

- Clear exotics. (0027)
- Rid refuge of exotics. (0009)
- Clear out exotics. (0030)
- Remove exotics. (0006)
- Clean up exotics. (0029)
- Clear exotics. (0019)
- Remove exotic plants. (0028)
- ...and it's true when you start invading this beautiful area, it will not be so beautiful because exotics will come in. (0075)
- Get rid of the choking (exotic) plants, melaleuca, water lettuce and all others. (0060)
- Improve exotic plant control should be the main focus. (0051)
- Address the problems the Everglades are facing (exotic species, endangered species) (0022)
- Use funds to remove exotic vegetation such as Brazilian pepper, melaleuca (0020)
- I would like to see a large amount of money initially put into the area go to the exotic control. (0083)
- Use most monies for exotic control (0003)
- Spend most monies on exotics (0015)
- In relation to exotics, obviously, one person made a great point about the fact that further participation, the understanding that exotics exist is an important thing for most people. Those who fly over it can see the progression from the seventies, to the eighties, and to the nineties in exotic. But if the populous was out there, they would have been a control over it as some person represented. The previous managers 'lock it up and throw away the key' law enforcement mentality, caused a lack of perception about the exotic problems. (0092)
- I do believe that if it (the refuge ) was left open to the public to see more of the area (via airboat), that it would never become ninety thousand acres of exotics in the one-hundred-forty-five thousand. ... A really feel bad for he area because the lack of public use, I think, is the biggest reason that we've got so much exotics. (0090)
- I think that the key is prioritizing, and outstandingly most important, every million you can squeak and get --needs to control exotics. And I think before you even think of any expansion docks or boat trails, you need to get that...a handle on your exotic invasion. It's awful. (0072)
- The single largest threat to the refuge's ecological integrity is invasive species, and the plan tackles this head-on, with the largest budgetary line item, besides land acquisition, targeted towards invasive species (plant) management. (0094)
- The FWS should consider establishing a sport-fishing program to reduce exotic fish taxa. The CCP states that at least 32 non-indigenous fish taxa are found on the refuge; armored catfish and swamp eel being particular threats. Since fishing is a popular activity on the refuge, there is an opportunity to educate anglers about exotic species identification and their impacts, and encourage anglers to target exotic species when fishing. Anglers would catch-and-release native species and catch-and-retain exotics to be turned over to the FWS for disposal (assuming exotics have too high mercury levels to be safe to eat). Benefits of the program include: reduction in invasive species, education and engagement of the public, and limited monitoring of exotics caught. (0094)

Response: Comments Noted

The overwhelming response of most individuals, organizations and agencies was for the refuge to exert more effort in controlling exotics and to prioritize funds to remove exotics. The refuge staff interprets this to mean the following: use most available funding for exotic plant and animal control at the expense of other proposed initiatives and projects.

The current refuge staff and management recognize the immense scope of the exotic plant problem within its boundaries. It is a fact that exotic plants have invaded more than half of the refuge. These plants, specifically melaleuca, spread more quickly than past treatment efforts could control, in part because historic funding levels were inadequate to effectively combat the infestation. The lack of funding stems from a generalized lack of understanding of the ecologic and economic costs associated with invasive exotic plants. Obviously, the south Floridians responding to the draft plan are very much aware of these issues. But the nation's citizens as a whole, including U.S. Congressmen and women who make the large scale funding decisions for Service refuges, are just now learning about the issue and starting to recognize the cost of not controlling invasive exotics (Federal Noxious Weed Act, Executive Order 1312 Invasive Species).

Unfortunately, the acreage of the refuge's exotic plant infestation exceeds the acreage of cleared exotic plants. To date, more than 6,800 acres of melaleuca have been treated using Federal and State (South Florida Water Management District and Dept. of Environmental Protection) monies. Unfortunately, many people, including refuge management, did not recognize the invasive potential of Old World climbing fern until recently. In 1999, the first contractors were hired to start treating this invasive vine. However, it is very expensive (approximately \$500 an acre), and to date just small areas are being treated.

The refuge staff agrees with commentors in that treating exotics should take priority and we shouldn't wait for bio-controls to be developed. We have asked for \$3 million a year for the next 15 years to treat invasive exotic plants and animals on the refuge. If a well tested, effective bio-control becomes available from the U.S. Department of Agriculture, we will continue our physical treatment efforts and incorporate bio-control efforts on melaleuca and Old World climbing fern.

In response to the overwhelming public response for exotic plant treatment and maintenance control on the refuge; exotic species (melaleuca, Old World climbing fern, hydrilla, water hyacinth, water lettuce, Brazilian pepper, etc.) removal was confirmed to be the #1 Priority Project, the priority funding allocation and the priority funding request. See Plan Implementation Section (Table 8) and Appendix P for Refuge Operations Needs and Maintenance Management System requests for funding.

Invasive exotic species problems are directly related to importing, selling, purchasing and planting non-native, invasive ornamental plants, releasing aquarium fish and plants, stocking exotic game animals and stocking exotic fish in fresh waters. Until the ramifications of these issues are understood by the general public, governmental agencies and non-governmental organizations the practices will not stop nor will they slow down. Some populations of invasive non-native species such as Old World climbing fern, black acara, walking catfish, and oscars may never be fully controlled on large wetlands.

#### 4. Water Management

##### a. Quality:

- ...make efforts to keep water pure. (0028)
- ...clean up the water. (0004)
- One of the issues I was concerned with is the quality of water. (0080)
- My wife and I enjoy the refuge very much and would like to see more protection for the wildlife and water quality. (0062)
- Spend most monies on preventing phosphorus intrusion. (0015)
- According to Will Vangelder (FIU) periphyton communities can and will change over time with increased nutrient loadings, such as phosphorus. It would be advantageous to survey where high nutrient fed periphyton is, and where the low-nutrient fed periphyton is. I don't have any cost figures formulated. (0102)
- The refuge is also extremely impacted by water control activities. While largely out of the Fish and Wildlife Service's (FWS) direct control, the draft CCP recognizes that continued partnerships with the Army Corps of Engineers and the South Florida Water Management District and monitoring Everglades restoration success (Project 4) are vital to ensure that adequate water supply, timing and quality reach the refuge. (0094)
- You are part of the original lawsuit that Dexter Lighten filed years ago. It was Everglades National Park and the Loxahatchee National Wildlife Refuge. You will have a water quality problem in the future, and I don't see that sufficiently addressed with enough fear. Lake Okeechobee...as they started drawing it down...you're going to get a phosphorus loading in there, no question about it. And then if you can work with the City of Wellington you can do something I cannot. The only thing Wellington understands is a lawsuit. And last night they very blithely decided that (they) can discharge anything they well please through pump two (ACME 2) right into the refuge. (0072)

##### Response: Comments Noted

The refuge has been committed to improving the quality of water entering the refuge and the Everglades ecosystem for years. As a result of a Department of the Interior lawsuit against the State and the resulting Consent Decree; a multi-agency and multi-million dollar effort to restore the Everglades' degraded water quality (primarily high phosphorus levels) and test for contaminants is in progress. A joint effort with Everglades National Park has resulted in the formation of the Everglades Program Team, an interdisciplinary team of senior scientists working for the park and the refuge to specifically address Consent Decree issues. On the north end of the refuge, Storm Water Treatment Areas 1East and 1West are being constructed to reduce phosphorus loads to a yet-to-be determined level (likely in the vicinity of 10 parts per billion). This reduction technology shows great promise, however, more refined water treatment will be needed to achieve the numeric standard.

The refuge will continue to monitor incoming water quality and work with landowners, communities, governmental agencies, and private and corporate organizations toward that end. Four major monitoring projects (Water Quality/Quantity Monitoring, Everglades Restoration Monitoring, Monitoring Vegetation Changes and GIS Mapping) for the refuge are listed (Table 8) regarding water quality and its effect on the Everglades. The description of what the Water Quality Monitoring Step-Down Plan will entail has been amended in the Final CCP and will be finished before 2002. Additionally, independent outside research is continuing in the refuge interior to assess change in focal species (e.g., periphyton, macrophytic vegetation, invertebrates, fish) with differing nutrient doses.

b. Hydrology:

- Work towards proper high water mark legislation. (0017)
- I think that with you working with the South Florida Management District, and probably the Corps of Engineers, you can probably find a better utilization of the area. Particularly if you knock down the western dikes. (0091)
- Return Kissimmee River back to its original form from the early 1700s before the Spaniards. (0023)
- It's time to go into action and figure out how to not try to control the water, but let it flow naturally as it has in the past. (0091)

Response: Comments Noted

The refuge and the Everglades Program Team will continue to be involved with trying to emulate historic water flow, addressing the feasibility and ramifications of restoring original flow, new water movement routes, seasonally appropriate water availability, delivery and timing, wildlife or habitat related emergency water removal response timing, water allocation through the Everglades system, flood control response (for wildlife, urban, agricultural needs), seasonal agricultural demands, salt water intrusion and many other inter-related issues.

**F. Facility Development and Administration**

*1. Generally and at Headquarters Area*

a. Support for Facility Development:

- ...upgrade facilities. (0002)
- In the management of the area, see that all signage and other man-made structures blend with their background. (0036)
- The things I'm most interested in, is what people can do either by car or by foot, because this is most of the people that come in. We can, and should open up more boardwalks. We need to fix the road going out to the marsh trail so we don't ruin our cars getting out there. I'd like to see the Cypress Trail expanded. I'd like to see a boardwalk through C-7. I think that the boardwalk at Wakodathatchee proves how very popular the boardwalk that goes right out over the water can be. (0078)
- Increase appropriate areas for public use, make these areas more user friendly. (0031)
- Putting in a couple of trash cans on the boardwalk area. Occasionally we come across some people who have not been toilet trained, and who do not know about taking their cups and cigarette cases, and what not, and holding on to them. At least until they get to a proper receptacle. Perhaps if there were some receptacles out there, they would learn to use them. (0080)

b. Opposed to Facility Development in General and at Headquarters Area:

- Public access should be limited and controlled. We, the public are destroying nature and in the end destroying ourselves. (0124)
- There should be no further development of public services. (0132)
- The construction of an additional visitor center building with an auditorium and wet lab at an estimated cost of over \$1 million is one project (project 10) that should be scaled down. After attracting visitors to the refuge, the FWS should be educating people outside in the field. We urge the FWS to take the precautionary approach, and not extend the cypress swamp trail until the ramifications of such a project are known. (0094)

- I don't want to see buildings expanded at this time, because if you do that around headquarters, you're going to be invading wetlands, and you will be guilty of the same thing as the Florida Game and Conservation Commission, or whatever their name is. That's what they did in the wetlands there, and I would not like to see you guilty of the same thing. (0072)

Response:

In response to the overall tone of these comments, the CCP planning team has re-assessed, re-wrote, and re-prioritized all projects which supported new buildings, concession, boardwalks, and opening of new areas. Please see other appendices of this document, especially Appendices G and H.

The former Project 10 "Expand Recreational Opportunities at Headquarters Area" (Table 8) was re-assessed and re-numbered to be the lowest priority project. Because funding is always tight, monies that become available will be used first for exotic plant control, maintaining existing structures and facilities, the biological program and environmental education and outreach. Former Project 14, "Expand Environmental Education and Outreach" has been made No. 4 priority. This will provide greater learning opportunities about the refuge and the greater Everglades ecosystem. Please see Appendix G (Environmental Education and Interpretation.)

0080; placing more trash cans around refuge access points will be considered, but unfortunately, our experience has shown that more cans usually mean that less people pack their trash out. More trash cans doesn't translate unfortunately, by our experience, to mean less trash on the ground, rather more trash to pick up from cans. Our limited maintenance staff already spends a large amount of time emptying the existing trash.

## *2. Hillsboro*

a. Support of Hillsboro Facility Development:

- ...south end concession OK, if no air boats or motorboats. (0011)
- .... one of the things that I just wanted to bring up, was a space that we're going to need for parking for concession (at Hillsboro). (0081)
- The things I'm most interested in, is what people can do either by car or by foot, because this is most of the people that come in. We can, and should open up more boardwalks. We need to fix the road going out to the marsh trail so we don't ruin our cars getting out there. I'd like to see the Cypress Trail expanded. I'd like to see a boardwalk through C-7. I think that the boardwalk at Wakodathatchee proves how very popular the boardwalk that goes right out over the water can be. (0078)
- Many people visit the Hillsboro Recreation Area, particularly those engaging in recreation on the water. It is important to establish more of a presence by FWS personnel, both for educational purposes and for law enforcement. Infrastructure is sorely needed, and we support the construction of a satellite visitor center in the area. Because this area straddles the levee between WCA1 and WCA2, it is a good opportunity to partner with the State to share the cost and the facilities as a gateway to both Areas, to emphasize the ecosystems and to point out the differences in management and public-use regulations. (0094)

b. Opposed to Hillsboro Facility Development:

- Project twelve expands the recreation at the Hillsborough area. There is no justifiable reason, and therefore we strongly oppose awarding a concession contract that would provide fishing equipment and guides. Such a venture would place the service in a position of actively promoting fishing, when fishing serves an absolutely not conservation or educational purpose. Nowhere in the draft plan does it state that the killing and removal of fish from the refuge will enhance the quality of the land, or that the fish pose any threat to the refuge. (0073)
- Because WCA2 (access location) is at that point (Hillsboro), which allows many forms of recreation, there is less need to facilitate increased use of the refuge as proposed in the draft CCP. Currently, use in this area is self-limited to people owning their own equipment. A concession (proposed) may result in an increase of users, but at a large cost and increased management burden. The current self-limited system is much more efficient and compatible with the refuge's wildlife protection purposes. (0094)
- Concessions in our National parks and forests are damaging and hard to remove. Better if public funded or outside our land. (0066)
- Project 12: Expand Recreation at the Hillsboro area: There is no justifiable reason for, and, therefore, we strongly oppose, awarding a concession contract that would provide fishing equipment and guides. Such a venture would place the Service in the position of actively promoting fishing, when fishing serves absolutely no conservationist or educational purpose. (0109; Animal Right Foundation of Florida, Inc.)
- No concessions for food, ECT, beyond present offerings at the visitor center. (0040)
- I oppose bicycle rental shop. (0064)

Response: Comments Noted

The planning team considered all the comments found throughout this Comment and Response Appendix, as a whole, to get an overall feel for public sentiments and it also considered the comments by subject. Comments concerning funding deficits, resource impacts, recreational use versus resource compatibility, compliance with Service directives and issues with the Hillsboro project led the team to reassess the projects (Table 8). Also, because many comments urged the refuge to make exotic species removal the highest refuge priority, followed by resource protection and environmental education, all the projects were prioritized, some were amended, some were split and the overall order of projects in this the final plan has changed.

In response to the overall tone of the comments from citizens, non-governmental organizations and governmental agencies, the planning team re-considered, re-wrote and re-prioritized the "Hillsboro Recreation Area Project" (Table 8, formerly Project 12). The project was divided into two separate projects; Project No.11 (Hillsboro Contact Station and Interpretive Center Project) and Project No. 14 (Hillsboro Recreation).

The New Hillsboro Contact Station and Interpretive Center Project (No. 11), will establish a contact station/interpretive center. This option recognizes comments emphasizing environmental education, interpretation, resource protection and partnerships. Ideally this center's interpretive display would contrast the unique differences between WCA1, WCA2 and WCA3; showcasing the northern and central Everglades System. The refuge managers are entertaining ideas about partnering with other agencies on sharing a building as a "contact station/interpretive center" in the Hillsboro Area. Many comments also expressed concern about new facilities attracting more people, expanding buildings and loss of wetlands to site development. The planning team considered these points

and concluded that a new interpretive building at Hillsboro would not necessarily increase visitation, but would increase resource awareness and environmental education for people currently frequenting the site. The planning team also agreed that constructing a new building to fit the footprint of a pre-existing building would not cause further impact (with appropriate construction safeguards) to the nearby wetlands and would be publicly acceptable. Furthermore, a formal refuge presence in the Hillsboro Area would assist in increasing visitor security, reduce vandalism, crime, and drug abuse and decrease illegal activities regarding wildlife.

Project No. 14 (Hillsboro Recreation) is now lower on the priority list, yet still considered an important project. This re-written project scales back the potential footprint of a full-blown concession, so that an initial operation could be started up and recreational impacts monitored. A preliminary framework of limited boat (canoes, kayaks, motorized johnboats), bicycle and fishing gear rental opportunities will assist in keeping the congestion down and lessening the impact to wildlife in this area. A dawn and dusk interpretive boat tour from the Hillsboro Area to the Headquarters Area is still under consideration with a limited number of trips per day. Opportunities could expand depending on need and compatibility. Selling food at Hillsboro may not be allowed, pending Service appropriateness and compatibility determinations.

Hillsboro is visited most often for its fishing opportunities. Fishing can be an excellent interpretive activity, exposing young people and urban dwellers to the unique sounds of the marsh, the beauty of nature and the unique setting of the refuge. The refuge supports catch and release fishing because of the high mercury levels found in most predatory fish within the Everglades ecosystem. However, the refuge also supports the removal of exotic fish from the refuge waters.

