MANAGEMENT POTENTIAL: The mesic hammock and the ponds and wetlands and creeks are in good condition and present no management problems. What was formerly upland pine forest is now all pasture. It could be restored to a functional upland pine forest condition for wildlife habitat rather quickly by planting longleaf pine (*Pinus palustris*) and doing frequent prescribed burns. Establishing a native ground cover would be more difficult. The connection to the Millhopper Flatwoods area is rapidly being restricted by residential and agricultural development.

RECOMMENDED CONSERVATION STRATEGIES: The option likely to afford the best long term protection is outright purchase, which is not recommended at this time due to the high cost compared to the moderate resource protection that would be achieved. However, this option should perhaps be evaluated by the state for possible inclusion of some part of this area into the San Felasco State Preserve. Other options include the purchase of development rights on parts of the area or cooperative agreements with one or more landowners for wildlife management

activities. Low density planning and zoning designations for this area would help provide somewhat of a buffer for San Felasco Hammock State Preserve.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some open water in the ponds and the creek, and there are some small wetlands. The creek sometimes overflows its low banks and has some 10 year and 100 year floodplain area.

SITE VISITS: Bob Simons 9/16/96 and several times in the past two decades.

SITE EVALUATION SCORING

Vegetation:

Species Diversity 2

Exotics 2

Endangered Species Habitat 2

Wildlife Habitat 2

Hydrology:

Floridan Aquifer 3

Surficial Aquifer Resource Protection 2.5

Vulnerability of Aquifer 4

Landscape Ecology:

Community Diversity 2

Ecological Quality 2

Community Rarity 2

Functional Connectedness 4

Management Potential 3

Note: See Table 2-1 for parameter descriptions.

NORTH SAN FELASCO HAMMOCK

PRIORITY: 23 (average) (from unweighted subparameter score)

KEY FEATURES: This is an area of creeks, ponds, hardwood forest, pine plantation, and pasture on the north side of San Felasco Hammock State Preserve. The two creeks both flow

into the preserve from this area.

USGS QUAD: Alachua

SIZE: 535 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	277	fair to good - Mesic Hammock
Upland Pine Forest	58	poor - now pine plantation
Basin Marsh	5	good
Depression Marsh	3	good
Basin Swamp	2	good
Sinkhole Pond	1	good
Seepage Stream		good
Pasture *	142	
Row crops *	46	

* Categories not used by FNAI

CONNECTIONS: This site is strongly connected to San Felasco Hammock State Preserve. It is not now well connected to anything else, but it would be possible to enhance the corridors to the north along both creek systems. If this were done, a continuous, thin, but good quality corridor could be provided up to and through the north part of the Hague Flatwoods area and through the extreme SE corner of the South LaCrosse Forest area to Rocky Creek, thereby having a tenuous wildlife corridor all the way from San Felasco Hammock to the Santa Fe River. The corridor would follow the creeks and have enough forested creek side slope to provide both terrestrial and wetland connections.

SITE BOUNDARY CONDITIONS: The boundaries are fairly regular in shape and are all on existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is near the western edge of the Hawthorn Formation where it becomes thin and easily breached by sinkholes. There are several sinkholes, some wetlands, and two creek systems, both of which drain into sinkholes or swallow holes where they discharge directly into the Floridan Aquifer. Before reaching the aquifer recharge points, both creeks go through wetland areas that serve to slow down, disperse, and filter the water to some extent.

WILDLIFE HABITAT: There is good browse, cover, vegetative diversity, community diversity, and soil fertility. There are some old cavity trees. The hammock part, which is important habitat for migrating song birds, was high quality mesic hammock like that in the preserve, and is on its way to returning to that condition. This site is part of the San Felasco Hammock ecosystem and is used by the white-tailed deer (*Odocoileus virginianus*), wild turkeys (*Meleagris gallopavo*),

bobcats (*Lynx rufus*), river otters (*Lutra canadensis*), and other wildlife of the larger ecosystem. The area is important for river otters, providing them with habitat, allowing them to travel the streams throughout their watersheds, and, in this area, to also cross over between Celon Creek and Turkey Creek. In the preserve, they can go between Turkey Creek and Blues Creek, and in the upper Celon Creek, at least with a little reclamation, they could access Burnetts Lake Creek and then Rocky Creek. Without this ability to move along the creeks, the river otter population in San Felasco Hammock State Preserve would probably be too small and isolated to survive for long. Other wildlife species common here include gray squirrel (*Sciurus carolinensis*), pileated woodpecker (*Dryocopus pileatus*), Carolina wren (*Thryothorus ludovicianus*), yellow-billed cuckoo (*Coccyzus americanus*), red-eyed vireo (*Vireo olivaceus*), parula warbler (*Parula americana*), and blue-gray gnatcatcher (*Polioptila caerulea*). The ponds and isolated wetlands are important breeding sites for amphibians (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: There are still some gopher tortoises (*Gopherus polyphemus*), Florida pine snakes (*Pituophis melanoleucus mugitus*), eastern indigo snakes (*Drymarchon corais couperi*), and possibly a few Florida gopher frogs (*Rana capito aesopus*) and Sherman's fox squirrels (*Sciurus niger shermani*) here. Southeastern American kestrels (*Falco sparverius paulus*) would nest in the pasture areas if kestrel boxes were erected (Smallwood, 1990-94). A few alligators (*Alligator mississippiensis*), snowy egrets (*Egretta thula*), little blue herons (*Egretta caerulea*), and white ibis (*Eudocimus albus*) visit the ponds, basin marshes, and the channels and floodplains along the creeks. Wood storks (*Mycteria americana*) may feed in the basin marshes on occasion. The Florida Game and Fresh Water Fish Commission habitat use maps (Arnold, 1995) show habitat here for gopher frog and perhaps for wood stork, snowy egret, little blue heron, and alligator. The scale of the maps makes it difficult to tell for sure.

The only listed plants known from the area are greenfly orchid (*Epidendrum conopseum*) and cinnamon fern (*Osmunda cinnamomea*), which are listed as commercially exploited.

EXOTICS: Tropical soda-apple (*Solanum viarum*), a invasive, thorny weed, is probably in the pastures on the west side, since it is on the immediately adjacent San Felasco Hammock State Preserve land (Randy Brown, 1996). There are a lot of mimosa trees (*Albizia julibrissin*), and a few tung trees (*Aleurites fordii*), chinaberry trees (*Melia azedarach*), and camphor trees (*Cinnamomum camphora*) on the north and west boundaries. Bahia grass (*Paspalum notatum*) has been planted in the improved pastures. Just north of the site, there is a big infestation of rice-paper plant (*Tetrapanax papyriferus*) on the south side of US 441.

RESTORATION AND MANAGEMENT POTENTIAL: This area could be easily managed as part of or in conjunction with the adjacent state preserve. Restoration of the hammock areas would occur on its own. Some of the former upland pine forest areas could be allowed to become hammock forest. Restoring upland pine forest areas that are now hardwood forest or pine plantation would require a long program of prescribed burning and some planting. The pasture areas were all upland pine forest, and would need planting and then prescribed burning

during an extended time for restoration to occur. If left as they are now, the pastures still need frequent burning and some herbicide applications to control the tropical soda-apple. Although there is a major highway to the north, there is a large wild area to the south, making it possible for prescribed burning to be used here with relative safety.

RECOMMENDED CONSERVATION STRATEGIES: The main threat to the natural resources of this site is real estate development.

This area is recommended for purchase and addition to San Felasco State Preserve. If this is not possible, a conservation easement on part or all of the property might be pursued, although it is likely that this option would cost about the same as full purchase in this case, since the major component of the property value here is due to anticipated value for development. If the area is allowed to become developed, low density planning and zoning designations with conservation areas along the creek systems could be used to provide some protection to the watershed, wildlife habitat, and wildlife corridor values, and to provide somewhat of a buffer adjacent to the San Felasco State Preserve.

COMPREHENSIVE PLAN CONSIDERATION: There is open water in the ponds, small wetlands (mostly isolated), and wide 10 year and 100 year floodplains along the creeks. The creeks have low banks which they often overflow.

SITE VISITS: Bob Simons 8/23/96, 1987, and 1972.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	2
Endangered Species Habitat	2
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

NORTHEAST FLATWOODS

PRIORITY: 15 (slightly above average) (from unweighted sub-parameter score)

KEY FEATURES: This is a large block of commercial pine flatwoods forest. There are many forested wetlands which provide valuable wildlife habitat and which are headwaters for streams that flow to the Santa Fe River. The uplands are almost all in pine plantations on bedded sites.

USGS QUAD: Montechoa, Waldo

SIZE: 18,292 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	59	fair
Former Sandhill *	18	poor
Wet Flatwoods	40	fair
Mesic Flatwoods	13111	fair
Bog	43	good
Baygall	334	good
Bottomland Forest	166	good
Basin Marsh	18	good
Depression Marsh	63	good
Basin Swamp	2722	good
Dome Swamp	1429	good to fair
Farm Pond *	3	
Blackwater Stream		good
Old Field Pine Plantation *	50	
Rough Pasture *	141	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Santa Fe River	
Austin Cary Forest	good
Austin Cary Flatwoods	fair

Hatchet Creek	fair/poor
Monteocha Creek	good/fair
Buck Bay Flatwoods	fair

SITE BOUNDARY CONDITIONS: The boundaries are mostly regular in shape and mostly follow existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is all underlain by the Hawthorn Formation which precludes much percolation of water down into the Floridan Aquifer. This is a large headwaters area, and there are abundant wetlands on the property which provide surface water storage. Most of the pine flatwoods areas have been bedded in preparation for planting pines, and many wetlands have probably been slightly to moderately drained. Most of the flow is to the north into the Santa Fe River by way of Monteocha Creek and several smaller creeks. However, there is also some flow south into Hatchet Creek which flows into Newnans Lake and then partially into Paynes Prairie where it goes into the Floridan Aquifer at Alachua Sink and partially into Orange Lake where some water also enters the Floridan Aquifer.

WILDLIFE HABITAT: This area has an enormous amount of wetland and pine flatwoods habitat. The pine flatwoods areas here are almost all slash pine plantations on sites that have been bedded, resulting in less than ideal habitat. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The wetlands are mostly good quality basin swamps and cypress domes, and there are some creeks. Some common wildlife species in these wetlands include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). Overall, the diversity is fairly good, there is a lot of wildlife cover, browse is fair to good, mast production is low, the upland ground cover is fair, there are some tree cavities in the wetlands, and there are a few burrows. The many isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: This area is suitable habitat for black bears (*Ursus americanus*), is big enough to be useful for them, and is well enough connected to the Santa Fe River on north to provide access. One bear was seen here last year. There are probably some gopher tortoises (*Gopherus polyphemus*) on the driest areas of mesic flatwoods and on the few spots of sandhill. The habitat distribution maps of the Florida Game and Fresh Water fish Commission show habitat here for wood stork (*Mycteria americana*), little blue heron (*Egretta caerulea*), alligator (*Alligator mississippiensis*), and a tiny bit on the edge for Florida gopher frog (*Rana capito aesopus*) (Arnold, 1995). The canebrake rattlesnake (*Crotalis horridus*) is also probably here. Listed plants found here are bearded grass-pink (*Calopogon*

barbatus), yellow butterwort (*Pinguicula lutea*), blue butterwort (*Pinguicula caerulea*), hooded pitcher plant (*Sarracenia minor*), Catesby's lily (*Lilium catesbaei*), and the commercially exploited cinnamon fern (*Osmunda cinnamomea*), and royal fern (*Osmunda regalis*).

EXOTICS: There are some mimosa trees (*Albizia julibrissin*) on the edges. There is a population of taro (*Colocasia esculentum*) in the ditch on the east side of SR 24 south of the site.

RESTORATION AND MANAGEMENT POTENTIAL: As with the other large acreages of commercial pine flatwoods, more frequent prescribed burning would greatly benefit the native plant and animal communities. The area is well situated for prescribed burning, with the main smoke sensitive area being Waldo and US 301 to the east and SR 24 to the southeast.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods, and incremental loss of habitat to real estate development.

This area is so large and so valuable for timber production, that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would prevent clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of connection to other areas are particularly important to protect. Enforcing dredge and fill regulations is important here for the protection of the resource values of the many isolated and poorly connected wetlands. It is also important that Forestry Best Management Practices be followed.

COMPREHENSIVE PLAN CONSIDERATIONS: This area has a small amount of open water in small ponds, but a large area of wetlands, constituting perhaps 40 percent of the total area. Most of the wetland area is basin swamp, which is connected to other wetlands, but there are also a lot of small, isolated wetlands. The streams of the area are small, but fluctuate widely and have 10 year and 100 year floodplain areas beside them.

SITE VISITS: David Clayton, 1995 and 8/19/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	4

Endangered Species Habitat	3
Wildlife Habitat	3
Hydrology:	
Floridan Aquifer	2
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2
Landscape Ecology:	
Community Diversity	3
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	4
Management Potential	4

Note: See Table 2-1 for parameter descriptions.

FOX POND

PRIORITY: 5 (high) (from unweighted sub-parameter score)

KEY FEATURES: This is a small area of high quality, mature, mesic hammock forest that has three sinkhole ponds, a seepage creek, and a Spanish mission archeological site. It is also a connector between San Felasco Hammock State Preserve and the wetlands in the Millhopper Flatwoods area to the east.

USGS QUAD: Gainesville West

SIZE: 128 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	103	Excellent (Mesic Hammock)
Sinkhole Ponds	16	Excellent
Seepage Stream	4	Excellent
Low Density Development *	4	

* Categories not used by FNAI

CONNECTIONS:

The connection to the Millhopper Flatwoods is good. The connection to San Felasco Hammock

State Preserve is excellent.

SITE BOUNDARY CONDITIONS: The boundaries are fairly regular and mostly follow existing property boundaries, roads, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: The area here is underlain by the Hawthorn Formation, which is moderately impermeable to water, and thus supports a perched water table and provides for stream formation and ponds. However, the formation is thin enough here to allow the formation of several sinkholes. On this small area, there are four sinkholes. Fox Pond is made of two adjacent sinkholes, and there are two more ponds, each consisting of one sinkhole. Each of the sinkholes is approximately 5 acres in area at the surface, and is filled to the surface with water.

All of the water here enters the Floridan Aquifer. The sinkhole ponds overflow into Blues Creek, which crosses the property, flows into the preserve, and then flows into the Big Otter Ravine where it goes into a cave system leading down into the Floridan Aquifer.

WILDLIFE HABITAT: The quality of the habitats here is excellent. There is abundant water, abundant mast, good and high quality browse, good cover, a lot of tree cavities, a few burrows, but not much diversity. The ponds provide habitat for wood ducks (*Aix sponsa*), river otters (*Lutra canadensis*), alligators (*Alligator mississippiensis*), wading birds, and various species of frogs, turtles, and snakes. The hardwood canopy is excellent habitat for migrating song birds, red-eyed vireos (*Vireo olivaceus*), parula warblers (*Parula americana*), great crested flycatchers (*Myiarchus crinitus*), summer tanagers (*Piranga rubra*), and yellow-billed cuckoos (*Coccyzus americanus*). In the understory, the interior forest dwelling hooded warbler (*Wilsonia citrina*) and wood thrush (*Hylocichula mustelina*) reach the southern limit of their ranges in this area. Two other birds that nest here at close to the southern limit of their ranges are the broad-winged hawk (*Buteo platypterus*) and the Mississippi kite (*Ictinia mississippiensis*). White-tailed deer (*Odocoileus virginianus*), gray squirrels (*Sciurus carolinensis*), flying squirrels (*Glaucomys volans*), wild turkeys (*Meleagris gallopavo*), barred owls (*Strix varia*), red-shouldered hawks (*Buteo lineatus*), red-bellied woodpeckers (*Melanerpes carolinus*), pileated woodpeckers (*Dryocopus pileatus*), Florida box turtles (*Terrapene carolina bauri*), yellow rat snakes (*Elaphe obsoleta quadrivittata*), coral snakes (*Micrurus fulvius*), broad-headed skinks (*Eumeces laticeps*) and slimy salamanders (*Plethodon glutinosus*) are common here in the hammock forest.

RARE, THREATENED, AND ENDANGERED SPECIES: The Game Commission habitat distribution maps (Arnold, 1995) are not detailed enough to see for sure if the small ponds here are indicated as habitat for wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), and little blue heron (*Egretta cearulea*), but it appears that they are. Sightings by the investigators over the years include snowy egrets, little blue herons, and alligators on Fox Pond, and eastern indigo snakes (*Drymarchon corais couperi*) on several occasions in the nearby hammock forest.

EXOTICS: None found.

RESTORATION AND MANAGEMENT POTENTIAL: This is a nearly pristine area that needs protection due to its outstanding natural and cultural resources. It could be easily managed as part of the adjacent preserve. There are no fire adapted communities here that require burning.

RECOMMENDED CONSERVATION STRATEGIES: The main threat here is real estate development, which is occurring rapidly in this area. This site is strongly recommended for purchase by the State to be added to San Felasco State Preserve. Another option would be purchase of development rights, but this would yield less protection, and would likely cost almost as much, because the property values here are determined by the value of the land for development. Low density planning and zoning categories, with a large conservation area at the north end of the property along Blues Creek and up to and around the north end of Fox Pond might protect some of the habitat values and the connection between San Felasco Hammock Preserve and the wetlands to the east in the Millhopper Flatwoods area.

COMPREHENSIVE PLAN CONSIDERATIONS: The ponds and Blues Creek have some open surface water. The ponds are also isolated wetlands. There is a small area of floodplain beside the creek and beside the ponds.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987, 1972.

SITE EVALUATION SCORING

Vegetation:

Species Diversity 2

Exotics 4

Endangered Species Habitat 3

Wildlife Habitat 4

Hydrology:

Floridan Aquifer 4

Surficial Aquifer Resource Protection 3

Vulnerability of Aquifer 4

Landscape Ecology:

Community Diversity 1

Ecological Quality 5

Community Rarity 2

Functional Connectedness 4

Management Potential 5

Note: See Table 2-1 for parameter descriptions.

FRED BEAR HAMMOCK

PRIORITY: 39 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of fertile soil, over half of which was cleared for agriculture long ago and is now a mix of loblolly pine (*Pinus taeda*) and young hardwoods undergoing a process of succession toward the kind of hammock forest that was there originally. A substantial area has a fine example of calcareous mesic hammock, and there are small areas of ponds and wetlands.

USGS QUAD: Arredondo

SIZE: 400 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	150	good (Mesic Hammock)
Calcareous Mesic Hammock *	50	good
Sinkholes	8	fair to good
Bog	6	good
Basin Swamp	11	fair
Farm Pond *	4	
Sinkhole pond	2	good
Old Field Succession Pine *	163	
Improved Pasture *	6	

* Categories not used by FNAI

CONNECTIONS: There is a tenuous connection south across the Williston road toward Paynes Prairie through some pasture land that is being developed for housing. Since this crosses a busy highway (SR 121) and is being pinched off by development, it probably should not be counted as a connection.

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular, but mostly follow existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is in an area where the Hawthorn formation is at its western extremity, is thin and porous, and is near the surface. This provides for the good soil that is rich in calcium and phosphorus, the abundant sinkhole activity, and the lack of stream development. There are areas of exposed limerock, including one that is a uvala (elongated,

multiple sinkhole formation) that has no evidence water flowing into it, at least during normal weather.

WILDLIFE HABITAT: There is abundant browse, good mast production, some cover, and a few cavities. The diversity of habitats is fairly good. The hardwood forest supports gray squirrels (*Sciurus carolinensis*), flying squirrels (*Glaucomys volans*), parula warblers (*Parula americana*), summer tanagers (*Piranga rubra*), pileated woodpeckers (*Dryocopus pileatus*), red-eyed vireos (*Vireo olivaceus*), Carolina wrens (*Thryothorus ludovicianus*), and blue-gray gnatcatchers (*Poliophtila caerulea*), and is especially important feeding habitat for migrating song birds such as various kinds of warblers and thrushes. The ponds and wetlands provide some habitat for wading birds and frogs and are especially important as breeding sites for amphibians (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The ponds and swamps provide some habitat for white ibis (*Eudocimus albus*), little blue herons (*Egretta caerulea*), and perhaps snowy egrets (*Egretta thula*), tricolored herons (*Egretta tricolor*) and alligators (*Alligator mississippiensis*) according to the Florida Game and Fresh Water Fish Commission habitat distribution maps (Arnold, 1995).

EXOTICS: Mimosa (*Albizia julibrissin*) is common in some of the old field succession areas, but otherwise, there are only a few spots with a few individual invasive exotic plants. Other exotics observed are: camphor tree (*Cinnamomum camphora*), chinaberry (*Melia azedarach*), Chinese privet (*Ligustrum lucidum*), and chamber bitter (*Phyllanthus urinaria*).

RESTORATION AND MANAGEMENT POTENTIAL: This area could be restored to a fine example of calcareous mesic hammock with good wetlands providing habitat for a diversity of species. One difficulty would be preventing its eventual complete isolation by SR 121 and the development going on between SR 121 and Paynes Prairie. A second difficulty would be the ever increasing problems provided by invading exotic species.

RECOMMENDED CONSERVATION STRATEGIES: The main threat here is development of the land, which is zoned industrial. The strategy deemed most likely to work is for the County Planning Department to work with the landowner or developers to protect small sites of high quality, perhaps by concentrating development on the majority of the land and setting aside as conservation areas the small gems, such as the uvala area and the small but magnificent blackgum ponds.

COMPREHENSIVE PLAN CONSIDERATIONS: There are open water ponds, isolated wetlands, and sinkholes on the property. One special feature in the middle of the property is a uvala, which is a ravine-like feature with exposed limerock that is caused by repeated collapse of the surface into an underlying cave system.

SITE VISITS: Bob Simons 8/15/96, 1987

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	2
Endangered Species Habitat	2
Wildlife Habitat	2

Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	1
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	1
Ecological Quality	2.5
Community Rarity	3
Functional Connectedness	1

Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

GUM ROOT SWAMP

PRIORITY: 8 (high) (from unweighted sub-parameter score)

KEY FEATURES: This site is at the north end of Newnans Lake and includes about two miles of lake shore swamp on the lake. It also includes the majority of Gum Root Swamp (the south part of which is in public ownership), and some areas of pine flatwoods forest and sandhill.

USGS QUAD: Gainesville East, Orange Heights

SIZE: 4,246 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	339	fair
Upland Mixed Forest	16	good

Wet Flatwoods	572	fair
Mesic Flatwoods	1797	fair
Hydric Hammock	23	good
Bog	5	good
Baygall	187	good
Bottomland Forest	34	good
Floodplain Swamp	93	good
Depression Marsh	21	good
Basin Swamp	685	good
Lake Edge Swamp *	400	good
Dome Swamp	59	good
Farm Pond *	8	
Blackwater Stream	5	good

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Austin Cary Flatwoods	good
East Side Newnans Lake	fair
East Side Greenway	fair
Lochloosa Creek Headwaters Flatwoods	fair
Gum Root Swamp Cons. Area and Gum Root Park	excellent

SITE BOUNDARY CONDITIONS: The boundaries are regular and follow existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the Hawthorn Formation which impedes percolation of water into the Floridan Aquifer and supports the perched water table that creates Newnans Lake and Gum Root Swamp. All surface flow is into the lake and then from the lake down Prairie Creek into both Paynes Prairie where it goes down Alachua Sink into the Floridan Aquifer and into Orange Lake where a portion of the water goes into the Floridan Aquifer and some goes down Orange Creek into the Ocklawaha River and St. Johns River basins.

WILDLIFE HABITAT: A portion of the upland habitat has been recently logged and is being bedded for replanting to pine. The sandhill habitat is not in good condition, but does have some gopher burrows. The flatwoods varies from slightly shrubby to mesic to wet and is mostly in fair condition. There is good diversity, fairly low mast production, fair browse production, poor upland ground cover, good wetland ground cover, some tree cavities, and a few burrows. There is some unusual habitat in the delta area of Hatchet Creek as it fans out at the edge of the lake shore swamp. There is a shrub swamp dominated by titi (*Cyrilla recemiflora*) and alder (*Alnus*

serrulata), which is an unusual combination. The lake edge is great nesting habitat for ospreys (*Pandion haliaetus*), the best habitat for brown water snake (*Nerodia taxispilota*) in the county, and good habitat for some of the more common wading birds such as great blue heron (*Ardea herodias*) and great egret (*Casmerodius albus*). The isolated wetlands provide feeding habitat for wading birds and valuable breeding sites for amphibians (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: There is one active bald eagle (*Haliaeetus leucocephalus*) nest on the site in the lake shore swamp below the Hatchet Creek delta and several elsewhere around the lake (Nesbitt, 1996). The Florida Game and Fresh Water Fish Commission habitat distribution maps show a lot of habitat for alligator (*Alligator mississippiensis*), wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), and bald eagle, and a small amount of habitat for Florida gopher frog (*Rana capito aesopus*) on the sandhill area (Arnold, 1995). The Gum Root Swamp and the lake shore swamp are among of the highest rated areas in the county on the priority wetlands for listed species map for Alachua County (Florida Game and Fresh Water Fish Commission, 1994). There is quite a bit of sandhill habitat for gopher tortoises (*Gopherus polyphemus*), which occur here, and there may also be Florida mice (*Podomys floridanus*) and eastern indigo snakes (*Drymarchon corais couperi*) here.

EXOTICS: Invasive exotic plants found in small numbers were Chinese tallow (*Sapium sebiferum*), chinaberry (*Melia azedarach*), mimosa (*Albizia julibrissin*), and alligator weed (*Alternanthera philoxeroides*). The mimosa and Chinese tallow pose some threat; the other two do not.

