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Submitted
by Diane
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Dr. Fred Lindholm, Chairman
Technical Advisory Committee
Idywild-Serenola Planning Group
4006 S.W. 17 Terr.
Gainesville, Fl. 32605

Dear Dr. Lindholm,

The majority of my expertise lies with vertebrate animal ecology, but I am quite confident that the principles and suggestions will apply to other organisms and ecological values as well.

Given that we wish to consider resource conservation as a useful premise for Florida's sustainable development the following points apply. Over the last century, Florida's human population growth has averaged about 4% per year which means that our human population has doubled every 17.5 years. This rate is somewhat over two times the world's population growth rate and is near the highest of any region on earth.

Simultaneously, we are losing Florida's forest acreage at the rate of 1% per year which translates into a loss of 150,000 acres per year. This rate of loss is as high as all of Latin America and at least twice as high as Brazil's loss of forest acreage. I do not believe any one knows how rapidly we are losing natural environments of all kinds. In addition to the simple arithmetic loss of acreage, remaining habitats are becoming fragmented into small, discontinuous patches with lots of imposing human structures in between.

Simultaneous with the loss and fragmentation of natural environments is the construction of high speed highways. Over the last 50 years we have constructed an average of about 4.5 miles of new primary and secondary highway each day. While this has provided some enhancement to the mobility of humans, it has not been without great social and environmental cost. Collisions between animals and vehicles are the number one known source of mortality on all of Florida's threatened or endangered large mammal species including panther, black bear, manatee, and key deer. Highways are known to be a much more lethal and devastating isolating force than almost any other ecological factor including rivers or open water.

The opening paragraph of a recent U.S. Congress, Office of Technology Assessment Report (OTA -F-330) on Technologies to Maintain Biological Diversity states that, "Most scientists and conservationists working in this area believe that the problem has reached crisis proportions...". Professor Edward Wilson of Harvard has observed that our squandering of biological diversity is the transgression for which future generations are least likely to forgive us. Former assistant Secretary of Interior Nathaniel P. Reed has observed that, "Webster's dictionary defines the word crisis as an unstable or crucial times or state of affairs whose outcome will make a difference for better or worse." By every possible definition, Florida and Floridians face a crisis situation that we have been facing since the early 1960's. Our state is in the grip of a natural-resource crisis of epic proportions.

Given that you wish to consider the maintenance of some natural resource diversity and quality in your area, there are several obvious strategies. The majority of humans do not want to live with wild plants and animals immediately under foot and so we normally choose to keep them just

beyond the back fence (how far is a matter of debate). This led to the 19th century concept of national parks, national forests, and national wildlife refuges. You should take some consolation in the fact that the Ocala National Forest was the first east of the Mississippi, and that Pelican Island National Wildlife Refuge in Indian River was the first in the entire country. I believe that Everglades was the first National Park-established primarily for biodiversity conservation.

For slightly over 100 years we have considered that this reserve" philosophy would work. But as we learned from our American Indian and 2nd World War Japanese experiences, relegating things to reserves rarely works. The reductions of bird populations in and around Everglades National Park are probably not equaled anywhere in the world, our resource crisis rolls on.

There is now a consensus that in order to abate the erosion of resources in and around our reserves (such as Payne's Prairie) we must adopt one or more of the following, increased: 1. size, 2. connectivity, 3. use of boundary buffers 4. replication, 5. changes in configuration, and 6. management.

The state of Florida presently has an aggressive conservation and recreational land acquisition program and you should definitely lobbying for the acquisition of the Serenola Woods tract. But the overwhelming majority of natural areas are too small to maintain even a few individuals, let alone a viable population of most bird and mammal species. When and if the small isolated populations remain within the reserves they are subject to inbreeding and when and if individuals venture outside the boundaries they are vulnerable to ungodly levels of road mortality. There is no doubt that we must aggressively pursue the concepts of buffers and linkages around and between our nature reserves.