### *3. Strazzulla Marsh*

#### *a. Support Opening to the Public and Development:*

- As to the Strazzulla marsh. I do support an elevated walkway and observation tower looking out over both the marsh and WCA-1A. This unfortunately, will require a ranger on station during visiting hours. If arranged in close enough proximity, the Strazzulla Marsh entrance and the proposed limited ramp facility at or around ACME 1 OR 2 could be patrolled by the same ranger(s) and both could be locked down during non-use (night) periods. Thus, I support limited public use for touring the dim ditch, use of the canoe trail, hiking, birdwatching, and in general absorbing the little bit of nature remaining. (0108)

#### *b. Oppose Opening to the Public and Development*

- Don't let people in the Strazzulla marsh because they will hurt it. (0049)
- I do not trust "us" as citizens to treat any public lands properly. A sad statement and you, more than I, likely have the data to support that. Please watch us closely - many of us are not custodians but rather violators. (0108)
- Don't open Strazzulla (0002)
- The next thing on my mind is; keep out of Strazzulla. Manage it, but don't open it to the public. Please don't open it to the public. (0072)
- I also see problems with expanding the access points to the refuge and would discourage that possibility. (0059)

Response: Comments Noted

The proposed Strazzulla Marsh project will facilitate minimal access into the “interior of the Strazzulla Marsh.” However, as previously noted, all projects (Table 8) have been re-assessed and prioritized differently in response to public and agency comments. The Strazzulla Project which includes developing limited facilities such as a fishing pier on the perimeter canal, an elevated observation tower and marsh boardwalk, interpretive panels, and restrooms became a lower priority and is now Project No.14.

The map in the draft plan is misleading. A boardwalk across the marsh is cost prohibitive and could impact the habitat. Instead the intent is to construct two, short (less than 100 yards) boardwalks that would be built to enable the public to experience the marsh up close as well as provide a better opportunity for nature photography.

*4. 20-Mile Bend*

- The removal of the historic boat ramp facility at the northern (‘20-mile bend’) of the refuge, albeit SFWMD owned and operated, has negatively impacted the availability of the rim canal and wildlife viewing opportunities for those of us in the so-called western communities of Palm Beach County. I read with interest the possibility of a ramp plus other facility somewhere along the NE rim canal at an ACME site in Wellington. This could be wonderful if it is not turned into an active site. (0108)
- I read with interest the possibility of a ramp plus other facilities somewhere on the line of the northeast rim and acme site in Wellington. This could be wonderful if it’s not turned into an active site. That is, if it’s just a passive access area with little or no extra added attractions. (0076)

Response: Comments Noted

From communications with the South Florida Water Management District, no plans are being considered to provide boat ramps at the north end near the new Stormwater Treatment Areas (artificial marshes that are being constructed as part of Everglades restoration). In addition, no boat ramp will be constructed near Strazzulla marsh. The grassy area near ACME 1 and 2 could possibly be used as a temporary parking area for those with a small boat/canoe/kayak. A small boat, which could be carried to the water’s edge could be put in the refuge’s perimeter canal at these locations.

**G. Environmental Education and Interpretation****1. General Support**

- ...use it for education and ecology. (0020)
- ...use refuge only (for) environmental education. (0027)
- ...designate land use for environmental and educational purposes. (0047)
- We do support among some of the other projects, project 14, which expands environmental education in a non-consumptive manner. Students, tourists, and residents alike can learn the importance of preservation, conservation, and the respect for nature. Our desire (is) to see more educational activities made available. (0073)
- Finally, we do support, among some of the other Projects, Project 14, which expands environmental education in a non-consumptive manner. Students, tourists, and residents alike can learn the importance of preservation, conservation, and the respect for nature that results when we turn away the bullets and arrows of the hunter, and the barbed hooks of the angler, and strive to live at peace with the last vestiges of our natural surroundings. (0109)
- After ecological considerations; most important public use is education; programs, meetings, tours, etc. If we want to save what's left, we have to let the public see it and teach them about their environment. We have a constantly growing population with no idea of what conditions are or where they are living. They need to be taught. Don't listen to those who want to put a fence around all Environmentally Sensitive Lands. (0034)
- I'm very excited about the things you have to say about education. You know we need to educate our kids, our adults, everyone on the joys of the landscapes, the creatures, that are here that have every bit as much right to be here, maybe more, than we do. (0088)
- Need more community involvement (0023)
- I was just wondering what efforts, if any, have been made in contacting all of these gated communities that have been growing and mushrooming in South Florida, Boynton Beach area, about raising money in all these communities to help fund some of the projects...because many of the communities do undertake various types of charitable work. (0080)
- All programs to welcome public participation in learning and enjoying the natural plant and animal life enriches all of us and encourages life-supporting values. (0038)
- ...use refuge for education and environmental appreciation. (0019)
- Use for environmental education. (0026)
- Preserve the natural beauty for nature groups and education. (0030)
- Possibly more educational venues for visitors. (0044)
- Only use refuge for observing the environment and supporting education. (0013)
- ...use for education. (0029)
- Keep educational areas to keep public informed and knowledgeable. (0018)
- I'm in favor of more education. (0075)
- I would like to see more education. (0072)
- ...yes to education. (0012)
- The educational programs are essential and the public should be made aware of the purpose and usefulness of the refuge. It is so important to the quality of life in South Florida. (0037)
- Education includes overall long term respect. (0066)

Response: Comments Noted

Many people support using the refuge for environmental education and interpretation. The original Expand Environmental Education and Outreach Project (No.14) was given a much higher priority in the final plan -- and moved to No. 4. This project (pending funding) will provide new educational materials (printed, electronic, and public service brochures) on the refuge's wildlife, habitats, and management, the Everglades ecosystem and impacts of human development on the Everglades. Also an outdoor classroom will be erected near Compartment C for visiting school classes and adult education. The refuge hopes its Friends group and other support groups can also help support the spirit of Project No. 4 (Expand Environmental Education and Outreach).

0080; Gated communities have not been contacted by the refuge about funding projects. But the suggestion will be passed on to our non-profit refuge support groups - a more appropriate venue for such a request.

## *2. Opposed*

- The National Wildlife "Refuge System Improvement Act" gave equal emphasis to six high priority wildlife-dependent recreational uses, yet a complex environmental education component is given expedited priority in the Draft Plan over a modest expansion of hunting opportunities that would be simple to implement. (0114)

Response: Comments Noted.

## H. Public Use Management

### 1. Cost of Public Use Initiatives

- The idea of doing the increased public use, biology and public use staff increases, building increases, additional trails, boardwalks and towers are great ideas. But we are worried about the development and maintenance of all new infrastructure associated with the increases. We work to maintain what we already have and the current maintenance staff cannot keep up with the current demands. There are currently 4 people maintaining the facilities – we are not young and we are getting older; i.e.; we cannot do all that is currently necessary, let alone do what is projected in this plan. We see that there will be dramatic increases in biology and public use staff. Unfortunately, there are not enough increases in the maintenance staff to begin to address the coming changes. We propose that at least 3 laborers (temporary) and 2 FTE's (full-time employees) be added to the staff in the proposed plan. (0113)
- Recognizing that wildlife-dependent recreation and environmental education are important to increase the public's appreciation, understanding, and support for refuge resources, we are concerned that some of the proposed activities may have negative impacts on Loxahatchee's unique environment, particularly when considered cumulatively. When the proposed uses are analyzed together, combined with the anticipated increases in visitation as a result of improved visitor facilities and outreach, the negative impacts of the public use program are large. An excellent study was conducted at Loxahatchee on the effects of people on bird behavior (Burger and Gochfeld 1998) Burger and Gochfeld found that:  
(1) all species examined altered their foraging and vigilance behavior in the presence of people; (2) alterations in behavior included changes in foraging time, foraging rate, vigilance behavior, and movement (away from people); (3) loudness, as well as the number of people, affected the foraging behavior of the birds; and (4) there were species differences in initial responses to people while they were present and in recovery time. The FWS should rely on research on the effects of ecotourism and recreation to aid in compatibility decision-making and cumulative effects analysis. (0094)
- I think that you need to pay attention to regulation and policing if you open it up to more public access, that will be an expensive problem.... (0072)
- We have concerns about how staff will monitor increased waterfowl hunt area and motorboat activity. (0119; Sierra Club, Broward County Group)

#### Response: Comments Noted

0113: Comments noted. The potential additional infrastructure and additional programs could not be adequately handled without much more support from the Operations Department (maintenance staff). The proposed staffing chart (Figure 20) in the final plan shows five additional positions in the Operations Department. In fact, new projects will not be implemented without proper funding for operations and maintenance (positions) as well as funding for construction.

0094: After the planning team examined all the public comments (verbal and written) for content and tone, they agreed with this specific comment on the potential for adverse cumulative impacts. Many other comments when viewed as a whole, pointed to the same idea, but did not put it as succinctly.

The planning team noted comment support for environmental education and interpretation support is very strong. But examining other comments showed a concern about too much facility development, a potential diversion of funds from exotic plant control to other projects (including education) and concern about losing emphasis on resource protection/

biology in place of education. Concern was raised by many about too much recreational activity and the potential impacts related to it.

The noted journal article has been consulted and reviewed and was taken into consideration. Refuge biologists and staff continue to recognize visitor presence and activities that can and do impact wildlife behavior. This awareness and responsibility contributed to changing some of the proposed projects expanding visitor access, how the projects would be monitored, and how projects were prioritized.

The original project listing was not in any type of priority order. After the draft plan was printed, the core planning team attempted to determine priorities and wondered how the public comments would fall. After the comments were noted, all the projects were reviewed. Some of the proposed projects were amended and some were split into phases. The projects were then prioritized. Please see the amended project list and Table 8 in this plan.

0072 & 0119: Comments noted. Additional law enforcement personnel are proposed to support the proposed changes; please see Table 9 and Figure 17 in this plan.

Funding will be the first limiting value in whether a project or public use expansion will occur. Ideally, the projects will be implemented in priority order. However, the refuge does not have exclusive control over what is funded and what is not. See the first portion of Appendix Q for funding processes.

Increasing public access including expanding the hunt zone will not be attempted until funding is available to adequately staff the law enforcement department. This plan is a 15 year plan; proposed changes will be made slowly, by prioritized project subject to funding. Biological monitoring programs will be enacted to assess potential negative impacts on wildlife or habitats associated with increased public use. Refuge management will be kept apprized of monitoring results; where and when negative impacts are identified, corrective measures will be taken.

## *2. Passive versus Consumptive Recreational Uses*

### *a. Support Passive Recreation Uses:*

- Loxahatchee National Wildlife Refuge should focus its management priorities on passive recreation opportunities, environmental education, and non-motorized opportunities. Our members are avid hikers, users and supporters of the refuge. (0118)
- Yes to passive activities. (0011)
- I am in favor of expanded passive recreational uses that allow visitors and wildlife to co-exist together. The park is currently a great place to take children to learn about nature. I want to see it remain a passive use area. (0100)
- Continue passive recreation. (0003)
- Yes to low key/low impact environmental activities. (0012)
- Activities which belong are such as; considering the wonder of Nature, birdwatching, walking, and talking-or better, walking and not talking-with ones life partner, fishing, and photography. (0108)
- Activities which belong are such as; considering the wonder of Nature, birdwatching, walking, and talking-or better, walking and not talking-with ones life partner, fishing, and photography. (0076)
- Our desire (is) to see non-consumptive activities made available. (0073)
- More emphasis on passive recreation. (0002)

- Management focus should target passive recreation opportunities, environmental education, and non-motorized outdoor opportunities to serve South Florida's growing population. (0119)
- Use for nature groups. (0029)

Response: Comments Noted

The projects described in the Plan Implementation Section and listed in Table 8 of this plan have been re-ordered and passive recreation has received greater priority. However, opening up new areas is a lower priority.

i. Opposed to Generalized Hunting or Fishing:

- While we recognize that the Refuge Improvement Act upgrades hunting and fishing to priority uses, at a minimum the FWS must conduct rigorous biological analyses of the refuge's wildlife populations before making any compatibility determinations about the commercial and/or recreational killing of wildlife on the refuge.... We strongly oppose the use of hunting as a method of wildlife management. For too long hunting has been used as a catchall solution by the FWS and other federal and state agencies for a broad range of management issues ranging from perceived overpopulation to human-wildlife conflicts. This has occurred despite the potential impacts of hunting on population dynamics and demography and humaneness of hunting practices. ... no hunting in Strazzulla....no trapping. Theodore Roosevelt established the first National Wildlife Refuge in 1903 as an "involute sanctuary" for wildlife. The original intent and purpose of wildlife refuges was clear. It was not until the early 1950s that the FWS began to allow the commercial and recreational killing of wildlife at some refuges. Most Americans still view wildlife refuges as places where wild animals are protected from human interference. That is in fact the common definition of the word "refuge." (0111)
- Most importantly hunting (including frog-gigging, gator harvesting and all types of mammal hunting) and air boat use should be prohibited. The topic of air boat use on the historically allowed wildfowl hunting areas in the south should be revisited and perhaps scaled back. (0076)
- Our desire is to keep hunting and increased fishing opportunities out of the refuge. (0067)
- Don't use Loxahatchee as a hunting park. Our natural areas in south Florida are vanishing at a ridiculous rate, and for a sheltered area for our dwindling wildlife to be considered as a hunting warzone is an outrage. (0052)
- I personally have only several reservations, and they have already been expressed. One would have been the hunting. (0083)
- ...the definition of a refuge is a 'safe place, a sanctuary' and Loxahatchee should be preserved, giving a safe place for animals to live out a natural life. No hunting. (0043)
- We are opposed to hunting on a wildlife refuge, in this case Loxahatchee NWR. Protect and preserve animals. There are so many elements that are causing our wildlife to dwindle: land encroachment, hunting, environmental poisons/toxins, natural disasters, over-fishing, destruction of natural environment by people and recreation vehicles. Don't the hunters have enough land in which to kill animals? Enough is enough. Leave something for our wildlife. Let's not be so selfish and greedy. (0053)
- I would like to point out that the animals receive absolutely no benefit from being shot, stabbed, or hooked. Concentrate your efforts on removing exotic and destructive plant life, and let the animals take care of themselves. I am therefore quite concerned to hear that the new Draft Comprehensive Conservation Plan contains proposals to increase access to Loxahatchee for hunting and fishing. (0105)

- Our desire to keep hunting and increased fishing opportunities out of the Refuge would outweigh our desire to see more educational and non-consumptive activities made available. (0109)
- My family and I have frequented Loxahatchee NWR. We are appalled that you are thinking of allowing hunting on the refuge. Refurbish and expand the park, but without hunting. We are against a policy that will not be successful. If your idea is to eliminate the so-called excess of wild hogs you are badly mistaken. Eventually the same number of animals will occupy that space. Unfortunately many of these animals will be maimed and suffer. Also many endangered animals are at risk. Hunters are a minute percentage of the population. To bow down to them would be unjustified. The vast majority of the population would vote against such a proposal. (0056).
- Last month, at the public meeting regarding the proposed changes, the public's voice was loud and clear; most attendees emphasized that they do not want hunting to be allowed at the Loxahatchee Refuge. (0097)
- Hunting is allowed on so many more public lands in South Florida that it's totally unnecessary. I think I saw in one of the alternatives it said a public concern was there's a need for hunting. Hunting is not a need. This is a refuge, and a sanctuary for wildlife life as I see it. And you know there are so few places for wildlife to be where they're not hunted. (0082)
- I would like to say that I oppose the section of your plan to allow men and women to murder bear, deer, alligators, wild pigs, and frogs on the Loxahatchee NWR. A refuge should be a sanctuary and protection from danger and distress for the animals that live there. (0079)
- Do not allow men and women to kill on this refuge. Mankind is already in great trouble due to gross indifference toward other species. (0055)
- Do not let the hunters in. (0049)
- We turn away the bullets and arrows of the hunter, and the barbed hooks of the angler and strive to live in peace with what is left of our natural surroundings. Thank you. (0073)
- No hunting. Almost every day I see opossums, raccoons, or armadillos lying dead on the roads, run over by cars. We have moved in and taken over almost every piece of land that they have lived in. How can anyone suggest going and killing any animal living in a refuge? It's a disgrace to even think that someone would even consider this proposal. Is there no where left where these animals can live in peace? (0054)
- I have reservations about hunting but would hope it would be controlled to prevent becoming nuisances. (0035)
- ...let hunters chase game somewhere else. (0009)
- Hunting should not be permitted in a wildlife refuge. (0050)
- No hunting, wildlife not wild death. (0032)
- No hunting noted by the following commentors: (0015), (0020), (0066), (0013), (0021), (0028), (0012), (0065), (0006), (0029), (0047), (0017), (0003), (0014), (0007), (0004), (0030), (0018), (0119), (0002), (0008), (0048).
- Most importantly hunting, including frog and gator harvesting, all types of mammal hunting and air boat use should be prohibited. (0076)
- ...(hunting) is a cruel and savage sport – no hunting in the refuge. (0046)
- We do not want to see hunting in the refuge or motorized vehicles or horses. (0062)