RESTORATION AND MANAGEMENT POTENTIAL: The sandhill and pine flatwoods habitats require prescribed burning to remain good habitat for the plants and animals that are adapted to these habitats. This poses somewhat more of a problem here than in some places due to the close proximity of the airport. A sizable area around the airport must be kept smoke free. However, the best winds for burning are from the west, northwest, and north, all of which put the smoke away from the airport, so this is may or may not be an insurmountable problem. The wetland areas are in good condition and are easy to manage, although continued vigilance and periodic removal of invasive exotics will be necessary if the habitats are to remain in good condition.

RECOMMENDED CONSERVATION STRATEGIES: The greatest long term threat is real estate development as Gainesville slowly expands in this direction. Another threat is the deterioration of the sandhill and pine flatwoods habitats over time as they continue to go without sufficient prescribed burning.

This area is worthy of purchase. It could be done in a cooperative way with several public agencies involved and then be added to the existing public lands. In the mean time, or if purchase is not possible, conservation easements could be pursued to protect the natural resources. Cooperative agreements for doing prescribed burning between the landowners and a

public agency like the Florida Division of Forestry, which has the equipment and expertise to do prescribed burning, might be one way to begin restoration of the ground cover and habitat values in the sandhill and flatwoods areas. It is important that dredge and fill regulations and Forestry Best Management Practices be followed.

COMPREHENSIVE PLAN CONSIDERATIONS: Newnans Lake is on one edge of this site, and the shore here is low and swampy. The lake edge swamp and Gum Root Swamp are two large wetland areas. There are also a number of small, isolated wetlands. The downstream end and delta area of Hogtown Creek, as well as some smaller creeks and their floodplains are also on the site.

SITE VISITS: David Clayton 8/19/96; Bob Simons 9/7/96, 1987

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2.5
Exotics	3
Endangered Species Habitat	4
Wildlife Habitat	4.5

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	2
Ecological Quality	3
Community Rarity	2
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

HAGUE FLATWOODS

PRIORITY: 23 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of pine flatwoods forest used for commercial forestry that has mostly been bedded and planted with slash pine (*Pinus elliottii*). There are also large areas of basin swamp and many cypress domes. The area is part of the headwaters of both Rocky Creek and Turkey Creek. The Deerhaven Power Plant is within this site.

USGS QUAD: Alachua, Montechoa, Gainesville West, Gainesville East

SIZE: 6,344 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	35	good to fair
Mesic Flatwoods	4413	fair
Hydric Hammock	18	fair
Bog	9	good
Baygall	239	good to fair
Bottomland Forest	91	good
Depression Marsh	31	good
Basin Swamp	542	good
Shrub Swamp	14	fair
Dome Swamp	370	good to fair
Farm Pond *	4	
Sinkhole Lake	1	good
Blackwater Stream		good
Rough Pasture *	14	
Improved Pasture *	101	
Row Crops *	30	
High Impact Development *	432	

*Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Rocky Creek	good to fair
Millhopper Flatwoods	good
Buck Bay Flatwoods	good
San Felasco Hammock	poor (not mapped)
South LaCrosse Forest	close (not connected)

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular, but mostly follow existing property boundaries, roads, section lines, and other survey lines. Deerhaven Power Plant is included in the middle of this site.

GEOLOGIC/HYDROLOGIC FEATURES: This is a fairly flat area at high elevation for this county (between 170 and 190 feet above mean sea level). It is underlain by the Hawthorn Formation, which is moderately thick here and imperious to water percolation. There are many shallow depressions that serve as water retention and detention areas. This is part of the headwaters areas of two creek systems. Rocky Creek starts here and flows north into the Santa Fe River, and Turkey Creek starts here and flows into San Felasco Hammock State Preserve, where it goes underground into the Floridan Aquifer at a swallow hole and cave system on the north side of Sanchez Prairie.

WILDLIFE HABITAT: The pine flatwoods areas here are mostly slash pine plantations on sites that have been bedded, and have not been burned often, resulting in less than ideal habitat. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The wetlands are mostly basin swamp and cypress domes and some creeks. There are some drainage ditches indicating some drainage of the wetlands in the past. Some noticeable wildlife species include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). Overall, the diversity is fairly good, there is a lot of wildlife cover, browse is fair to good, mast production is low, the upland ground cover is fair, there are some tree cavities in the wetlands, and there are a few burrows. The many isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The Florida Game and Fresh Water Fish Commission habitat distribution maps indicate some habitat here for wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), Florida gopher frog (*Rana capito aesopus*), and alligator (*Alligator mississippiensis*) (Arnold, 1995). The gopher frog use would indicate that some gopher tortoises (*Gopherus polyphemus*) must occur here as well. The only listed plants found here are the commercially exploited royal fern (*Osmunda regalis*) and cinnamon fern (*Osmunda cinnamomea*). However, it is likely that some of the listed terrestrial orchid species and two of the listed butterworts (*Pinguicula* spp.) are here as well, or at least could be with more prescribed burning.

EXOTICS: Chinese tallow trees (*Sapium sebiferum*) were found in a few spots.

RESTORATION AND MANAGEMENT POTENTIAL: Prescribed burning would be the key to greatly improving the wildlife habitat and plant community values here. The location between two highways would hinder the ease of prescribed burning to some extent, but the area is large enough to accommodate prescribed burning.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods, and incremental loss of habitat to real estate development.

This area is sufficiently large and valuable for timber production, that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would prevent clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning, such as the Florida Division of Forestry, to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of connection to other areas are particularly important to protect. Enforcing dredge and fill regulations is important here for the protection of the resource values of the many isolated and poorly connected wetlands, and adherence to Forestry Best Management Practices is also important.

COMPREHENSIVE PLAN CONSIDERATIONS: There is no permanent open water, but there are small creeks with floodplains, numerous small, isolated wetlands, and some larger basin swamps.

SITE VISITS: David Clayton, 1996.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	4

Management Potential 4

Note: See Table 2-1 for parameter descriptions.

HASAN FLATWOODS

PRIORITY: 44 (low) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of pine flatwoods forest and wetlands forest in the northwestern part of Alachua County. The flatwoods areas have been cleared, bedded, and planted with slash pine (*Pinus elliottii*) to such an extent that the ground cover is not in good condition. The wetlands are in relatively good condition.

USGS QUAD: Alachua

SIZE: 2,454 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Mesic Flatwoods	1483	fair to poor
Bog	19	good
Baygall	67	good
Seepage Slope Forest *	24	good
Bottomland forest	122	good
Depression Marsh	69	good
Basin Swamp	104	good
Dome Swamp	47	good
Blackwater Stream		good
Old Field Pine Plantation *	103	
Rough Pasture *	83	
Improved Pasture *	27	
Row Crops *	155	
Low Impact Development *	8	

* Categories not used by FNAI

CONNECTIONS: The only connection is a weak one to Rocky Creek.

SITE BOUNDARY CONDITIONS: The boundaries are irregular, but they generally follow existing property boundaries. The area is bisected in two places, once by a highway and once by a railroad.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the relatively impermeable Hawthorn Formation which prevents significant percolation of water into the Floridan Aquifer and allows for the formation of these wetlands and streams. The stream flow from the eastern half is into Rocky Creek which flows into the Santa Fe River. The flow from the western half is partly north by way of a creek that flows into the Santa Fe River and partly to the southwest in a creek that is a tributary to Mill Creek which flows into a sinkhole near Alachua where it enters the Floridan Aquifer.

WILDLIFE HABITAT: There is some good wetland habitat. The uplands, which were all pine flatwoods, have mostly been strongly altered. They are now all bedded slash pine plantation or newly clear-cut slash pine plantations. The diversity of habitats is fair, the mast and browse availability fair to poor, the numbers of tree cavities and burrows is low, the ground cover is poor on the uplands and good in the wetlands, and there is abundant cover for wildlife in the wetlands. There is no evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), common crow (*Corvus brachyrhynchos*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), and pine woods tree frog (*Hyla femoralis*). The wetlands are mostly basin swamp, cypress dome, or blackwater creek. Some noticeable wetland wildlife species include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). The isolated wetlands are important amphibian breeding sites (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: No listed animal species were found and none are mapped as being here by the Florida Game and Fresh Water Fish Commission (Arnold, 1995). There is the possibility of an occasional visit by the listed wading birds, and there may be a small alligator (*Alligator mississippiensis*) population. The only listed plants found are the commercially exploited cinnamon (*Osmunda cinnamomea*) and royal fern (*Osmunda regalis*).

EXOTICS: There is a big infestation of cogon grass (*Imperata cylindrica*) in one of the pine plantations. This is a aggressive invasive exotic that is hard to control. There are also spots of alligator weed (*Alternanthera philoxeroides*) and patches of bahia grass (*Paspalum notatum*), neither of which pose a threat, and there are a few mimosa trees (*Albizia julibrissin*) in several places. Finally, there are a few hedge privet bushes (*Ligustrum sinensis*).

RESTORATION AND MANAGEMENT POTENTIAL: This site would need significant restoration work to be a really good quality wildlife habitat area, and even more effort to restore the upland vegetation communities.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine

flatwoods, and incremental loss of habitat to real estate development.

This area has a fairly high value for timber production and a relatively low value for wildlife and watershed conservation. Therefore, the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would prevent clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. However, this is a much lower ranking site than some of the other sites where this strategy is recommended, and therefore this site should be a lower priority. Another strategy would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. Again, this area should be a lower priority for this than many of the other areas. Enforcing dredge and fill regulations is important here for the protection of the resource values of the isolated and poorly connected wetlands, and adherence to Forestry Best Management Practices is also important.

COMPREHENSIVE PLAN CONSIDERATIONS: There is no permanent surface water, but there are both isolated and connected forested wetlands and small streams with some associated floodplain.

SITE VISITS: David Clayton, 8/7/96; Bob Simons, 9/11/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	2
Endangered Species Habitat	2
Wildlife Habitat	2

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	2
<u>Management Potential</u>	<u>3</u>

Note: See Table 2-1 for parameter descriptions.

HATCHET CREEK CONNECTOR

PRIORITY: 31 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is a narrow, branched, linear connector along the middle section of Hatchet Creek and some of its tributaries. It provides a critical link between some of Alachua County's largest wildlife habitat areas. The forest is a rich, tall, mature bottomland hardwood forest along the creek bottom, is a shrub dominated seepage slope on some of the wet slopes, and is a pioneer hardwood forest on the dry slopes.

USGS QUAD: Gainesville East, Orange Heights, Waldo

SIZE: 472 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Former Sandhill *	8	poor
Mesic Flatwoods	26	fair
Baygall	2	good
Seepage Slope	52	fair
Seepage Slope Forest *	101	good
Bottomland Forest	100	fair
Floodplain Swamp	136	good
Basin Swamp	14	good
Rough Pasture *	28	
Row Crops *	2	
Low Impact Development *	3	

* Categories not used by FNAI

CONNECTIONS: This site connects three of the largest sites in the County. All three contain the same mix of habitats and species. Many of the species benefit, long term, by having access to additional habitat and genetic interchange with other populations of their species. This is a wetlands connector with upland sides and continuous dense forest and dense undergrowth, making it a good corridor for wildlife. Animals especially benefited include river otter (*Lutra canadensis*), bobcat (*Lynx rufus*), and alligator (*Alligator mississippiensis*).

Sites connected:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Buck Bay Flatwoods	good

Austin Cary Flatwoods good
 Northeast Flatwoods fair to poor

SITE BOUNDARY CONDITIONS: The boundaries are irregular and generally don't follow existing property boundaries, roads, section lines, or other survey lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is a creek bottom running through an area of flat topography that has a thick layer of clay underneath serving as an effective barrier to downward movement of water. There is little aquifer recharge on site. The creek flows into Newnans Lake. From there, water flow is into Prairie Creek, then into Paynes Prairie and Alachua Sink and into Orange Lake. At these last locations, water does flow down into the Floridan Aquifer.

WILDLIFE HABITAT: There is good hardwood canopy, some cavities, good cover, abundant browse, and abundant water. The habitat diversity is not great, but adjacent lands supply additional diversity. The stream provides both habitat and travel corridor for river otters, raccoons (*Procyon lotor*), alligators, and various species of aquatic turtles, semi-aquatic snakes, amphibians, and fish. Some of the most common inhabitants of the hardwood forest are white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), pileated woodpecker (*Dryocopus pileatus*), red-eyed vireo (*Vireo olivaceus*), blue-gray gnatcatcher (*Poliophtila caerulea*), parula warbler (*Parula americana*), cardinal (*Cardinalis cardinalis*), Florida box turtle (*Terrapene carolina bauri*), yellow rat snake (*Elaphe obsoleta quadrivittata*), ground skink (*Scincella lateralis*), and green anole (*Anolis carolinensis*).

RARE, THREATENED, AND ENDANGERED SPECIES: This is an important corridor for alligators and is potentially important for eastern indigo snakes (*Drymarchon corais couperi*) and canebrake rattlesnakes (*Crotalus horridus*). Listed plants common here include southern lady fern (*Athyrium filix-femina*) and the commercially exploited cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and pink wild azalea (*Rhododendron canescens*). An uncommon plant that is abundant here is hazel alder (*Alnus serrulata*).

EXOTICS: On the edges, there are a few mimosa trees (*Albizia julibrissin*) and a few plants of Spanish gold (*Sesbania punicea*) and Brazilian verbena (*Verbena brasiliensis*). There is some alligator weed (*Alternanthera philoxeroides*) in the open water by the roads. None of these plants are posing any threat to the wildlife habitat values.

RESTORATION AND MANAGEMENT POTENTIAL: The site can restore and maintain itself if protected from negative impacts and exotic plant invasions. The main difficulty in achieving this is the long site boundary. The entire site is within sight of one boundary or another. This makes the entire area vulnerable to outside impacts. Exotic plant invasions and impacts from

domestic cats and dogs are two of the more serious problems for corridor projects like this one.

RECOMMENDED CONSERVATION STRATEGIES: The first problem is the major impact that occurs at major road crossings. Where four lane highways cross streams, the complete clearing of the forest is wide, there is no upland crossing at all for wildlife, and the stream crossing in the culvert is often made nearly impossible for aquatic creatures by steep sloping concrete elevation changes in the middle of the culvert. Two lane road crossings have similar, but much less severe, problems. The Florida Department of Transportation could easily mitigate these impacts by alternative road construction methods. The ideal method would be bridges instead of culverts and much less clearing away from the road at the bridge. A less expensive alternative would be to lessen the width of the cleared right of way at stream crossings and install culverts that are much wider, are flat on the bottom all the way across, and that have a dry path all the way through as well as the flowing water of the stream.

A second threat is the potential for real estate development of parts to the site, making the corridor narrower, or even breaking it. The best protection against this would be outright purchase, but this might be difficult, and would probably not be applied to the whole site even if it were pursued. The second best option is the purchase of conservation easements. A third option would be to strengthen County or water management district or State regulation of streams and stream floodplains and the adjacent sloping sides sufficiently to protect a zone along streams that is of a similar size as the one delineated in this site. A fourth option is to strongly enforce existing regulations. This last option would not protect the size corridor needed for important linkages.

The other main threats are real estate development, exotic plant invasions, and disturbances from people and pets along the edge of the corridor just outside the site boundaries. Current regulations do not prohibit such activities as mowing of vegetation, planting of invasive exotic plants, or keeping cats and dogs near streams, all of which can do damage to a wildlife corridor. One strategy to address these problems is to make the corridor even wider. Another is to fence and periodically patrol the boundary to try to prevent these impacts from invading into the corridor.

COMPREHENSIVE PLAN CONSIDERATIONS: Hatchet Creek, its tributaries, and the associated floodplain occupy most of this site. There are also a few, small, isolated wetlands.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3

Endangered Species Habitat	2
Wildlife Habitat	2
Hydrology:	
Floridan Aquifer	1
Surficial Aquifer Resource Protection	2.5
Vulnerability of Aquifer	2.5
Landscape Ecology:	
Community Diversity	2
Ecological Quality	2
Community Rarity	3
Functional Connectedness	4
<u>Management Potential</u>	<u>3</u>

Note: See Table 2-1 for parameter descriptions.

HICKORY SINK

PRIORITY: 36 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of well drained, moderately fertile soil that once supported an upland pine forest. Most of the area is now slash pine (*Pinus elliottii*) plantation and some is pasture. The ground cover vegetation of the high pine community is still somewhat intact on most of the area. There are several sink holes and caves, one of which supported a major bat colony (Humphrey, 1992, 1996), and two of which support specialized aquatic cave invertebrates (Franz et al., 1994).

USGS QUAD: Gainesville West, Arredondo

SIZE: 3,006 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	81	poor (pioneer hammock)
Upland Pine Forest	2560	poor
Sinkhole	56	good to fair
Sinkhole Pond	1	good
Cave (dry)		good
Old Field Pine Plantation *	205	

Improved Pasture * 103

* Categories not used by FNAI

CONNECTIONS: none

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and generally conform to property boundaries, roads, section lines, or other surveyed lines. The area is bisected by a paved road that is destined to become a busy highway.

GEOLOGIC/HYDROLOGIC FEATURES: Soils this area are shallow sands over porous limerock. All rainfall percolates directly to the Floridan Aquifer. There are several sink holes, a small sinkhole pond, and several dry caves, some of which connect to aquatic caves within the Floridan Aquifer.

WILDLIFE HABITAT: There is still a reasonably good ground cover of blackberry plants (*Rubus* spp.), chinquapin (*Castanea pumila*), poison oak (*Toxicodendron toxicarium*), and other native plants that supports animals such as cottontail rabbits (*Sylvilagus floridanus*), gopher tortoises (*Gopherus polyphemus*), pocket gophers (*Geomys pinetis*), and cotton rats (*Sigmodon hispidus*). These in turn support gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), diamondback rattlesnakes (*Crotalus adamanteus*), and other predators. There is no longer much habitat for the pine canopy species. There are few cavities and little mast production. One of the caves on the property had one of the biggest bat colonies in Alachua County. An estimated 30,000 southeastern brown bats, *Myotis austroriparius*, occupied the cave in the early 1950's (Rice, 1957). It is currently not an active colony, probably due to declining water levels in the cave, making the environment in the cave less humid (Hovis, 1996).

RARE, THREATENED, AND ENDANGERED SPECIES: Gopher tortoises, pine snakes (*Pituophis melanoleucus mugitus*), eastern indigo snakes (*Drymarchon corais couperi*), and southeastern American kestrels (*Falco sparverius paulus*) still inhabit the area, but are all declining, and they will decline further as the young pines grow and shade out more of the ground cover that supports most of what is left of the wildlife here. One interesting plant that is here is poppy mallow (*Callirhoe papaver*), which is listed by the state as endangered.

EXOTICS: There is mimosa (*Albizia julibrissin*), chinaberry (*Melia azedarach*), centipede grass (*Eremochloa ophiuroides*), and bahia grass (*Paspalum notatum*) scattered throughout much of the property. Only the mimosa is a threat to the native habitats.

RESTORATION AND MANAGEMENT POTENTIAL: This area is interesting mainly for its potential for restoration to the former upland pine forest habitat. This still could be done, although the wire grass (*Aristida stricta*) that was the dominant ground cover is gone, as are the longleaf pine (*Pinus palustris*), Southern red oak (*Quercus falcata*), mockernut hickory (*Carya tomentosa*), and many other species. Another difficulty would be the need for frequent

prescribed burning. The metropolitan area of Gainesville has now occurs at the eastern edge of this site, and Parker Road runs through the middle of it. Also, it is not big enough to ever support a viable population of red-cockaded woodpeckers (*Picoides borealis*), even if longleaf pines 100 years old were eventually established there. It could support many of the other species characteristic of this habitat, but the trend is obviously in the other direction.

RECOMMENDED CONSERVATION STRATEGIES: The former bat cave, which supports aquatic cave invertebrates, and the other caves on the property that support cave invertebrates should be protected. Perhaps they could be purchased, along with a few acres of land, and the ownership given, with deed restrictions, to some organization willing to help protect them. The current owners are doing a good job of protecting the caves, so that this is not an urgent need (Doonan, 1996). The property as a whole is not recommended for public conservation action. The reasons are its lack of connection to any other conservation area, the poor location for the frequent prescribed burning that its management would require, and its size, which, combined with its isolation, is not large enough to support the full spectrum of upland pine habitat species.

COMPREHENSIVE PLAN CONSIDERATIONS: There are no wetlands, floodplains or streams and only one small open water pond here. The sinkhole and caves here are well known and documented. At least two of them open into aquatic caves within the Floridan Aquifer (Doonan, 1996).

SITE VISITS: On the edge only: David Clayton, 1996; Bob Simons, 1996, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	1
Exotics	3

Endangered Species Habitat	3
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Wildlife Habitat	3
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Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	1
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	1
Ecological Quality	1
Community Rarity	4
Functional Connectedness	1

Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

HOGTOWN PRAIRIE - SUGARFOOT

PRIORITY: 3 (high) (from unweighted sub-parameter score)

KEY FEATURES: This site is on the west side of Gainesville in and adjacent to the downstream end of Hogtown Creek. It contains a part of Sugarfoot Hammock, which is one of the most outstanding calcareous mesic hammocks in the county (what is left of it). It also contains the lower Hogtown Creek floodplain which has magnificent mature forest hardwood forests of different kinds, some prairie, a lake, and perhaps the finest example of a slough in north Florida. Finally, it contains the sink where Hogtown Creek goes underground down into the Floridan Aquifer. There are several houses on the site.

USGS QUAD: Gainesville West, Arredondo

SIZE: 1,782 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Calc. Mesic Hammock *	337	excellent
Sinkhole	1	good
Prairie Hammock	249	excellent
Wet Prairie	274	good
Floodplain Forest	70	excellent
Floodplain Swamp	223	excellent
Slough	84	excellent
Basin Marsh	7	good
Basin Swamp	78	excellent
Shrub Swamp	60	excellent
Prairie Lake	115	good
Sinkhole Lake	5	good
Old Field Pine Plantation *	40	
Old Field Succession Pine *	38	
Rough Pasture *	55	
Improved Pasture *	16	
Low impact Development *	94	
<u>High Impact Development *</u>	38	

* Categories not used by FNAI

CONNECTIONS: This is not connected to any other site, but is weakly connected to the entire Hogtown Creek system including the Hogtown Creek Greenway.

SITE BOUNDARY CONDITIONS: The boundaries are generally regular in shape and generally conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area contains the sink where Hogtown Creek goes into the Floridan Aquifer. The Hogtown Creek watershed is on an area underlain by the Hawthorn Formation. At Hogtown Prairie, this formation is near its southwestern most edge where it is thin and easily breached by sinkhole activity.

WILDLIFE HABITAT: The habitat for wildlife here is good. There is a lot of diversity, plenty of water, good production of both mast and browse, a lot of tree cavities, a fair amount of cover, and a few burrows. On the negative side the area is getting crowded by urban development and the creek has been badly polluted by urban stormwater and by toxic chemicals from the Coppers/Cabot Carbon Superfund Site, which greatly reduced aquatic species in the main channel of the creek some years ago (Simons, personal observation). The hardwood forests here are excellent habitat for summer resident songbirds, especially those needing cavities, and are also excellent habitat for migrating songbirds. Species observed here include gray squirrel (*Sciurus carolinensis*), flying squirrel (*Glaucomys volans*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), wild turkey (*Meleagris gallopavo*), Turkey vulture (nesting) (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), pileated woodpecker (*Dryocopus pileatus*), Carolina wren (*Thryothorus ludovicianus*), red-eyed vireo (*Vireo olivaceus*), and parula warbler (*Parula americana*).

RARE, THREATENED, AND ENDANGERED SPECIES: The area of Sugarfoot Hammock on this site is the type locality of the sugarfoot fly (*Nemopalpus nearcticus*), an extremely rare, or possibly even extinct, insect (Franz, 1982). It is known only from Sugarfoot Hammock and Gulf Hammock, and the habitat in Gulf Hammock has mostly been converted to pine plantations. Half of Sugarfoot Hammock is now apartment complexes, and most of the rest is doomed to follow. Listed animals occurring on the site include the bald eagle (*Haliaeetus leucocephalus*), which has one active nest on the area and the sandhill crane (*Grus canadensis*), which roosts here in winter (Nesbitt, 1996). The gopher tortoise (*Gopherus polyphemus*) occurs here, but is not common. The Florida Game and Fresh Water Fish Commission habitat distribution maps show this as habitat for the following species: wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolor heron (*Egretta tricolor*), and white ibis (*Eudocimus albus*) (Arnold, 1995).

Rare plants here include the best population of Godfrey's privet (*Forestiera godfreyi*) in the

County (Simons and Hall, personal opinions).

EXOTICS: The most serious exotic plant invasion on this area is by Chinese privet (*Ligustrum lucidum*). It is abundant throughout the Hogtown Creek floodplain and is threatening to damage most of the hammock and floodplain forests here. Some other exotics here in lesser numbers are hedge privet (*Ligustrum sinensis*), Chinese tallow (*Sapium sebiferum*), mimosa (*Albizia julibrissin*), chinaberry (*Melia azedarach*), and camphor tree (*Cinnomomum camphor*). Because the Kanapaha Botanical Garden is adjacent to or on the south boundary of the site, the list of potentially invasive exotic plants could be expanded enormously. However, the many cultivated exotic plants are hopefully under proper restraint there.

RESTORATION AND MANAGEMENT POTENTIAL: This area is in great condition overall. The urban runoff component of Hogtown Creek is one major impact on this area. This would be difficult to correct. More retention and detention areas at the top ends of the many branches of the creek system would be the most effective way to moderate this. There are some areas of old field within the site that might be restored to a longleaf pine (*Pinus palustris*) forest or left go to become hammock. It would be more beneficial to wildlife to restore to longleaf upland habitat, but this would be difficult here, due to how completely the former habitat has been destroyed and how difficult it would be to do prescribed burning safely within the urban area and next to I-75. On balance, it would probably be quite foolish to attempt to do any prescribed burning here.