Because Payne's Prairie State Park is in such close proximity to your area, and because it can serve as a refugium for about 100 species of vertebrates such as otter that will not occur otherwise, I believe you should put primary focus on trying to tie into it. Please give consideration to the establishment of a 500 foot buffer around it. Based on my review of your situation, I also suggest the following.

If the animals of Lake Alice Wildlife Sanctuary, Bivens Arm, or Serenola Forest are to have any future whatsoever, and if those of Payne's Prairie are to have any security in the future, it is critically important to interconnect the increasingly isolated areas with a greenway. A working example of how we used to do this sort of thing occurs as the Mowry horse underpass that allows the Veterinary College horses to move freely from Lake Alice to the top of the ridge on Archer Road west of the new parking ramp. Some sort of linear natural area should extend this open green space southward to the Cecil Webb Teaching Center, and on across the wide expanse of IFAS greenspace to Bivens Arm and thence to Payne's Prairie.

Second, if you agree that human physical structures should be designed for compatibility with natural ecological systems, then you should take note of two additional physical features that occur in the planning area. The first of these are the natural topographic and drainage contours. Most any high resolution topographic map will reveal a natural trajectory of drainage that could still be restored to aid and facilitate greenspace, water flowage as opposed to the culvert and concrete syndrome. Again it would be seen that this could interconnect Lake Alice, Bivens Arm, and Payne's Prairie. Thus, these three areas might be viewed as beads on the community's necklace; you have the three beads to work with and I suggest that you recreate and maintain the string. By committing to save less than one mile of greenline corridor between Lake Alice and Bivens Arm

the total greenbelt linkage could span ten miles of aquatic and riparian environment from Lake Alice, across IFAS greenspace, to Bivens and Paynes Prairie to Micanopy. It is the only linkage that can prevent Lake Alice, and ultimately Bivens's Arm from becoming isolated little ponds in a sea of concrete.

In forestry jargon, a strip of riparian forest along a waterway is often referred to as a "stringer.. and you will note reference to this word in the packet of *documentary material* that I left with your group. Hardwood forest stringers are very important to wildlife conservation. Thus, in my judgement, first priority for designing a natural ecological system into your region would be to prohibit intensive development along the stringer and around the pearls of Lake Alice, Bivens Arm, and Payne's Prairie. I believe that a 100 foot wide riparian forest strip that interconnected these areas would greatly increase property and living values as well as maintaining a large component of biological diversity. A 300 foot wide strip would be better because it could then contain a walking and/or jogging trail consistent with this county's and this country's increasing emphasis on linear recreational activities.

The second natural feature is geological in nature, it is the seemingly linear constellation of sink holes that lie roughly northwest to southeast, parallel to the drainageway just described above, and midway between it and 1-75. This constellation underlies much of the IFAS research and teaching farm area that presently exists in this area as well as underlying Serenola forest. This could be the county's ideal initiative for a ground-water recharge area. It would not only help prevent personal property loss due to sink hole collapse but also help prevent massive aquifer contamination. The zoning of recharge areas such as this is now commonly referred to as the creation of "bluebelts" as opposed to the greenbelt described above. Professor Edward Deevey of your group is keenly aware of and very authoritative on matters of ground-water recharge and Florida lakes etc.

Therefore, in total, I recommend that you pursue the following specific elements in your special planning area. A buffer to surround and, protect your aquatic areas, 500 feet or more for Payne's Prairie, and 200 feet or more for Bivens's Arm, and Lake Alice. A hardwood riparian greenbelt that would interconnect Lake Alice, Bivens Arm and Payne's Prairie is essential for any semblance of natural vertebrate biological diversity. If designed well, this could also serve as a linear recreation area. Lastly, you should consider a combination of zoning, acquisition, and the transfer of development rights (TDR's) to create an aquifer recharge area that would include the IFAS teaching and research farms and the Serenola Natural Area. If you can maintain a live-oak canopy along the roads and greenspaces, I can assure you that this species is the most highly preferred for wildlife.

I hope these observations and judgements are useful to your group; you are involved in a highly significant community service and I laud your efforts. More than any one community is at stake in these matters and it is this spirit that must sustain you.

Sincerely

Larry D. Harris
Professor