- The proposal to allow hunting of alligators, feral pigs, and frogs is the most absurd aspect of the changes. “Shelter from danger or trouble” is Random House Dictionary’s definition of “refuge.” A refuge that allows slaughter of wildlife is not only a contradiction of terms but also clearly not the original intent of the refuge. (0097)
  - I am not against hunting and I have hunted in the past but by the opening up the wildlife preserves to hunters that’s just defying everything people put into have wildlife preservation land. These restricted lands are for animals to be safe and not hunted. There are many other places where hunters can go and enjoy hunting and fishing without having to bother this land. (0104)
  - The thing that concerns me the most...the definition of refuge: protection or shelter as from danger or hardship. Now, if the purpose is for a refuge, and I kept hearing wildlife first, why would we want to encourage creature to feel like they have a safe haven, and then allow people to go in and kill them? (0088)
  - I am opposed to hunting of any type in a National Wildlife Refuge. There is a great irony in allowing hunting in a place called a refuge. There is no need for hunting on public lands. (0100)
- ii. Oppose Waterfowl Hunting or Hunt Boundary Expansion.
- I am opposed to any expansion of waterfowl hunting. Our waterfowl situation in the US is bad and getting worse. Why hasten its demise? (0064)
  - I strongly oppose its eviction, and I also oppose proposed changes in regulations that would allow hunting and intrusion by motorized water craft of any kind. (0103)
  - ....we do question redefining waterfowl areas to allow greater accessibility to motorboats by expanding existing interior hunt boundaries to the west (0018)
  - We also have concerns about redefining waterfowl areas to allow greater accessibility to motorboats by expanding existing interior hunt boundaries to the west and how staff will monitor this activity. (0119)
- iii. Oppose Alligator and Hog Hunting
- We oppose on biological and ethical grounds the FWS’s proposal to allow an alligator hunt in the Loxahatchee NWR. The sole stated purpose for the proposal is to allow increased hunting opportunities. Clearly, there is no need or justification for this hunt and the “beneficiaries” of such a proposal would be only a few individual alligator hunters. (0111)
  - I am opposed to the alligator hunt for some of the same reasons that the plan opposes frog gigging and air boat use. One can hunt gators in Lake Okeechobee, for instance. The refuge is one of the few places the gators can exist without any human interference. (0096)
  - I think the refuge should be the last refuge for the alligator. It should be left alone in the refuge. (0086)
  - I am opposed to ANY alligator hunting in the refuge. If alligators can’t live unmolested in a wildlife refuge wetland, or canal, where can they live? (0064)
  - I don’t want to see an alligator hunt....you really don’t have an alligator problem. .... leave the balance. There’s never been any establishment that the alligators in the canals move out and invade the public places. At certain times of the year, they will do that anyhow. (0072)
  - Alligator hunting should only be done on an irregular basis, as determined to be necessary through biological monitoring of the population. I would prefer that it not be done. (0126)

- Alligators are considered native wildlife and therefore, should never have been listed on alternative two as an animal to be killed. In fact, alligators on the refuge are precisely the very animals who have found their niche in the natural ecosystem, and are not a threat to the human population. (0073)
  - ... but the proposal to allow destructive activity, like hunting for the alligators, wild pigs, or frogs, is a mistake. (0069)
  - We are concerned about opening the refuge to alligator hunting. Does the biology say that there are too many alligators? We need to rely on sound biology to determine what is hunted and what is not hunted. In other words, the refuge should rely on baseline knowledge to support hunting only if it is conducive to maintaining the biological balance. We don't think the refuge should support hunting just for the sake of hunting.
  - We are also concerned that having gator hunts will spend the limited amount of money the refuge receives to operate. If this gator hunt occurs, the refuge will need to spend a lot of money on additional law enforcement (which will end up being overtime pay —time and a half or more). The hunters will be hunting at night and will be able to access the refuge interior if the water levels are high. Thus increasing the chance of uncontrolled access and poaching. We feel that gator hunting will lead to uncontrolled activities and attract undesirable people to the refuge. Having worked law enforcement on the refuge in earlier years, we know you cannot catch someone easily in the marsh. It would be a shame to open the refuge up to potential abuse. (0113)
  - The public hunt for feral hogs was proposed since they were blamed for general habitat degradation, yet no study was cited to determine if and what...to what extent...the hogs had hampered the existence of native plants and animals. It is widely accepted among wildlife biologists that hunting does not reduce hard numbers in the long run. (0073)
  - No hog hunting. (0026)
- iv. Oppose Frogging
- No frogging or turtle harvesting. (0064)
  - No frogging, etc. (0058)
- v. Oppose Pursuit Dogs
- No dogs. (0014)
  - Allowing dogs would harass wild boars. (0046)

Response: Comments Noted

As part of the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses such as hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation are to be considered legitimate and priority public uses. These activities are dependent upon healthy fish and wildlife populations, good quality habitat, accessibility without habitat damage, and sound science; all determined by the Refuge Manager and staff. The responsibility of the refuge system also extends toward supporting the cultural heritage (which includes hunting and fishing) of the United States.

President Teddy Roosevelt created the first national wildlife refuge, Pelican Island in Florida, to protect wading birds from market hunters. The numbers of wading birds were being reduced at a phenomenal rate due to many factors such as economic demand for fashionable breeding feathers, use of rapid-fire or repeating guns and what is today considered “unethical hunting practice.” This first refuge was a sanctuary for birds (wildlife), but President Roosevelt was also an active hunter and fisherman. He recognized that balanced wildlife populations could

be maintained and hunting did not have to negatively impact a species' population. Many national wildlife refuges since that first one have been closed to hunting, but many more have been open to hunting. In fact, the majority of national wildlife refuges have some form of hunting as a management tool and/or public use opportunity. Hunttable wildlife populations are monitored, size (age) limits are imposed to ensure animals can reproduce before they can be taken, and harvest rates identified yearly, according to biological data.

While the public often focuses on individual animals, wildlife managers and biologists need to focus on wildlife populations, fully recognizing not all animals will survive and a landscape food web is natural and is needed. The refuge recognizes the many citizen responses against hunting and fishing as a whole. The refuge also considers the many citizens for a hunting program, as well as the nation's cultural past, the Improvement Act, and the opportunity to experience the refuge and engage in outdoor education and interpretation through hunting and fishing activities. The refuge will allow limited hunting for specific species (alligators, feral hogs, waterfowl) whose populations (in the case of alligator and waterfowl) will be relatively unaffected by the removal of a limited number of individual animals. It is the intent of the proposed feral hog hunting program to reduce the population of these exotic invasive animals that significantly degrade the natural habitat.

No commercial hunting or fishing of native species will be allowed on the refuge. Commercial operations would only be considered by contract or Special Use Permit to remove invasive exotic fish. In the case of feral hogs, contracts with USDA Wildlife Services could be used to supplement the refuge's efforts to minimize habitat damage. Biological surveys currently being conducted and those planned for the future will be used to determine if hunting activities are sound. Any and all hunts on the refuge will be controlled by law enforcement staff through permits, and biological staff will provide monitoring support for those hunts.

Fishing, along with wildlife observation and photography, hunting, interpretation and environmental education, is one of the Refuge Improvement Act priority wildlife-dependent recreation uses. This activity, if fish populations are sufficient, is to receive enhanced consideration over other public uses in planning and management. Fishing can be an excellent interpretive activity, exposing young people and urban dwellers to the unique sounds of the marsh, the beauty of nature, and the unique setting of the refuge. The refuge supports catch and release fishing because of the high mercury levels found in most predatory fish. However, the refuge also supports the removal of exotic fish from refuge waters.

Current alligator research indicates that controlled hunting could be supported in the perimeter canal area. An alligator hunt will be allowed on the refuge as funding permits and biological data supports it on a year-by-year basis. The proposed hunt will take place in a limited area of the perimeter canal only via conventional motorboats and for a limited time within the State alligator season. Few hunters will be allowed in each night, thereby reducing the difficulty of keeping track of boats. Law enforcement staff will be able to survey the hunted portions of the canal by boat and from the levee road. Because the proposed alligator hunt will take place at night after normal open refuge hours, the only people on the refuge will be a select number of permitted hunters, law enforcement, and biology staff operating the check stations. Partnering with other agencies to control the hunt and to operate the biological check stations will likely occur. All alligators harvested will be required to be brought to the refuge check station where valuable biological data can be obtained. This type of information not normally available will support current research on this species. As with all proposed projects, adequate funding will be a factor in determining when this hunt may occur. The proposed alligator hunt will not take place during drought conditions when many alligators from

the refuge interior move to the deep water of the perimeter canals. The alligator hunts may not occur on a regular basis, and the hunt may be suspended at any time by the refuge for biological or safety reasons.

Non-native, invasive feral hogs are destructive to the natural habitat and will be removed for resource management purposes. When feral hog populations can sustain a hunt (when hog populations exceed the refuge staff's ability to control their numbers), the public will be invited to assist in feral hog management by hunting/removing individual animals. This will occur by permit only and likely not be a yearly event.

The area proposed as the expanded waterfowl hunt area (Alternative 2, Figure 22) is entirely within the Alternative 1 (Maintain Current Management) public use area where anglers have used motorboats for years. This habitat does not appear to have been compromised by motor use and is in fact the best fishing and hunting area on the refuge. The water levels remain deepest in the southern end of the refuge because of impoundment effects and southward sheet flow. Some trails have been cut and maintained by motors into the southwestern portion of the marsh, but they do not appear to negatively impact the marsh or its inhabitants.

In the final plan, the use of dogs to assist waterfowl hunters is considered compatible and will be allowed, as they help reduce the loss/waste of game. Very few dogs accompany waterfowl hunters because of the threat of alligators. Dogs will not be allowed in feral hog hunting or alligator activities, nor will they be allowed to accompany visitors on the refuge. They will not be allowed to remain in vehicles while people participate in wildlife observation, education or interpretation activities due to the threat of overheating.

Please see "Support Consumptive Recreational Use" (below) for related topics and refuge responses.

b. Support Consumptive Recreational Use:

i. Support Generalized Hunting

- ...is a limited list of beneficial suggestions concerning the possibility of allowing the use of commercial trot lines, in the Loxahatchee rim canals to reduce exotic fish. (0120)
- ...No accommodation was made in the Draft Plan to assess whitetail deer populations for possible inclusion in hunting opportunities. (0114)
- There are more deer today than when Columbus landed. So, we were out there murdering them, just the seven percent of us who do that, then we are doing something right in the conservation area. ...Wildlife can be enhanced and can exist with hunting, and without being detrimental to wildlife in general. (0084)
- Many years ago it was not uncommon to see deer drinking from the L-7 or L-40 while I slowly fished these canals....From this report it appears that this is no longer a problem because the deer herd is virtually nonexistent. This is a shame. I believe that if the wildlife had been properly managed, there would be a larger deer population today... I believe that if the alligator population was thinned out and managed more closely, it would allow the deer herd to be reestablished. With fewer alligators there would be an over abundance of frogs. By allowing airboaters to gig frogs this would keep the frog population in check. (0093)
  - We are delighted to see that hunting is a part of the draft. The state's hunting community can be very important to the health of the Refuge.... We are troubled though in the fact that (in the Executive Summary Document) on page 9, under the column labeled 'Issue or Concern', subtitled Public Use, Section 3; it states "There is a need to provided increased access to the refuge for hunting waterfowl, deer,

alligator, turkey, bear and frogs.” Yet when we go to page 9, under the column labeled Alternative 2, subtitled “Ecosystem Emphasis” the UFS (USFWS) limits the hunting experience to waterfowl, feral hogs and limited alligator hunts. It seems that deer, turkey, (bear are not issue as they are illegal to hunt) and frogging have been left out. We ask that the following comments be considered for final drafting of the CCP for the refuge:

We agree with redefining the waterfowl hunt area to allow greater accessibility of motorboats by expanding existing interior hunt boundaries to the west.

We agree with the opening of refuge lands for the purpose of hunting HOG, DEER & TURKEY using WALK-IN, CANOE OR POLEBOAT methods using a limited permit system.

We whole heartedly agree with proposal for limited alligator hunts.

We ask that surveys determining the amity to hunt the area be done or reviewed by the Florida Fish and Wildlife Conservation Commission.

As hunters we understand, as you do, the need for game management. The current problem you are facing with feral hogs could just as well be a problem with over populations of deer or turkey. As you can see we are almost in full agreement with the plan proposed by UFS with the exception of limited hunting opportunities. As hunters we understand, as you do, the need for game management. (0110; Florida Hunting Coalition)

- As an avid sportsman and conservationist I can't help but notice that the draft is very restrictive to individuals that enjoy hunting, fishing and air boating (0093)
  - I would like to say that I support the option that allows big game and small game hunting, fishing, trapping, frogging, camping and air boats throughout the refuge. These activities are traditional American, family oriented sports, especially in South Florida. As you are aware, the above activities are allowed on the majority of the National Wild Refuges throughout the country and there is no reason these same activities cannot be allowed on your refuge. These activities also fit in nicely with other recreational activities such as bird watching and hiking which occur close to your Visitor Center. You won't find bird watchers and hikers back in the swamps! (0121)
  - We need more area open to public for recreational fishing along with limited hunting. (0039)
  - We would like more fishing area. (0060)
  - Our organization is made up of sportsmen's groups, so naturally responsible and well regulated hunting and fishing opportunities and back country access are very important to our members. The Draft Plan is especially biased against these interests. Using slight-of-hand wording it misrepresents facts in numerous instances to portray these activities in the worst manner possible. (0114)
- ii. Support Waterfowl Hunting or Hunt Boundary Expansion
- Your migratory birds that come into the refuge here are hunted all up and down the seaboard. Still they're on the recovery because of all the money that's spent by Ducks Unlimited for the nesting areas in Canada and in the northern United States. (0084)
  - I think waterfowl hunting maybe should continue. (0086)
  - ...open up more area for duck hunting, especially the north area. (0039)

iii. Support Hog and Alligator Hunting

- We do not oppose a feral hog hunt and limited alligator hunt .... (0118)
- I support hog hunting in Strazzulla marsh, because they are an introduced species. (0064)
- I support limited hunting of feral hogs. (0126)
- We think that getting rid of feral hogs is fine. If the refuge uses a public hunt to remove these exotic animals fine. We are concerned about how the hunt occurs. We think that hunt should be very intensive, and all hogs should be removed at one time; a two week hunt or however long to get them all off the land. We don't think the refuge should have a limited hunt and do it twice or more a year just to provide access to hunters. If the hogs cannot be eliminated from the site by hunters, sharp-shooters should come in and finish the job. (0113)
- I wanted to write you to support the hunting proposal. In these ecosystems, animals, such as hogs, have no predators and can overpopulate. Hunting can act as a natural check on the population and prevent mass starvation or excessive destruction of habitat. (0106)
- I do support the hunting-the alligator hunting. I do support the feral hog hunting. (0083)
- In my letter of 26 April 2000 and at the microphone, I came out against hunting of gator and hogs. Upon reflection, I find that I must recant on that stand, but only a bit. If hogs are a problem and if gators ever actually become a problem then I could support hunting/harvesting of these if done in one of 2 ways. First, only government hunters do the harvest. Surely, the Fish and Wildlife employs same. Second, if the Service wishes to perform a harvest and at the same time quiet cries of hunter organizations then a government guided and/or escorted hunt/harvest in which a citizen, having won this honor by lottery, participates could be considered. I still oppose the open range hunting/harvest of either or both species inside the refuge. If a lottery system, escorted hunt does occur, I may even throw my name in the pot. As you may recall, I am also a hunter but oppose this in a refuge! (0108)

iv. Support Frogging

- Allow frog hunting. (0033)
- For instance in predicting the impact of recreational frogging would have on the refuge, the plan describes the effects of commercial frogging activities that occurred a half century ago in an era when resource management was in its infancy. No consideration was given to allowing the activity subject to reasonable recreation methods of harvest and limit, much like fishing is regulated on the refuge. (0114)
- With fewer alligators there would be an over abundance of frogs. By allowing air boaters to gig frogs this would keep the frog population in check. (0093)

Response: Comments Noted

0120; The only commercial fishing permitted will be by Special Use Permit or contract to remove invasive exotic fish.

Overall Response:

The mission of the National Wildlife Refuge System emphasizes what has come to be known as our motto, "wildlife first." Each refuge in the system tailors allowed activities to its own wildlife populations, to the supporting habitat, and to other issues related to the specific area. Some refuges have no hunting and some have no public access at all. However, the majority of national wildlife refuges permit some form of hunting and the vast majority permit fishing. The staff and the planning team of

A.R.M. Loxahatchee National Wildlife Refuge have had the responsibility to consider many issues including: habitat availability, water delivery and timing, wildlife populations, health and ecology, public access, public comments, Service guidelines, and the laws and regulations under which we must operate.

In the Management Direction and Plan Implementation Sections, the need to survey, monitor, or inventory wildlife populations is recognized in Goal 1, Objectives 6 and 8. Because the Inventory and Monitoring Plan is incomplete, it is difficult to tell what should and should not be included. The refuge biologists are aware that little recent survey information is available regarding white-tailed deer populations in the refuge interior. The guiding principles governing what species are inventoried, monitored and surveyed is addressed in Appendix O, Staff Inventory and Monitoring Efforts.

Deer are occasionally observed by staff working in the refuge interior, but it does not appear that population levels are sufficient to support a harvest.. They were commonly observed last year on the levees during flooding of tree islands as a result of Hurricane Irene. The numbers have declined due to native habitat being converted to farmlands and then to residential development.

Occasional reports of turkey have been made on lands the refuge manages. No population estimates are currently available to ascertain population levels. Staff experience suggests, although anecdotally, that populations of turkey are very small and not capable of supporting a hunt.