RECOMMENDED CONSERVATION STRATEGIES: The main threat here on the private lands is real estate development. This area is already largely owned by a combination of the City of Gainesville and Alachua County. Perhaps it should not be on this inventory. However, there are significant parts that are either in private ownership or in public ownership that is not primarily conservation in orientation. The best way to protect the areas in private ownership should be to purchase them whenever it is possible and reasonable. Those not reasonable to purchase, such as some homesites or lands in various public ownerships, should be protected to whatever degree is possible with cooperative agreements or conservation easements with the landowners.

COMPREHENSIVE PLAN CONSIDERATIONS: Most of this area is within the 100 year floodplain of Hogtown Creek. Most of this floodplain is wetland. There is a small amount of open surface water at Haile Sink (this varies greatly depending on water level). Haile Sink is a major point of entry of surface water into the Floridan Aquifer.

SITE VISITS: David Clayton 1996; Bob Simons, 1995, and on many prior dates.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3.5
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Exotics	3
Endangered Species Habitat	5
Wildlife Habitat	4
Hydrology:	
Floridan Aquifer	5
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	5
Landscape Ecology:	
Community Diversity	4
Ecological Quality	3.5
Community Rarity	2
Functional Connectedness	2
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

HORNSBY SPRINGS

PRIORITY: 2 (high) (from unweighted sub-parameter score)

KEY FEATURES: This site has a first magnitude, crystal clear, artesian spring and a clear spring run of nearly one mile in length, two segments of the Santa Fe River (one about 1/4 mile and the other about 1/2 mile in length), some magnificent, mature upland mixed forest (mesic hammock), floodplain forest, swamp forest, a unusual patch of scrub, and a number of sinkholes and sinkhole ponds, including at least two that are open to the waters of the Floridan aquifer (blue holes). This is one of the most spectacular natural areas in the County. However, it is not without some human impacts. The upland next to the spring is developed into a major camp ground with several large buildings and many smaller ones, the spring itself has been developed into a recreation area with docks and board walks, and there are areas of improved pasture on some of the uplands.

USGS QUAD: High Springs

SIZE: 535 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Scrub	13	good

Xeric Hammock	33	good
Upland Hardwood Forest	150	excellent (Mesic Hammock)
Sinkhole	6	good
Hydric Hammock	54	excellent
Floodplain Forest	24	excellent
Floodplain Swamp	30	good
River Floodplain Pond	1	good
Sinkhole Pond	1	good
1st Magnitude Spring	1	fair
Spring-run Stream	6	good
Spring-fed River	10	excellent
Aquatic Cave		good
Old Field Succession Forest *	53	
Improved Pasture *	75	
Low Impact Development *	76	

* Categories not used by FNAI

CONNECTIONS: This is strongly connected to the River Rise State Preserve.

SITE BOUNDARY CONDITIONS: The boundaries are fairly regular in shape and generally conform to property boundaries, roads, the County boundary along the river, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is an active geologic area with sinkholes, a major artesian spring, a major river, and a large cutoff river meander. It is an area where the river and the Floridan Aquifer are in contact with each other. The primary interaction is the discharge of water from the aquifer into the river, but there are also "suck holes" in this general stretch of the river, so water can flow in both directions.

WILDLIFE HABITAT: The quality and diversity of habitats here is high. There are several kinds of upland, wetland, and aquatic habitats, many tree cavities, good browse production, good mast production, abundant cover, mature forest, and some open pasture. Wide ranging species such as white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), bobcat (*Lynx rufus*), and alligator (*Alligator mississippiensis*) are all common. Barred owls (*Strix varia*) and red-shouldered hawks (*Buteo lineatus*) are abundant. The river is spectacular wildlife habitat, and it provides the best habitat in Alachua County for a whole set of riverine species. Some examples are beaver (*Castor canadensis*), river otter (*Lutra canadensis*), Suwannee bass (*Micropterus notius*), redbreasted sunfish (*Lepomis auritus*), Suwannee cooter (*Pseudemys concinna suwanniensis*), and loggerhead musk turtle (*Sternotherus minor minor*). The hammock forest provides excellent habitat for gray squirrels (*Sciurus carolinensis*), white-tailed deer, wild turkeys, red-eyed vireos (*Vireo olivaceus*), parula warblers (*Parula americana*), Carolina wrens (*Thryothorus ludovicianus*), pileated woodpeckers (*Dryocopus pileatus*), yellow rat snakes

(*Elaphe obsoleta quadrivittata*), Florida box turtle (*Terrapene carolina bauri*), ground skink (*Scincella lateralis*), broad-headed skink (*Eumeces laticeps*), and slimy salamander (*Plethodon glutinosus*). It is especially important feeding habitat for migrating song birds.

This property is at the southeastern edge of the range of several species of plants and animals, including overcup oak (*Quercus lyrata*), river birch (*Betula nigra*), black willow (*Salix nigra*), beaver, alligator snapping turtle (*Macrolemys temminckii*), Suwannee bass, and red-bellied water snake (*Nerodia erythrogastor*).

RARE, THREATENED, AND ENDANGERED SPECIES: Listed animal species occurring here include Suwannee bass, alligator, gopher tortoise (*Gopherus polyphemus*), Suwannee cooter, alligator snapping turtle, limpkin (*Aramus gurauna*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), and white ibis (*Eudocimus albus*). This is one of the few areas in the county mapped by the Florida Game and Fresh Water Fish Commission as limpkin habitat (Arnold, 1995). It is also mapped as wood stork (*Mycteria americana*) and Florida gopher frog (*Rana capito aesopus*) habitat (Arnold, 1995), and it shows up as a dot on the Florida Game and Fresh Water Fish Commission's strategic habitat map in their "Closing the Gaps" publication (Cox et al., 1994). Other species likely to occur here include eastern indigo snake (*Drymarchon corais couperi*), Florida pine snake (*Pituophis melanoleucus mugitus*), and southeastern American kestrel (*Falco sparverius paulus*). There is a slim possibility that a manatee (*Trichechus manatus*) might get this far up the Santa Fe River on rare occasions. (A pair was seen as far up as Rum Island this summer as reported by the Gainesville Sun on 8/24/96.) It might also be possible that Atlantic sturgeon (*Acipenser oxyrhynchus*) get this far up river on occasion (Steven Carr, 1994).

One rare plant that is here along the river edge is the native American wisteria (*Wisteria frutescens*). Some common listed plants occurring here are needle palm (*Rhapidophyllum hystrix*), greenfly orchid (*Epidendrum conopseum*), and wild pink azalea (*Rhododendron canescens*), all of which are listed as commercially exploited.

EXOTICS: There are a few camphor (*Cinnamomum camphora*) and mimosa (*Albizia julibrissin*) trees, and bahia grass (*Paspalum notatum*) is abundant in the bahia pasture area.

RESTORATION AND MANAGEMENT POTENTIAL: There is little need for restoration. The old field pine plantation could perhaps be restored to upland pine habitat, but this would be difficult since the ground cover is completely gone. It is currently succeeding to upland mixed forest, which will be a valuable natural community. The river habitats and the hardwood forests are in excellent condition. The amount of pasture is more beneficial than harmful, providing feeding areas for wildlife species such as turkeys, gopher tortoises, and kestrels. The placing of a few kestrel boxes in the pasture areas would greatly increase the probability of having southeastern American kestrels nest here, and the planting of a scattering of longleaf pine (*Pinus palustris*) and gradual restoration to an upland pine forest habitat type would be beneficial to

wildlife and could be easily accomplished.

RECOMMENDED CONSERVATION STRATEGIES: This site clearly warrants protection by purchase. However, the two landowners here are not interested in selling their lands, and are doing a fine job protecting them. If this situation changes at any time in the future, these lands should be considered for purchase by the state and added to the River Rise State Preserve. Meanwhile, perhaps a conservation easement or cooperative agreement could be reached with one or both landowners either by the Suwannee River Water Management District or the State as a way of ensuring the long term conservation of the resources. Increased regulatory protection may be needed in the future. Populations of the Suwannee cooter, American alligator, river otter, brown water snake, and red-bellied water snake have been reduced, in some cases dramatically, by a combination of harvesting and killing without harvesting (Simons, personal observation). Also, this section of river is vulnerable to damage by power boats and jet skis, which can cause serious bank erosion, channel erosion, disturbance of wildlife, and disruption of other forms of recreation, although this is not now a problem.

COMPREHENSIVE PLAN CONSIDERATIONS: Surface waters, wetlands, and river floodplain make up a significant part of this site, although most is upland. Hornsby Spring is one of only 27 first magnitude springs in Florida. The sinkholes that open into the aquifer contain cave invertebrates (Franz et al., 1994).

SITE VISITS: Bob Simons 8/18/96, and many previous visits.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	4
Exotics	3

Endangered Species Habitat 4.5

Wildlife Habitat 4

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	3
Ecological Quality	4
Community Rarity	4
Functional Connectedness	4

Management Potential 5

Note: See Table 2-1 for parameter descriptions.

KANAPAHA PRAIRIE

PRIORITY: 9 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This site includes the marsh and prairie of Kanapaha Prairie and some of the surrounding live oak (*Quercus virginiana*) forest and sandhill habitat. The live oak dominated prairie hammock is magnificent. However, all of these habitats have been altered considerably by recent human activity. There are houses in the oak forest, the sandhill, and some of the pasture to the extent that the entire prairie is ringed with low density housing within the site boundaries as well as outside. The prairie has some large scale earth moving alterations that seem to have lowered the water level in the prairie and the marsh, thus decreasing the wildlife habitat value of these habitats. Kanapaha Prairie has one of the largest nesting populations of Florida sandhill crane (*Grus canadensis pratensis*) in Alachua County.

USGS QUAD: Arredondo

SIZE: 3,084 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	197	fair
Xeric Hammock	15	fair
Upland Pine Forest	12	fair
Prairie Hammock	839	good
Wet Prairie	872	fair
Basin Marsh	252	good
Depression Marsh	4	good
Prairie Lake	57	good
Sinkhole Pond	7	fair
Old Field Pine Plantation *	102	
Rough Pasture *	124	
Improved Pasture *	474	
Row Crops *	20	
Low Impact Development *	110	

* Categories not used by FNAI

CONNECTIONS: It is connected fairly well to Levy Prairie.

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and generally follow existing property boundaries, roads, section lines, and other surveyed lines. However, this is a fairly awkward situation in that more than a dozen homesites are included in the site in order to make it viable in terms of its size, biology, and ecology.

GEOLOGIC/HYDROLOGIC FEATURES: This is a karst basin with an outflow to the sink in the NW corner of the basin, where the water flows into the Floridan Aquifer. This basin is itself the outflow area for Levy Lake, which is a much larger prairie. Due to the small capacity of the sink and the large drainage area when Levy Lake is discharging, Kanapaha Prairie floods deeply and for a long time. The last occurrence was in 1973, when all of the prairie habitat and almost all of the live oak forest was under several feet of water for several months (Simons, personal observation). (If this were to happen again, a number of houses would be deeply flooded.)

WILDLIFE HABITAT: Although damaged by development, the habitats here are still impressive. There is good diversity, abundant water, abundant mast production, good browse, a limited amount of cover, a good number of cavities, and some gopher burrows. The crowns, canopy, and mast production of the live oaks is great habitat for a number of species, including gray squirrel (*Sciurus carolinensis*), common grackle (*Quiscalus quiscula*), blue jay (*Cyanocitta cristata*), red-bellied woodpecker (*Melanerpes carolinus*), great crested flycatcher (*Myiarchus crinitus*), blue-gray gnatcatcher (*Polioptila caerulea*), Carolina chickadee (*Parus carolinensis*), tufted titmouse (*Parus bicolor*), and parula warbler (*Parula americana*), and is great for migrating song birds. The ecotone between the oak forest and the prairie and pasture areas is habitat for bluebirds (*Sialia sialis*). The marsh and prairie are good habitat for raccoons (*Procyon lotor*), sandhill cranes (*Grus canadensis*), wading birds, ducks, aquatic turtles, snakes, frogs, fish, and insects. The sandhill still provides some habitat values for the animals that live in this habitat, such as Sherman's fox squirrels (*Sciurus niger shermani*), gopher tortoises (*Gopherus polyphemus*), red-headed woodpeckers (*Melanerpes erythrocephalis*) (which is especially benefited by the combination of the sandhill and live oak forest), and eastern indigo snake (*Drymarchon corais couperi*) (which is especially benefited by the combination of the gopher burrows, the live oak forest, and the marsh habitats).

RARE, THREATENED, AND ENDANGERED SPECIES: There are still a few gopher tortoises in the sandhill and pastures. There are probably also some indigo snakes and perhaps even some Sherman's fox squirrels left. (They were both common here before the residential development.) There is a bald eagle (*Haliaeetus leucocephalus*) nest just off the site and there are six pairs of Florida sandhill cranes that nest on Kanapaha Prairie (Nesbitt, 1996). Unfortunately, due to the increased numbers of coyotes (*Canis latrans*) in the area, perhaps aided by lowered water levels, the cranes are not being successful in raising their young (Nesbitt, 1994). The Florida Game and Fresh Water Fish Commission's habitat maps show habitat here

for alligator (*Alligator mississippiensis*), Florida gopher frog (*Rana capito aesopus*), wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), white ibis (*Eudocymus albus*), bald eagle, and sandhill crane (Arnold, 1995). Kanapaha Prairie is one of the places specifically mentioned and mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox, 1994).

EXOTICS: There are a number of invasive exotic plants which the homeowners surrounding the prairie have brought in. Several kinds of exotic bamboos, both runners and clumpers, are among the most threatening. Other potentially dangerous plants include goldenrain tree (*Koelreuteria elegans*), Chinese tallow (*Sapium sebiferum*), coralberry (*Ardisia crenata*), Boston fern (*Nephrolepis biserrata*), and Chinese privet (*Ligustrum lucidum*).

RESTORATION AND MANAGEMENT POTENTIAL: The ever increasing residential development is gradually reducing both the size and the quality of the habitats. In addition, people and people's pets and fencing are increasing the stress and mortality suffered by many of the wild animals. The prairie and sandhill habitats were at the small end of the viability spectrum for use by sandhill cranes, fox squirrels, indigo snakes, and some other species ten years ago. The size of available habitat has been significantly reduced since then and this process is continuing at an increased rate today. It may already be too late, even if development could be stopped where it is now, to be able to manage a viable ecosystem here for these species. This is not to say the situation is hopeless. If development stopped now, or in the near future, and the homeowners here cooperated in an effort to improve and maintain habitat for wildlife, most of the wildlife species now present in the hammock, prairie, marsh, and lake habitats could be maintained.

RECOMMENDED CONSERVATION STRATEGIES: The large number of expensive houses within the site precludes a recommendation for fee simple purchase. Conservation easements or a cooperative agreement with the multiple owners is the best possibility for some protection. If the private landowners could form a cooperative association for the removal of exotic plants, the control of domestic pets, and the management of wildlife habitats, most of the wildlife that has made this a widely recognized natural resource area could be maintained. An effort to provide educational information about these possibilities might be productive. Regulations preventing development in areas subject to deep flooding would have prevented much of the residential development in the heart of this area, and would still help prevent more development on the prairie and prairie hammock areas if implemented or fully enforced now.

COMPREHENSIVE PLAN CONSIDERATIONS: This prairie is a major floodplain area. The 1973 flood covered a large area, perhaps larger than the 100 year floodplain as it is delineated. There are wetlands here, and there is a sinkhole that provides a major surface water input to the Floridan Aquifer during periods of high water.

SITE VISITS: Bob Simons, 1995, 1987, 1980, 1973; David Hall, 1995.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	4
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	5
Surficial Aquifer Resource Protection	5
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	1
Ecological Quality	2.5
Community Rarity	3
Functional Connectedness	3
<u>Management Potential</u>	<u>2</u>

Note: See Table 2-1 for parameter descriptions.

SOUTH LACROSSE FOREST

PRIORITY: 39 (below average) (from unweighted sub-parameter score)

KEY FEATURES: South LaCrosse Forest has a high diversity of topography, habitats, and conditions. There is pasture, pine plantation, pine flatwoods, basin swamp, dome swamp, mesic hammock, slope forest, a creek, and several ponds. Some of the hammock and slope forest is impressive mature forest, but most of the flatwoods is in poor condition. Most of this area has endured significant human disturbance in the past, some of which is now healing. There are several houses and other buildings within the site.

USGS QUAD: Alachua

SIZE: 2,890 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
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Slope Forest	191	fair to good
Upland Mixed Forest	256	fair to good (Mesic Hammock)
Sinkhole	15	fair
Wet Flatwoods	151	poor
Mesic Flatwoods	697	fair to poor
Bog	9	good
Baygall	186	good
Seepage Slope	6	good
Bottomland Forest	18	good
Basin Marsh	4	good
Depression Marsh	12	good
Basin Swamp	348	good
Dome Swamp	52	fair
Blackwater Stream		good
Seepage Stream		good
Farm Pond *	32	
Sinkhole Pond	3	good
Old field Pine Plantation *	411	
Old Field Succession Pine *	66	
Rough Pasture *	109	
Improved Pasture *	70	
Row Crops *	120	
Low Impact Development *	3	

* Categories not used by FNAI

CONNECTIONS: The only connection is a weak one to Rocky Creek.

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape. The majority of the boundaries conform to existing property boundaries, roads, section lines, or other surveyed lines. There are three inholdings, and two highways bisect the area.

GEOLOGIC/HYDROLOGIC FEATURES: The area is bisected by SR 327. West of this road, the topography is hilly and has a creek system that has carved some moderately steep slopes. East of the road, the topography is flat. Under both sides is a clay layer that keeps water from easily seeping down into the Floridan Aquifer. However, this layer gets less thinner to the west, allowing for sinkhole formation. The drainage of the western 70 % of the area is to Burnetts Creek, which flows west into Burnetts Lake near Alachua, which in turn drains into the Floridan Aquifer. The eastern end of this site drains into Rocky Creek which flows north into the Santa Fe River.

WILDLIFE HABITAT: There is good diversity of habitats and good browse and cover. Some habitats are in good condition and others are in bad condition. The mast production is fair.

There are tree cavities in the hardwood and swamp forests. Fragmentation and isolation are somewhat of a problem, due to the highways, inholdings, and internal and surrounding open pastures. There has been and continues to be much human disturbance. Invasive exotic plants are beginning to destroy habitat. Some of the streams and wetlands are excellent habitat for wetland species such as raccoon (*Procyon lotor*), red-shouldered hawk (*Bureo lineatus*), barred owl (*Strix varia*), and wading birds, and the hardwood forest is important habitat for migrating songbirds. The pine flatwoods habitats are in poor condition, primarily due to lack of prescribed burning over a long time period, but there are still some pine flatwoods animal species here, such as pine warbler (*Dendroica pinus*) and rufous-sided towhee (*Pipilo erythrophthalmus*). The pond in the creek channel at the base of the steep slope in the western 1/3 of the site may provide good wading bird feeding habitat at times when it is drying down after being full of water for a while. The adjacent steep slope has some large shumard (*Quercus shumardii*) and swamp chestnut oaks (*Quercus michauxii*) that provide good mast crops. Overall, the habitat is best rated as fair.

RARE, THREATENED, AND ENDANGERED SPECIES: There is a small amount of use by little blue heron (*Egretta caerulea*) and probably also a small amount of use by snowy egret (*Egretta thula*) and by wood stork (*Mycteria americana*), but none of this is enough for the Game Commission to map this area as habitat for any of these birds (Arnold, 1995). In the 1987 survey, one wood stork was seen leaving the area, probably after feeding in the large basin swamp in the middle of the eastern 2/3 of the site.

The only listed plants found were the common ones listed as commercially exploited: royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and greenfly orchid (*Epidendrum conopseum*).

EXOTICS: There are major infestations of exotics on the western most inholding. These include a big patch of Chinese golden bamboo (*Phyllostachys aurea*), Japanese honeysuckle (*Lonicera japonica*), and Chinese wisteria (*Wisteria sineusis*), and smaller amounts of Chinese tallow (*Sapium sebiferum*), air-potato (*Dioscorea bulbifera*), mimosa (*Albizia julibrissin*), chinaberry (*Melia azedarach*), and camphor tree (*Cinnamomum camphora*). On the site to the NE of this inholding there is a small infestation of a different, large, far-running bamboo that appears to be quite shade tolerant. It looks to be potentially devastating to the native habitats here. There are some spots of air-potato on the site, and there are small populations of Boston fern (*Nephrolepis cordifolia*) and English ivy (*Hedera helix*), and larger populations of white-flowered spiderwort (*Tradescantia fluminensis*), all of which can devastate native hammock groundcovers.

RESTORATION AND MANAGEMENT POTENTIAL: Much restoration work is needed here if wildlife habitats are to reach their potential. The flatwoods areas need prescribed burning programs. The pastures could be planted with a scattering of longleaf pine (*Pinus palustris*) and gradually returned to the structure and wildlife habitat conditions of the original upland pine

habitat. The invasive exotic plants that have escaped from cultivation need to be eradicated if the hammock and slope forest areas are to survive as native habitats.

RECOMMENDED CONSERVATION STRATEGIES: The low overall rating of this area combined with the houses and other buildings scattered about within the site preclude a recommendation for purchase. The problems stated in the preceding paragraph can best be addressed with either conservation easements or cooperative agreements with the private landowners, especially with the Temple of the Universe. An offer to help in controlling and eliminating invasive exotic plants by some public agency such as the Alachua County Department of Environmental Services, the Suwannee River Water Management District, the Florida Department of Environmental Protection, the Florida Division of Plant Industries, or the Florida Game and Fresh Water Fish Commission would also be helpful here. This site points out the need for establishing a program to aid and encourage landowners to control invasive exotic plants and the need for a law prohibiting the sale and distribution of especially aggressive invasive exotic plants.

COMPREHENSIVE PLAN CONSIDERATIONS: There are small streams with narrow floodplains, several isolated wetlands, some connected wetlands, and some sinkholes. There is a small amount of open water in small ponds.

SITE VISITS: Bob Simons, 6/1/96; Bob Simons and David Clayton, 6/7/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	2

Endangered Species Habitat	2
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Wildlife Habitat	2
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Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	2
Ecological Quality	2
Community Rarity	2
Functional Connectedness	2

Management Potential	2
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Note: See Table 2-1 for parameter descriptions.

LAKE ALTO SWAMP

PRIORITY: 31 (slightly below average) (from unweighted sub-parameter score)

KEY FEATURES: This site surrounds Lake Alto like an irregular horse shoe. It contains some uplands that are mostly mesic flatwoods, and it contains many wetlands which are mostly bog and basin swamp. It contains the southern part of Lake Alto Swamp (the part not owned by the Suwannee River Water Management District) providing the connection between the Lake and the district owned swamp land. It also contains the high quality and well managed pine flatwoods within the non-profit Longleaf Ecology and Forestry Society lands (LEAFS Tract).

USGS QUAD: Waldo

SIZE: 2,442 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Wet Flatwoods	67	fair
Mesic Flatwoods	988	fair to good
Bog	368	good
Depression Marsh	2	good
Basin Swamp	385	fair to good
Lake Shore Swamp	15	good
Dome Swamp	45	fair to good
Swamp Lake	468	good
Rough Pasture *	35	
Row Crops *	30	
Low Impact Development *	28	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
SJRWMD owned Lake Alto Swamp land	excellent
Lake Alto	excellent
Longleaf Ecology and Forestry Society	fair
Austin Cary Flatwoods	weak

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in shape, but conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC\HYDROLOGIC FEATURES: This area of flat topography is sitting on top of a thick and impermeable Hawthorn Formation, which maintains the perched waters of Lake Alto and adjacent swamps and bogs. The elevation varies from 140 feet above sea level at Lake Alto to 175 feet on some of the uplands. The water flows into Lake Alto from adjacent areas, and then to the north through Lake Alto Swamp into the Santa Fe River. Soils throughout the area are inherently low in fertility and pH.

WILDLIFE HABITAT: The fertility, diversity, and mast production here is low. Cavities are scarce on the uplands, but fairly common in the swamps. Cover for wildlife is abundant. The lake provides part of the feeding habitat for one pair of bald eagles (*Haliaeetus leucocephalus*). Two pairs of ospreys (*Pandion haliaetus*) nest on the lake edge, and there are a few wood ducks (*Aix sponsa*), and an abundance of water turtles, brown water snakes (*Nerodia taxispilota*), and fish (Winn, 1996). Some of the more noticeable animals in the pine flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). Overall, the habitat value is low with a few exceptions, such as the flatwoods areas that are being managed with frequent prescribed burns at the LEAFS Tract.

RARE, THREATENED, AND ENDANGERED SPECIES: There is an active bald eagle nest about 1/4 mile north of the north end of Lake Alto in Lake Alto Swamp (Nesbitt, 1996). It is probably on the site, but might be in the extreme southeastern corner of the Suwannee River Water Management District property. In either case, the area of minimum disturbance needed for the nest would mostly be on this property.

The Florida Game and Fresh Water Fish Commission habitat distribution maps indicate that alligators (*Alligator mississippiensis*) are common in Lake Alto and the swamp to the north, and that usage by wood storks (*Mycteria americana*) is marginal and largely restricted to the area on and close to the LEAFS Tract (Arnold, 1995). No usage by other wading birds is indicated, nor has any been observed in the last few years by John Winn, who does a bird survey once a month on Lake Alto and works out of doors in the area almost daily (Winn, 1996).

A few gopher tortoises (*Gopherus polyphemus*) are present in a well drained area just south of the public park and boat ramp on the SE side of Lake Alto.

Two plants listed as commercially exploited that are common here in baygalls and swamps are cinnamon fern (*Osmunda cinnamomea*) and royal fern (*Osmunda regalis*). The hooded pitcher plant (*Sarracenia minor*) probably occurs in the bog habitats, since it occurs in these same habitats in Santa Fe Swamp. Yellow butterwort (*Pinguicula lutea*) occurs on the LEAFS Tract in the flatwoods.

EXOTICS: Invasive exotic plants do not seem to pose much of a threat here. Perhaps they

prefer more fertile, less acidic, and better drained soil. The few that are here in limited numbers are camphor tree (*Cinnamomum camphora*), mimosa (*Albizia julibrissin*), and Chinese tallow tree (*Sapium sebiferum*).

RESTORATION AND MANAGEMENT POTENTIAL: The wetland areas are in good condition. There has been logging around some edges, which has impacted the soil as well as the forest structure, leaving deep ruts. The ruts increase the amount of open water and diversify the micro-habitats, which is not all bad from a wildlife perspective, particularly since only a small fraction of the wetlands have been impacted. The trees are growing back and the ruts will gradually heal on their own.

The pine flatwoods areas on the uplands are mostly in much worse condition. Some have been bedded and planted to dense stands of slash pine (*Pinus elliottii*) and some have been logged long ago and left unburned and unplanted. In both cases, prescribed burning is needed if the wildlife habitat values are to be improved. The great improvement that has occurred in the quality of the wildlife habitats and in the abundance of wildflowers, grasses, and mast producing ground cover plants such as runner oak (*Quercus pumila*), blueberry (*Vaccinium* spp.), and dwarf huckleberry (*Gaylussacia dumosa*) at the LEAFS Tract since prescribed burning began a few years ago is a testament to what prescribed burning can do.

RECOMMENDED CONSERVATION STRATEGIES: Purchase of the lands needed to connect Lake Alto to the Lake Alto Swamp Conservation Area lands is warranted. Conservation easement is another way to accomplish this goal, and conservation easements on the rest of the lands may be a good way to protect their natural resources. Some sort of assistance program to aid and encourage prescribed burning in the privately owned pine flatwoods here might greatly improve their wildlife habitat values.

COMPREHENSIVE PLAN CONSIDERATIONS: The only surface water here is Lake Alto. There are small sections of isolated wetlands and a large area of connected wetland in Lake Alto Swamp. The shore of Lake Alto is low and boggy.

SITE VISITS: Bob Simons, 6/10/96, and many previous visits.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2.5
Wildlife Habitat	2.5

Hydrology:

Floridan Aquifer	1
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Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	1
Landscape Ecology:	
Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

LEVY LAKE - BARR HAMMOCK

PRIORITY: 6 (high) (from unweighted sub-parameter score)

KEY FEATURES: This is a large area containing all of Levy Lake and part of Ledwith Prairie - two of the largest wetlands in Alachua County. It includes all the land between these wetlands, some of which is high quality hardwood forest (a part of which has been logged), and includes smaller wetlands such as Mud Pond. It connects to Paynes Prairie State Preserve and Kanapaha Prairie.

USGS QUAD: Arredondo, Micanopy, Flemington, Williston

SIZE: 12,000 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Scrub	12	fair - no scrub endemics
Xeric Hammock	85	good
Upland Mixed Forest	2261	good to fair (Mesic Hammock)
Wet Flatwoods	178	good to fair, pond pine
Mesic Flatwoods	109	fair - natural slash, needs fire
Scrubby Flatwoods	83	good to fair, pond pine
Prairie Hammock	158	good - disturbed
Hydric Hammock	421	good - (logged) - high diversity
Wet Prairie (karst)	1953	fair to poor - low diversity
Baygall	52	good - medium diversity
Basin Marsh	4342	fair to excellent, high diversity
Depression Marsh	83	good
Basin Swamp	93	good - medium diversity

Shrub Swamp	32	good
Prairie Lake	156	good - variable, high wildlife use
Sinkhole Pond	4	good
Old Field Pine Plantation *	64	
Site Conversion Pine Plant. *	153	(restorable)
Rough Pasture *	968	
Improved Pasture *	722	
Row Crops *	33	
Low Impact Development *	35	

* Categories not used by FNAI

CONNECTIONS: Levy Lake - Barr Hammock is connected to two areas.

The connection to Paynes Prairie State Preserve is a broad upland connection that is bisected by both I-75 and US 441. Since this is an upland connection and the areas being connected are mainly wetland, and since the connection is severely bisected by massive and busy highways, this connection is not functional for many wildlife species. This could potentially be greatly improved, but at a high financial cost.

The connection to Kanapaha Prairie is a moderately narrow one that is crossed by SR 121. This is a wetland connection that is in relatively good condition and is the main water course between the two areas. Therefore, this connection is fairly good, allowing most species of wildlife to cross between these two areas.

SITE BOUNDARY CONDITIONS: The boundaries are mostly regular in shape and mostly conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is an area underlain by a thin layer of Hawthorn formation. It has large wetlands that have little inflow or outflow. However, there is some surface flow from prairies south of Ledwith Prairie into Ledwith. From there, there is the possibility of both some percolation into the Floridan aquifer and some flow or seepage into Levy Lake. Levy Lake may percolate into the aquifer to some degree, and, at high water, flows into Kanapaha Prairie, which connects to the Floridan Aquifer by way of a sink hole.

WILDLIFE HABITAT: The diversity of wildlife is high due to the diverse habitats, large size, and proximity to Paynes Prairie. The habitat quality varies from low to high, with the old field pine plantations and the highly disturbed eastern end of Levy Lake being the lowest, and Ledwith Prairie and some of the hammock forest between these two big wetlands being examples of high quality habitat. There are some giant old live oaks (*Quercus virginiana*) and some other potential den and cavity trees, but cavity availability is low to moderate overall. Wildlife cover availability is good. Mast production potential is good. Browse availability is good. The hardwood forest canopy is excellent habitat for migrating songbirds. The ground cover in

hammock areas is of good quality in most places, but in the flatwoods it is fair to poor due to lack of fire. There is good habitat for sandhill cranes (*Grus canadensis*), wading birds, ducks, grebes, moor hens, bitterns, rails, and all sorts of aquatic reptiles and amphibians on the wetland areas. The uplands support good populations of white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), wild turkey (*Meleagris gallopavo*), pileated woodpecker (*Dryocopus pileatus*) and many other species. The hammock forest between the two large wetlands has good populations of hawks and owls due to the abundant prey base supplied by the wetlands.

Levy Lake and Ledwith Prairie together constitute the largest area in Alachua County identified by the Florida Game and Fresh Water Fish Commission's "Closing The Gaps" publication as "a strategic habitat conservation area" (Cox et al., 1994).

RARE, THREATENED, AND ENDANGERED SPECIES: Listed animal species inhabiting or using the area according to Florida Game and Fresh Water Fish Commission habitat distribution maps are: wood stork (*Mycteria americana*), sandhill crane, bald eagle (*Haliaeetus leucocephalus*), white ibis (*Eudocimus albus*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolor heron (*Egretta tricolor*), and alligator (*Alligator mississippiensis*) (Arnold, 1995). Eastern indigo snakes (*Drymarchon corais couperi*) also occur here (Moler, 1996). The resident Florida race of sandhill crane (*Grus canadensis pratensis*) nests on both Ledwith Prairie (about 3 pairs) and the west half of Levy Lake (about 8 pairs), and there are two active bald eagle nests in the area (Nesbitt, 1996). This is the most important habitat for the Florida sandhill crane on private land in Alachua County.

Listed plants inhabiting the area include Godfrey's privet (*Forestiera godfreyi*), of which there are a few individuals in the mesic hammock on the south edge of Levy Lake and a few little ebony spleenwort (*Asplenium resiliens*) and/or closely related ferns growing on exposed limerock in a few spots in the same hammock.

EXOTICS: There are numerous exotic plants in the pasture areas on Levy Lake and on the uplands, but no situations where they seemed to pose a serious threat. Armadillos (*Dasypus novemcinctus*) are common in the hammock forest areas.

RESTORATION AND MANAGEMENT POTENTIAL: This area has high restoration potential and high management potential. The biggest challenge would be to restore the fire and hydrologic cycles on Levy Lake. Levy Lake has large-scale ditching. Restoration is clearly possible, and, if it were done, this area would be much more manageable than Paynes Prairie due to no major roads bisecting the area. These roads cause many animal deaths and prevent the optimum use of fire and flooding as management tools on Paynes Prairie. Natural fire cycles could also be returned to the flatwoods areas, and the hammock areas would restore themselves if left to grow and mature. The large size, good boundaries, and location away from population centers would enable this area to be managed effectively for wildlife and natural communities.

As with all natural areas, continued vigilance and periodic control of invading exotic plants would be necessary.

RECOMMENDED CONSERVATION STRATEGIES: The challenge is to restore and protect the wetlands and the uplands, and to prevent the uplands from being destroyed by real estate development. The best option would be a purchase of the entire area. However, this would be a major and difficult purchase, but it should at least be considered. Barring the possibility of purchase of the whole area, conservation easements on the wetlands, combined with purchase of the lands between Levy Lake and Ledwith Prairie, and perhaps purchase of some of these two major wetlands, would be a good lower cost alternative. Adherence to dredge and fill regulations and to Forestry Best Management Practices is important.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some open surface water on both Levy Lake and Ledwith Prairie. The rest of these two areas is wetland, and there are other, isolated wetlands.

SITE VISITS: Bob Simons 5/22/96 and 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3.5

Endangered Species Habitat	3
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Wildlife Habitat	4
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Hydrology:

Floridan Aquifer	4
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Surficial Aquifer Resource Protection	4
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Vulnerability of Aquifer	3
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Landscape Ecology:

Community Diversity	4
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Ecological Quality	2
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Community Rarity	2
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Functional Connectedness	3
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Management Potential	4
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Note: See Table 2-1 for parameter descriptions.

LITTLE ORANGE CREEK

PRIORITY: 39 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This area is mostly wetland that is in fairly good condition. Basin swamps, shrub swamps, and basin marshes all occupy large areas. Most of the upland is degraded sandhill that has either been greatly altered by lack of burning or by intense site preparation followed by pine plantation or both. There is a little flatwoods, including a small portion that has not been converted to pine plantation.

USGS QUAD: Hawthorn, Melrose

SIZE: 3,580 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	881	fair to poor
Former Sandhill *	346	poor
Xeric Hammock	48	fair
Upland Mixed Forest	7	fair
Wet Flatwoods	102	fair
Mesic Flatwoods	309	fair
Bog	13	good
Baygall	197	good
Bottomland forest	13	fair
Basin Marsh	399	fair
Depression Marsh	32	good
Basin Swamp	806	good
Shrub Swamp	157	good
Dome Swamp	32	good
Flatwoods Lake or Pond	16	good
Old Field Pine Plantation *	54	
Rough Pasture *	27	
Row Crops *	66	

* Categories not used by FNAI

CONNECTIONS: There are no connections to anything in Alachua County and poor connections to the large wetlands systems of Putnam County.

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in shape and do not conform to existing property boundaries, roads, section lines, and other surveyed lines in some cases. There are also some places where the connections between one part of the site and another part are narrow and go across less than ideal habitat.

GEOLOGIC/HYDROLOGIC FEATURES: This area is hilly with deep sand on the hills. The low areas are lakes and wetlands, all of which drain into Fowlers Prairie during periods of high water. There does not appear to be a surface outflow from Fowlers Prairie.

WILDLIFE HABITAT: The wetlands provide good habitat for marsh rabbit (*Sylvilagus palustris*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), wading birds, red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), and various kinds of aquatic turtles, snakes, frogs, and fish. The uplands are not good habitat for most wildlife species. There is abundant water and plenty of cover, but not much diversity or mast or browse and few tree cavities. There are a few gopher tortoise (*Gopherus polyphemus*) burrows.

RARE, THREATENED, AND ENDANGERED SPECIES: There is a small population of gopher tortoises here. According to the Florida Game and Fresh Water Fish Commission's habitat distribution maps, there are also Florida gopher frogs (*Rana capito aesopus*) here, and in the wetlands, there are alligators (*Alligator mississippiensis*), wood storks (*Mycteria americana*), snowy egrets (*Egretta thula*), and tricolored herons (*Egretta tricolor*) (Arnold, 1995). There are also some wintering sandhill cranes (*Grus canadensis*) (Nesbitt, 1996).

EXOTICS: There was some mimosa (*Albizia julibrissin*).

RESTORATION AND MANAGEMENT POTENTIAL: The wetlands are in relatively good condition. The uplands, especially the sandhill areas, would need extensive restoration to become good habitat. Longleaf pine (*Pinus palustris*) and many ground cover species would have to be planted or seeded after burning or other work was done to prepare the site, and then a program of prescribed burning would be needed.

RECOMMENDED CONSERVATION STRATEGIES: The difficulty here is that the uplands are seriously degraded and are mostly small and fragmented. The wetlands, on the other hand, are large and significant. The best strategy would appear to be to protect the wetlands by regulation and/or conservation easement. Including some upland adjacent to the wetlands in whatever protection scheme is devised is important for wildlife, because some of the wildlife species that inhabit wetlands also need uplands as a part of their overall habitat requirement. For instance, water turtles need well drained upland soils for nesting.

COMPREHENSIVE PLAN CONSIDERATIONS: Most of this area is wetland, and there is some open water.

SITE VISITS: David Clayton, 1996.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	2.5
Hydrology:	
Floridan Aquifer	2
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	1
Landscape Ecology:	
Community Diversity	2
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	1.5
Management Potential	3

Note: See Table 2-1 for parameter descriptions.

LOCHLOOSA FOREST WEST

PRIORITY: 4 (high) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of diverse wetlands and uplands that has great wildlife habitat value. The single most valuable endangered species location in the county, the Micanopy Cypress wood stork (*Mycteria americana*) rookery, is here, along with many other important features. The area includes the upper half of the River Styx, several prairies, ponds, marshes, and swamps, some hammock forest, some pine flatwoods, and some pasture land. Wetlands make up well over half the area.

USGS QUAD: Micanopy, Rochelle

SIZE: 4,275 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	288	good (Mesic Hammock)
Wet Flatwoods	107	fair
Mesic Flatwoods	1138	fair
Hydric Hammock	511	good

Wet Prairie	338	good
Bog	3	good
Baygall	38	good
Swale	75	good
Basin Marsh	323	good
Depression Marsh	140	good
Basin Swamp	659	good
Shrub Swamp	5	good
Dome Swamp	36	good
Prairie Pond	25	good
Blackwater Stream		good
Rough Pasture *	185	
Improved Pasture *	277	

* Categories not used by FNAI

CONNECTIONS: The connection to Lochloosa Forest is excellent. The connection to Paynes Prairie State Preserve is fair.

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in that they fit into the boundaries of the Lochloosa Forest conservation easement lands like a jigsaw puzzle. The result is that if this site could be added to the Lochloosa Forest, it would make the overall boundaries much simpler and more regular in shape. The boundaries conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the Hawthorn formation which supports the perched water table of all the ponds, streams, and other wetlands. The drainage is into the River Styx and then Orange Lake, where there is some interchange with the Floridan Aquifer and some flow into Orange Creek and the Ocklawaha River basin.

WILDLIFE HABITAT: There is abundant water, great diversity, good mast production, good browse, good cover, some burrows and tree cavities, and a little hardwood forest canopy. There are also great nesting sites for bald eagles (*Haliaeetus leucocephalus*), ospreys (*Pandion haliaetus*), wood storks, and Florida sandhill cranes (*Grus canadensis pratensis*) (Nesbitt, 1996). The density of osprey nests along the River Styx is not equaled anywhere else in Alachua County (Nesbitt, 1996). The swale in the River Styx is an unusual habitat type that supports good populations of wading birds such as wood stork, great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), limpkin (*Aramus guarauna*), and green-backed heron (*Butorides striatus*). Other species found here include purple gallinule (*Porphyryla martinica*), boat-tailed grackle (*Quiscalus major*), Florida green water snake (*Nerodia floridana*), mud snake (*Farancia abacura*), greater siren (*Siren lacertina*), two-toed amphiuma (*Amphiuma means*), peninsula newt (*Notophthalmus viridescens piaropicola*), pig frog (*Rana grylio*), mudfish (bowfin) (*Amia calva*), tadpole madtom (*Noturus gyrinus*), pirate perch (*Aphredoderus sayanus*), and pygmy

sunfish (*Elassoma* spp.). The River Styx contains a diverse fish population including good populations of some uncommon fish, including mud sunfish (*Acantharcus pomotis*), banded topminnow (*Fundulus cingulatus*), and the southern most station for mudminnow (*Umbra pygmaea*) (all fish netted by Bob and Erika Simons and identified by Carter Gilbert).

RARE, THREATENED, AND ENDANGERED SPECIES: This site is by far the most critically important for endangered species of all the areas inventoried in the county. There is one active bald eagle nest on the area, and there are two pairs of Florida sandhill cranes that regularly nest on the prairies and marshes here (Nesbitt, 1996). Most important of all, there is the largest and most stable wood stork nesting colony in the county and perhaps in north Florida on this site in the headwaters swamp of the River Styx (Nesbitt, 1996). It has been active at least since, 1900, and is used every year by between 100 and 250 nesting pairs of this endangered bird (Nesbitt, 1996). The habitat distribution maps of the Florida Game and Fresh Water Fish Commission indicate this area as being habitat for the following: wood stork, snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), white ibis (*Eudocimus albus*), limpkin, bald eagle, sandhill crane, alligator (*Alligator mississippiensis*), and Florida gopher frog (*Rana capito aesopus*) (Arnold, 1995). It has one of the best limpkin populations in the county (Nesbitt, 1996). There are also gopher tortoises (*Gopherus polyphemus*) here and eastern indigo snakes (*Drymarchon corais couperi*) and probably Florida pine snakes (*Pituophis melanoleucus mugitus*) and Florida mice (*Podomys floridanus*). Listed plants observed include cardinal flower (*Lobelia cardinalis*), and commercially exploited species include cinnamon fern (*Osmunda cinnamomea*), and royal fern (*Osmunda regalis*).

EXOTICS: There are some spots of Japanese honeysuckle (*Lonicera japonica*), Japanese climbing fern (*Lygodium japonicum*), and perpetual begonia (*Begonia cucullata*), and there is hydrilla (*Hydrilla verticillata*), alligator weed (*Alternanthera philoxeroides*), and water hyacinth (*Eichhornia crassipes*) in the River Styx. None of these plants are causing habitat problems, and, in fact, the water hyacinths may be partly responsible for the exceptional habitat quality in the River Styx for some of the wildlife species that are there.

RESTORATION AND MANAGEMENT POTENTIAL: From the perspective of maintaining Alachua County's wildlife diversity, this is the one area above all others in the county that needs protection. The wood stork colony is the most critical single wildlife spot in the county. The priority for this colony is protection from human disturbance. Management of the non-forested wetlands is an area that should be studied. Some of the prairie and marsh areas would probably benefit from occasional prescribed burning. The pine flatwoods and sandhill areas would clearly benefit from more prescribed burning. The area as a whole is a viable and manageable unit.

RECOMMENDED CONSERVATION STRATEGIES: The main threats to the uplands are real estate development and clearing for agriculture. Potential threats to the wetlands are changes in water quality or quantity, and logging. This area strongly warrants purchase outright, or by conservation easement with a strong wetlands protection clause in the agreement. The greatest

need is to protect the wood stork rookery from disturbance. The unique swale habitat also needs to be protected from actions that would alter it. The current landowner has managed this area with conservation in mind and has vigilantly protected the wood stork rookery for many decades.

Any contact with the owner should acknowledge this and be respectful. As long as the current owner wishes to continue owning the property, a cooperative agreement or conservation easement would be the best option. Any management change or action should take into account that the wood storks here are wary of human disturbance.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some open water. Most of the area is wetland of various kinds.

BIOLOGICAL SENSITIVITY TO RECREATIONAL ACTIVITY: The nesting wood storks at the rookery site in the headwaters swamp of the River Styx are sensitive to disturbance. It is possible that a single major disturbance by people entering the rookery during the beginning of nesting season could cause nesting failures. Therefore, this is one area that should be off limits to all access during the nesting season. Since it is used as a roost at other times of year, it is probably best that it be off limits all the time. This is a deep, mucky swamp that is nearly inaccessible anyway, so this should create no conflict of interest.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987, 1976.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3
Endangered Species Habitat	5
Wildlife Habitat	5

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	2.5

Landscape Ecology:

Community Diversity	3
Ecological Quality	3
Community Rarity	3
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

LOCHLOOSA FOREST ADDITIONS

PRIORITY: 9 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This site consists of three separate parcels which, if added to the lands protected by the St. Johns River Water Management District, would add considerably to the value of the overall conservation effort. The northern most parcel, lying along the south side of SR 20, is an important link between the Lochloosa Forest and the large wildlife habitat areas of eastern Alachua County extending to the north. The middle parcel is actually two sections of land in the middle of the Lochloosa Forest containing the best example of pine flatwoods habitat remaining on private land in Alachua County. The third parcel is small that is mostly surrounded by Lochloosa Forest lands under conservation easement. It contains a live oak (*Quercus virginiana*) hammock that is a valuable mast resource for wildlife.

USGS QUAD: Rochelle

SIZE: 2,024 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	76	good to fair
Xeric Hammock	71	good
Wet Flatwoods	200	good to fair
Mesic Flatwoods	1215	excellent to fair
Wet Prairie	7	good
Baygall	78	good
Depression Marsh	27	good
Basin Swamp	233	good
Dome Swamp	69	good
Flatwoods Pond	8	good
Old Field Pine Plantation *	40	

* Categories not used by FNAI

CONNECTIONS: All parcels are solidly connected to the Lochloosa Wildlife Management area. The northern parcel is also connected fairly well (good to fair) to the Lochloosa Creek Headwaters Flatwoods site.

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the relatively impermeable

Hawthorn Formation which supports a perched water table, providing the water for the many wetlands here. The drainage from the eastern end of the northern parcel is into Lochloosa Creek, but the surface drainage from the rest of the area, which is most of it, is into the River Styx which drains into Orange Lake. Orange Lake is open to the Floridan Aquifer to the extent that part of the water enters the aquifer and part drains into Orange Creek in the Ocklawaha River basin.

WILDLIFE HABITAT: The average condition of the wildlife habitats here is extremely good. The roughly 860 acres of pine flatwoods and 120 acres of sandhill on the middle parcel is in excellent condition. Overall on the three parcels there is good diversity, good ground cover and escape cover, moderately good mast and browse production, and a few burrows and tree cavities. Being part of a large wildlife area, these habitats are well used. Species that are common here include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), and pine woods tree frog (*Hyla femoralis*). The wetlands are mostly good quality basin swamp with some baygalls and cypress domes. Some noticeable wetland wildlife species include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). Palatka pond has good populations of two somewhat uncommon fish: blue-spotted sunfish (*Enneacanthus gloriosus*) and banded topminnow (*Fundulus cingulatus*). The isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: There are gopher tortoises (*Gopherus polyphemus*) and eastern indigo snakes (*Drymarchon corais couperi*) on both of the larger parcels and the Florida Game and Fresh Water Fish Commission habitat distribution maps indicate Florida gopher frogs (*Rana capito aesopus*) as well (Arnold, 1995). The maps also indicate use on both parcels by wood storks (*Mycteria americana*), snowy egrets (*Egretta thula*), little blue herons (*Egretta caerulea*), tricolored herons (*Egretta tricolor*), and alligators (*Alligator mississippiensis*), and use on the largest parcel by white ibis (*Eudocimus albus*) (Arnold, 1995). There is a small feeding habitat for bald eagles (*Haliaeetus leucocephalus*) indicated on the northern most parcel (Arnold, 1995), and bald eagles have often been seen at Palatka Pond on the largest parcel (Simons, personal observation).

Yellow-fringed orchid (*Platanthera ciliaris*) was observed on the eastern edge of the largest parcel and southern lady fern (*Athyrium filix-femina*) on the northern parcel. Pondspice (*Litsea aestivalis*) occurs within a few yards of the western boundary of the large parcel and Catesby's lily (*Lilium catesbaei*) was found just across the road to the east of the large parcel. Both are likely to occur on the parcel (we didn't have permission to enter this property). Both royal (*Osmunda regalis*) and cinnamon (*Osmunda cinnamomea*) fern (listed as commercially exploited) are common in places on the two larger parcels. With more burning, additional rare plants would probably be seen.

EXOTICS: There is a small spot of Japanese honeysuckle (*Lonicera japonica*) by SR 20, a bit of alligator weed (*Alternanthera philoxeroides*) in two spots, and a few camphor trees (*Cinnamomum camphora*) in another spot.

RESTORATION AND MANAGEMENT POTENTIAL: This site is well managed. In fact, the large parcel has the best large area of pine flatwoods forest in private ownership in the County. However, like everywhere else, the wildlife habitat values of the pine flatwoods and sandhill areas would benefit greatly if more frequent prescribed burns could be done. The areas are moderately well situated for prescribed burning, with highways SR 20 and the Cross Creek road being the main concerns for smoke management.

RECOMMENDED CONSERVATION STRATEGIES: The main long term threat is real estate development. The high quality and good natural resource value of these lands warrants their consideration for being added to the lands protected by conservation easement by the St. Johns River Water Management District. The two sections of land in the middle that constitute the largest parcel warrant purchase outright, because much of their particularly high value is in the condition of the forest. However, purchase would only be warranted if prescribed burning were going to be done frequently. A conservation easement would be the next best alternative.

COMPREHENSIVE PLAN CONSIDERATIONS: There is a little open surface water and some large areas of wetland.