Regarding the alligator population, they are the top predator in the food chain and are in healthy condition on the refuge. Although the refuge surveys show a population that can sustain a harvest in the perimeter canal, the staff cannot concur with the statement that they are the reason for low levels of deer and frogs.

Hog hunting will be used as a management tool. Currently the feral hog population is not large, but refuge management wants to prevent further habitat destruction by these animals. The goal will be to reduce the feral hog population as much as possible and to schedule occasional hunts to reduce hog impacts. Hunts will be held when a reasonable expectation of harvest occurs. The removal will be closely monitored and conducted for a limited time. The refuge understands, because the area does not have an exclusion fence, hog populations may rise again. Hunts will take place on an as needed basis to keep the feral hog population minimal. The issues on frogging were addressed in Appendix J.

### *3. Airboats*

#### *a. Support Airboat Use:*

- By allowing air boats the use of the area, the small amount of grass that is laid down in the trails would allow birds to feed in an open area where they could be aware of any predators that may be close by. I personally have never seen birds feed in areas where the grass was very high. (0093)
- You were directed to provide for air boaters in 1994, down at the south end. And I hear today...and I saw the notice on jet skis, which is inappropriate, but in fish and wildlife process of control. But air boaters certainly have a right to this, and it is an effective means for transport for a facility of this nature. (0092)
- I believe it was then, the Florida Fish and Game Commission, now the Fish and Wildlife, fenced in an area of a couple of hundred feet square. And the purpose of fencing this in, nobody knew this until a bit later, was to keep all of the air boat half track, buggy traffic off of this particular area. By the next hunting season, you could not tell the fenced in area

from the area immediately outside of that where all the traffic had occurred. So, the Glades has an excellent ability to respond. (0084)

- I think that there's enough area to coexist for air boaters, canoers, and poleboaters. I think that to utilize the northern area would be good. Historically, that whole area has been opened up for froggers. (0091)
- And one of the best ways we have found, and even the school board here in Palm Beach County finds, that what we do on an educational basis, taking people out. Showing people what happens and how things are done, and how air boats can be, and are, operated safely throughout the ecosystem. I've been out there since the sixties, and during the very height of the concession area out there in the mid-seventies, we used to fill all the parking lot up with air...not air boats...but we used to fill all the parking lot with people that wanted to come out and see if they wanted to go out on an air boat or not. There were motorboats and other things that were available. So I would like for that to be a consideration. (0081)
- The air boat is one of the realistic keys that opens up this area to a multiple-use concept, and all parties enjoyed the liberal use of the area. As air boats beat down trails of thick underbrush, cattails, and saw grass, it became an oasis for all wildlife. Let me explain! NOTHING can habitat out of control varieties of invasive plant life, so thick that neither wildlife, nor fish, gators, turtles and other species can survive. But when the air boats were allowed, they were vehicles to remedy this situation. As they made trails through this useless type of terrain, these watery trails became an oasis for both fish and wildlife. (0115; Airboat & Halftrack Conservation Club of Palm Beach County, Inc.)
- Air boating is another activity that was addressed in a shamefully biased fashion, listing perceived adverse impacts of unregulated operation and suggesting that air boaters are irresponsible and negligent when it comes to wildlife and wildlife habitat. A portion of the draft plan purports to list the benefits and adverse effects of air boating, yet it omits any reference to its benefits... It's odd that noise was a major factor in disallowing airboats in the refuge, yet the Draft Plan calls for establishing concession services at the Hillsboro Recreational Area which is one of the most popular airboat launching area in the region. Our members are concerned the USFWS will later use the presence of the concession facilities as justification for effort to eliminate traditional airboat access into WCA-2 under the guise of sound management. ... (0114)
- Allow air boating to manage habitat (to bring the big heads back, to revitalize the area, increase waterfowl habitat) (0033)
- Allow air boats for alligator hunting, frogging and duck hunting. (0042)
- Air boats can coexist with the canoe people. It would be an entirely different area that the air boats could run in, compared to where the canoes and the people are out bird watching. (0090)
- I believe the refuge is large enough to support wildlife watchers and air boaters at the same time, without causing interference amongst the two. (0087)
- I got to see a nice part of the refuge out there, and I think with responsible air boat use, (they're) not going to impact the wildlife too bad. We're out there every day (other than the refuge) with responsible guidelines that we have to follow. The airboat trail that we use, look better than the canoe trails in some areas that I've been on. We definitely need to have more public use within the boundaries, nobody gets to see that... (0089)
- Air boats are obviously required as transportation (for hunting and fishing) due to the nature of the refuge. (0121)
- Like to see some of the air boating on the area, on a limited use. (0083)

b. Opposed to Airboat Use:

- I oppose all air boat traffic except for scientists and law enforcement. (0064)
- I oppose the use of air boats except for management and research purposes. (0126)
- I have concerns about allowing the use of air boats within the refuge. Although air boats are common and somewhat popular water craft, their usage can have very detrimental effects on natural environments. Air boats are extremely fast and loud vehicles. Not only do they have the ability to travel over water but also over land that may separate water bodies, for short distances. This risk, along with disturbances from their loud engines can act to drive wildlife away from areas in which these vehicles are used. If air boat usage is allowed, this activity must be highly regulated and monitored. Air boat operators should be required to apply for and receive permits before being allowed to operate these crafts. The number of permits should also be limited. (0127; Audubon of Florida)
- In discussions of public use, the service repeatedly wants hiking, camping and canoeing with air boating. This is misleading and we suggest that these references should be reworded in the final plan. It simply isn't fair to equate the well-documented destruction and harassment caused by air boats with the more benign activities of hiking, camping and canoeing.
- The most horrifying experience I had out there wasn't alligators I saw, or any wildlife of any kind that I saw, but it was an air boat. I think it was back in the early eighties. We were in a little canoe boat, I was with a friend, as we were absolutely horrified. (0082)
- I guess my feeling is, that air boats are welcome within the Everglades and in the public use areas. But within the refuge, I think the refuge should be an area where it's peaceful, where people can come out to relax and enjoy the environment and the serenity. (0086)
- No air boats. Noted by the following commentors: (0010), (0040), (0002),
- Air boats distress slow-flying birds such as moorhen, coots and occasionally kills them. (0009)
- I applaud the US Wildlife Service for its recommendation against allowing air boats and water scooters in the refuge. (0069)
- The topic of air boat use, historically allowed wild fowl hunting areas in the south, should be revisited and perhaps scaled back. (0076)
- I personally have only several reservations, and they have already been expressed. One would have been the air boating. (0083)
- In addition, we too are opposed to the use of air boats on the canals. (0080)
- I oppose all air boat traffic except for scientists and law enforcement. (0064)
- I oppose the use of air boats except for management and research purposes. (0126)

Response: Comments noted. The issue of airboating is addressed in Appendix J.

#### 4. Motorboats

##### a. Support Gasoline Powered Boats:

- I would like the use of a “Go-devil” type boat/motor to be permitted which is now prohibited by the previous ARM refuge managers. Even if permitted during waterfowl season only. I would like to see some kind of practical public access (preferably motorized, possibly a go-devil, or special permitted air boat) for children, elderly, handicapped, and the general public (other than a canoe) to view and photograph the tree islands, wildlife, and other areas of the refuge . (0123)
- I’ve been out there since the sixties, and during the very height of the concession area out there in the mid-seventies, we used to fill all the parking lot up with air...not air boats...but we used to fill all the parking lot with people that wanted to come out and see if they wanted to go out on an air boat or not. There were motorboats and other things that were available. So I would like for that to be a consideration. (0081)
- Motorboats have always been used out there. The north end, you can’t even get to now that they’ve got it shut down (Twenty-mile Bend). It would be nice to have another area to be able to put a boat for people in the Western Communities. (0040)
- I think I would like to see pontoon. (0075)

Response: Comments Noted.

0123: The ‘go-devil’ type of motor, due to its design, permits access and impacts vegetation in many of the same areas that an airboat does. For this reason “go-devil” type motors will not be permitted. Reference Appendix J for more information.

0040: Refuge management gave up the northern portion of the refuge to the South Florida Water Management District in exchange for Strazzulla Marsh to enable water movement between stormwater treatment areas, and the refuge no longer manages access to that area. The South Florida Water Management District has decided against having a northern boat ramp along the stormwater treatment areas according to our communications with them. The refuge planning team did consider placing a boat ramp near ACME 1 or 2 but decided against it when facility development at Strazzulla Marsh was made a low priority and horseback riding was not allowed. However, if a boat is small enough to be carried, it could be put in the perimeter canal across from ACME 1 or 2. The transporting vehicle could be temporarily parked in the grass along the road east of the ACME pump stations (pending ACME approval).

##### b. Opposed to Gasoline Powered Boats:

- We support the use of electric motors for limited pontoon tours at Hillsboro Recreation Area. . .not motorized vehicles on water (0018)
- We also support the use of electric motors for limited pontoon boat tours at Hillsboro Recreation Area. (0119)
- I have reservations about motor boating but would hope it would be controlled to prevent becoming a nuisance. (0035)
- Even motorboats, anything that’s going to further pollute the area shouldn’t be allowed. (0082)
- We strongly support the speed restrictions on the east side of the refuge, but the unlimited motorboat speeds allowed in the west perimeter canal will reduce wildlife habitat by increasing wave activity and noise pollution. Electric motors should be encouraged if not required. Two-cycle engines, which release up to 30% of their fuel into the water, should not be allowed in refuge waters; waters that are already suffering poor quality (0094)

- I, like one of the other speakers, have great concern that allowing motorized boats in the refuge will create a noise disturbance for the wildlife. And for that matter, for those who wish to peacefully and unobtrusively observe them. (0077)
- In addition, we too are opposed to the use of motorboats on the canals. We love the serenity, and it should be kept that way. (0080)
- no gasoline boats (0028), (0002), (0066)
- Rental motorboats down at the concession... they certainly should be electrical if that takes place, or pontoon. I think motorboats are distressing. Very distressing. Shooting is distressing. So I'm not in favor of motorboats. (0075)
- I personally have only several reservations, and they have already been expressed. One would have been the motor boating. And having been a volunteer out at the refuge for twelve years, I think the resolution to those problems should lie in the hands of the staff of the refuge. Those are the people who are out there, who study it, who know it, and they should control the number of those extracurricular activities. (0085)

Response: Comments Noted

Hopefully cleaner running boat motor development will be successful and supported by the public. If an interpretive pontoon boat ride is initiated (it is a proposed project in plan), the boat will be powered by a quiet electric motor or quiet "clean fuel" powered motor.

All references to "unlimited speed" in the perimeter canal on the west side of the refuge has been changed (text and maps). All boats must be operated in a safe manner according to State of Florida and U.S. Coast Guard regulations. There will be three areas totaling about eight miles (out of the 57 miles of canals) where motorized boats will have to proceed at "slow speed, minimum wake" in deference to canoeists and other paddies and to maintain a more serene environment for nearby non-water users of the refuge. These areas will be near the Hillsboro, headquarters, and ACME access points.

### 5. Motorized Vehicles

a. Support of Motorized Vehicles:  
Response No Comments Received

b. Opposed to Motorized Vehicles:

- Keep refuge entirely without motorized vehicles on land or in water. (0014)
- No half-tracks. (0058), (0014)
- No ATV, trucks, autos in the refuge. (0046), (0012)
- No off road vehicles. (0010), (0003)
- No motorized vehicles. Noted by the following commentors: (0006), (0017), (0027), (0013), (0020), (0008), (0063), (0009), (0025), (0019), (0015), (0045), (0026), (0005), (0021), (0012), (0028), (0062), (0119), (0030)
- No dune buggies. (0012)

Response: Comments Noted

No all-terrain vehicles and other similar 4-wheelers, dune buggies, half-tracks, off-road vehicles, private trucks or cars will be allowed on the impoundment levees, the perimeter dike, the impoundments, cypress swamp, any of the compartments or along Strazzulla Marsh. Visitors may drive street legal vehicles on paved roads and on shellrock roads.

## 6. Horseback Riding

### a. Support:

- Please receive this letter as a request to open a limited section of the Loxahatchee NWR as an equestrian trail. The refuge is located in the heart of one of the largest equestrian communities in the United States...approving equestrian access would be a great step in providing a unique, low impact educational experience. Equestrian access to other environmental areas such as the SFWMD's DuPuis Reserve, the FFWCC's Corbett Wildlife Area, the Hoover Dike Trail around Lake Okeechobee and other have proven to be successful partnerships. We look forward to your consideration of this request. Attached please find letters of support as well as petition signatures of 15 individuals and 5 equestrian organizations representing over 3,000 members. (0116; Palm Beach County Equestrian Trails Committee)
- However, one of the alternatives called for horseback riding to be allowed from ACME 2 northwest past ACME 1. Certainly horseback riders and hikers can coexist on such a broad trail with its excellent visibility. (0096)

### b. Opposed:

- We do not want to see horses in the refuge. (0062)
- We oppose the use of horseback riding within the boundaries of the refuge. (0119)
- I also oppose allowing horses into any part of the refuge (0064)
- Consideration needs to be given to the future/long-term effects of certain types of recreation activities. Horseback riding is one example. Constant hoof traffic usually results in a dirt trail, which turns to a mud trail with rain. Is this the type of activity you want in an area with aesthetic value, as well as ecological significance? (0127)

Response: Comments Noted.

The issue of horseback riding is addressed in Appendix J.

## 7. Hiking, Walking, Biking, and Trail Use

### a. Support:

- I think there's good arguments to be made for improving what's already there, such as the walking, biking and canoeing trails, but while leaving most of the refuge off limits to people. (0069)
- Hiking (rim dike and selected landside marsh sites), and limited boating (limited size, speed) will allow 'access' for viewing nature, exercise, and limited fishing. (0108)
- Hiking, rim dike and selected side marsh sites and limited boating (limited means speed and size) will allow for access, viewing nature, exercise and limited fishing, while still allowing wildlife to rest in an area free from over-intrusion, hunting, air boating, and man. (0076)
- I enjoy hiking, and I am sure I am one of the few individuals who has walked the stretch of perimeter levee from Lox Road to ACME pump station 1. (Although not all in one day.) Reading the report I was surprised to learn that the levee north of ACME pump station 2 is closed to the public. I am curious to know why? It had been my understanding that all of the perimeter levee was open to the public, if accessed from the main entrance or Lox Road. (0096)
- Let us use this area as a refuge, and limit our intrusion by visiting by foot. (0076)
- I use the refuge for walking and wildlife viewing (0020)
- I enjoy photography and walking in the refuge. (0048)

- Bikes, whether motorized or not, generally produce the same effect as hoofed animals. If these activities are to be permitted, they should be limited to less aesthetic and ecologically significant areas of the refuge. The overall purpose of the plan is to preserve the refuge, not recreational activities. (0127)
- I support bicycle trails (0064)
- Yes to biking (0012)

b. Opposed  
No Comments Received

Response:

Unfortunately, the hiking boundaries on the perimeter levee north of the Headquarters Area were not clearly worded and the associated maps sometimes conflicted in the draft plan. Currently (Alternative 1 and Alternative 3), visitors are not to go more than approximately 1 mile north of the headquarters boat ramp on the L-40 levee. Alternatives 2 and 4 proposed allowing hikers to go north approximately 7 miles if there are no construction or safety issues. This would allow individuals to drop a vehicle at either ACME1 or headquarters and make a good day hike.

Hiking south from headquarters through to Hillsboro and west, northwest to the S-6 Pump station will continue with the adoption of Alternative 2. Walking the levees throughout Compartment C including the 'Marsh Trail' will continue and portions of the surrounding Compartment A levee would be accessible to walking if construction or other management activities do not compromise visitor safety.

The planning team agrees that bicycle riding should be limited to just paved roads and a section of the main refuge levee that is often traveled by refuge and South Florida Water Management District staff in vehicles. The top of the L-40 levee is a narrow and fully disturbed area that is hard-packed with gravel. Persistent, early successional stage plants such as forbs (exotic and native) grow along the levee sides and would not be significantly impacted by bicycle tires.

## 8. *Canoeing/Kayaking/Poleboating*

a. Support:

- I think I would like to see canoe use.... (0075)
- Lengthen canoe trail.... (0066)
- Canoeing, kayaking would be fine. (0080)
- Canoeing .... will allow 'access' for viewing nature, exercise, and limited fishing while still allowing wildlife to rest in an area. (0108)
- Canoeing...will allow 'access' for viewing nature, exercise, and limited fishing while still allowing wildlife to rest in an area. The canoe trail expansion into another area, such as the northern site, could be a very desirable passive use addition. (0076)
- You can take a poleboat and get back in there, you can take an air boat, and even tonight you said the poleboat path might be available, so I would hope that would be the one. (0084)
- ...like to canoe. (0015)

b. Opposed  
No comments received

Response: Comments Noted

As discussed earlier and in this final plan, expansion of the canoe trail will only occur with adequate funding and staffing. This project requires new

construction as well as increased annual maintenance and manpower costs. The possible extension of the existing canoe trail would not be a conduit for high nutrient water to reach deep into the refuge interior. Rather, the trail would be a loop extension from the most interior portion of the existing trail.

Even though more than 95 percent of the proposed poleboat trail would not be actively cut or maintained as the canoe trail is, it will require a new cut through dense perimeter cattail vegetation to provide accessibility. This new cut into the interior could allow poor quality water into the northeastern portion of the refuge. The poleboat trail will not be attempted until the perimeter canal water quality is consistently within the legal Consent Decree phosphorus guidelines or other legal water quality guidelines.

### 9. *Camping*

#### a. Support Overnight Camping:

We support a camping area (0060)

- ...allow strictly monitored use of overnight sites (i.e., abusing users must return and correct damage). (0066)
- As to my opposition of overnight camping on the proposed longer canoe trail. This too I must readdress. If the effort were closely monitored, then such a program might well benefit the public. However, it would need to be closely monitored for at least 2 main impacts. First, the problem of human waste which is a pretty good nutrient source for all plant species, look at the grass over the drain field, would need to be addressed. As precedent, one needs only to examine the Redfield Ratio (C/N/P) of nutrients in Eastern Florida Bay. That is, in the vicinity of bird (cormorant) rookeries in the Florida Keys, it has been found that nutrient enrichment can lead to localized eutrophication (Powell, G.V.M. et al., [1991] *Estuarine and Coastal Shelf Science* 32, pp.567-579). In that case changes in the ecosystem were due to phosphorous (P) loading whereas with human fecal input it would be nitrogen (N), and either would alter both the evolved “natural” N/P ratios and total overall supplies. Precedent for human fecal matter induced alteration of an ecosystem, albeit on a much grander scale, derives from the well publicized leakage of septic systems in the Florida Keys and inputs of both N and P to both Florida Bay and Hawk Channel, the latter impacting the near shore reef system. Second, as waters begin to flow into the WCA-1A system from the 20-mile bend Storm Water Treatment Areas (SWTAs) a new problem may arise. It is well known that artificial (‘nature mimic’) marshes and riparian-like structures (see Mitsch et al., [1995] *Ecological Applications* 5, pp. 830-845) do a very nice job of reducing nutrient, especially P, loads from the waters flowing through them. Thus, the SWTA strategy should greatly help in the removal of these nutrients and thus give WCA-1A (ARM Loxahatchee) ‘cleaner’ water. However, it has also recently been proven that accompanying the N and P, plus herbicides etc., one usually associates with EAA and other agriculturally recycled waters, are definitive tracers of EAA fertilizers (cf. Zielinski R.A., Simmons K.R. and Orem W.H. [2000] Use of <sup>234</sup>U and <sup>238</sup>U isotopes to identify fertilizer-derived uranium in the Florida Everglades. *Applied geochemistry* 15, 369-383). The uranium per se is not the ecological problem of note here, for it is of very low level but of distinctive isotopic ‘fingerprint’. However, the same methodology has now been applied to the sulfur isotopes (<sup>32</sup>S, <sup>34</sup>S) and S-enrichment in WCAs-2 and 3 has been traced to the same agricultural sources (W.H. Orem person. commun. 1998-2000: see “Awful Fishy” by Roger Williams; NewsTimes newspaper 04/27/00: <http://www.newtimesbpb.com>). Here the implication goes directly to the methylation of mercury. That is, sulfur/sulfate enriched areas, such as WCA-2 and 3 are extremely conducive to the growth of sulfate reducing bacteria. These bacteria and the rest of their Achaebacterial consortium are the agents for the methylation of mercury. WCA-1 likely has similar eolian loading of

metallic mercury but has little if any of the methyl mercury which is both mobile and bioaccumulates upwards in the food chain. Now, finally to the point. As the SWTAs come on-line and likely receive waters from the EAA, in order to reduce loading into Everglades National Park and the Micosukee lands, one wonders how the concentration of S in the SWAs will affect the methylation of mercury and the mobilization of methyl mercury into WCA-1A (ARM Loxahatchee). If this does negatively impact the incoming (ex. SWAs) waters then any and all penetration of rim ditch waters into the core of WCA-1A, such as with canoe and boat trails, must be avoided. Presently, the United States Geologic Survey (USGS) uses the core of WCA-1A as background representative of a historic rain fed Everglades (W.H. Orem, USGS, pers. comm., April 2000). (0108)

b. Opposed to Overnight Camping:

- No overnight camping. (0002)
- No overnight camping. (0011)
- We talk about overnight camping,... on the platforms you will have noise and lights. I don't know how that will be monitored. (0075)
- However, I am not in favor of overnight camping along the canoe trail(s) of the refuge, this would beg litter and abuse (0076)

Response: Refuge management and the planning team recognize that the first priority projects requested by the public are exotic plant control, water quality, and other biological support projects to maintain or improve the refuge's wildlife habitat. However, visitor education and interpretation opportunities are priority public uses and important to the development of a greater appreciation of this special natural resource and the Everglades system as a whole.

A full list of regulations, checks and balances will be initiated before any overnight activities are started. Other agencies that manage difficult access, backcountry overnight programs such as national parks, will be consulted. These contacts will assist the refuge in setting up a limited and controlled public access program.

Development of overnight platforms and the related administration support tasks for overnight experiences will take place as monies are made available. Often funds are contributed to the refuge for specific programs (i.e., public use) and cannot be used for other projects (exotic plant removal). The refuge will not turn away contributions even if the monies cannot be used for the number one priority (exotic plant removal).

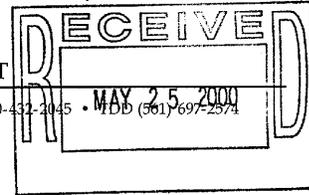
0108; Currently a portable toilet is located on the existing canoe trail and is frequently pumped out. A contractor is transported by airboat, the refuse is pumped into a temporary container and upon arrival back at the boat ramp, the refuse material is pumped to the contractor's truck. This is a costly and difficult procedure. The refuge plans to replace the existing trail facility with a state-of-the-art composting toilet. Our staff would periodically empty the material into a container and take it off the refuge. Each camping platform (one - maybe two) would contain the same state-of-the-art composting outhouses.

No new poleboat trails would be cut into the refuge interior from the perimeter canals until the incoming water quality was within soon-to-be decided legal limits. Although the relevance of the specific sulfur issue was not discussed in the draft plan, it is an important component of the incoming water quality and could have the potential to negatively impact the refuge.



**SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

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**ADM 28-06 RF: 00-0321**

May 24, 2000

Mr. Mark J. Musaus, Refuge Manager  
Arthur R. Marshall Loxahatchee Wildlife Refuge  
10216 Lee Road  
Boynton Beach, FL 33437-4796

Dear Mr. Musaus:

The South Florida Water Management District (District) staff have reviewed the Arthur R. Marshall Loxahatchee Wildlife Refuge (Refuge) Comprehensive Conservation Plan (Plan) and we offer the following comments on the Plan.

Refuge staff and the U.S. Fish and Wildlife Service are to be commended on producing a comprehensive, detailed, and well-written fifteen (15) year plan for the Refuge.

Although District staff is impressed with your draft plan, we are concerned about the scope and cost of the improvements to the management, infrastructure and public use programs. We would prefer to see a prioritization of mission projects with management program elements such as exotic control, prescribed fire and floral/fauna inventories ranked high on the list. We realize the Refuge's responsibility to provide recreation and education opportunities on the site, and would suggest that improvements in educational programs take precedence over basic recreation facilities and programs.

The Refuge should carefully evaluate any expansion of public use facilities such as a concessionaire at Hillsboro, new canoe trails, boardwalks and observation towers to make sure that these facilities will not adversely impact the native habitats and the wildlife that depends on them.

For the benefit of your staff and others involved in the preparation of the Plan, I have enclosed a summary of specific and detailed comments generated in our review process.

We appreciate the close and cooperative working relationship you and your staff have creating during the development of this Plan. The District is particularly interested in this document as it will be the technical basis for our pending Refuge license agreement scheduled to be considered by the Governing Board this fall. We look forward to your presentation of the Plan to our Governing Board, currently scheduled for the July 12 workshop.

GOVERNING BOARD

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EXECUTIVE OFFICE

Frank R. Finch, P.E., *Executive Director*  
James E. Blount, *Chief of Staff*

Mr. Mark J. Musaus  
May 24, 2000  
Page 2

Thank you for the opportunity to comment on this Plan. Please contact Fred Davis, Director, Land Stewardship Department, Water Resources Operations, at (561) 687-6636, for questions or additional information.

Sincerely,

A handwritten signature in black ink that reads "Frank R. Finch". The signature is written in a cursive, flowing style.

Frank R. Finch, P.E.  
Executive Director  
South Florida Water Management District

FRF/iw  
Enclosure

c: Fred Davis, WRO  
Dr. Patrick J. Gleason, Governing Board Member  
Sam D. Hamilton, USFWS  
Joseph W. Taylor, WRO

## SUMMARY OF STAFF COMMENTS

### Loxahatchee Refuge Comprehensive Conservation Plan

#### Refuge Management

- We support the alternative of removing levees between compartments A and B, which would have the effect of reconnecting the cypress swamp to the marsh while retaining public access. However, we recommend retaining some of the levees within compartment C (Alternative 3), because this will provide continued public access to the managed pond. Furthermore, cooperative efforts between the SFWMD and the Refuge to use impoundments within compartment C for tree island research is being planned. This research, which would manipulate water levels and measure the response of plants and animals, will help our agencies' effort to improve hydrological management and also will provide the public with a first-hand view of how science is an integral part of sound resource management. Note that increasing collaboration between the Refuge and other agencies is listed under objective 2 of Resource Protection.
- Some of the impoundments in compartment C should be set aside for research to aid in adaptive management as long as it is conducive to public education. They provide a rare opportunity to manipulate water levels and measure the response of some plants and animals. There is currently a cooperative effort between the SFWMD and the Refuge to do so and explicitly recognizing the research value of the impoundments might be useful for future collaborations. Also, increasing collaboration between the Refuge and other agencies is listed under objective 2 of Resource Protection.
- Project 3. Fire is a natural disturbance maintaining the unique Everglades ecosystem. Understanding historical fire pattern in the Refuge, including fire frequency, intensity, size, location, and season, is necessary for the implementation of a fire management program. Because the landscape of the Refuge is different from other parts of the Everglades, the Refuge needs a unique fire management plan. The fire research contract needs to evaluate historical fire patterns, fire patterns under current hydrologic and vegetation conditions, and how to use fire as an effective management tool.
- The Plan emphasizes the invasion of exotic plant species, but does not emphasize enough that these species cause the loss of native vegetation. Also, the Plan does not give a clear picture of the loss of wildlife (species and quantity). This point should be more clearly addressed in Project 4.

#### Water Quality & Hydrology

- It was explicitly stated that nutrient levels are more of a concern than hydrologic patterns. WCA 2 provides just one example to indicate that assumption may not be true. After years of receiving high nutrient water, the vegetation in a sizeable area of WCA 2 has been converted from sawgrass and sloughs to cattails. Despite the sizeable impacted area, most of WCA 2 still has native plant communities. On the other hand, because of altered hydropatterns almost all the tree islands and their associated fauna have been eliminated from the entire

area. In other words, both hydro patterns and nutrients are major problems but hydro patterns affect a larger area just as severely and are, therefore, more serious. This should be a particular concern in the Refuge where the abundant tree islands and their associated high biodiversity are a defining characteristic. One way the document could be strengthened is by devoting considerably more effort to monitoring explicitly for hydro pattern restoration and conducting research aimed at setting hydro pattern targets as part of the adaptive management process.

- It should be emphasized that physical and chemical characteristics within the Refuge, such as peat and soil structure and water quality (pH, Fe, conductivity, etc.), are different from these characteristics in other parts of the Everglades ( WCA 2, WCA 3, and Everglades National Park). These differences, as well as differences in hydrological patterns and fire patterns, result in a very different landscape patterns in the Refuge. The diversity and distribution of wildlife are strongly influenced by the landscape pattern of vegetation and water.
- The role of altered hydrologic conditions within the Refuge is not clearly presented, particularly with regard to the influence of these conditions on native vegetation and wildlife. How has altered hydrology in the Refuge influenced the loss of native vegetation and wildlife?

#### **Monitoring**

- One of the most important threats to the biological integrity of the Refuge is invasion by exotic species. A top priority should thus be Exotic Species Control. The Plan alternatives were somewhat lacking in detail with regard to alternatives for exotic control and associated monitoring.
- The Refuge should monitor and evaluate all species, not only key (umbrella) species. It is true that the key species are good indicators of overall ecosystem health. However, a Refuge should not increase public use while sacrificing its ability to document biodiversity. For example, the use of tree islands by invertebrates, reptiles, amphibians, and mammals is poorly documented and needs to be evaluated as a management goal.
- Consider folding Project 5 (GIS Database) and Project 6 (Monitor Vegetation Patterns) into one project and making it high priority. Hiring priorities need to be included since they were given for Alternatives 3 and 4 but not for Alternative 2.
- Project 1b. It is important not only have a list of exotic species, but also have their population size, age and area distribution. These data together with life history information can help to predict their expansion rate and area.
- Project 2. Greater detail is needed regarding the design for water quality and ecological monitoring (not simply, "throughout the Refuge"). The justification of monitoring sites should be ecologically and financially sound. In general, the sites will be selected at locations where the water flows in and out the Refuge. Given my concern about herbicides applied for the controlling for exotic plants, special sites for monitoring toxic compounds are necessary.

- Project 4. This project needs to set up criteria that measure the success of the Conservation Plan. In addition, the inventory and monitoring of target species should not only include life history and habitats, but also include population size, age structure, and areal distribution (particularly for animals). Population density and age structure are good indicators of whether populations are increasing, decreasing, or stable.

#### **Public Education and Use**

- The Refuge clearly is in a pivotal position to showcase the Everglades and increase the public's exposure to this vital resource. An ethos of environmental education is that we only protect and care about the things we know. The more we get to know the Everglades, hopefully the more we (a collective "we") will want to support measures to protect and restore it. The Everglades and our beaches are among our south Florida "signature resources." From a philosophical standpoint, consider that there are many places along the coast to enjoy the beach. However, there are very few points of entry for the general public into the Everglades--especially in Palm Beach County. The Refuge is an important gateway to expose and educate the public about the Everglades at large.
- Although staff strongly supports improvements in education opportunities, there was some concern over the increase in pure recreational activities that could result in negative impacts on the ecosystem. The cutting of trails through the marsh to improve access for hunting, canoeing, and pole boating are of foremost concern. Many of the negative characteristics of airboat trails recognized in this report occur with boat trails of any type. These pathways increase dispersal of exotic plants and fishes into the marsh interior, accelerated the input nutrients and other pollutants from the Refuge perimeter, alter the natural flow of water within the marsh, and create artificial fire breaks. Another concern regarding recreational activity is the hosting of fishing tournaments. This activity disturbs wildlife by concentrating fast-moving motorboats and large numbers of people in the marsh. This disturbance can have a negative impact on wading bird and waterfowl populations.
- The Refuge seeks to expand educational efforts in several ways--especially for school-age children via a curriculum for teachers and Refuge educators. We like the fact that the Refuge plans expanded partnerships and outreach to elected officials. So often, targeted segments of the adult population are neglected in attempts to focus on school students.
- The Refuge might also take the opportunity to educate the public about Everglades restoration, in addition to "human impacts." Restoration is probably part and parcel of "human impacts" but the Refuge does have a great opportunity to explicitly educate the public on restoration.
- The Refuge should consider outreach to business leaders as a specific target audience--but not just from the standpoint of involving interested entrepreneurs in the ecotourism aspects. The business community plays a key role in influencing the quality of life in the region. Specifically targeting business leaders would increase their exposure to the Everglades and related issues.

- The Refuge should consider an advisory committee, which taps different sectors of the community to review their education plans as they develop them, as they implement the CCP. That way they could involve all audiences and get buy-in from the community.

**Detailed Comments**

- Pg. 9, para. 2 - A minor point is that the Refuge is not the first to receive agricultural water. All of the WCAs receive agricultured water directly.
- Pg. 9, para. 2 - It might be informative if there was some mention of the benefits of increased flow to maintain tree islands.
- Pg. 9, para. 4 - This is where some concrete examples of monitoring that show benefits of the water schedule would be useful.
- Pg. 27, para 2 - There may not be enough discussion of how the STAs will affect the Refuge. Some mention is made of improvements to water quality but no mention is made of expected benefits of hydropattern restoration.
- Pg. 57, #7 - It might be worth considering the ecological advantages of reconnecting the cypress swamp with the marsh in compartments A and B. Also, it would cause no reduction in public use.
- Pg. 118, para 7 - The preferred alternative might not benefit non-target species. This seems to be in conflict with the USFWS ecosystem management emphasis and the intent of the Everglades ecosystem restoration.
- High P in the water along the canal resulted in cattail expansion in Fig.8. What is the difference between shrubs and tree islands in Fig. 8?
- According to the text, wet prairies occupies about 50% of land coverage, tree islands about 20%, sawgrass about 25%. The remainder of 5% area for open sloughs seems low. Is this estimate correct?
- Cattail is still very rare in the central and northern research area. It is not appropriate to include cattail in the category of "major vegetative communities" (p28).
- The health and loss of tree islands should be pointed out in "Tree Islands" on p30. How many acres of tree islands have been invaded by exotic species? What is status of tree islands within the Refuge and how do the Plan's alternatives protect, improve, or restore them?