SITE VISIT: David Clayton twice in 1996; Bob Simons, 5/14/96, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	4
Exotics	3
Endangered Species Habitat	3
Wildlife Habitat	4

Hydrology:

Floridan Aquifer	2
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	3
Ecological Quality	3.5
Community Rarity	2

Functional Connectedness	4
Management Potential	4

Note: See Table 2-1 for parameter descriptions.

LOCHLOOSA CREEK

PRIORITY: 20 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is a medium sized area along the lower part of Lochloosa Creek and its floodplain that is a vital connection between the St. Johns River Water Management District's lands, both owned and under conservation easement, on the north side of Lake Lochloosa, and the large wildlife habitat areas to the north in eastern Alachua County. It is also valuable wildlife habitat in its own right, with fine floodplain forests, some upland areas, and a spring.

USGS QUAD: Rochelle

SIZE: 1,252 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	50	
Former Sandhill	104	poor
Xeric Hammock	17	good
Upland Mixed Forest	18	fair
Mesic Flatwoods	265	fair
Hydric Hammock	93	good
Bog	6	good
Baygall	8	good
Floodplain Swamp	237	good
Depression Marsh	6	good
Basin Swamp	130	good
Dome Swamp	6	good
Flatwoods Pond	1	good
Blackwater Creek		good
Spring and short run		fair
Rough Pasture *	205	
Improved Pasture *	56	
Row Crops *	39	
Low Impact Development *	7	

* Categories not used by FNAI

CONNECTIONS: The connection to Lochloosa Forest is excellent. The connection to Lochloosa Creek Headwaters Flatwoods is good. This is a key connector between two big wildlife habitat areas.

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in shape, but they generally conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is in the middle of a stream system that is flowing into Lake Lochloosa. From there, most of the flow is into Orange Creek, and from there to the Ocklawaha River and the St. Johns River. The area is underlain by a layer of fairly impermeable sediments that keeps water from percolating into the Floridan Aquifer. Some percentage of the water may make its way into Orange Lake through Cross Creek and then down into the Floridan Aquifer.

WILDLIFE HABITAT: The floodplain swamp and hammock areas are good habitat for many species, and are particularly important for migrating songbirds. The pine uplands here are not in good condition, but when combined with the wetlands and hammocks, which make up most of the area, the overall diversity and quality is good. There is abundant mast and browse, good cover, good hardwood canopy habitat, some tree cavities, and some burrows. The wildlife corridor from the Lochloosa Forest to the south up into the upper part of the Lochloosa Creek drainage basin is a good one. It is broad and includes both wetland and upland habitats. There is no evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The wetlands are mostly good quality basin swamp and the floodplain swamp along Lochloosa Creek. Some noticeable wetland wildlife species include river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax vireescens*), and cottonmouth (*Agkistrodon piscivorus*).

RARE, THREATENED, AND ENDANGERED SPECIES: This area is the southern limit of the distribution of the canebrake rattlesnake (*Crotalus horridus*), which has been found here more than once. The Florida Game and Fresh Water Fish Commission habitat distribution maps show considerable habitat here for alligator (*Alligator mississippiensis*), wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), and bald eagle (*Haliaeetus leucocephalus*) (Arnold, 1995). There is a snail that lives at Magnesia Springs that has been found nowhere else called the loose-coiled snail, (*Aphaostracon chalarogyrus*) (Franz, 1982). Lochloosa Creek is one of the places specifically

mentioned and mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox et al., 1994).

There are three plants listed due to commercial exploitation that are fairly common here: royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and wild pink azalea (*Rhododendron canescens*).

EXOTICS: Alligator weed (*Alternanthera philoxeroides*) was the only invasive exotic plant observed, and it is under effective biological control.

RESTORATION AND MANAGEMENT POTENTIAL: The wetlands and hammocks which make up most of this area are in good condition and would be relatively easy to manage. The small areas of mesic flatwoods and former sandhill are in need of a program of prescribed burning, which would be quite possible here. The smoke sensitive areas of Grove Park and SR 20 are all on the north side. Magnesia Springs is a unique situation. The current conditions seem to be ideal for the rare snail, thus making it questionable whether restoring the spring to a more natural condition would be a wise thing to do. Clearly, the needs of the snail should be carefully considered if any changes are to be made. The spring water input to the creek provides for enhanced productivity in the floodplain forest down stream.

RECOMMENDED CONSERVATION STRATEGIES: This site is endangered by residential development. It is a valuable wildlife area in its own right and is valuable to the large wildlife areas to the north and to the south as a connector. Therefore, it warrants protection either by purchase or by conservation easement in the same way as the adjacent lands to the south have been protected. Relying on regulation to protect the wetlands and the creek would eventually result in most of the wildlife corridor values and most of the wildlife habitat values being destroyed.

COMPREHENSIVE PLAN CONSIDERATIONS: Lochloosa Creek itself is an open surface water and it has a broad floodplain which is often flooded. The 10 year and 100 year floodplains are both broad. There is also Magnesia Spring.

SITE VISIT: David Clayton, 1996; Bob Simons, 9/7/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	3.5
Wildlife Habitat	4

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2
Landscape Ecology:	
Community Diversity	2
Ecological Quality	2.5
Community Rarity	3
Functional Connectedness	4
Management Potential	4

Note: See Table 2-1 for parameter descriptions.

LOCHLOOSA CREEK HEADWATERS FLATWOODS

PRIORITY: 9 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This is a big area of commercial pine flatwoods forest with large areas of good quality floodplain swamp along Lochloosa Creek, large areas of good quality basin swamp, and a number of cypress domes, small ponds, and small marshes. It is the main headwaters area for Lochloosa Creek. The pine flatwoods are mostly well drained, and there are gopher tortoises (*Gopherus polyphemus*) on some of the drier areas. The pine Flatwoods are mostly slash pine (*Pinus elliottii*) plantations on sites that have been bedded.

USGS QUAD: Orange Heights, Rochelle, Melrose

SIZE: 15,766 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	262	poor to fair
Former Sandhill	20	fair
Xeric Hammock	26	fair
Wet Flatwoods	21	fair
Mesic Flatwoods	11218	fair
Hydric Hammock	5	good
Bog	156	good
Baygall	282	good
Seepage Slope	9	fair
Bottomland Forest	14	good

Floodplain Swamp	657	good
Depression Marsh	64	good
Basin Swamp	1308	good
Dome Swamp	737	good
Farm Pond *	3	
Flatwoods Pond	23	good
Swamp Pond	1	good
Blackwater Stream		excellent
Rough Pasture *	67	
Row Crops *	147	
Low Impact Development *	64	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Morans Prairie	fair to poor
Austin Cary Flatwoods	fair
Gum Root Swamp (Newnans L.)	fair
Lochloosa Forest Additions	fair to good
Lochloosa Creek (eastern 2/3 of Lochloosa Forest)	good

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular, but they conform to existing property boundaries, roads, section lines, and other surveyed lines. There are some inholdings, and there is a paved road that bisects the area. However, the inholdings are not bad considering how large the area is, and the road is perhaps the least traveled paved road in the county.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the Hawthorn Formation which precludes significant percolation of water downward. The runoff is mostly into Lochloosa Creek which flows into Lake Lochloosa, and from there into Orange Creek and the Ocklawaha River. There is a small amount of flow to the west into Newnans Lake.

WILDLIFE HABITAT: This area has a good diversity of habitats, fair browse production, fair mast production, a moderate amount of hardwood canopy for migration birds and other species, abundant water, abundant cover, and a few burrows and tree cavities. Cattle graze the southern half of the area, somewhat reducing the browse availability for wildlife and impacting the ground cover vegetation in both uplands and wetlands.

The pine flatwoods areas are almost all slash pine plantations on sites that have been bedded, resulting in less than ideal habitat. There is little evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*),

which are abundant, cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), and pine woods tree frog (*Hyla femoralis*). The wetlands are mostly good quality basin swamp, floodplain swamp, and dome swamp with some baygall and bog. Some noticeable wetland wildlife species include river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), barred owl (*Strix varia*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax virescens*), and cottonmouth (*Agkistrodon piscivorus*). The many isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The sandhill habitat is degraded, but gopher tortoises occur here and also in the driest of the mesic flatwoods sites. Eastern indigo snakes (*Drymarchon corais couperi*) also occur here (Moler, 1996). The floodplain of Lochloosa Creek is the southern extreme end of the range of the canebrake rattlesnake (*Crotalus horridus*), which occurs rarely on the site (Moler, 1996). The habitat distribution maps of the Florida Game and Fresh Water Fish Commission show a small amount of habitat for Florida gopher frog (*Rana capito aesopus*), which is consistent with our observations on gopher tortoise habitat and burrows (Arnold, 1995). These maps show a greater amount of habitat for wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), bald eagle (*Haliaeetus leucocephalus*), and alligator (*Alligator mississippiensis*) (Arnold, 1995). There is one active bald eagle nest on the site (Nesbitt, 1995). Listed plants found on the area are cardinal flower (*Lobelia cardinalis*) and the commercially exploited greenfly orchid (*Epidendrum canopseum*), royal fern (*Osmunda regalis*), and cinnamon fern (*Osmunda cinnamomea*). This is one of the areas specifically mentioned (as a part of Lochloosa Creek) and mapped (one of the largest areas mapped in Alachua County) in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication as habitat for endangered species (Cox et al., 1994).

EXOTICS: None found.

RESTORATION AND MANAGEMENT POTENTIAL: The sandhill areas have lost almost all of their native flora due to clearing and lack of fire, and the flatwoods areas are also losing most of their native herbaceous plants due to lack of fire. A program of frequent mild prescribed burns would be quite possible here and would greatly benefit nearly the entire spectrum of plant and animal species native to this area. This is a large area that could be effectively managed.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods and sandhills, and incremental loss of habitat to real estate development.

This area is so large and so valuable for timber production, that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new regulations that would prevent clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning, such as the Florida Division of Forestry, to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of connection to other areas are particularly important to protect. Enforcing dredge and fill regulations is important here for the protection of the resource values of the many isolated and poorly connected wetlands, and adherence to the Forestry Best Management Practices is also important.

COMPREHENSIVE PLAN CONSIDERATIONS: There are large areas of both connected and isolated wetlands, and there are fairly large areas within the 10 year and 100 year floodplain along the creeks. The banks of the creeks are low and the creeks flood broadly. There is only a small amount of open water in the creek and in small ponds.

SITE VISIT: David Clayton, 1996; Bob Simons 6/25/96, 9/7/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	4
Endangered Species Habitat	3
Wildlife Habitat	4

Hydrology:

Floridan Aquifer	2
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	1.5

Landscape Ecology:

Community Diversity	4
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

LOCHLOOSA SLOUGH

PRIORITY: 15 (slightly above average) (from unweighted sub-parameter score)

KEY FEATURES: This area contains Lochloosa Slough, an important and high quality wetland connector between Orange Creek and the large SJRWMD lands on the south side of Orange Lake. It also contains uplands and wetlands of a wide variety that provide upland connections to these two areas plus the East Lochloosa Forest site to the north. This site also provides a wide variety of important wildlife habitats.

USGS QUAD: Citra

SIZE: 1,715 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	37	poor
Xeric Hammock	5	fair
Wet Flatwoods	23	fair
Mesic Flatwoods	894	good to poor
Bog	21	good
Baygall	56	good
Strand Swamp	473	good
Basin Marsh	52	good
Depression Marsh	37	good
Basin Swamp	78	good
Dome Swamp	17	good
Flatwoods Pond	7	good
Improved Pasture *	16	

* Categories not used by FNAI

CONNECTIONS: This site provides one of the highest quality and most important wetland connections in Alachua County. The cypress/hardwood strand known as Lochloosa Slough solidly connects the large wetland area owned by the St. John's River Water Management District on the south side of Lochloosa Lake (and thus also the lake itself) to Orange Creek, which is an excellent, high quality connector to the Ocklawaha River and thus the Ocala National Forest and the St. Johns River. There is also a good upland connection to the pine flatwoods lands to the north, beginning with the East Lochloosa Forest site.

SITE BOUNDARY CONDITIONS: The boundaries are somewhat irregular in shape, but the mostly conform to existing property boundaries, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGY: This is a moderately flat area at between 55 and 85 feet above

mean sea level that is underlain by some clay sediments in the Hawthorn Formation that prevent rapid percolation down into the Floridan Aquifer, which is not far below the surface here. The surface flow of water is to the southeast down Lochloosa Slough into Orange Creek, and from there into the Ocklawaha River and St. Johns River system.

WILDLIFE HABITAT: There is a good mix and diversity of habitat types here, some of which are in good condition. The habitat types in shortest supply are well drained uplands. There is a small area of sandhill, and there is a small area of xeric hammock as an ecotone to an adjacent bayhead. No gopher tortoise (*Gopherus polyphemus*) burrows were found. There are areas of pine flatwoods with ground cover in good condition and other areas where the ground cover is not in good condition. The wetlands are all in good condition. There is an abundance of water, browse, and cover. There are not many trees old enough to have cavities, but there is some good hardwood canopy, especially in the strand, for migrating songbird feeding habitat. The pine flatwoods areas here are almost all slash pine plantations on sites that have been bedded, resulting in less than ideal habitat. There is little evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), and pine woods tree frog (*Hyla femoralis*). The dominant wetland is Lochloosa Slough which is a strand swamp. This is an uncommon community that is excellent habitat for river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax virescens*), mud snake (*Farancia abacura*), cottonmouth (*Agkistrodon piscivorus*), two-toed amphiuma (*Amphiuma means*), greater siren (*Siren lacertina*), and leopard frog (*Rana utricularia*). The isolated wetlands here are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The wetlands here provide good habitat for white ibis (*Eudocimus albus*), little blue herons (*Egretta caerulea*), snowy egrets (*Egretta thula*), tricolored herons (*Egretta tricolor*), and wood storks (*Mycteria americana*). The strand is an important connector for alligators (*Alligator mississippiensis*), and black bears (*Ursus americanus*) occur here on occasion. All of this use is documented on the Florida Game and Fresh Water Fish Commission habitat maps for these species (Arnold, 1995), and they rate the overall use of the strand as being in the highest wetland category found in Alachua County (7 to 9 of the indicator species used) (Florida Game and Fresh Water Fish Commission, 1994). In addition, the strand is mapped as a strategic habitat area in the Game Commission's "Closing the Gaps" publication (Cox et al., 1994). There are almost certainly eastern indigo snakes (*Drymarchon corais couperi*) here (Moler, 1996), and there are small areas of suitable habitat for gopher tortoises and Florida gopher frogs (*Rana capito aesopus*) that could be reclaimed. The only listed plants here are the ones listed due to commercial exploitation. Cinnamon fern (*Osmunda cinnamomea*) is abundant in the baygalls and royal fern (*Osmunda regalis*) is

abundant in the strand.

EXOTICS: No significant exotic invasion problems were noted. There were spot infestations of air potato (*Dioscorea bulbifera*), mimosa (*Albizia julibrissin*), and white-flowered spiderwort (*Tradescantia fluminensis*). These could and probably should be eliminated by herbicide spraying. There is some centipede grass (*Eremochloa ophiuroides*) in a disturbed mesic flatwoods site. This is not a threat to anything and would disappear with periodic prescribed burning.

RESTORATION AND MANAGEMENT POTENTIAL: This area is in relatively good condition overall. The wetlands are in good condition. The flatwoods are in good condition in some areas. The areas that are in poor condition could be reclaimed to good condition with prescribed burning. The same with the small sandhill area. This is in an area where prescribed burning would be relatively safe and easy to do.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods and sandhills, and potential severe loss of habitat to real estate development. One possible strategy would be to seek conservation easements to protect the resource values, allowing the landowners to continue to grow and harvest timber on the uplands. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. A third strategy, that would provide the highest protection against future habitat loss, would be outright purchase. Any or all of these strategies are warranted by the resource values of this site. The points of connection to other areas are particularly important to protect, since the greatest value here is the wildlife corridor. Enforcing dredge and fill regulations is important here for the protection of the resource values of the isolated and poorly connected wetlands, and following Forestry Best Management Practices is important for protecting the wildlife corridor values as well as the wetlands.

COMPREHENSIVE PLAN CONSIDERATIONS: Lochloosa Slough is a broad floodplain area that is almost all floodway and within the 10 year floodplain. In addition, there are smaller floodplains and connected wetlands and many small, isolated wetlands. There are a few open water ponds.

SITE VISIT: David Clayton, 1996; Bob Simons, 8/18/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3

Endangered Species Habitat	3
Wildlife Habitat	4
Hydrology:	
Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	2
Landscape Ecology:	
Community Diversity	3
Ecological Quality	3
Community Rarity	3
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

SOUTH MELROSE FLATWOODS

PRIORITY: 31 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is a relatively small area on the south side of Lake Santa Fe that is mostly pine flatwoods forest with some good quality wetlands, a small lake, and some shore line on Lake Santa Fe.

USGS QUAD: Melrose

SIZE: 1,733 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	86	fair
Xeric Hammock	4	fair
Wet Flatwoods	94	fair
Mesic Flatwoods	883	fair
Wet Prairie	6	fair
Bog	14	good
Baygall	15	good
Basin Marsh	134	good
Depression Marsh	4	good

Basin Swamp	99	good
Shrub Swamp	20	fair
Lake Shore Swamp	43	good
Dome Swamp	33	good
Farm Pond (borrow pit) *	4	
Marsh Lake	48	good
Old Field Pine Plantation *	152	
Rough Pasture *	4	
Row Crops *	10	
Low Impact Development *	23	

* Categories not used by FNAI

CONNECTIONS: This area is well connected to Lake Santa Fe. Its connection to Morans Prairie is fair and not at all secure. There is the possibility that a connection to the Ordway Preserve to the east in Putnam County could be restored and protected, but it would be an entirely upland connection of about a mile followed by an entirely wetland connection of about a mile and a half. This is not a good combination, and the upland connection is far from secure at present.

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, roads, section lines, and other surveyed lines. The area is bisected by SR 26.

GEOLOGIC/HYDROLOGIC FEATURES: The Hawthorn Formation supports a perched water table here. There are no creeks, but the flow in ditches and in the soil is mostly to Lake Santa Fe, even from the part of the area that is south of SR 26. There is some flow into Lake Elizabeth, and a small part of the Lake Elizabeth wetlands are on the area. The flow from Lake Santa Fe is to the north through the Santa Fe Swamp into the Santa Fe River. The flow from Lake Elizabeth is into Lochloosa Creek and from there into Lake Lochloosa and Orange Creek.

WILDLIFE HABITAT: Habitat diversity and quality is fair. The fire adapted habitats are getting in bad shape from lack of fire. Mast production is low, browse conditions are moderate, cover is good, there isn't much hardwood canopy, there are few burrows and almost no tree cavities. There are probably some food plots on the north part of the parcel that make up for some of the lack of mast and browse. The proximity of Lake Santa Fe adds considerably to the abundance and diversity of wildlife on the north end. Some of the pine flatwoods areas are slash pine plantations on sites that have been bedded, resulting in less than ideal habitat, and some are undisturbed second growth pine forest that has had no fire for decades. There is no evidence of prescribed burning. Some of the more noticeable animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback

rattlesnake (*Crotalus adamanteus*), and pine woods tree frog (*Hyla femoralis*). The wetlands are mostly good quality basin marsh and basin swamp plus a few cypress domes. Some noticeable wetland wildlife species include raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). The isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: There is some habitat for gopher tortoises, and the habitat maps of the Florida Game and Fresh Water Fish Commission show some habitat for gopher frog (Arnold, 1995). The maps also show a small amount of habitat for wood storks and alligators (Arnold, 1995).

EXOTICS: Mimosa (*Albizia julibrissin*) and Chinese tallow (*Sapium sebiferum*) in a few spots.

RESTORATION AND MANAGEMENT POTENTIAL: This area has had almost no prescribed burning, and the wildlife habitat and native ground cover vegetation values have suffered accordingly. A program of frequent prescribed burns would be beneficial. The ideal would be every two years, but any burning would be an improvement.

RECOMMENDED CONSERVATION STRATEGIES: The main threat to the natural values is real estate development. A conservation easement or a cooperative agreement with the landowners that would encourage prescribed burning would be beneficial to the wildlife habitat and ground cover vegetation values, but is not a high priority because of the likely prospect for much of this area to be developed for residential use in the near future. Purchase does not seem warranted here due to the high real estate value, the moderate wildlife values, the moderate importance for water resource protection, and the lack of good connections to other wildlife areas.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some open surface water, some areas of wetland, and some low and floodprone lake shore in the site.

SITE VISIT: Bob Simons, 8/16/96, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity 3

Exotics 3

Endangered Species Habitat 2

Wildlife Habitat 3

Hydrology:

Floridan Aquifer 1

Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2
Landscape Ecology:	
Community Diversity	3
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	2
<u>Management Potential</u>	<u>3.5</u>

Note: See Table 2-1 for parameter descriptions.

MILL CREEK

PRIORITY: 9 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This is mostly slope forest associated with the Mill Creek drainage system, which is scattered in a large dendritic pattern. These forests are mostly magnificent mature forests of oak (*Quercus* spp.), hickory (*Carya* spp.), basswood (*Tilia caroliniana*), maple (*Acer* spp.), beech (*Fagus grandifolia*) and southern magnolia (*Magnolia grandiflora*) in excellent condition, although some areas are younger second growth forests in good condition. They contain the southern most population of American beech trees in the United States. There is also an area of pine flatwoods and upland mixed forest (mesic hammock) and associated wetlands surrounding the intersection of SR 241 and SR 236 five miles north of the town of Alachua. This forest is just now being logged. It contains the biggest area of pond pine (*Pinus serotina*) flatwoods in private ownership in Alachua County, and the largest known population of pond spice (*Litsea aestivalis*) (a state listed endangered plant) in the County.

USGS QUAD: Alachua, High Springs, Mikesville, Worthington Springs

SIZE: 3,632 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Slope Forest	808	good to excellent
Upland Mixed Forest	1293	good to fair (Mesic Hammock)
Upland Pine Forest	30	unknown
Sinkhole	2	unknown
Wet Flatwoods	66	good to fair

Mesic Flatwoods	238	good to fair
Baygall	138	good
Seepage Slope	5	good
Bottomland Forest	236	good
Basin Marsh	5	good
Depression Marsh	19	excellent to good
Dome Swamp	5	good
Farm Pond *	4	
Seepage Stream		good
Old Field Pine Plantation *	128	
Old Field Succession Pine *	129	
Rough Pasture *	153	
Improved Pasture *	179	
Row Crops *	168	

* Categories not used by FNAI

CONNECTIONS: The only potential connection is to O'Leno State Park along Parener's Branch. In order for this to be a good connection, a significant amount of restoration work would be needed in the form of protecting the entire length of the creek floodplain from grazing and agriculture, so that the native vegetation can grow back.

SITE BOUNDARY CONDITIONS: The boundaries are complex and irregular in shape due to the nature of the creek system and the pattern of clearing for agriculture. The boundaries do not conform to existing property lines, roads, section lines, or other surveyed lines in many places. There is a good solid block of this site at the intersection of SR 241 and SR 236. Both of these roads bisect the site.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by thick clay deposits that preclude percolation of water directly to the Floridan Aquifer. As a result, there is excellent creek formation. The part of the site at the highway intersection is flat, and is on the divide between the Mill Creek drainage system (of which Townsend Branch is a tributary) which drains into Mill Creek Sink near I-75 and US 441, and Parener's Branch and two other creeks that drain into the Santa Fe River. Most of the drainage of the site is into Mill Creek sink which drains directly into the Floridan Aquifer.

WILDLIFE HABITAT: This area provides excellent habitat for a variety of species. In the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication, this is the largest area of strategic habitat mapped in the northwestern half of Alachua County (Cox et al., 1994). The flatwoods area and many of the edges and bayhead areas provide excellent cover, and support such species as white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer

(*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The mature slope forests and hammock forests provide abundant mast and cavities, and support populations of white-tailed deer, gray squirrels (*Sciurus carolinensis*), raccoon (*Procyon lotor*), barred owl (*Strix varia*), red-shouldered hawk (*Buteo lineatus*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax virescens*), red-eyed vireo (*Vireo olivaceus*), parula warbler (*Parula americana*), Florida box turtle (*Terrapene carolina bauri*), and broad-headed skink (*Eumeces laticeps*). There is plenty of water in the creeks and depression marshes, which support river otters (*Lutra canadensis*), raccoons, wading birds, and several kinds of water snakes and frogs. The hardwood canopy of the mature slope forests is excellent habitat for migrating song birds. The depression marshes are small, but are good habitat for wading birds and important breeding habitat for amphibians (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: A snowy egret (*Egretta thula*) was observed on a small wetland on the pond pine flatwoods area. There may be a few alligators (*Alligator mississippiensis*) in some of the depression marsh areas. The Florida Game and Fresh Water Fish Commission has this area mapped as habitat for alligators, wood storks (*Mycteria americana*), and little blue herons (*Egretta caerulea*). There are large populations of the commercially exploited cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and greenfly orchid (*Epidendrum conopseum*). The most noteworthy species here is a population around the edge of a depression marsh of pond spice (*Litsea aestivalis*), a rare shrub listed as endangered in Florida. This may be one of the best populations of it in Florida.

EXOTICS: There are a few mimosa (*Albizia julibrissin*) trees and chinaberry (*Melia azedarach*) trees on the edges of some of the forests.

RESTORATION AND MANAGEMENT POTENTIAL: The area is mostly in good condition, but has a lot of edge and many owners. Its size and shape make management somewhat difficult. This area needs only protection from impacts by humans and by invasive exotic plants.