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

Frank R. Finch, P.E.  
Executive Director  
South Florida Water Management District  
3301 Gun Club Road  
West Palm Beach, Florida 33406

Dear Mr. Finch:

Thank you for the South Florida Water Management District's comprehensive review of the U.S. Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. Public input is important, especially from natural resource management agencies such as yours. The refuge has enjoyed a close working relationship with the District for years and I especially have during the two years that I've been Refuge Manager. The close involvement of District staff throughout the development of this plan was invaluable.

In response to the concerns the District expressed regarding the large scope of the proposed plan, its associated costs, and proposed increases in public use programs, the multi-agency planning team reassessed the plan. The team concurred with the District's suggestions to re-address the project priorities given the excellent opportunity the refuge has to showcase the Everglades ecosystem via educational efforts beyond basic recreational facilities and programs.

Our responses to the District's comments are enclosed. Once again, thank you for your thorough review and suggestions.

Sincerely yours,

Mark J. Musaus  
Refuge Manager

Enclosure

## Refuge Management

- The District combined a portion of Alternative 3 with Alternative 2 to support restoring more cypress swamp. After careful thought, the planning team supported this idea and has amended the proposed plan to include cypress swamp restoration of Compartment A (upper and lower impoundments) and parts of Compartment B. The levee separating the upper and lower sections of Compartment A will be removed, and perhaps when the restored area is well established and good water quality is assured, the levee separating the existing cypress swamp and Compartment A will be removed. Or at the very least, the two areas could be hydrologically connected via water control structures. Consistent with the District's recommendation, the levees in Compartments B and C will be maintained. The impoundments will be managed in a mosaic to benefit a variety of wildlife species groups, including wading birds, shorebirds, and waterfowl. Please see Section IV, Management Direction, Goal 1, Objective 7; and Section V, Plan Implementation, Project 8.

Environmental education, interpretation and outreach was elevated to the number four priority for the refuge, and we agree that impoundment management is an excellent tool for this. Please see Section V, Plan Implementation, Projects 4 and 8.

- Two of the ten impoundments in Compartment C are planned for a joint research project between the refuge and the District. We look forward to learning more about tree island restoration and overall hydrologic restoration through this project. Partnerships are also in place or are developing with several other entities to provide qualified researchers access to certain impoundments within Compartment C. Refuge Management and biological programs support impoundment research when it is tied to refuge management objectives, especially if it benefits wetland habitat management techniques for all of the Everglades and the south Florida ecosystem. Please see Section IV, Management Direction, Partnership Opportunities; Appendix A, Environmental Assessment, Research and Monitoring; and Appendix D, Compatibility Determination, Research and Special Use Permits.
- The refuge landscape is unique and developed under different fire conditions than the central and southern portions of the Everglades. In recognition of this, the planning team proposed Project No. 5 in the Draft CCP which read, "Implement a Fire Management Program" (Section V, Plan Implementation). This project includes hiring a prescribed fire specialist and a fire technician. Their responsibilities would include researching and understanding different fire aspects relating to the northern Everglades wetland habitats and developing an active fire management program for the refuge. Please see this project description. We also agreed that the refuge needs a unique Fire Management Plan, and have developed and forwarded a very comprehensive plan to our Regional Office for review and approval. Please see Section V, Plan Implementation, Project 5.
- The District indicated the Draft plan did not give a clear picture of wildlife species and quantity loss, nor did it clearly indicate the loss of native vegetation in relation to invasive exotic plants. The refuge has just begun a partnership (Spring 2000) to investigate the impacts of invasive exotic Old World climbing fern that has already resulted in one research paper being submitted for publication. However, we agree that the refuge is generally lacking this type of information. The current refuge management and biological staff certainly recognize the need to understand the changes on the landscape that have occurred over time and the ramifications of those changes. Project No.6 addresses that exact issue and proposes to find, compile and assess years of data, monthly and annual reports, and research reports, abstracts and summaries. We concur that refuge managers and biologists must understand how the refuge, species within it, and the landscape has changed over time, especially in light of the impacts of invasive exotic species. Project No. 7 will also work in concert with Project No.6 to provide the refuge with more of this comprehensive type of information. Please see Section III, Refuge Environment, Exotic Plants; and Section V, Plan Implementation, Projects 6 and 7.

## Water Quality and Hydrology

- The perception that water quality (nutrient levels) is more important in the refuge than hydrologic patterns was certainly not intended. The biological staff have been vocal in their concern about hydrologic patterns and as a result the current refuge management is very well aware of the issues surrounding the quantity of water in the refuge during the long and short hydroperiods, the delivery of water (large amounts in a very short time or none when needed), the timing of the delivery (large amounts at critical times can cause failure of reproductive seasons for many species of wildlife) and time frame of extreme water levels (extended periods of high water may be negatively impacting refuge tree islands). The need for a hydrologic model was listed in Project No.2 and many water level gauges will soon be placed in the refuge interior. The refuge biological staff and the Everglades Program Team (a joint refuge and Everglades National Park team of a half-dozen senior scientists) will be monitoring the effects of hydrology on the refuge landscape. The misrepresentation that water quality is more important than hydrologic patterns was amended in the final plan. Please see Section III, Refuge Environment, Hydroperiod and Hydropattern; and Section IV, Management Direction, Goal 1, Objective 1.
- The final plan was amended to more fully depict the differences in the physical and chemical properties of the refuge as compared to the rest of the Everglades ecosystem. Please see Section III, Refuge Environment, Physiography, Soils, and Geology.
- Text was added to further describe hydropatterns, effects on vegetation of the northern landscape, and the relationship between the diversity and distribution of wildlife and the wetlands and vegetation. However, we do not have as much information available as we would like, so Projects Numbers 2, 6, and 7 will be especially helpful to interpret the effects of altered hydrology on vegetation and wildlife. Please see Section III, Refuge Environment, Hydroperiod and Hydropattern; and Section V, Plan Implementation, Projects 2, 6, and 7.

## Monitoring

- Invasive exotic species control is the number one priority for the refuge and we have requested a significant funding boost. Public comments show similar concern over the presence and implied impact they are having on native vegetation and wildlife communities. Additional information on alternative exotic controls was provided in the final plan. Appendix O shows the current monitoring, inventorying, and research efforts at the refuge, some of which address exotic impacts on native tree islands. However, the soon to be completed Comprehensive Inventory and Monitoring Plan for the refuge will contain a much greater array of details, as will the Integrated Pest Management, Exotic Plant Control and Exotic Animal Control step-down plans. Please see Section III, Refuge Environment, Exotic Plants; and Section V, Plan Implementation, Projects 1,6, and 7; Appendices P and O.
- Unfortunately, it is cost prohibitive to attempt inventorying or monitoring of all habitats and species as the District recommends. Even with an exceptionally comprehensive management and monitoring plan, an "army" of biologists, and tremendous funding, all species on the refuge could not be monitored or evaluated. We are fortunate to have the largest biological staff of any national wildlife refuge in the southeastern United States (Region 4) with 4.5 full-time equivalents, but this still relatively small number of biologists needs to focus on more indicator-type species, to be as efficient as possible, until funding requests for increased biological staff are fulfilled. We plan to continue all opportunities available to inventory and monitor habitats and species including partnerships with other agencies and special use permits to conduct research. A list of current biological activities is included in Appendix O.

The primary direction the inventorying and monitoring plan will follow is governed by the Service's Refuge Manual and the "Fulfilling the Promises" and "Biological Needs Assessment" (internal management) documents. Issues such as the Everglades restoration and regional protection of listed, trust, and focal species are referenced in the South Florida Ecosystem Team's Ecosystem Plan, South Florida Multi-Species Recovery Plan, and the Comprehensive Ecosystem Restoration Plan. All these documents assist refuge management and the refuge biological program to focus inventory and monitoring plans and prioritize limited resources. The following hierarchical list gives the guidelines and steps refuges use to determine which habitats and species are inventoried and monitored. Note, inventory and monitoring projects are sometimes specific for the refuge, others support regional, national, and international emphasis.

- Those habitats or species listed in the Refuge Purpose (wildlife habitat and migratory birds);
- The habitats and species of critical management importance. Usually this means the primary trust species (federally listed threatened and endangered species, migratory birds, anadromous fish, and certain marine mammals) which reside on or are dependent upon the habitats found on the refuge (e.g., Everglades snail kite, wood stork);
- Secondary trust species (federally listed threatened and endangered species, migratory birds, anadromous fish, and certain marine mammals) which occasionally may use the refuge (e.g., bald eagle, crested caracara);
- State listed species (e.g., Florida sandhill crane, strap fern), Service's Species of Management Concern (e.g., yellow rail, American bittern) and CITES species (e.g., river otter, delicate ionopsis);
- Those habitats or species of concern in the South Florida Ecosystem Team's Ecosystem Plan, South Florida Multi-Species Recovery Plan, and the Comprehensive Ecosystem Restoration Plan (e.g., tree islands, wading birds, alligators). These focal habitats and focal species were selected because they can provide information and indicate changes on larger communities and ecological processes.

Adjustments will be made to phase out less productive efforts and include methods providing sensitive indications of population dynamics. Although the refuge is quite large for a refuge, it is not isolated. Rather it is an important portion of the greater Everglades ecosystem and surveys will be closely tied to monitoring the restoration efforts.

A limited list of current inventory and monitoring surveys the refuge staff and researchers conducted during the last 2 years was also added to the final plan to give readers a chance to understand what is being conducted on the refuge. The Comprehensive Inventorying and Monitoring step-down plan will show greater detail in deciding what and how sites or species are selected and how the monitoring will take place. Please see Section IV, Management Direction; Section V, Plan Implementation, Projects 4, 5, 6, 7, and Staffing and Funding; Appendices P and O.

- Considering the District's recommendation, the GIS Database and Monitor Vegetative Patterns Projects were combined into one project with a priority ranking of seven. The higher priority projects in order were invasive exotic species control; water quantity, quality, timing, and delivery monitoring; base maintenance; expand environmental education and outreach; fire management; and Everglades restoration monitoring. Please see Section V, Plan Implementation, Projects 7a and 7b.
- We agree that a mere list of exotic species is not as helpful as information on their population size, age, and distribution in the refuge along with natural history knowledge to predict their expansion rate and area. The refuge has some of this type of information on the more aggressive exotic species, but did not include this level of detail in the draft plan. Maps (1995) of *Lygodium* and *melaleuca* coverage are included in the final plan, as is a list of inventory, monitoring, and research efforts on the refuge for the past 2 years (which shows some of efforts relating to tree islands). Please see Section V, Plan Implementation, Projects 1, 6, and 7.

Questions arise over whether it is more important to have information on exotic populations or native populations. Many of the planned inventories will be stratified by habitat, thus some exotic species can be documented and perhaps aged and distributions developed. However, refuge priorities, limited staff, and funding all need to be considered. For example, collecting population size, age, and distribution data on oscars (an exotic predatory fish), would be a poor use of funding as realistically, little will be done to control the population, especially when this fish is artificially stocked in nearby freshwater wetlands.

When money and time are precious, some external sources can provide limited information to allow refuge biologists to make reasonable estimates of exotic area coverage and species distribution. The refuge at this point would rather focus limited funding on invasive exotic control efforts. This type of issue will be addressed more fully in the Inventorying and Monitoring step-down plan. Please see Section III, Refuge Environment, Exotic Plants; Section V, Plan Implementation; and Appendices P and O.

- More detailed hydrologic, invasive exotic species, and ecological monitoring step-down plans are being prepared. In the invasive Exotic Species Control Plan (in development) a cost/benefit matrix of different treatment methods per location will be prepared. Chemical contamination monitoring sites at exotic plant treated areas shall also be set up to assess the ecological cost of exotic control through herbicide treatment. Portions of the final plan text was amended to indicate specific monitoring sites. Please see Section IV, Management Direction, Goal 1, Objective 2; and Section V, Plan Implementation, Step-Down Plans.
- The criteria to measure the success of this final plan will be included in the Inventorying and Monitoring Plan (in development). The refuge has fostered many independent studies by universities and other agencies, in the areas of population demographic studies, age distribution surveys, and other types of inclusive research, which will be used to indicate changes in populations. Also, Projects 6 and 7 will provide support to evaluate the success of this adaptive management plan. Please see Section V, Plan Implementation, Projects 6 and 7; and Appendix O.

### Public Education and Use

- We agree on the importance of environmental education and interpretation of the Everglades for the citizens of south Florida, the United States, and the world. Recent public hearings on the Comprehensive Everglades Restoration Project have identified environmental education as a critical component of Everglades restoration. The refuge has recognized its responsibility and fortunate location to provide knowledge about and access to one of the nation's signature natural resources. Water Conservation Areas 2 and 3 allow recreational access. However, few educational opportunities seem to be available in the Everglades system south of the refuge until Everglades National Park. Project No. 4 (Expand Environmental Educational and Outreach) and Project Nos. 6, 8, 11, 13, and 15 show the refuge commitment to sharing the value of the Everglades with the public. Please see Section III, Refuge Environment, Exotic Plants; Section IV, Management Direction; Section V, Plan Implementation, Projects 4, 6, 8, 11, 13, and 15.
- After assessing the District's comments and others from conservation organizations, non-governmental organizations, and private citizens, the refuge planning team re-assessed the more active recreational opportunities supported in the draft plan. Although many of the activities were retained, their enactment priority was lowered and they were made more limited in scope. For example, the thrust at the Hillsboro Area changed. The original project was split into two separate entities. The higher priority project emphasizes a "contact station with interpretive center." The interpretive thrust would highlight the similarities and differences between the northern (refuge) and central (Water Conservation Areas 2 and 3) Everglades. A partnership could be formed with other local area agencies to share the center. The second portion of the original Hillsboro project is to expand the recreational activity facilities on a very limited basis. This has been lowered in priority. Please see Section IV, Management Direction, Goal 3, Objective 4; Section V, Plan Implementation, Projects 11 and 14.

Fishing tournaments (currently permitted only four times per year for one day by a limited number of boats) will still be allowed. The impact to the landscape and wildlife in the south end of the refuge is minimal with these tournaments. Restricting the participation to 15 boats, and requiring that groups obtain all state permits, encourages only local clubs that enjoy competition as well as conservation. These same persons routinely fish on the refuge. These clubs, in lieu of a permit fee, support the refuge with volunteer projects such as removing litter at the Hillsboro Public Use Area or assisting refuge staff at youth fishing events. Please see Appendix D, Compatibility Determination, Fishing.

- Exposing adults to the beauty and importance of the Everglades and the ramifications of past and present human impacts will be very rewarding. We believe enlightened adults will use their new knowledge to be more environmentally responsible in determining personal preferences regarding voting issues, expanding development, habitat loss, water quality, drainage issues, pesticide use, and other lifestyle issues. We currently offer more than 100 special interpretive programs throughout the year as part of our "Calendar of Events." All but just a few of these programs are geared towards adults. As funding and staffing allow, we would like to design an environmental education course for the adult population. Please see Section IV, Management Direction, Goal 3, Objectives 6 and 7; Section V, Plan Implementation, Project 4.

- This is an excellent point but our present public use staff of two full time positions is stretched to the limit. The refuge has participated in outreach programs such as hosting and educating business leaders and elected officials and plans to do more of this type of education. We plan to soon go on line with an interactive refuge web site. This site will be dynamic with changing articles and up-to-date information. This exposure will also enhance the public's awareness of the refuge and Everglades ecosystem. Please see Section V, Plan Implementation, Staffing and Funding.
- Thank you for the idea of an advisory committee to review our education plans. Community involvement and sense of ownership is critical to the success of environmental education programs. The Boynton Beach Chamber of Commerce has expressed the desire to support our educational program for schools in the Boynton Beach area. We hope to develop similar partnerships in the future.

### Detailed Responses

Please note pages in the final plan have changed from the draft. We note the original page number for clarity in relating to specific comments.

- p.9; This is true. Text revision addresses this. Please see Section I, The Role of the Refuge in Everglades Restoration.
- p.9; The text in this section has been amended. In addition, a brief discussion of flow is included in the Hydroperiod and Hydropattern section. Please see Section I, The Role of the Refuge in Everglades Restoration.
- p.9; Text is amended to show some of the realized and potential benefits of the revised water regulation schedule. Please see Section I, the Role of the Refuge in Everglades Restoration.
- p.27; Though two of the major goals of the Everglades Construction Project are to improve water quality and to improve the volume, timing, and distribution of water entering the Everglades, the former has been the focus of the development of Stormwater Treatment Area 1. The area's ability to store water in addition to treating water could benefit refuge hydropatterns by making additional water available for delivery at needed times. However, detailed analyses have not been conducted that demonstrate the potential effects of changing the location of water inflows to the refuge (both moving inflows from S5-A south to G-251 on the west and the equivalent structure for Stormwater Treatment Area 1E, and removing inputs at S-6). Refuge staff have concerns that these changes may have the potential to negatively impact hydropatterns. The development of a hydrologic model of the refuge that examines these impacts is listed in the final plan as a needed project. Please see Section III, Refuge Environment, Hydroperiod and Hydropattern, Overview of the Water Regulation Schedule; Section III, Refuge Environment, Water Quality, Legal Action; and Section I, The Role of the Refuge in Everglades Restoration.
- p.57; This suggestion was included in the final plan; see our prior response in this document. Please see Section IV, Management Direction, Goal 1, Objective 7; and Section V, Plan Implementation, Project 8.
- p.118; No conflict was intended. We were stating a predicament encountered when managing artificially created habitats such as impoundments. The sentence will be reworded. It was not the best way to say that there are always tradeoffs in active wildlife management processes. Ecosystem management seems to provide the most well rounded scenario for species that evolved in that environment, usually native species. However, in south Florida, impoundments need to be actively managed or they are lost to rank vegetative growth. During the management process, either draining, burning, or discing can temporarily displace and cause minimal benefit to fish, small mammals, and some invertebrates. Additionally, managing an impoundment or two to provide prey and habitat for some target species will often preclude impoundment use for other species (i.e., non-target species). As an example, managing for shorebirds that require relatively large areas of open, very shallow water, or exposed mudflats with high invertebrate populations or snowy egrets and wood storks does not benefit secretive marsh birds such as king and black rails that prefer dense vegetative growth. Please see Appendix A, Section VI, Environmental Consequences, Hydrology.

- fig.8; Unfortunately the black and white draft plan version did not show the legend breakdown very well. The District will receive full color copies (not printed in draft) of the final plan.
- The 5 percent open slough estimation came from an interpretation of the legend supporting the Loxahatchee vegetation map found in the 1990 Report; “An Evaluation of Refuge Habitats and Relationships to Water Quality, Quantity and Hydroperiod” by Richardson, et., al. Anecdotally, refuge staff believe this to be a reasonable estimate from their experience traversing the refuge. Projects in the plan support a more up-to-date map that would more thoroughly address this question. Please see Section V, Plan Implementation, Projects 1, 2, 6, and 7.
- p.28; Cattail, although a native plant in the Everglades, has become an invasive plant. It out-competes sawgrass on the refuge only because of its characteristic of thriving in unnaturally high phosphorus laden water that people have introduced into the Everglades. Whereas cattail would have historically been found in a grand total of maybe a couple hundred acres (around rookeries or alligator holes), it now infests more than 5,000 acres on the refuge. This community was included in this section because it does occupy a large number of acres in the refuge, is an indicator of water quality changes, and is a topic that the public asks about. The cattails section was moved lower in the section, next to a paragraph on Wildflowers, also not a major community. We have also changed the section title to Vegetative Communities and dropped the word “major.” Please see Section III, Refuge Environment, Native Vegetation.
- p.30; Text has been amended to include a note about the impacts of invasive exotics on tree islands. Recent surveys have shown the areas that have been impacted by exotics, but no survey to date has quantified their acreage impact specifically on tree islands. High priority projects within the final plan will, if funded, address questions such as tree island exotic invasion, health, loss, and overall status. The plan also includes a number of projects such as monitoring hydrology that will directly benefit management decisions for tree island’s protection and enhancement, and the invasive exotic control projects will certainly benefit them directly and immediately. Please see Section III, Refuge Environment, Exotic Plants, Melaleuca; Section IV, Management Direction, Goal 1, Old World Climbing Fern; Section V, Plan Implementation, Projects, and Monitoring and Evaluation.

# FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



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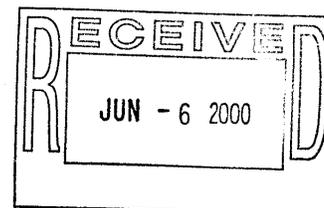
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OFFICE OF THE EXECUTIVE DIRECTOR  
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May 17, 2000



Mr. Mark Musaus, Refuge Manager  
A.R.M. Loxahatchee NWR  
U.S. Fish and Wildlife Service  
10216 Lee Road  
Boynton Beach, Florida 33437-4796

Dear Mr. Musaus:

Thank you for the opportunity to review the Draft Comprehensive Conservation Plan (CCP) for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. We found the plan to be comprehensive in scope and were encouraged to see a renewed emphasis on providing outdoor recreational opportunities for the public compatible with preserving the biological integrity of the refuge. We were also pleased regarding the strong commitment for the control of exotic plant species. We have a shared concern over the potential spread of Lygodium into the Everglades Wildlife Management Area (Water Conservation Areas 2 and 3).

Appendix J discusses in great detail the various factors that ultimately led to the decision to sustain the prohibition on airboat use on the refuge. However, inherent in many of the referenced studies therein are speculative conclusions on the effects of airboat use on wildlife and plant communities that have not held true in practice. Accordingly, we encourage refuge staff to revisit this issue and tour the Everglades Wildlife Management Area (Water Conservation Areas 2 and 3), where airboating is allowed, to experience first-hand the wading bird rookeries, snail kite nesting activity, and biological processes that are unaffected by recreational airboating. We further suggest special consideration be given for the use of airboats in conjunction with the waterfowl and proposed alligator hunting seasons, as these are regulated uses available to only a limited number of participants. Finally, we also suggest that the renovation of Hillsboro Recreational Area be assigned a high priority to better accommodate public access.

In reviewing the Plan Implementation section, it became apparent that there were several projects listed where FWC could provide support to refuge staff to accomplish the established goals, particularly Project 3 (Implement a Fire Management Program) and Project 13 (Provide Additional Hunting and Fishing Opportunities). Our staff in the Everglades region have extensive experience in using prescribed fire as a management tool in the area and in developing successful hunting and fishing programs for the public. In the past, we have coordinated these types of activities closely with the Miccosukee Tribe of

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www.state.fl.us/fwc/

Mr. Mark Musaus  
May 17, 2000  
Page 2

Indians of Florida, who have reservation lands west of the Everglades Wildlife Management Area, and we would welcome the opportunity to assist refuge personnel in developing and implementing similar programs for the Loxahatchee National Wildlife Refuge, and expect there would be mutual benefits for both agencies in working together on these types of activities.

We hope these comments are helpful in the development of a comprehensive plan that serves to protect the resources of the refuge while providing recreational opportunities for the public. If we can be of further assistance in development or implementation of your CCP, please do not hesitate to contact our Everglades Regional Director, Mr. Mark Robson (561-625-5122). Thank you and we look forward to working cooperatively with refuge staff to manage and protect the resources of the Everglades in south Florida.

Sincerely,



Allan L. Egbert, Ph.D.  
Executive Director

ALE/W201/sc  
FWC 1-3

cc: Mr. Frank Montalbano  
Mr. Mark Robson

# FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



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May 24 2000  
State of Florida Clearinghouse

Ms. Cherie Trainor  
Florida State Clearinghouse  
Florida Department of Community Affairs  
2555 Shumard Oak Boulevard  
Tallahassee, Florida 32399-2100

Re: SAI #FI.200005040236C (Arthur R.  
Marshall Loxahatchee National Wildlife  
Refuge Draft Comprehensive Conservation  
Plan). Palm Beach County

Dear Ms. Trainor:

The Florida Fish and Wildlife Conservation Commission (FWC) is in the process of reviewing the referenced document, and we will be pleased to provide a copy of that report when it is complete. In general, we would encourage the selection of alternatives that integrate water management of the A.R.M. Loxahatchee National Wildlife Refuge into the management of the greater Everglades ecosystem (i.e., the Everglades and Francis S. Taylor Wildlife Management Area, also known as Water Conservation Areas 2 and 3; and Everglades National Park).

Sincerely,

*Bradley J. Hartman*  
Bradley J. Hartman, Director  
Office of Environmental Services

BJH/MAP  
ENV 1-3-2

LNWR.SAI



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

Mr. Allan L. Egbert  
Executive Director  
Florida Fish and Wildlife Conservation Commission  
620 South Meridian Street  
Tallahassee, Florida 32399-1600

Dear Mr. Egbert:

Thank you for reviewing the U.S. Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the A.R.M. Loxahatchee National Wildlife Refuge. We appreciate the efforts of your agency to review and provide comments. With this letter, I would like to address the two letters sent by the Florida Fish and Wildlife Conservation Commission.

In a letter received May 24, 2000, by the Florida State Clearinghouse from Bradley Hartman, Director of the Office of Environmental Services, he encouraged the refuge to select alternatives that integrate water management with the greater Everglades system. We agree that the refuge is a part of the greater landscape and have increased efforts to partner with other agencies and the public for the benefit of the natural resource throughout the Everglades. The first priority for water management in the refuge is wildlife, but we realize wildlife use habitats beyond our borders. In that context, we have tried whenever feasible to take other management areas' water needs into consideration. For example, last year after the heavy rainfall from Hurricane Irene we were asked to hold water longer in the refuge to help reduce high water problems in Water Conservation Areas 2 and 3. After assessing potential negative effects to refuge habitats (particularly tree islands) and wildlife versus potential benefits to the other conservation areas, we agreed with this request.

Water management for the greater Everglades ecosystem has to be balanced with demands placed on us for water storage and supply for agriculture as well as the rapidly growing population in south Florida. This requires open lines of communication and close coordination with water managers at the South Florida Water Management District and the Army Corps of Engineers. We welcome opportunities for the various water managers to meet and discuss water management for the entire Everglades landscape.

Thank you also for your comments, dated May 17, 2000, supporting our efforts to provide appropriate outdoor recreational opportunities for the public compatible with preserving the biological integrity of the refuge as well as our commitment for the control of exotic plant species. We also appreciate your offers to provide support for our goals related to implementing a fire management program and additional hunting and fishing opportunities. We are aware of the expertise your agency has and look forward to coordinating with you in these areas.

With regards to your suggestions to revisit the issue of airboats in the refuge, we did review our draft plan and will keep in place the decision to prohibit the use of airboats for recreational purposes. For the reasons stated in the plan we feel this type of use is not compatible with our efforts to protect and restore Everglades habitats for wildlife. National wildlife refuges are special places set aside specifically for the conservation of our Nation's wildlife resources. They are not multiple use public lands and cannot be all things to all people. We received strong support from public comments and conservation organizations desiring us to maintain our "wildlife first" mandate and to not allow airboats. The fact that the Everglades Wildlife Management Area (Water Conservation Areas 2 and 3) is open to airboating provides a balance, enabling enthusiasts of this type of recreation access to several hundred thousand acres of Everglades habitat.

We agree with your comments regarding renovation of the Hillsboro Area and are very pleased to report that a successful bidder has been found to rehabilitate our boat ramps. We hope work will begin within the next few weeks and look forward to having four new parallel ramps in place for the public. Subject to funding and possible partnerships with other agencies such as the Commission, we have identified projects in the final plan to develop an interpretive facility and concession operation at this area.

In closing, we would like to thank you for your interest and offers of support. We have enjoyed working with Mr. Mark Robson, Regional Director for this area, and other staff members. We are especially pleased with the excellent working relationship that has developed between the law enforcement officers of both of our agencies. We look forward to partnering with you in the future.

Sincerely yours,

Mark J. Musaus  
Refuge Manager



Jeb Bush  
Governor

## Department of Environmental Protection

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3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

David B. Szruhs  
Secretary

May 22, 2000

MAY 22 2000

State of Florida Clearinghouse

Ms. Cherie Trainor  
Florida State Clearinghouse  
Department of Community Affairs  
2555 Shumard Oak Boulevard  
Tallahassee, Florida 32399-2100

Re: U.S. Department of the Interior, Fish and Wildlife Service Summary and Draft Comprehensive Conservation Plan for Arthur R. Marshall Loxahatchee National Wildlife Refuge, Palm Beach County

SAI: FL200005040236C

Dear Ms. Trainor:

This Department has reviewed the above-described project proposal and based on the information provided, we submit the following comments and recommendations.

### Background

The Arthur R. Marshall National Wildlife Refuge is the only remnant portion of the northern Everglades in Palm Beach County. The 147,000 + acre refuge is owned by the State of Florida and managed by the Service under a 1951 license agreement with the South Florida Water Management District. The refuge is managed under the mission of The National Wildlife Refuge System for the conservation, management, and where appropriate, restoration of the fish and wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

A draft plan was developed by a planning team to identify the role of the refuge in support of the mission of the National Wildlife Refuge System and to provide guidance in refuge management and public use activities. Four alternative plans were evaluated and Alternative 2, Ecosystem Emphasis was selected as the preferred alternative for guiding the refuge direction over the next 15 years. Key features of the preferred plan include control of exotic and invasive plants, fire management to simulate historical Everglades ecosystem, increased monitoring of water quality and assess wildlife and habitat responses to the 1995 water delivery schedule, support of the Comprehensive Everglades Restoration Plan, acquire adjacent lands to buffer refuge from urban development patterns, and develop environmental educational partnerships and expand public use areas.

### Comments:

The following comments are offered to assist the Service in implementing the proposed conservation plan.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

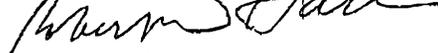
*Printed on recycled paper.*

1. We agree that restoration, protection and enhancement of the biological resources of the refuge, as proposed under the preferred conservation plan, should be the primary goal of the resource management plan. Public access and recreational use of the area should be allowed where and when it is compatible with protection of the natural system.
2. We noted that the list of preparers of the conservation plan did not include a representative of the Department. The Department has the responsibility for water quality protection under its regulatory program authorities for structures that discharge into, within or from the Everglades Protection Area. Since the refuge's living resources are sensitive to nutrient inputs and hydroperiod changes it is requested that the Service include the Department on future planning teams.
3. Urban encroachment can be expected to continue near the Refuge boundaries. We agree that the Service should partner with land acquisition entities both public and private to expand the spatial extent of the northern Everglades and to acquire lands needed to buffer the refuge from incompatible land uses.
4. The Service should partner with federal, state, regional, state and private entities to control exotic plant and animal species that threaten refuge resources.
5. Environmental education programs can generate public awareness of the problems facing the Everglades ecosystem and restoration efforts planned under the Comprehensive Everglades Restoration Plan. We suggest that the Service's programs be coordinated with the Public Outreach Steering and Support Team of the South Florida Ecosystem Restoration Working Group.

Please note the attached letter from Ms. Melissa Meeker, Director of the Department's Southeast District Office in West Palm Beach. Although mailed directly to the Refuge Manager in response to an earlier request that preceded the Clearinghouse transmittal, it supports the above comments, and should be considered an integral part of the department's response.

Thank you for the opportunity of commenting on this proposal. If you have any questions regarding this letter please give me a call at (850) 487-2231.

Sincerely,



Robert W. Hall  
Office of Legislative and Governmental Affairs

**Attachment**

cc: Melissa Meeker  
Ernie Barnett  
Herb Zebuth  
John Outland



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

Mr. Robert W. Hall  
Office of Legislative and Governmental Affairs  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd.  
Tallahassee, Florida 32399-3000

Dear Mr. Hall:

Thank you for your review of the U.S. Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. We believe public input is critical to making the plan better, especially the input of a natural resource management agency such as the Department of Environmental Protection. Our responses to your numbered comments are as follows:

1. We have noted that you concur with our preferred alternative. Your summary comments about protecting the biological resources of the refuge first, but providing compatible public use where appropriate, sums up our vision for the next 15 years through this plan. In fact, your comments capture the essence of the mission of the National Wildlife Refuge System.
2. We invited the State of Florida, through the South Florida Water Management District and the Florida Fish and Wildlife Conservation Commission, to participate in developing the plan by having representatives serve on an interagency planning team. The District became closely involved, however, the Commission declined to participate due to staffing constraints. However, the Commission did express its intent to closely review the draft plan and provide comments. Not inviting your department was an unintended oversight, and please accept our apologies. Your input as a team member would have certainly been valuable. We will invite you to participate in future interagency refuge planning teams as you requested. In fact, we are in the process of drafting a Comprehensive Conservation Plan for Hobe Sound National Wildlife Refuge and would welcome your participation.
3. As stated in Goal 2, Objective 3, of our plan, we do hope to develop collaborative relationships to help protect the remaining lands identified adjacent to the refuge, all of which are incorporated in Palm Beach County's Agricultural Reserve and many in other conservation designations. We also hope to cooperatively restore and manage these areas through progressive partnerships, or acquire these lands from willing sellers to be made a part of the refuge.
4. Only through effective partnerships will the invasive exotic problems be properly managed on the refuge and throughout the Everglades and the south Florida ecosystem. It will take partners at all levels as you suggested. One of our federal partners, the Department of Agriculture, is attempting to develop effective biocontrols. Our state partners include your Department which contributed more than \$155,000 last year toward removal of the invasive exotic Old World climbing fern (*Lygodium*) on the refuge. A regional partner of ours, the South Florida Water Management District, has contributed \$75,000 annually for a number of years to aid in the control of melaleuca on the refuge. The District is also a partner in exotic control research and monitoring. We must also acknowledge the tremendous work of volunteers in this fight, including our refuge "Friends" group, the Loxahatchee Natural History Association, as well as high school and college students who have worked many hours on the refuge to remove exotics.

5. Your final comment concerning the coordination of outreach and education programs with larger regional efforts is an excellent one. Recently, we have initiated a number of partnerships in this regard. For example, we are currently working closely with the District and the Florida Exotic Pest Plant Council to initiate an intensive outreach program on invasive exotics. The state supervisor of the Fish and Wildlife Service's Ecological Services Division represents the Service at all South Florida Ecosystem Restoration Working Group meetings. I serve as his alternate and also attend the meetings. We are aware of the Public Outreach Steering and Support Team's outreach plan and will coordinate with the team in its efforts.

Once again, thank you for your review and suggestions, as they were helpful to us as we developed the final plan.