RECOMMENDED CONSERVATION STRATEGIES: The main threats here are potential real estate development, the construction of farm ponds, and clearing for agriculture. These concerns could be addressed with either conservation easements or full purchase. Conservation easements are probably most appropriate on most of the area, because the site occupies only part of most of the private land ownerships, thus allowing a landowner to get some compensation for leaving a conservation area while leaving other land for economically productive purposes. This would perhaps allow the current owners to guard the conservation areas, which, due to their irregular shape and difficult access, would be difficult for a public agency to do. The large area at the intersection of the two highways and extending down Townsend Branch could be purchased and the pond pine flatwoods area restored by burning it and then planting it back with pond pine. Adherence to dredge and fill regulations and Forestry best Management Practices is important here for protection of the wetlands and streams. Slight drainage of the wetlands could result in

extirpation of the pond spice population.

COMPREHENSIVE PLAN CONSIDERATIONS: There are areas of wetland, both connected and isolated. There is only a small amount of open water. The creeks have narrow floodplains in some areas and broad floodplains in other areas.

SITE VISITS: Bob Simons, 8/18/96, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3
Endangered Species Habitat	3.5
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	5
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	5

Landscape Ecology:

Community Diversity	3
Ecological Quality	3
Community Rarity	3
Functional Connectedness	1

Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

MILLHOPPER FLATWOODS

PRIORITY: 23 (average) (from unweighted sub-parameter score)

KEY FEATURES: This is a diverse area of relatively mature and undisturbed forest within a rapidly urbanizing part of the county. The pine flatwoods is natural second growth forest that has had no site preparation work such as bedding, but has also lacked fire for a several decades. The swamps and hammock areas are mostly in good condition. The area provides much of the headwaters area for Blues Creek, which flows into San Felasco State Preserve.

USGS QUAD: Gainesville West, Gainesville East
 SIZE: 1,691 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	401	good (Mesic Hammock)
Upland Pine Forest	25	fair
Wet Flatwoods	56	fair
Mesic Flatwoods	847	fair
Bog	39	good
Baygall	49	good
Bottomland Forest	12	good
Basin Marsh	13	good
Depression Marsh	18	good
Basin Swamp	147	good
Shrub Swamp *	1	good
Dome Swamp	63	good
Farm Pond *	3	
Sinkhole Pond	14	good
Seepage Stream		good
Improved Pasture *	1	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Fox Pond and thus San Felasco Hammock S.P.	good
Devil's Millhopper State Geological Site	fair
East San Felasco Hammock	fair/poor
Hague Flatwoods	fair

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape, and they do not always conform to existing property boundaries, roads, section lines, and other survey lines. The new development at the north end of the Spring Forest subdivision has encroached into the heart of this area. The north extension of NW 43rd Street has bisected the area.

GEOLOGIC/HYDROLOGIC FEATURES: This is an area where the Hawthorne Formation is getting thin, but still provides enough of an aquiclude to support a perched water table and stream formation. The area is the headwaters of Blues Creek, which flows through the Fox Pond area and into San Felasco Hammock, where it goes into a swallow hole and into the Floridan Aquifer in the Big Otter Ravine.

WILDLIFE HABITAT: There is good diversity of habitats, good cover, good mast production, and abundant water. There are also some cavity trees in the swamp and hammock forests. No burrows were observed, but there are a few well drained sandy spots that could support a few gopher tortoises if they were managed with prescribed fire. The ground cover in the flatwoods is rather poor in quality due to prolonged fire protection with no prescribed burning. The blackgum swamps (*Nyssa biflora*) provide good habitat for prothonotary warblers (*Protonotaria citrea*) in summer (Simons, personal observation), and all the hardwood areas provide important habitat for migrating song birds. The mesic flatwoods provides habitat for white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), and pine woods tree frog (*Hyla femoralis*). The mesic hammock forest in the southwest corner of the site and the basin swamps elsewhere on the site provide habitat for red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), acadian flycatcher (*Empidonax vireescens*), and red-eyed vireo (*Vireo olivaceus*). Blues Creek in the southwest corner of the site provides habitat for river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), banded water snake (*Nerodia fasciata*), and bronze frog (*Rana clamitans*). The isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The Florida Game and Fresh Water Fish Commission habitat use maps show some utilization of this area by wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), and alligator (*Alligator mississippiensis*) (Arnold, 1995). A pair of swallow-tailed kites (*Elanoides forficatus*) is sometimes observed in this area (including once this summer) and may be nesting here (Simons, personal observation). (This is not a listed species, but is rare in Alachua County.) There are some needle palms (*Rhapidophyllum hystrix*) in the hammock forest beside Blues Creek. There are also these commercially exploited listed plants: royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and greenfly orchid (*Epidendrum conopseum*).

EXOTICS: There are a few Chinese tallow trees (*Sapium sebifium*) along the power line and a few small patches of two different species of exotic bamboo along Blues Creek near the Fox Pond site, all of which pose a serious threat to the future wildlife habitat quality of this area. In the ditch along the power line there is some water hyacinth (*Eichhornia crassipes*) and alligator weed (*Alternanthera philoxeroides*), neither of which pose a threat of spreading further.

RESTORATION AND MANAGEMENT POTENTIAL: The hammock and swamp areas will continue to mature and improve in quality if left alone, provided some of the exotic plants are eradicated. The pine flatwoods areas need a program of prescribed fire if they are to become good wildlife habitat or are going to support the many wildflowers and other herbaceous plants that normally grow in healthy pine flatwoods habitats. It would be difficult to burn here due to the large subdivisions on both the north and south sides and US 441 on the west side of the pine

flatwoods area. Therefore, the long term viability of this community is doubtful. Management alternatives to burning, such as chopping or mowing, have been proposed and tried, but they have not been shown to be viable for long term management in the complete absence of fire. The wetlands here have been drained somewhat by recent development activities (as evidenced by new ditches connected to isolated wetlands).

RECOMMENDED CONSERVATION STRATEGIES: The main threat here is residential development. Purchase does not seem to be the best option due to the modest resource value and the high price of the land. The best strategy is probably to work with existing planning, zoning, and development regulations to secure the most wetland protection, the widest possible setbacks along the creeks, a clustering of development away from streams and wetlands, and a low density of development.

COMPREHENSIVE PLAN CONSIDERATIONS: There is a creek and its floodplain, which is broad in places and narrow in others. There are large areas of wetland, but almost no open water.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2.5
Exotics	2

Endangered Species Habitat	2.5
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Wildlife Habitat	2
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Hydrology:

Floridan Aquifer	4
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	3
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	3

Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

MONTEOCHA CREEK

PRIORITY: 39 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is a tributary of the Santa Fe River. Its floodplain areas and some adjacent uplands serve as both high quality wildlife habitat and an important wildlife and water flow connector for large areas of pine flatwoods forest in the northeastern part of the county. The upland communities are mostly in poor condition, but are restorable. This is a better site than the low rating would indicate (Simons, personal opinion).

USGS QUAD: Montechoa

SIZE: 1,605 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	154	fair to poor
Former Sandhill	173	fair to poor
Wet Flatwoods	66	fair to poor
Mesic Flatwoods	231	good to fair
Baygall	56	good
Seepage Slope Forest *	56	fair
Bottomland Forest	393	good
Floodplain Forest	5	good
Floodplain Swamp	41	good
Basin Swamp	174	good
Dome Swamp	11	good
Old Field Pine Plantation *	42	
Rough Pasture *	93	
Row Crops *	59	

* Categories not used by FNAI

CONNECTIONS: This site is strongly connected to the Santa Fe River. The connection to the Northeast Flatwoods area is good, and the connection to the Buck Bay Flatwoods area is fair.

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape and they often do not conform to existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC\HYDROLOGIC FEATURES: This area is underlain by the relatively impermeable Hawthorn Formation which prevents any significant percolation of water into the Floridan Aquifer. The surface flow of water is all into the Santa Fe River.

WILDLIFE HABITAT: There is a high diversity of habitats here. The upland habitats are

mostly in fair to poor condition due to lack of fire. However, they still provide habitat for white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), pine warbler (*Dendroica pinus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), and southern toad (*Bufo terrestris*). The mesic, seepage, and wetland hardwood forest habitats are mostly in good condition and provide habitat for raccoon (*Procyon lotor*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), pileated woodpecker (*Dryocopus pileatus*), red-eyed vireo (*Vireo olivaceus*), and cottonmouth (*Agkistrodon piscivorus*). The creek and the wetlands also support river otters (*Lutra canadensis*). Overall, there is good mast and browse production, good cover, some gopher burrows, and a few tree cavities. There are no large areas of interior forest habitat, but there are extensive edge and ecotone type habitats.

RARE, THREATENED, AND ENDANGERED SPECIES: The sandhill area supports gopher tortoises. The Florida Game and Fresh Water Fish Commission maps show habitat on the site for alligators (*Alligator mississippiensis*), Florida gopher frogs (*Rana capito aesopus*), wood storks (*Mycteria americana*), and little blue herons (*Egretta caerulea*) (Arnold, 1995). There is also probably some use by white ibis (*Eudocimus albus*) (Simons, personal opinion). Listed plants on the area include wild pink azalea (*Rhododendron canescens*), royal fern (*Osmunda regalis*), and cinnamon fern (*Osmunda cinnamomea*), all of which are fairly common, but are listed to protect commercially exploited species. Spoon flower (*Peltandra sagittifolia*) and golden-club (*Orontium aquaticum*), two fairly uncommon plants of high quality wetlands, occur along the creek.

EXOTICS: The only listed invasive exotics found were a few chinaberry trees (*Melia azedarach*) and a few mimosa (*Albizia julibrissin*) trees. Chinaberry is not a threat to native habitats, but mimosa sometimes is.

RESTORATION AND MANAGEMENT POTENTIAL: The wetlands are in relatively good condition and will improve with time if left alone, provided invasive exotic plants are not allowed to become established. The sandhill and flatwoods areas need frequent prescribed burns if they are to become high quality wildlife habitat with diverse native groundcover. This would be possible here, since there are no nearby towns, airports, or major highways to cause smoke management difficulties. The connections to the Buck Bay Flatwoods area could easily be improved with a little restoration work and legal protection. The connections to the Northeast Flatwoods area are important enough to warrant conservation efforts to protect them.

RECOMMENDED CONSERVATION STRATEGIES: The main threats to the natural resources are clearing for agriculture and residential development. This is a high quality and important connector that warrants strong protection. Purchase might be the best approach for the large area next to the Santa Fe River site to provide maximum protection for this important connection. However, conservation easements would also work here and would be the best

option where the landowners do not want to sell their land or where the site is narrow and is only a small part of a private owner's land.

COMPREHENSIVE PLAN CONSIDERATIONS: This area is dominated by the broad floodplain of Montechoa Creek. There are also other wetlands, including some isolated ones.

SITE VISITS: David Clayton 8/8/96; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	3
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	1

Landscape Ecology:

Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	4

<u>Management Potential</u>	<u>3</u>
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Note: See Table 2-1 for parameter descriptions.

MORANS PRAIRIE

PRIORITY: 45 (low) (from unweighted sub-parameter score)

KEY FEATURES: This is a relatively small area that is dominated by Morans Prairie and associated wetlands. There are also pine plantation uplands on both flatwoods and sandhill soils. This is part of the ultimate headwaters of Lochloosa Creek, providing some connection between Lake Elizabeth, Morans Prairie, and the creek system in the Lochloosa Creek Headwaters site.

USGS QUAD: Melrose, Orange Heights.
 SIZE: 1,608 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	70	poor
Former Sandhill	26	poor
Xeric Hammock	27	fair
Upland Mixed Forest	49	fair
Wet Flatwoods	115	fair
Mesic Flatwoods	303	fair
Bog	18	good
Baygall	79	fair
Seepage Slope Forest *	50	fair
Basin Marsh	117	good
Depression Marsh	22	good
Basin Swamp	289	fair
Dome Swamp	8	good
Flatwoods Pond	10	good
Old Field Pine Plantation *	11	
Rough Pasture *	112	
Improved Pasture *	42	
Row Crops *	23	
Low Impact Development *	19	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
South Melrose Flatwoods + Lake Elizabeth	fair
Lochloosa Creek Headwaters Flatwoods	fair to poor

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape and do not always conform to existing property boundaries, roads, section lines, and other surveyed lines. There is a large inholding of irregular shape in the middle of the site.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the Hawthorn formation which precludes downward percolation of water, thus supporting the perched water table of the wetlands here, the creek system, and Lake Elizabeth to the north. Lake Elizabeth is the ultimate headwaters of Lochloosa Creek, and it flows into Morans Prairie, which in turn flows west across US 301 into the Lochloosa Creek Headwaters Flatwoods site. From there, the water flows into

Lake Lochloosa and then Orange Creek and then the Ocklawaha River.

WILDLIFE HABITAT: There is moderate diversity here, although the quality of many of the habitats is not good. There is abundant water, good cover, some browse, some burrows, not much mast production, little hardwood canopy habitat, and few tree cavities. The small size and poor connections to larger areas restricts the wildlife use of this area. Most of the sandhill and pine flatwoods areas are either slash pine (*Pinus elliottii*) plantation or pasture. Animals inhabiting these uplands include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), pine warbler (*Dendroica pinus*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and southern toad (*Bufo terrestris*). The wetlands are mostly good quality basin swamp, basin marsh, and depression marsh. Some wetland wildlife species here include raccoon (*Procyon lotor*), wading birds, red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*).

RARE, THREATENED, AND ENDANGERED SPECIES: Wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), and alligator (*Alligator mississippiensis*) are mapped by the Florida Game and Fresh Water Fish Commission as being here (Arnold, 1995). There is some sandhill habitat here that probably is not large enough to support a population of gopher tortoises (*Gopherus polyphemus*) that would be viable over a long time period.

EXOTICS: Alligator weed (*Alternanthera philoxeroides*), which is not a problem, was found in a disturbed cypress swamp. Of more concern is a five acre patch of cogon grass (*Imperata cylindrica*) in a pine plantation that has just been harvested. If not eradicated, the cogon grass will cause major habitat destruction by displacing native ground cover plants and will cause a high fire danger situation due to the large fuel loads of highly flammable fuel it produces.

RESTORATION AND MANAGEMENT POTENTIAL: This area has the potential to be much better for wildlife than it is. Prescribed burning in the sandhill and flatwoods areas would benefit wildlife greatly. However, the small size and isolation of the upland habitats here means that upland animals requiring more than about 500 acres of habitat to maintain a viable population would not be viable here. The wetlands here have been drained to some extent, as evidenced by the ditches that are visible on the aerial photographs. Whether it would be beneficial for wildlife to reverse this has not been determined, but it is likely that it would.

RECOMMENDED CONSERVATION STRATEGIES: The main threats are residential development, invasion by exotic plants, lack of prescribed burning, draining of wetlands, and clearing for agriculture. Purchase of property or of conservation easements does not seem warranted, due to a lack of high natural resource values for the uplands, and adequate laws to protect the wetlands. Enforcing wetland protection laws is one recommended strategy. Helping

private landowners combat cogon grass with direct aid, if possible, or by supplying information, is another recommended strategy. A similar strategy might be helpful in promoting more prescribed burning.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some open water, a large area of wetland, and the beginning of a small stream which has been at least partly ditched.

SITE VISITS: David Clayton, 1996; Bob Simons, 1996

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	2

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	1

Landscape Ecology:

Community Diversity	2
Ecological Quality	2
Community Rarity	2
Functional Connectedness	2

Management Potential	3
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Note: See Table 2-1 for parameter descriptions.

EAST SIDE NEWNANS LAKE

PRIORITY: 13 (above average) (from unweighted sub-parameter score)

KEY FEATURES: This is the southeast quarter of the shore line of Newnans Lake and the strip of land between the lake and the paved roads. It includes the magnificent fringe of lake shore cypress swamp, and some other swamps, ponds, pine flatwoods, and hardwood forest.

USGS QUAD: Orange Heights, Rochelle

SIZE: 1,887 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Scrub	1	fair
Xeric Hammock	15	good
Wet Flatwoods	35	fair
Mesic Flatwoods	913	fair
Scrubby Flatwoods	17	fair
Hydric Hammock	225	good
Baygall	41	good
Floodplain Swamp	6	fair
Depression Marsh	12	good
Basin Swamp	74	good
Lake Shore Swamp	346	good
Dome Swamp	25	good
Flatwoods Pond	5	good
Blackwater Stream	3	fair
Old Field Pine Plantation *	37	
Rough Pasture *	41	
Improved Pasture *	62	
Row Crops *	22	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Newnans Lake	excellent
Lochloosa Creek HQ Flatwoods	good
SJRWMD part of Prairie Creek	good

SITE BOUNDARY CONDITIONS: Good

GEOLOGIC/HYDROLOGIC FEATURES: This area is perched above the Floridan Aquifer by the Hawthorn Formation. The drainage is into the lake and then down Prairie Creek into both Paynes Prairie, where the water goes down Alachua Sink into the Floridan Aquifer, and into Orange Lake by way of Camp's Canal and the River Styx, where some water goes into the Floridan Aquifer and some into Orange Creek.

WILDLIFE HABITAT: Due to the large and biologically productive lake, the wildlife use here is high. The lake shore habitat is good, and there is considerable diversity overall. There is abundant water, good browse, fair mast production, abundant cover, and a few tree cavities. There are several osprey (*Pandion haliaetus*) nests a big population of brown water snakes

(*Nerodia taxispilota*) in the lake shore swamp. Other wetland wildlife species found here include river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), great blue heron (*Ardea herodias*), great egret *Casmerodius albus*), red-bellied woodpecker (*Melanerpes carolinus*), and pileated woodpecker (*Dryocopus pileatus*). The pine flatwoods areas here are mostly either slash pine plantations or second growth slash pine forests that have not been burned for decades, resulting in less than ideal habitat. Some animals in the flatwoods include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), pine warbler (*Dendroica pinus*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), and pine woods tree frog (*Hyla femoralis*). The isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: There are two active bald eagle (*Haliaeetus leucocephalus*) nests on the site in the lake shore swamp (Nesbitt, 1996). The habitat distribution maps of the Florida Game and Fresh Water Fish Commission show this to be good habitat for alligator (*Alligator mississippiensis*), wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolor heron (*Egretta tricolor*), limpkin (*Aramus guarauna*), and bald eagle (Arnold, 1995). There are a few gopher tortoises (*Gopherus polyphemus*) in the dry mesic flatwoods, scrubby flatwoods, and scrub areas (Simons, personal observation). This is one of the areas specifically mentioned and mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox et al., 1994).

EXOTICS: There are some mimosa (*Albizia julibrissin*) trees and some air-potato (*Dioscorea bulbifera*) vines.

RESTORATION AND MANAGEMENT POTENTIAL: The area is in good condition. The small infestations of exotic plants could easily be removed. The flatwoods and scrub areas need prescribed burning to achieve the high wildlife value potential these areas have. This would be difficult to do due to smoke management problems. SR 20 is on the south side, the Windsor Road is on the east side, and the Gainesville Regional Airport is several miles to the northwest. This is an area where alternative management techniques such as chopping and mowing might be needed to maintain the pine flatwoods community. Whether they can be developed to maintain a native community for a century or more is not known. The lake shore and other wetland communities can remain viable and valuable even if the pine flatwoods community changes to a hardwood forest.

RECOMMENDED CONSERVATION STRATEGIES: The main threat is residential development. Purchase of development rights or full purchase is warranted here due to the high resource values and wildlife corridor value. A joint effort by several public agencies might make this more likely to succeed.

COMPREHENSIVE PLAN CONSIDERATIONS: The long lake shore is subject to wind tides and wave action. It is also low and gradually sloping. There are wetlands of several kinds and some open water away from the lake.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	4
Wildlife Habitat	4

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	2
Ecological Quality	3
Community Rarity	2.5
Functional Connectedness	4
<u>Management Potential</u>	<u>4</u>

Note: See Table 2-1 for parameter descriptions.

PAYNES PRAIRIE WEST

PRIORITY: 31 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of live oak (*Quercus virginiana*) forest on the west side of Paynes Prairie that also has some degraded sandhill on its west side.

USGS QUAD: Arredondo

SIZE: 511 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	54	fair
Former Sandhill	10	poor
Xeric Hammock	183	fair
Hydric Hammock	221	good
Depression Marsh	3	good
Rough Pasture *	39	

* Categories not used by FNAI

CONNECTIONS: Well connected to Paynes Prairie State Preserve

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the thin edge of the Hawthorn formation, which means that there are clay lenses that allow for some perched water in some wetlands, but not a continuous layer that would prevent percolation into the Floridan Aquifer. All surface water flow here is into the Floridan Aquifer.

WILDLIFE HABITAT: The oak forest is good habitat for gray squirrels (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virginianus*), wild turkeys (*Meleagris gallopavo*), blue jays (*Cyanocitta cristata*), common grackles (*Quiscalus quiscula*), Carolina wrens (*Thryothorus ludovicianus*), and parula warblers (*Parula americana*). There is xeric hammock here and also small sinkhole depressions that hold water temporarily, a combination which makes for ideal eastern spadefoot toad (*Scaphiopus holbrookii holbrookii*) habitat. There is also some xeric sandhill on the west side that provides some habitat diversity and is especially good for red-headed woodpeckers (*Melanerpes erythrocephalus*) because of its proximity to the live oak forest. (Red-headed woodpeckers, common grackles, blue jays, wild turkeys, white-tailed deer, and some other animals will move from other habitats into oak forests, especially live oak forests, in the fall to feed on the acorn crop.) There is good mast production, good browse, fair cover, few burrows, and not many tree cavities. The tree cavities will increase with time as the trees get older. This is fairly good hardwood canopy for migrating songbirds.

RARE, THREATENED, AND ENDANGERED SPECIES: There is some gopher tortoise (*Gopherus polyphemus*), Florida pine snake (*Pituophis melanoleucus mugitus*), and Florida gopher frog (*Rana capito aesopus*) habitat on the west side of the property. The combination of live oak forest and sandhill near a major wetland is ideal habitat for eastern indigo snakes (*Drymarchon corais couperi*), but the major highway, SR 121, that separates the sandhill and oak forest from Paynes Prairie may prevent this from being viable habitat. The Florida Game and Fresh Water Fish Commission Habitat Distribution Maps show Florida gopher frog habitat here (Arnold, 1995).

EXOTICS: There has been some trash dumping in the past that has brought in mimosa (*Albizia julibrissin*), lantana (*Lantana camera*), and air-potato (*Dioscorea bulbifera*).

RESTORATION AND MANAGEMENT POTENTIAL: The area will continue to improve in habitat quality with age, as long as it is protected from negative impacts. The exotics could be removed fairly easily at this point. Prescribed burning in the small area of sandhill on the west side would be easy to do from a smoke management standpoint, and would greatly improve that community. The live oak hammock has considerable value as a mast production area for wildlife. The whole area would be easy to manage, and would be easy to keep viable as habitat for the acorn consumer species.

RECOMMENDED CONSERVATION STRATEGIES: Part of this is owned by the City of Gainesville, which does not view the area as a conservation area. Most of it is owned by a private owner. The main threat is residential development. Because its economic value is almost entirely as development property, it would need to be purchased to protect its full natural value. If purchased, it could be added to Paynes Prairie State Preserve. It is not a high priority, but it is potentially good wildlife habitat. Some of the potential wildlife values could be maintained with low density residential development, if most of the oak trees remained intact and healthy enough to continue to produce an acorn crop.

COMPREHENSIVE PLAN CONSIDERATIONS: There is some small area of wetland.

SITE VISITS: David Clayton, 1996; Bob Simons, several times over the past 4 decades.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	1
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	3

Management Potential 3

Note: See Table 2-1 for parameter descriptions.

PINE HILL FOREST

PRIORITY: 36 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of cutover forest land surrounded by the growing residential development on the northwest side of Gainesville west of I-75 and between Newberry Road and NW 39th Avenue. It was originally mostly high quality upland pine forest, but this was long ago. Lack of fire and logging have removed most of the biotic features of this community. Smaller areas of mesic and wet flatwoods and mesic hammock are also present in somewhat better condition. There are small ponds and wetland areas, and the entire area provides watershed for two or more small creeks.

USGS QUAD: Gainesville West

SIZE: 1,188 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	4	unknown
Upland Mixed Forest	93	fair (Mesic Hammock)
Calcareous Mesic Hammock *	4	fair
Upland Pine Forest	637	poor
Sinkhole	19	good
Mesic Flatwoods	120	fair
Baygall	3	good
Sinkhole Pond	2	good
Mine Pit Pond *	4	
Old Field Succession Pine *	131	
Rough Pasture *	104	
Improved Pasture *	42	
Row Crops *	24	

* Categories not used by FNAI

CONNECTIONS: This area is completely isolated from other biological communities. The closest other Site is Buzzards Roost, but the potential connection between them is being rapidly lost to development. Newberry Road also separates them.

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is dominated by a hill that is 195 feet above sea level. The lowest elevation on the area is 80 feet. The hill is flat-topped, with the flat top area shaped as a large, irregular cross extending across the site from east to west and nearly from north to south. The soils are on top of thick beds of marine deposited silt or clay, and are therefore nearly impermeable to water internally. Thus, there is abundant surface runoff forming at least two creek systems with several branches. The flat-topped east-west ridge is poorly drained on top, the north-south one is not so flat on top and somewhat better drained. The streams here are all stream to sink systems that flow into sink holes that lead directly into the Floridan Aquifer. The sink for one stream is on the site, whereas two others are off the site.

WILDLIFE HABITAT: The habitat for wildlife has been severely damaged by lack of burning and logging in the upland pine forest areas, and somewhat damaged by these same factors in the pine flatwoods areas. The hammock areas have been hurt by logging, but would recover on their own given time. There is abundant browse, good cover, few cavities, little mast, and not much diversity. Wildlife species currently inhabiting the area include gray squirrel (*Sciurus carolinensis*), blue jay (*Cyanocitta cristata*), white-eyed vireo (*Vireo griseus*), pine warbler (*Dendroica pinus*), cardinal (*Cardinalis cardinalis*), rufous-sided towhee (*Pipilo erythrophthalmus*), and southern toad (*Bufo terrestris*).