Sincerely yours,

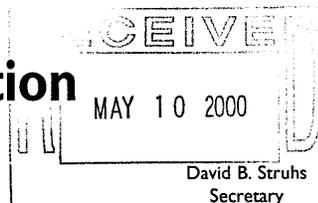
Mark J. Musaus  
Refuge Manager



Jeb Bush  
Governor

## Department of Environmental Protection

Southeast District  
P.O. Box 15425  
West Palm Beach, Florida 33416



Mr. Mark J. Musuas  
Refuge Manager  
ARM Loxahatchee Wildlife Refuge  
10216 Lee Road  
Boynton Beach, FL 33437-4796

Dear Mr. Musuas,

Re: ARM Loxahatchee Wildlife Refuge  
Summary of the Draft Comprehensive Conservation Plan

Rapid development in Florida and especially south Florida, has resulted in the loss of about half of the original Everglades Ecosystem. You have the important responsibility for the management of a very significant and unique portion of what remains. We agree that the protection of the ecological values of the refuge must be your top priority. While public access and use are important components of refuge management, it must always be developed and tempered in light of the overriding need for resource protection. Selection of *Alternative 2, Ecosystem Emphasis*, appears to offer the best opportunity to conserve and restore the refuge's natural resources while building the public awareness and understanding through access, use and education, that is necessary to ensure its long-term protection. We offer the following suggestion in an effort to assist in this important planning process.

I fully agree with the plan's vigorous program to address the invasion of the refuge by exotic species. In an effort to help reduce the cost for exotic plant species removal, the refuge could consider using volunteers to assist in the removal process. The FDEP Southeast District and Palm Beach County Environmental Resources Management have frequently used volunteers to assist in projects that involve the removal of exotic and invasive plant species. Since these events always include training on the appropriate removal processes, a base group of volunteers that are somewhat experienced in this arena currently exists. Interagency cooperation to provide these volunteers an opportunity to assist the refuge in this effort might be worthwhile.

Such interagency cooperation could also be useful in buffering the refuge from incompatible adjacent land uses and expanding the extent of valuable native habitat. Lands to be purchased through Palm Beach County's Agricultural Reserve and Environmentally Sensitive Lands Acquisition Programs may adjoin land currently owned or managed by the refuge. Where appropriate, the opportunity for cooperative restoration and management of these lands by the refuge should be fully investigated.

"More Protection, Less Process"

Printed on recycled paper.

As true in most of south Florida, hydrologic conditions in the refuge have been unnaturally altered. Habitat conditions are drier than normal in the north and water ponds in the south. The historic, natural sheet flow connection to the remaining Everglades Ecosystem has been severed and the refuge remains isolated from the remaining natural system by man made barriers. Drainage facilities have altered water quality to the extent that presently available water can not be discharged into the refuge's marsh without causing environmental impacts. A pH and total dissolved solids content problem remains to be solved before flows can be reintroduced directly into the northern end of the refuge.

During development of the Comprehensive Everglades Restoration Project (CERP) an adequate solution to these problems was not found. Although a time limitation was a major reason for the failure to solve this complex problem, it is important to remember that the CERP process is ongoing and an opportunity to address these issues remains. I encourage you to participate actively in the "Recover" process of the CERP. This process is designed to ensure that an adequate evaluation of ecosystem performance is made for all CERP projects as design, construction and operation proceeds. A commitment was also made to use the process of adaptive management. Such a process should ensure that we learn as we proceed and that we use that knowledge to reevaluate project design and maximize benefits.

I appreciate the opportunity to provide agency comments on the refuge's Draft Comprehensive Conservation Plan. The Arthur R. Marshall Loxahatchee National Wildlife Refuge is a valuable resource that must be protected and restored if Everglades restoration is to be realized. If you have any questions regarding these comments, please do not hesitate to call me at 561 681-6661 or our Everglades Environmental Manager, Herb Zebuth, at 561 681-6703. Thank you for your consideration.

Sincerely,



Melissa L. Meeker                      Date  
Director of District Management  
Southeast District

MLM/hhz

cc: Herb Zebuth  
Dianne Crigger



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

Melissa L. Meeker  
Director of District Management  
Florida Department of Environmental Protection  
Southeast District  
P.O. Box 15425  
West Palm Beach, FL 33416

Dear Ms. Meeker:

Thank you for your review of the Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. We believe public input is critical to making the plan better, especially the input of a natural resource management agency such as the Department of Environmental Protection which has experience in land management.

Thank you for your suggestion about using volunteers in the control of invasive exotic plants. We currently use both high school and college student volunteers to help with this program, as well as our regular corps of volunteers to remove exotics from easily accessed areas near our public use facilities. Your suggestion of interagency cooperation by providing volunteers is particularly appreciated, as we are always looking for volunteers to help remove these noxious plants as well as with our many other projects. Our invasive exotic plant problem, though, will take a major funding initiative as noted in our plan. We have more than 90,000 acres impacted by exotics; volunteers at their best would be able to help with only a few hundred acres any given year. However, volunteers through their efforts in our highly visited, easily accessed areas will be a tremendous outreach tool with the general public to gain even greater support for invasive exotic control programs.

As our Goal 2, Objective 3 states, we do hope to develop collaborative relationships to help protect the remaining lands identified adjacent to the refuge, all of which are incorporated in Palm Beach County's Agricultural Reserve area. We also hope to cooperatively restore and manage these areas through progressive partnerships.

Your third comment regarding hydrologic restoration and water quality monitoring is considered and included in our Goal 1, Objectives 1, 2, 6, and 8, as well as Goal 2, Objectives 1 and 4. We are currently working, and plan to step up our efforts, to promote appropriate hydrologic restoration and proper quality of water entering the refuge. A major step toward this will be the development of a hydrologic model that can be linked with water quality and vegetation models. Such a tool would allow us to better evaluate potential impacts of hydrologic changes and to make appropriate management decisions. It is our hope that such a model could be developed cooperatively with other agencies.

We agree with your statement regarding the importance of RECOVER to the Comprehensive Everglades Restoration Plan. Our senior biologist, Dr. Laura Brandt, serves as a co-team leader of the Adaptive Assessment Team and member of the RECOVER Leadership Group. We hope research and monitoring on the refuge will help to measure the progress and benefits of Everglades restoration in support of this adaptive management process.

Once again, thank you for your review and suggestions as they were helpful to us as we developed the final plan.

Sincerely yours,

Mark J. Musaus  
Refuge Manager



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**JACKSONVILLE DISTRICT CORPS OF ENGINEERS**  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

JUN 01 2000

Planning Division  
Environmental Branch

Mr. Sam D. Hamilton  
Regional Director  
U.S. Fish and Wildlife Service  
1875 Century Boulevard  
Atlanta, Georgia 30345

Dear Mr. Hamilton:

This is in response to your April 13, 2000 letter inviting our comments on the vision, goals, and objectives presented in the Draft Comprehensive Conservation Plan for Arthur R. Marshall Loxahatchee National Wildlife Refuge. We have reviewed the draft plan and found that it will not likely impact any of the U.S. Army Corps of Engineers' (Corps) on-going programs.

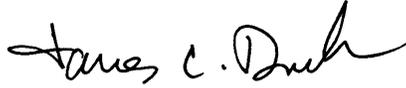
The draft plan is generally consistent with the Central and Southern Florida (C&SF) Comprehensive Everglades Restoration Plan. However, concerning the proposed boundary expansion, the proposed expansion of lands east of the existing boundary to US 441 or SR 7 encompasses lands that are also known as the "Ag Reserve Reservoir" in the C&SF Water Preserve Areas (WPA) Feasibility Study. Currently, Plan D13R of the C&SF Comprehensive Plan shows the use of these lands as a reservoir. The WPA study may recommend using these lands for a conveyance canal that will allow multiple use of the property. Also, as the WPA Feasibility Study continues, the Corps will continue to coordinate with other agencies in order to maximize recreational benefits from the Strazzulla Wetlands and the Hillsboro Recreational site.

We suggest that a section discussing the Everglades Nutrient Removal Project (ENR), specifically the STA 1W, STA 1E, and STA 2 could also be added. The ENR is briefly mentioned in the section on water quality but could also be added to the section on Water Intake on page 21.

-2-

Thank you for the opportunity to comment on the draft plan. We look forward to continued coordination with your agency as your plan proceeds into its final stages.

Sincerely,

A handwritten signature in black ink that reads "James C. Duck". The signature is written in a cursive style with a large, stylized initial "J".

James C. Duck  
Chief, Planning Division



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

James C. Duck  
Chief, Planning Division  
Corps of Engineers - Jacksonville District  
U.S. Department of the Army  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Dear Mr. Duck:

Thank you for reviewing the Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the A.R.M. Loxahatchee National Wildlife Refuge. We believe it is critical to have reviews at all levels—federal, state, private, and public in order to develop the best possible management plan.

We are pleased to know that after your review of our plan it will not likely impact any on-going programs of the Corps and that it is consistent with the Central and Southern Florida Comprehensive Everglades Restoration Plan.

Regarding our proposed boundary expansion, we are well aware of the Water Preserve Area feasibility study and other possible uses for the area in question. We recognized this study as we developed our plan, and our intent was to not show acquisition of land for the refuge as the highest priority. We realized there was the possibility some of these lands might not be acquired in light of the many alternatives being considered by the Corps. We felt the public should be made aware of the importance of these lands to the refuge and start the process by which the Service might acquire or accept these lands if the opportunity ever arose.

We agree with your suggestion to discuss in greater detail the Everglades Nutrient Removal Project and the role of the Stormwater Treatment Areas. It is important for everyone to realize the importance of these cleansing marshes and the role of the South Florida Water Management District and the Corps in constructing them. Please refer to Section I, Planning Issues and Opportunities - Significant Resource Problems; Section III, Refuge Environment - Hydroperiod and Hydropattern - Water Intake; and Section III, Refuge Environment, Water Quality - Legal Action.

Once again, thank you for taking the time to review our draft plan and we look forward to continued coordination with the Corps on water management and Everglades restoration efforts.

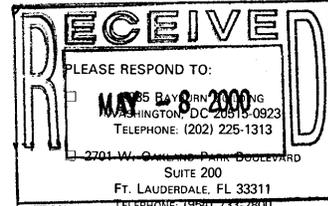
Sincerely yours,

Mark J. Musaus  
Refuge Manager

ALCEE L. HASTINGS  
23rd CONGRESSIONAL DISTRICT,  
FLORIDA  
COMMITTEE ON  
INTERNATIONAL RELATIONS  
SELECT COMMITTEE  
ON INTELLIGENCE



Congress of the United States  
House of Representatives  
Washington, DC 20515-0923  
May 5, 2000



5725 CORPORATE WAY  
SUITE 208  
WEST PALM BEACH, FL 33407  
TELEPHONE: (561) 684-0565  
FAX: (561) 684-3613  
E-Mail Address:  
alcee.pubhastings@mail.house.gov  
World Wide Web Page:  
<http://www.house.gov/alceehastings/welcome.html>

Mr. Mark J. Musaus  
Refuge Manager  
Loxahatchee National Wildlife Refuge  
10216 Lee Road  
Boynton Beach, Florida 33437

Dear Mr. Musaus:

I am writing as one of many Floridians concerned about the state of Florida's environment. With our rivers, lakes, forests and other natural areas under attack from those with narrow self-interests or lack of foresight, we who truly care about our quality of life and natural surroundings must band together to defend Florida's dwindling number of wild places. For this reason, I fully support keeping the Loxahatchee National Wildlife Refuge as it is now.

I strongly oppose its eviction, and I also oppose proposed changes in regulations that would allow hunting and intrusion by motorized water craft of any kind. All Floridians, as stewards of our environment, must consider how our actions will affect us and our future generations. Protecting this very valuable resource and others like it should be of major concern to all of us.

Sincerely,  
  
Alcee L. Hastings  
Member of Congress

ALH:dl



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

The Honorable Alcee L. Hastings  
2701 West Oakland Park Boulevard  
Suite 200  
Ft. Lauderdale, Florida 33311

Dear Representative Hastings:

Thank you for reviewing the U.S. Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. We are heartened to know you support keeping the Everglades' only national wildlife refuge as a vital component of the Everglades system.

Thank you for your comment regarding hunting. The refuge received many citizen comments both for and against expanding hunting opportunities. Hunting is permitted on a majority of the 520 national wildlife refuges located in every state in the nation. Hunting was identified as one of the "big six" priority public uses identified in the National Wildlife Refuge System Improvement Act of 1997, which was passed by Congress and signed by the President. Along with fishing, wildlife observation, wildlife photography, and environmental education and interpretation, hunting is considered an appropriate use of a refuge when populations can sustain a hunt and when compatible with the purpose for which the refuge was established.

In our final plan, waterfowl hunting will continue on the refuge as it has for many years. The total acreage for waterfowl hunting will be reduced, but the effective acreage--areas that can actually be accessed by the public--will increase. Hunting for feral hogs, an exotic species that can do untold habitat damage, will be permitted only on an as needed basis to control the impacts of these animal on the landscape. Alligator hunting will be permitted only when its population can support a hunt. Alligator hunting will be limited in terms of the number of participants, time of day (at night when the refuge is already closed to the general public), number of hunt days, and restricted to the perimeter canal. It will be controlled by law enforcement officers and monitored by biologists in cooperation with partnering agencies.

We appreciate also your comment regarding motorized watercraft. As noted in the draft plan, airboating impacts were closely examined and in our final plan will not be permitted on the refuge. The use of conventional motor boats will continue to be allowed in certain areas of the refuge (perimeter canal and deepwater areas at the southernmost end of refuge). "Slow speed, minimum wake" restrictions along limited areas of the perimeter levee will be in effect. Boat speed will be restricted in these areas in deference to the safety and resource enjoyment of canoeists and other paddlers. These minimum speed areas will also lessen the noise impact in the adjacent areas of the refuge that are frequented by the public. The proposed guided boat tour by a concessionaire will be permitted only via a quietly running motor, preferably electric, to reduce potentially disturbing noise, and will be restricted to the perimeter canal.

Once again, thank you for your review and comments on our draft plan. Feel free to contact me at 561-732-3684, for any additional information.

Sincerely yours,

Mark J. Musaus  
Refuge Manager

**TREASURE COAST REGIONAL PLANNING COUNCIL  
INTERGOVERNMENTAL COORDINATION AND REVIEW LOG**

**TCRPC NUMBER:** 00-PB-05-03

**APPLICANT:** U.S. Fish and Wildlife Service

**PROJECT DESCRIPTION:** The U.S. Fish and Wildlife Service has developed a Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. Four alternatives were evaluated for managing the refuge. The Ecosystem Emphasis alternative was selected as the preferred alternative.

Under this alternative, appropriate water quality, quantity, and delivery are critical to achieve refuge objectives and Everglades ecosystem objectives. Water management will rely upon developing progressive partnerships with South Florida Water Management District and Army Corp of Engineers. Another crucial element of this plan is controlling exotic and invasive plants and aggressively pursuing funding to eliminate these threats to the refuge. An Integrated Pest Management Plan will be developed to attack this problem. This alternative enhances biological and research programs, inventorying, mapping, and monitoring of wildlife and habitat. All of the compartments (2,030 acres) will be actively managed to enhance wildlife habitat. The refuge will adjust the acquisition boundary to include the lands immediately east of the headquarters area to potentially buffer the refuge from development. (See attached location map.)

The previously closed Strazzulla Marsh will be opened to the public for limited recreational activities as well as the expansion of activities at the Hillsboro Recreation area.

**FUNDING AGENCY:** N/A

**PROJECT COSTS:** N/A

**RECOMMENDATIONS:** The proposed plan is consistent with SRPP Regional Goal 6.6 which calls for the protection of

wetland and deepwater habitats; **Regional Goal 6.7** which calls for the protection of upland natural communities and ecosystems; **Regional Goal 6.8** which calls for the protection of endangered and potentially endangered species; and **Regional Goal 6.9** which calls for the protection and sustainability of the Everglades ecosystem.

**AGENCIES CONTACTED:**

Palm Beach County  
All Palm Beach County Municipalities



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

A.R.M. Loxahatchee NWR  
10119 Lee Rd.  
Boynton Beach, FL 33437  
561-732-3684

September 11, 2000

Wynsum Hatton  
Treasure Coast Regional Planning Council  
301 East Ocean Blvd.  
Suite 300  
Stuart, Florida 34994

Dear Mr. Hatton:

Thank you for reviewing the U.S. Fish and Wildlife Service's Draft Comprehensive Conservation Plan for the Arthur R. Marshall Loxahatchee National Wildlife Refuge. We believe it is critical to have public review and input to develop a truly effective management plan.

The refuge formulated a 15-year vision and concrete management plan which dovetails with and supports many of the goals in your Strategic Regional Policy Plan. These shared goals that you identified include protection of natural communities and ecosystems, protection of threatened and endangered species, and protection and promotion of a sustainable Everglades ecosystem. We feel that we have also presented a range of appropriate, compatible, wildlife-dependent recreational opportunities that will foster greater awareness of refuge resources without compromising the purpose for which the refuge was established or the mission of the National Wildlife Refuge System.

Once again, thank you for taking the time to review our draft plan and for providing your comments.

Sincerely yours,

Mark J. Musaus  
Refuge Manager