RARE, THREATENED, AND ENDANGERED SPECIES: None observed and none expected.

EXOTICS: The area is nearly free of invasive exotic plants. Only on the power line right-of-way were there a few Chinese tallow trees (*Sapium sebiferum*) and some bahia grass (*Paspalum notatum*).

RESTORATION AND MANAGEMENT POTENTIAL: Frequent prescribed burning would be required forever to restore and maintain the upland pine forest community that dominated most of this area originally (200+ years ago). This would be difficult to do, because I-75 is one mile to the west, there are main roads to the north and the south, and the surrounding area is rapidly becoming residential. The flatwoods areas on the ridge tops would be somewhat easier to restore, because they are smaller, in better condition, and would require smaller and less frequent fires, but even this might be difficult to continue to do in the future.

The hammock areas would restore themselves with time and some protection from invasion by exotic plants.

RECOMMENDED CONSERVATION STRATEGIES: This area is going to be developed for residential housing and/or other such uses. The best way to protect as much of the watershed

value as possible is to put a high priority and emphasis on storm water retention and detention, on wide and non-compacted, non-cleared setbacks from the creeks, and especially on leaving the aquifer recharge points undisturbed within fairly large conservation areas. Other options, such as full purchase or the purchase of conservation easements is not warranted due to the low resource value combined with the high real estate value.

COMPREHENSIVE PLAN CONSIDERATIONS: There is a small amount of open water in a few ponds, a few small wetlands, and a few sink holes. The main concern are the creeks. The creeks have little to no associated floodplain, but they drain a significant area, are steeply sloped for Florida creeks, and end in swallow holes leading into the Floridan Aquifer. Putting storm sewage into these creeks would greatly alter them and directly pollute the Floridan Aquifer.

SITE VISITS: Bob Simons, 6/29/96, 7/17/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	1
Wildlife Habitat	2

Hydrology:

Floridan Aquifer	5
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	5

Landscape Ecology:

Community Diversity	1
Ecological Quality	2
Community Rarity	3
Functional Connectedness	1

Management Potential	2
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Note: See Table 2-1 for parameter descriptions.

PRAIRIE CREEK

PRIORITY: 6 (high) (from unweighted sub-parameter score)

KEY FEATURES: This is the downstream end of Prairie Creek where the creek reaches Paynes Prairie. It includes a bit of the prairie basin, some of the creek and its floodplain swamp, some magnificent hydric hammock with large live oaks, some partially cleared pasture areas, and an assortment of other habitats in small patches. It is currently impacted by an assortment of large game animals that are kept there. It is an important part of the connector linking the Paynes Prairie ecosystem to the Newnans Lake ecosystem.

USGS QUAD: Micanopy, Rochelle

SIZE: 668 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	15	fair
Upland Mixed Forest	77	good (Mesic Hammock)
Mesic Flatwoods	20	fair
Hydric Hammock	110	good
Wet Prairie	74	good
Floodplain Swamp	58	good
Basin Marsh	10	good
Depression Marsh	11	good
Basin Swamp	120	good
Sinkhole Pond	2	good
Blackwater Stream	4	good
Old Field Succession Pine *	17	
Rough Pasture *	130	
<u>Improved Pasture *</u>	20	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
To Paynes Prairie State Preserve	excellent
To the SJRWMD Prairie Creek lands	excellent

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: The Hawthorn Formation underlies this area and all the lands in the Newnans Lake watershed, supporting a perched water table. Hatchet Creek and several smaller creeks flow into Newnans Lake, the outflow of which is Prairie Creek. This site is located where the water from Prairie Creek reaches Paynes Prairie. The channel of Prairie Creek has been altered greatly here. In the 1920's a dike was built and Camp's Canal was

constructed for the purpose of diverting the flow of Prairie Creek from Paynes Prairie into Orange Lake, so that more cattle could be grazed on the prairie. These structures are still here and functioning. There is a water control structure in the dike that allows some of the water to flow in its natural course onto the prairie where it ends up recharging the Floridan Aquifer at Alachua Sink, but most of the water flows down the canal. In times of low water, all of the water flows down the canal into the River Styx. From there it goes into Orange Lake

WILDLIFE HABITAT: The diversity of habitats here is excellent for such a small area, and the quality and fertility of the habitats is good. They are currently stressed somewhat by the presence of the herd of game animals being kept there, but these impacts are correctable. There is abundant water, good mast production and browse, a moderate amount of cover, and some burrows and tree cavities. Being adjacent to one of the areas on Paynes Prairie most heavily used by wading birds and other wildlife, this is a particularly important wildlife area. An early morning canoe trip down Prairie Creek through the site revealed the following estimated numbers of birds (plus those reported in the next section): great egret (*Casmerodius albus*) 100, black-crowned night-heron (*Nycticorax nycticorax*) 100, great blue heron (*Ardea herodias*) 50, kingfisher (*Ceryle alcyon*) 4, pileated woodpecker (*Dryocopus pileatus*) 2, cooper's hawk (*Accipiter cooperii*) 1, red-shouldered hawk (*Buteo lineatus*) 1, barred owl (*Strix varia*) 1, plus about 200 birds in mixed flocks of migrating song birds (primarily warblers). Mammals common here include whit-tailed deer (*Odocoileus virginianus*), wild hog (*Sus scrofa*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), and gray squirrel (*Sciurus carolinensis*). The creek supports good populations of fish, including largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), shellcracker (*Lepomis microlophus*), stumpknocker (*Lepomis punctatus*), warmouth (*Lepomis gulosus*), brown bullhead (*Ictalurus nebulosus*), mudfish (*Amia calva*), and Florida gar (*Lepisosteus platyrhincus*).

RARE, THREATENED, AND ENDANGERED SPECIES: There is a small spot of potential gopher tortoise (*Gopherus polyphemus*) and Florida gopher frog (*Rana capito aesopus*) habitat. The Florida Game and Fresh Water fish Commission habitat distribution maps show a single spot of Florida gopher frog habitat on or just beside the area (Arnold, 1995). These maps are hard to read for an area as small as this one that is not near a mapped road or other landmark. The maps also show habitat on or just adjacent to the property for wood stork (*Mycteria americana*), sandhill crane (*Grus canadensis*), limpkin (*Aramus guarauna*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), and alligator (*Alligator mississippiensis* (Arnold, 1995). About ten white ibis (*Eudocimus albus*) and ten snowy egrets were observed here on 9/21/96. On 10/24/96, an early morning canoe trip down the entire length of Prairie Creek through the site revealed the following numbers of listed birds: wood stork 24, white ibis 40, snowy egret 10, little blue heron 3, and tricolor heron 2. A dead alligator was also observed on this trip. Steven Nesbitt (1996) says that sandhill cranes do definitely feed here. There are probably also eastern indigo snakes (*Drymarchon corais couperi*) here (Moler, 1996). The area on Paynes Prairie State Preserve where the water from Prairie Creek fans out (when some of it is being discharged onto the prairie) is perhaps the best feeding

area in the county for wood storks, white ibis, snowy egrets, and several other kinds of wading birds (Simons, personal observation). Plants observed include cardinal flower (*Lobelia cardinalis*), which is listed as threatened, and royal fern (*Osmunda regalis*), which is listed as commercially exploited.

EXOTICS: Chinese tallow tree (*Sapium sebiferum*) is the most common nuisance exotic.

RESTORATION AND MANAGEMENT POTENTIAL: This area has been altered significantly by the dike and canal construction in the 1920's and by partial clearing for pasture and the grazing by exotic game animals. However, it is a productive area for wildlife and a important part of a critical biological and hydrological connector. There are no great long term management problems as long as there is no development here. This is a highly viable area, the protection of which would help to ensure the viability of other areas both up and down stream.

RECOMMENDED CONSERVATION STRATEGIES: The main threat is real estate development. This area is strongly recommended for purchase by the state and/or the St. Johns River Water Management District, and/or any other public agency dedicated to conservation. Other alternatives, such as the purchase of conservation easements or entering into cooperative conservation agreements are appropriate as interim measures.

COMPREHENSIVE PLAN CONSIDERATIONS: Most of this area is both floodplain and wetland. There is some open water. The banks of Prairie Creek are low, and water can flood broadly.

SENSITIVITY TO RECREATIONAL ACTIVITY: If purchased by a public agency, a determination would have to be made as to the appropriate public recreational use. The high density of listed bird species here, most of which are sensitive to disturbance, must be one consideration. The most noisy and disruptive of water craft, such as high powered motor boats, air boats, and jet skis, would do considerable damage to the wildlife resource if operated here. Even canoeing is somewhat disruptive to these birds on this narrow creek.

SITE VISITS: Bob Simons, 9/21/96, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity 3

Exotics 3

Endangered Species Habitat 3

Wildlife Habitat 4

Hydrology:

Floridan Aquifer 4

Surficial Aquifer Resource Protection	2.5
Vulnerability of Aquifer	3
Landscape Ecology:	
Community Diversity	3
Ecological Quality	3
Community Rarity	2
Functional Connectedness	5
Management Potential	4

Note: See Table 2-1 for parameter descriptions.

ROCKY CREEK

PRIORITY: 31 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This site is a connector that consists mostly of Rocky Creek and its tributaries along with a narrow strip of stream valley and upland along the streams. It is one of the most far reaching and narrow connectors in the County. The vegetation along the stream is mostly hardwood forest.

USGS QUAD: Alachua, Brooker, Montechoa, Worthington Springs

SIZE: 3,042

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	15	unknown
Former Sandhill	35	unknown
Slope Forest	152	good
Upland Mixed Forest	29	good (Mesic Hammock)
Sinkhole	1	unknown
Mesic Flatwoods	367	fair
Hydric Hammock	28	good
Baygall	198	good
Seepage Slope Forest *	1249	good
Bottomland Forest	78	good
Basin Marsh	12	good
Basin Swamp	228	good
Dome Swamp	7	good
Prairie Pond	46	good

Sinkhole Pond	5	good
Old Field Pine Plantations *	69	
Rough Pasture *	203	
Improved Pasture *	27	
Row Crops *	258	
Low Impact Development *	22	

* Categories not used by FNAI

CONNECTIONS:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Santa Fe River	fair to poor
Buck Bay Flatwoods	fair
South LaCrosse For.	poor
Hague Flatwoods	fair
Hasan Flatwoods	poor

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape and many do not conform to existing property boundaries, roads, section lines, or other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This area is underlain by the Hawthorn Formation which prevents significant percolation of water into the Floridan Aquifer. The resulting runoff goes into Rocky Creek, which flows into the Santa Fe River. The watershed extends south to the north edge of the Deerhaven Power Plant just north of Gainesville.

WILDLIFE HABITAT: The creek and its banks and sloping sides provide the only relatively natural wildlife habitat and most of the forest habitat in a large area of rural northern Alachua County. The hardwood forest provides valuable habitat for summer resident and migrating song birds. The stream is a vital habitat and corridor for river otters (*Lutra canadensis*), raccoons (*Procyon lotor*), white-tailed deer (*Odocoileus virginianus*), gray squirrels (*Sciurus carolinensis*), bobcats (*Lynx rufus*), and gray fox (*Urocyon cinereoargenteus*). Some of the more common or easily noticed birds are red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), yellow-billed cuckoo (*Coccyzus americanus*), pileated woodpecker (*Dryocopus pileatus*), great crested flycatcher (*Myiarchus crinitus*), common crow (*Corvus brachyrhynchos*), and parula warbler (*Parula americana*). Common reptiles include black racer (*Coluber constrictor*), banded water snake (*Nerodia fasciata*), yellow rat snake (*Elaphe obsoleta quadrivittata*), broad-headed skink (*Eumeces laticeps*), ground skink (*Scincella lateralis*), and green anole (*Anolis carolinensis*).

RARE, THREATENED, AND ENDANGERED SPECIES: There is a small amount habitat in wetlands along the creek system for alligators (*Alligator mississippiensis*), wood storks (*Mycteria americana*), snowy egrets (*Egretta thula*), and little blue herons (*Egretta caerulea*). This seems to be indicated on the Florida Game and Fresh Water fish Commission habitat distribution maps (Arnold, 1995), although it is hard to tell due to the scale of the maps and lack of reference points

such as the many smaller highways.

EXOTICS: Mimosa (*Albizia julibrissin*), chinaberry (*Melia azedarach*), and perhaps some other exotics are scattered along the enormous edge of this site.

RESTORATION AND MANAGEMENT POTENTIAL: This would be a difficult area to manage. It is long and crosses many ownerships with such poor access to many areas that managing it would be a big task. It is a valuable connector for native wildlife, but it could also be an avenue to spread some nasty invasive exotic plants. The greatest needs are to increase the strength of the various connections and to eliminate invasive exotic plants. None of the connections are good at present, but all of them could be greatly improved, by restoring forested habitat along streams and reconstructing highway stream crossings for use by wildlife.

RECOMMENDED CONSERVATION STRATEGIES: The threats are: clearing for agriculture, residential development, the clearing of road rights-of-way, road and culvert construction, and invasive exotic plants. Purchase does not seem to be the best option due to the great many ownerships, the many miles of boundaries, the difficult access, and the lack of ability on any public agency's part to look after such a property. Conservation easements along the entire site that would preclude further clearing, but would allow the private landowners access, which might provide the best potential for having someone looking after the resource if the landowners were educated and motivated.

COMPREHENSIVE PLAN CONSIDERATIONS: This is a long creek system with a floodplain along the entire length that varies from narrow to broad. Much of the floodplain is also wetland. In addition, there are other kinds of wetlands, including some isolated ones.

SITE VISITS: David Clayton, 1996; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2.5
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	3
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Ecological Quality	3
Community Rarity	2
Functional Connectedness	3
<u>Management Potential</u>	<u>3</u>

Note: See Table 2-1 for parameter descriptions.

SALUDA SWAMP

PRIORITY: 36 (below average) (from unweighted sub-parameter score)

KEY FEATURES: This is a relatively small area of commercial pine flatwoods forest containing a large swamp, several smaller ones, and a small creek. It is a headwaters area for a tributary of Hatchet Creek.

USGS QUAD: Keystone Heights, Melrose, Orange Heights, Waldo
SIZE: 2,051 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Wet Flatwoods	4	fair
Mesic Flatwoods	1346	fair
Bog	2	good
Baygall	44	good
Basin Swamp	339	good
Dome Swamp	83	good
Old Field Pine Plantation *	224	

* Categories not used by FNAI

CONNECTIONS: To Austin Cary Flatwoods - fair

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, roads, section lines, and other surveyed lines.

GEOLOGIC/HYDROLOGIC FEATURES: This is a high headwaters area perched on the Hawthorn Formation which is thick here, preventing percolation of water into the Floridan Aquifer. Elevations range between 150 and 170 feet above sea level. Although located close to Lake Santa Fe, all of the surface drainage is into a tributary of Hatchet Creek, which flows into Newnans Lake, which, in turn drains into Alachua Sink on Paynes Prairie and into Orange Lake.

WILDLIFE HABITAT: The diversity of habitats here is moderate at best. The mast production is fairly low, the browse is abundant, there is good cover, there are no burrows, and there are some tree cavities in the swamps. The pine flatwoods is all bedded and low diversity pine plantation. A large area has been prescribed burned this year, which will help the ground cover vegetation. Animals here in the flatwoods include white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), yellowthroat (*Geothlypis trichas*), rufous-sided towhee (*Pipilo erythrophthalmus*), black racer (*Coluber constrictor*), diamondback rattlesnake (*Crotalus adamanteus*), pine woods tree frog (*Hyla femoralis*), and oak toad (*Bufo quercicus*). The wetlands are mostly good quality basin swamp with some cypress domes and baygalls. Many of the swamps have been harvested for timber recently, but the others are in good condition. Some wetland wildlife species that occur here include raccoon (*Procyon lotor*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), and cottonmouth (*Agkistrodon piscivorus*). The isolated wetlands are important amphibian breeding sites and provide feeding habitat for wading birds (Moler and Franz, 1987).

RARE, THREATENED, AND ENDANGERED SPECIES: The Florida Game and Fresh Water Fish Commission habitat distribution maps show habitat here for wood storks (*Mycteria americana*) and alligators (*Alligator mississippiensis*) (Arnold, 1995). The potential for listed plants is for the same species as were found on the larger commercial pine flatwoods areas. The only ones found during the inventory were hooded pitcher plant (*Sarracenia minor*) and the commercially exploited royal fern (*Osmunda regalis*) and cinnamon fern (*Osmunda cinnamomea*).

EXOTICS: Some alligator weed (*Alternanthera philoxeroides*) was found in wetlands by the road and some mimosa trees (*Albizia julibrissin*) and Japanese climbing fern (*Lygodium japonicum*) were found in the forest.

RESTORATION AND MANAGEMENT POTENTIAL: The pine flatwoods here, as everywhere else, would be much better wildlife habitat if it were gently burned with prescribed burns every few years. This is in an area where prescribed burning is readily permitted and smoke management is not too difficult. Highway US 301 on the west side of the site is the main smoke management consideration.

RECOMMENDED CONSERVATION STRATEGIES: Threats to the natural resources of this area include insufficient prescribed burning to maintain the native ground cover, intense site preparation, including both bedding and herbicides, during regeneration efforts in the pine flatwoods, and incremental loss of habitat to real estate development.

This area is sufficiently valuable for timber production, so that the most appropriate strategies are ones that allow the private landowners to continue to profitably grow timber. In order for such strategies to work, the agricultural exemption program must continue and unreasonable new

regulations that would prevent clearcutting or prescribed burning must be avoided. One possible strategy would be to seek conservation easements to protect the resource values. Another would be to seek cooperative agreements between the landowners and a public agency equipped to do prescribed burning such as the Florida Division of Forestry to help promote or conduct prescribed burning in the fire adapted ecosystems. The points of potential connection to the Austin Cary Flatwoods area would be important to improve and protect. Enforcing dredge and fill regulations is important here for the protection of the resource values of the many isolated and poorly connected wetlands.

COMPREHENSIVE PLAN CONSIDERATIONS: There is one large wetland, several smaller ones, and some small isolated wetlands. There is also a small creek with a small floodplain.

SITE VISIT: David Clayton, 1996; Bob Simons, 9/28/96, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	3

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	3
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	2
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	2
Management Potential	3

Note: See Table 2-1 for parameter descriptions.

BUDA SANDHILLS

PRIORITY: 46 (low) (from unweighted sub-parameter score)

KEY FEATURES: This is an area of potential sandhill or upland pine habitat that is now mostly old field pine plantation. There is one small spot of high quality upland pine forest and there are several large, deep sinkholes. There is also an area of limerock mining containing several mine pit lakes.

USGS QUAD: High Springs SW, Waters Lake
SIZE: 2,524 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	12	fair (pioneer hammock)
Upland Pine Forest	13	good
Sinkholes	37	fair
Mine Pit Lake *	9	
Dry Caves		unknown
Aquatic Caves		unknown
Old field pine Plantation *	2223	
Improved pasture *	112	
Active mining area *	119	

* Categories not used by FNAI

CONNECTIONS: This area has no wildlife connections.

SITE BOUNDARY CONDITIONS: The boundaries are regular in shape and conform to existing property boundaries, roads, section lines, and other surveyed lines. SR 232 bisects the area near the south end.

GEOLOGIC/HYDROLOGIC FEATURES: This is a relatively flat area of sandy soil over limerock. There are no surface wetlands or drainage features. There are several large dry sinkholes, some of which probably are associated with underground caves, both dry and aquatic. All rainfall seeps in to the Floridan Aquifer.

WILDLIFE HABITAT: The large loblolly pine (*Pinus taeda*) and slash pine (*Pinus elliottii*) plantations here are not good habitat for most native plants and animals. However, the remains of the Pensacola bahia grass (*Parpalum notatum* var. *saurae* *Pensacola*) beneath the pine plantation supports gopher tortoise and pocket gopher (*Geomys pinetis*) populations, and there are gulf fritillary butterflies (*Agraulis vanillae*) supported by their host plant, the maypop (*Passiflora incarnata*). Other animals inhabiting the area to some extent include cottontail rabbit (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), cotton rat (*Sigmodon hispidus*), gray fox (*Urocyon cinereoargenteus*), flicker (*Colaptes auratus*), bobwhite quail (*Colinus virginianus*), pine warbler (*Dendroica pinus*), chuck-will's-widow (*Caprimulgus*

carolinensis), blue jay (*Cyanocitta cristata*), common crow (*Corvus brachyrhynchos*), coachwhip snake (*Masticophis flagellum flagellum*), and diamondback rattlesnake (*Crotalus adamanteus*).

RARE, THREATENED, AND ENDANGERED SPECIES: The entire area except for the sinkholes and mines is potential excellent habitat for the sandhill fauna mentioned below. The gopher tortoise (*Gopherus polyphemus*) is the only listed species known for sure from this site. However, the following are likely to be present occasionally or in small numbers: southeastern America kestrel (*Falco sparverius paulus*), Florida gopher frog (*Rana capito aesopus*), Florida pine snake (*Pituophis melanoleucus mugitus*), and eastern indigo snake (*Drymarchon corais couperi*). Sherman's fox squirrel (*Sciurus niger shermani*) might also be here in small numbers. The area is not large enough to ever envision reintroducing and maintaining a viable population of red-cockaded woodpeckers (*Picoides borealis*).

EXOTICS: The most potentially damaging exotic in North Florida, skunk vine (*Paederia foetida*), is growing in a one acre spot on the west side of this area. Most of the spot is across the road in Gilchrist County, but some is on the east side of the road on this site. (Both property owners have been notified.)

Of course, bahia grass is also an exotic, and, unfortunately, it is one that is listed as an invasive exotic in Florida. The truth is that Pensacola bahia is not only not invasive, but on this property, as on many similar private lands throughout North Florida, it is the most important beneficial plant on the property for wildlife (see under wildlife habitat).

RESTORATION AND MANAGEMENT POTENTIAL: This area is far enough away from population centers and major highways to allow for prescribed burning, which would be the key tool for managing the upland pine forest habitat. However, the native ground cover plant species are mostly gone from the pine plantations, making it difficult to envision anything approaching complete restoration. The mine area could become excellent wildlife habitat and/or excellent for recreation when the mining activity is completed.

RECOMMENDED CONSERVATION STRATEGIES: None recommended, except perhaps helping the landowners here exterminate the skunk vine infestation before it becomes unmanageable or begins spreading by seed to other areas (birds carry the seeds). Since this infestation is in two counties, the Suwannee River Water Management District is one logical choice for an agency to take the lead in this effort. Other possibilities are the Florida Department of Environmental Protection, the Florida Division of Plant Industries, and the Florida Game and Fresh Water Fish Commission.

COMPREHENSIVE PLAN CONSIDERATIONS: There are no wetlands, but there is some open water in the mine pits. There are some deep sinkholes which probably connect to caves, which may, in turn, connect to aquatic caves within the Floridan Aquifer.

SITE VISITS: Bob Simons 06/29/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	1
Exotics	2
Endangered Species Habitat	2
Wildlife Habitat	1
Hydrology:	
Floridan Aquifer	2.5
Surficial Aquifer Resource Protection	1
Vulnerability of Aquifer	4
Landscape Ecology:	
Community Diversity	1
Ecological Quality	1
Community Rarity	3
Functional Connectedness	1
Management Potential	2

Note: See Table 2-1 for parameter descriptions.

SANTA FE CREEK

PRIORITY: 43 (low) (from unweighted sub-parameter score)

KEY FEATURES: This area is a two miles long by one-half mile wide, on average, and is a section of a small creek system and adjacent land that slopes to the creek. The soil here is kept moist to wet by seepage. The forest is medium sized second growth hardwoods with some loblolly pine (*Pinus taeda*) on most of the land, with a few spots of pasture, pine plantation, and swamp.

USGS QUAD: Worthington Springs

SIZE: 487 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
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Upland Pine Forest	4	poor - hardwood forest
Baygall	33	good
Seepage Slope Forest *	410	good - second growth
Farm Pond *	1	
Blackwater Stream		good - small
Old Field Pine Plantation *	22	
Row Crops *	17	

* Categories not used by FNAI

CONNECTIONS: The only connection is to the Santa Fe River, and it is a weak connection, crossing a paved highway with the creek on the west side of the highway running through an open pasture for 1/4 of a mile.

SITE BOUNDARY CONDITIONS: The boundaries are moderately regular in shape, but they conform to existing property boundaries, roads, section lines, or other surveyed lines only about half of the time.

GEOLOGIC/HYDROLOGIC FEATURES: This is an area of hilly topography and clay subsoil that provides seepage on the slopes and good stream formation but little or no percolation into the aquifer or aquifers. The stream flows north-northeast into the Santa Fe River, joining about the same location that the New River joins the Santa Fe River. The downstream part of the creek is within the site of the Santa Fe River.

WILDLIFE HABITAT: There are few cavities, but there is an abundance of hardwood canopy habitat. There is good browse, good cover, and enough interior forest habitat to support acadian flycatchers (*Empidonax virescens*). The area supports wildlife of upland and wetland hardwood forest habitats. White-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), bobcat (*Lynx rufus*), armadillo (*Dasypus novemcinctus*), wild turkey (*Meleagris gallopavo*), barred owl (*Strix varia*), red-shouldered hawk (*Bureo lineatus*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), parula warbler (*Parula americana*), red-eyed vireo (*Vireo olivaceus*), blue-gray gnatcatcher (*Poliopitila caerulea*), and Carolina wren (*Thryothorus ludovicianus*) are some examples of species that are common here.

RARE, THREATENED, AND ENDANGERED SPECIES: There is a report, unconfirmed by the Game Commission, that there is a bald eagle (*Haliaeetus leucocephalus*) nest in the vicinity of this site (Nesbitt, 1996). If it exists, it is probably on the west side near the north end in the NW 1/4 of the NE 1/4 of section 8, T7S, R19E (Nesbitt, 1996). If black bears (*Ursus americanus*) occurred in this part of the county, and this parcel were better connected to the Santa Fe River, it would be good habitat for them. Listed plants found on the site include cinnamon fern (*Osmunda cinnamomea*) and greenfly orchid (*Epidendrum conopseum*), which are listed as commercially exploited.

EXOTICS: There are a few mimosa trees (*Albizia julibrissin*) on the edges and there is bahia

grass (*Paspalum notatum*) in the pasture and old field planted pine areas.

RESTORATION AND MANAGEMENT POTENTIAL: The forest was logged about twenty years ago, but has regenerated blackgum (*Nyssa biflora*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), loblolly pine, and other trees and is in good condition. Wild turkeys and medium sized to large mammals would benefit if the connection to the Santa Fe River site was strengthened, by restoring streamside habitats and reconstructing highway stream crossings for use by wildlife. This site would be easy to manage. It has a reasonable shape, good access, and does not need prescribed burning.

RECOMMENDED CONSERVATION STRATEGIES: There are no obvious immediate threats to the natural resources of the area. Eventually, residential development will be a threat, as will invasion by exotic plants and animals. Clearing for agriculture is another possible threat. This site is not a high priority for conservation action, but some sort of cooperative agreement with the landowner or sale of development rights might be in order.

COMPREHENSIVE PLAN CONSIDERATIONS: This area has one creek with its floodplain and some connected wetlands. The floodplain varies from narrow to broad, and the sides of the creek valley are moist to wet in many places due to seepage.

SITE VISITS: David Clayton, 8/7/96; Bob Simons, 1987.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3

Endangered Species Habitat	2
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Wildlife Habitat	3
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Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	2

Landscape Ecology:

Community Diversity	1
Ecological Quality	2.5
Community Rarity	1
Functional Connectedness	2

Management Potential	4
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Note: See Table 2-1 for parameter descriptions.

SANTA FE RIVER

PRIORITY: 1 (the highest rated site) (from unweighted sub-parameter score)

KEY FEATURES: This is the entire Santa Fe River corridor from O'Leno State Park across the north boundary of Alachua County to the edge of the Suwannee River Water Management District's properties at Lake Alto Swamp and Santa Fe Swamp. This is a critically important wildlife corridor connecting most of the various wildlife habitat areas in northern Alachua county to one another and to many areas to the north and west of the county. The site includes the river itself, the forested floodplain on the south side of the river, and a varying amount of upland forest adjacent to the floodplain. The intention was to have about as much upland above the 100 year floodplain as floodplain in the site in order to provide for a viable ecosystem from a landscape ecology perspective and a complete and viable wildlife corridor. The river is in excellent condition. The forest varies from place to place over this long stretch, but is mostly mature hardwood forest of various kinds, often with some bald-cypress (*Taxodium distichum*), and it is mostly in good condition. There is little development of any kind within the corridor.

USGS QUAD: Mikesville, Brooker, Worthington Springs, Montechoa, Waldo
SIZE: 7,570 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	211	fair to poor
Former Sandhill	577	poor
Scrub	3	fair - tiny spots
Xeric Hammock	95	good - river levy type
Slope forest	52	good
Upland Mixed Forest	398	good to fair (Mesic Hammock)
Upland Pine Forest	18	poor
Wet Flatwoods	146	fair
Mesic Flatwoods	1167	fair to poor
Scrubby Flatwoods	4	fair
Hydric Hammock	126	good
Bog	6	good
Baygall	82	good
Seepage Slope Forest *	133	good
Bottomland Forest	179	good

Floodplain Forest	1102	good
Floodplain Swamp	1539	good
Willow/Birch Swamp *	36	good
Slough	45	good
Strand Swamp	109	good
Depression Marsh	6	good
Basin Swamp	195	good
Dome Swamp	64	good
Farm Pond *	19	
Flatwoods Pond	2	good
Floodplain Pond	15	excellent
Swamp Pond	14	good
Blackwater Stream	23	excellent
Spring-fed River	25	excellent
Aquatic Cave		unknown
Old Field Pine Plantation *	198	
Rough Pasture *	457	
Improved Pasture *	288	
Row Crops *	108	
Low Impact Development *	98	
High Impact Development *	6	

* Categories not used by FNAI

CONNECTIONS: This is the most important connector in Alachua County. It provides an excellent connection from Lake Alto Swamp and the Northeast Flatwoods to O'Leno State Park and the River Rise Preserve. Its tributary creeks provide connectors of varying strength to all the rest of the sites in the northern part of Alachua County. Even San Felasco Hammock State Preserve and its satellite sites are tenuously connected in this way. In addition, the river's tributaries on the north side, such as the New River, Olustee Creek, and Sampson Creek provide wildlife connections as far north as The Osceola National Forest, which is, in turn, connected to the Okefenokee Swamp in Georgia. Sites and conservation lands directly connected to the Santa Fe River are:

<u>Adjacent Areas</u>	<u>Quality of Connection</u>
Santa Fe Swamp	Good - involves a single 40 acre parcel
Lake Alto Swamp	Excellent
NE Flatwoods	Good
Monteocha Creek	Excellent
Santa Fe Creek	Poor - could easily be improved
Rocky Creek	Fair - could easily be improved
O'Leno State Park	Good

SITE BOUNDARY CONDITIONS: The boundary for this site is a long one, and is irregular in shape. The intention was to delineate a corridor with about as much area above the 100 year floodplain line as below it. The location of the boundary on the south side of the site is somewhat predetermined by where the edge of the forest occurs as one goes away from the river. Where almost no upland is forested along the floodplain, some cleared land is included in the site. Where the forest edge extends far back into the upland, then the line was drawn along some property boundary or survey line or power line or road that formed a reasonable location. The resulting boundary follows existing property boundaries, roads, section lines, power lines, and other survey lines more often than not, and appears to be relatively good from a conservation point of view. The boundary on the north side is the north boundary of Alachua County, which is mostly located in the middle of the river. Ideally, of course, a strip of land roughly equal to that delineated on the south side of the river would be protected on the north side.

GEOLOGIC/HYDROLOGIC FEATURES: The upper part of the Santa Fe River receives its water from Santa Fe Swamp and Lake Alto Swamp. At U.S. 301, it is an oligotrophic, blackwater stream at an elevation of 135 feet above sea level. Its bed is underlain by thick Hawthorn Formation sediments that include thick layers of clay. Thus, the river and the swamps from which it flows are perched above the Floridan Aquifer. Water levels in this part of the river fluctuate only moderately.

Eight miles down stream where the Sampson River joins the Santa Fe at elevation 105 feet, the Santa Fe River is becoming a mesotrophic blackwater river with somewhat more water level fluctuation. Pond-cypress (*Taxodium ascendens*) has been replaced by bald-cypress, reflecting these changes.

A dozen or so more miles down stream at elevation 80 feet at Mud Swamp, the river has slightly more fertility and water level variability. Black willow (*Salix nigra*) has now replaced coastal plain willow (*Salix caroliniana*) as one of the dominant trees, and the floodplain has broadened considerably.

The next seven miles down stream go through a narrow floodplain area until the new River Joins the Santa Fe. Elevation here is about 60 feet above sea level. Starting at about Worthington Springs, the river gradually starts to become a spring fed river, thus increasing flow, clarity, pH, calcium content, temperature stability, and overall fertility. The floodplain broadens considerably once again.

About seven additional miles downstream at an elevation of about 40 feet Olustee Creek joins the river. From here for the next two miles to I-75 and the start of O'Leno State Park, the river is intermingling freely with the Floridan Aquifer, and is deep, broad and slow moving. Apple snails (*Pomacea paludosa*) are in evidence for the first time, indicating the higher calcium levels in the water. Even here, the water is dark, and the character of the river is more like that of a blackwater river than a typical Florida spring fed river. It is not until the river goes underground in O'Leno State Park and comes up again at the River Rise, that it dramatically changes to a

strongly spring fed river.

WILDLIFE HABITAT: This site provides some the best, most varied, and most important wildlife habitat in Alachua County. One hour of canoeing into the Mud Swamp section provided observation of a flock of 100 white ibis (*Eudocimus albus*), a small flock of wild turkeys (*Meleagris gallopavo*), several wood ducks (*Aix sponsa*), prothonotary warblers (*Protonotaria citrea*), parula warblers (*Parula americana*), acadian flycatchers (*Empidonax virescens*), little blue herons (*Egretta cearulea*), snakes, and turtles, and one each of red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), downy woodpecker (*Picoides pubescens*), and cardinal (*Cardinalis cardinalis*). The Mud Swamp shows up as a strategic habitat area in the Game Commission's "Closing the Gaps" publication (Cox et al., 1994).

The river itself is probably the most important single asset, providing habitat for a large assortment of fish species, as well as insects, amphibians, reptiles, birds, and mammals. The long nosed gar (*Lepisosteus osseus*) was observed in great abundance. The forests beside the river provide varied habitats, abundant cavities, abundant mast production, good cover and browse, and important structure for the river edge habitats, and they are important habitat for migrating song birds.

RARE, THREATENED, AND ENDANGERED SPECIES: John Wooding (1996) of the Florida Game and Fresh Water Fish Commission considers this one of the two main areas of potential value in Alachua County for Florida black bears (*Ursus americanus*) as both habitat and a corridor. Alligators (*Alligator mississippiensis*) use the whole river as a corridor, and especially the downstream end near I-75 and the Mud Swamp area as habitat. The two mile stretch above I-75 has a good population of Suwannee cooters (*Pseudemys concinna suwanniensis*), a good population of alligator snapping turtles (*Macrolemys temmincki*) at the extreme southeastern edge of their range (Moler, 1996), and is potential limpkin (*Aramus guarauna*) habitat due to the apple snails there. The Mud Swamp area of the river supports a good population of white ibis (*Eudocimus albus*), as well as some little blue herons (Simons, personal observation). Upland areas along the edge of the floodplain, and especially the sandhill area east of Montecocha Creek, support populations of gopher tortoises (*Gopherus polyphemus*), Florida gopher frogs (*Rana capito aesopus*), and Florida pine snakes (*Pituophis melanoleucus mugitus*). The Florida Game and Fresh Water Fish Commission has the site mapped as one of the more important habitat areas for wood storks (*Mycteria americana*) in Alachua County (Arnold, 1995), and there has been a wood stork colony near by, sometimes just north of O'Leno State Park and sometimes in other locations, in recent years (Nesbitt, 1996). The Game Commission also has significant areas of Florida gopher frog habitat and alligator habitat mapped on the site (Arnold, 1995).

Rare, unlisted plants observed along the river include the native wisteria (*Wisteria frutescens*) and Christmas fern (*Polystichum acrostichoides*) (rare for Alachua County). Common listed plants observed along the river include greenfly orchid (*Epidendrum conopseum*), royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and wild pink azalea

(*Rhododendron canescens*), all of which are listed as commercially exploited.

EXOTICS: Alligator weed (*Alternanthera philoxeroides*) is the only exotic plant that was commonly encountered, and it is posing no problem due to effective biological control which was implemented many years ago by releasing beetles that eat the foliage.

RESTORATION AND MANAGEMENT POTENTIAL: This area is in excellent condition. However, it will not remain so without protection from development. All the connections of the tributaries to the river corridor need protecting, and some of them are in great need of strengthening. There is a small percentage of the area that is fire adapted upland that would require prescribed fire to maintain it in good condition. These sites are well away from serious smoke sensitive areas, and would therefore be relatively easy to manage with fire. The site as a whole is viable from an ecological perspective, and would be relatively easy to maintain and manage due to good access, good connectivity, and relatively small amount of prescribed burning that is needed.

RECOMMENDED CONSERVATION STRATEGIES: This area is strongly recommended for purchase. It is the number rated one natural area in this inventory. The connections to the various creek systems that are tributaries to the river are especially important. Cooperative efforts and agreements with landowners and with organizations, both government and non-government, are also needed to help protect this resource. These cooperative efforts can help with river cleanups, facility maintenance, public education, and with the frequent observation, monitoring, and reporting of events that is needed to enforce laws and keep track of problems and changes. Enforcement of regulations pertaining to construction in the floodplain, septic tanks, clearing of bank vegetation, dredge and fill, and other related matters is also needed. In the future, regulation of power boats and jet skis may be needed (see discussion under Sensitivity to Recreational Use).

COMPREHENSIVE PLAN CONSIDERATIONS: The river provides open surface water and has a floodplain that is broad in some sections and narrower in others. The banks vary considerably in character, from low to steep. There are wetlands in the floodplain, connected wetlands from the river floodplain, and some isolated wetlands (see section on geology for more detail).

SENSITIVITY TO RECREATIONAL USE: The Santa Fe River is used for swimming, fishing, canoeing, and other recreational activities. It is not a large river, and could easily be damaged by too much use or by inappropriate use. Carrying capacities would need to be determined for various uses. Some uses, such as jet skis and power boats with powerful motors, may be inappropriate, due to the level of impact per user. These powerful motor vehicles can cause large wakes which damage the banks and the river channel. The wakes and the loud noise they make can also disturb and disrupt wildlife and other recreational users.

SITE VISITS: Bob Simons, 7/16/96, 7/18/96, 7/27/96, 7/28/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	5
Exotics	5
Endangered Species Habitat	5
Wildlife Habitat	4.5

Hydrology:

Floridan Aquifer	1
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	5
Ecological Quality	3.5
Community Rarity	4
Functional Connectedness	5

Management Potential	4
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Note: See Table 2-1 for parameter descriptions.

SERENOLA FOREST

PRIORITY: 28 (slightly below average) (from unweighted sub-parameter score)

KEY FEATURES: This is mostly a high quality, mature, mesic hammock forest. It contains several sinkholes, some of which hold water for part of the year.

USGS QUAD: Micanopy

SIZE: 575 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Upland Mixed Forest	392	good to fair (Mesic Hammock)
Calcareous Mesic Hammock *	12	good
Sinkhole	8	good
Wet Prairie	20	fair
Depression Marsh	7	good
Farm Pond (retention basin) *7		

Sinkhole pond	2	good
Old Field Pine Plantation *	98	
Rough Pasture *	28	
<u>High Impact Development</u> *	3	(a house)

* Categories not used by FNAI

CONNECTIONS: There is a connection to Paynes Prairie. It is an upland connection across a paved road.

SITE BOUNDARY CONDITIONS: The boundaries are irregular in shape, but they conform to existing property boundaries, roads, section lines, and other survey lines. The site is bisected by a busy four lane highway (SR121) on the north and a minor paved road across the connector to Paynes Prairie.

GEOLOGIC/HYDROLOGIC FEATURES: The Hawthorn Formation here is near its western edge, is thin, and is near the surface. This provides for the fertile soil that supports the mesic hammock vegetation, and accounts for the numerous sinkholes. The clays are sufficiently thin and intermittent here so that there are no permanent streams. There is a weakly developed and infrequently running stream south of SR121 that ends in a sinkhole depression that is normally dry, but that receives the water from the intermittent stream and is sometimes flooded. All of the water from this site that is not returned to the atmosphere by evapotranspiration seeps down into the Floridan Aquifer.

WILDLIFE: There is good mast production, canopy habitat, and a fair number of cavities, a fair amount of browse, not much good cover, and little diversity in habitat types. This is good habitat for gray squirrels (*Sciurus carolinensis*), red-eyed vireos (*Vireo olivaceus*), parula warblers (*Parula americana*), red-bellied woodpecker (*Melanerpes carolinus*), and pileated woodpecker (*Dryocopus pileatus*), and it is important habitat for migrating songbirds. The small wetland gets some use by wading birds such as great egrets (*Casmerodius albus*).

RARE, THREATENED, AND ENDANGERED SPECIES: One Godfrey's privet (*Forestiera godfreyi*) was found near the south end nine years ago. There are greenfly orchids (*Epidendrum conopseum*) on some of the trees. The habitat distribution maps of the Florida Game and Fresh Water Fish Commission do not show habitat here for listed species (Arnold, 1995).

EXOTICS: There is a significant threat of exotic invasion from the encroaching residential development. It is not bad so far, but the following invasive exotics were observed in small numbers, mostly on the edges: border-grass (*Liriope muscari*), coralberry (*Ardisia crenata*), Chinese privet (*Ligustrum lucidum*), hedge privet (*Ligustrum sinensis*), trifoliolate orange (*Poncirus trifoliata*), mimosa (*Albizia julibrissin*), white-flowered spiderwort (*Tradescantia fluminensis*), paper mulberry (*Broussonetia papyrifera*), and Japanese honeysuckle (*Lonicera japonica*).

RESTORATION AND MANAGEMENT POTENTIAL: If the area remained undeveloped, the main challenge would be to continually counter the invasion of exotic species and to maintain the connection to Paynes Prairie State Preserve. No burning is needed.

RECOMMENDED CONSERVATION STRATEGIES: This area is going to be developed. Protection of sinkholes and karst recharge points in small conservation areas, perhaps by clustering development more densely on other areas, is recommended.

COMPREHENSIVE PLAN CONSIDERATIONS: There are small spots of wetland and of open water. There is a small area of stream floodplain in a sinkhole area south of SR 121, and there are several sinkholes.

SITE VISITS: Bob Simons, 7/13/96, 8/15/96, 1987, and earlier.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	3
Exotics	3
Endangered Species Habitat	2
Wildlife Habitat	2

Hydrology:

Floridan Aquifer	5
Surficial Aquifer Resource Protection	2
Vulnerability of Aquifer	4

Landscape Ecology:

Community Diversity	1
Ecological Quality	3
Community Rarity	1.5
Functional Connectedness	2

<u>Management Potential</u>	<u>3</u>
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Note: See Table 2-1 for parameter descriptions.

WATERMELON POND

PRIORITY: 15 (slightly above average) (from unweighted sub-parameter score)

KEY FEATURES: This natural area has two main features. The first is Watermelon Pond, which is a sandhill lake with a highly variable water level and irregular outline. The variable water table produces a wide area of herbaceous vegetation around the open water areas due to periodic prolonged flooding alternating with long periods of dry conditions and occasional fire. On the upper side of the prairie vegetation is an irregular band of oak forest.

The second key feature is the sandhill habitat on the uplands away from the lake. This longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), wire grass (*Aristida beyrichiana*) plant community supports a characteristic set of animal species including gopher tortoises (*Gopherus polyphemus*), red-headed woodpeckers (*Melanerpes erythrocephalus*), bob-white quail (*Colinus virginianus*), and Sherman's fox squirrels (*Sciurus niger shermani*).

USGS QUAD: Archer, Newberry SW, Bronson NE

SIZE: 4,033 acres

<u>BIO-COMMUNITY TYPES</u>	<u>ACRES</u>	<u>CONDITION OF BIO-COMMUNITY</u>
Sandhill	2054	good to poor, needs fire
Xeric Hammock	250	fair - pioneer hydric/xeric
Wet Prairie	664	good - moderate diversity
Basin Marsh	28	fair - in patches in lake
Sandhill Lake	809	good
Rough Pasture *	156	
Improved Pasture *	71	

* Categories not used by FNAI

CONNECTIONS: There is a Watermelon Pond C.A.R.L. proposal, a Waccasassa Flats C.A.R.L. proposal in Gilchrist County (which has now been dropped), and a Devil's Hammock C.A.R.L. proposal (in Levy County). If the three of these were purchased or otherwise protected, and the wetlands dominated lands between these proposals were also purchased or otherwise protected, then the Watermelon Pond site would be well connected to these other two large conservation areas through lands in eastern Levy County and southern Gilchrist County. There are no connections to the Watermelon Pond area from other inventory sites or conservation lands in Alachua County.

SITE BOUNDARY CONDITIONS: The Watermelon Pond C.A.R.L. proposal has proposed boundaries that extend SE across SR 24 to the site of the Parchman Pond site on the 1987 Alachua County Uplands Inventory. This is not included here because the Parchman Pond site has been destroyed by sand mining activities and because land outside of Alachua County is outside our inventory area. The ideal boundaries for this site would include the Levy County lands in the C.A.R.L. proposal down to SR 24 and the Levy and Gilchrist County lands needed to connect with the Waccasassa Flats area, or at least the Devil's Hammock area.

GEOLOGIC/HYDROLOGIC FEATURES: This area is on the western edge of the Brooksville Ridge, which is a ridge of infertile sand deposited as beach sand dunes when this was the western edge of Florida. There may be a weak confining layer between the surface and the Floridan Aquifer in this area. The combination of sandy soil and a weak or intermittent confining layer results in no surface drainage systems and eventual percolation into the Floridan Aquifer of all rainfall.

WILDLIFE HABITAT: The diversity and abundance of wildlife here is only moderate, due to the moderate number of communities and the low fertility of all of them. The quality of the sandhill habitat is good only in the part that is fairly mature forest, and even here, the lack of fire, the young age of the pines (*Pinus* spp.), and the general lack of cavities all reduce the habitat value below maximum. However, this is one of the best quality sandhill sites in Alachua County and is easily restorable to excellent condition. Some areas of sandhill that were slash pine (*Pinus elliotii*) plantations are now open clearcuts, but are restorable. Some pasture areas within the site boundary add to the overall diversity by providing feeding areas for American kestrels, eastern kingbirds (*Tyrannus tyrannus*), meadowlarks (*Sturnella magna*), mockingbirds (*Mimus polyglottos*), mourning doves, and loggerhead shrikes (*Lanius ludovicianus*). The hammock areas are young pioneer forests that have sprung up since fires ceased to burn in the area about 30 years ago, and are lacking in cavities and the complex structure of gaps, downed logs, snags, etc. of an old growth hardwood forest. The main wildlife value is in the sandhill area for its unique and characteristic suite of plant and animal species and in the open water and marsh areas that serve as habitat for fish, a feeding area for birds, and a breeding area for amphibians. Birds observed or reported in the wetland areas include ducks, herons, egrets, moor hens, and pied-billed grebes (*Podilymbus podiceps*). Killdeer (*Charadrius vociferus*) are common on the wetland edges.

RARE, THREATENED, AND ENDANGERED SPECIES: The sandhill habitat has the best population of Sherman's fox squirrels in Alachua County (Wooding, 1996). There are also gopher tortoises, Florida gopher frogs (*Rana capito aesopus*), eastern indigo snakes (*Drymarchon corais couperi*), Florida pine snakes (*Pituophis melanoleucus mugitus*), and short-tailed snakes (*Stilosoma extenuatum*) here (Moler, 1996). Southeastern American kestrels (*Falco sparverius paulus*) used to be common here, and there are still a few (Simons, personal observation). Two rare plants were found during the inventory in the sandhill, one listed and the other not listed. Coontie (*Zamia* sp.), is the listed one, and is scattered about uncommonly, and rusty buckthorn (*Bumelia rufotomentosa*) was represented by one plant. The wetlands and open water are feeding habitat for a pair of bald eagles (*Haliaeetus leucocephala*) and for several kinds of herons and egrets (Nesbitt, 1996). The Florida Game and Fresh Water Fish Commission habitat distribution maps show habitat here for wood stork (*Mycteria americana*), sandhill crane (*Grus canadensis*), little blue heron (*Egretta caerulea*), Florida gopher frog, and alligator (*Alligator mississippiensis*) (Arnold, 1995). This is one of the areas that is mapped in the Florida Game and Fresh Water Fish Commission's "Closing the Gaps" publication (Cox et al., 1994).

EXOTICS: The most abundant exotic plant in the sandhill habitat is centipede grass (*Eremochloa ophiuroides*), which is common throughout most of the area due to a combination of grazing and little if any prescribed burning. It is not a serious threat to restoration. Mimosa (*Albizia julibrissin*) is widely scattered about, and is a difficult invader to control. Some sand pine (*Pinus clausa*) is invading the sandhill habitat in places. This is not an exotic to Florida, but is not native to this site. One Muscovy duck (*Cairina moschaya*) was observed on Watermelon Pond.

RESTORATION AND MANAGEMENT POTENTIAL: The whole area could easily be restored to excellent habitat condition given a commitment to prescribed burning. The area is well away from population centers and major highways, so that prescribed burning could be done safely. The clear-cut areas of sandhill habitat still have intact populations of ground cover plants, and could easily be planted to longleaf pine and managed with fire. The prairie areas would also benefit from prescribed burning. The only drawback is the small size of the sandhill, which is big enough to be viable for some species, but not for others.

RECOMMENDED CONSERVATION STRATEGIES: The site should be purchased if possible. Purchase is the only option that would provide for the restoration of the sandhill community to a mature and healthy condition. The adjacent lands in Levy and Gilchrist Counties that connect this area to the Devil's Hammock and Wacassasa Flats areas should also be considered and evaluated for purchase or protection by some other means such as conservation easement.

COMPREHENSIVE PLAN CONSIDERATIONS: There is a large area of open surface water. The lake edge fluctuates widely and has a broad flood plain of marsh and prairie. The marsh and prairie are wetlands.

SITE VISITS: Bob Simons, 1957, 1987, 8/6/96, 8/11/96.

SITE EVALUATION SCORING

Vegetation:

Species Diversity	2
Exotics	3
Endangered Species Habitat	5
Wildlife Habitat	2.5

Hydrology:

Floridan Aquifer	3
Surficial Aquifer Resource Protection	4
Vulnerability of Aquifer	3

Landscape Ecology:

Community Diversity	1
Ecological Quality	2.5
Community Rarity	2
Functional Connectedness	3
<u>Management Potential</u>	<u>3.5</u>

Note: See Table 2-1 for parameter descriptions.
