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June 23, 2008

Mary Morris
United States Fish & Wildlife Service
Natural Resources Planner
3276 Whitney Drive East
Tallahassee, FL 32309

**RE: Comments on Lower Keys National Wildlife Refuges
CCP and EA**

Dear Ms. Morris,

On behalf of Last Stand, the Big Pine Key Civic Association, and Pine Acres Conservation Association, we submit the following comments on the draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) for the Lower Keys National Wildlife Refuges. While we generally support many of the U.S. Fish & Wildlife Service's proposed goals, objectives and strategies, we have several concerns relating to the management of the National Key Deer Refuge.

Perhaps our biggest concern, and one we have brought to the Service's attention over the past several months is the use of "experimental" prescribed fire within National Key Deer Refuge as a proposed recovery tool for the Lower Keys Marsh Rabbit (LKMR). As organizations whose missions include the protection of the endangered species of the lower Keys we are extremely concerned that the use of fire to manage rabbit habitat may have considerable adverse impacts to the species.

In January and February 2008 we submitted letters to Refuge staff expressing our concern and opposition to the use of prescribed fire in these areas unless and until the Service provides adequate scientific support for its decision. We also expressed concern that the Service was considering taking such action before it completed a CCP. We have attached these letters as Attachments A and B for your reference. At the Service's request we met with Refuge staff, officials from the Vero Beach Ecological Services Office and the Supervisor for the Florida Refuges, to discuss the Refuge's plans for prescribed fire in National Key Deer Refuge (NKDR). Following that meeting, we were assured by Refuge staff that prescribed burns would not be implemented pending additional review by the agency and the preparation of a response to our January and February letters. We have not yet received a response.

While we do believe that the preparation of a CCP is absolutely critical before any final decisions are made with respect to the use of prescribed burns in National Key Deer Refuge, and are appreciative of the Service's decision to develop a CCP since our meeting in March, we remain deeply concerned that the Service will eventually implement these burns following the issuance of a final CCP.

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Having not yet received a response from Refuge staff, we still do not believe the Service has provided sufficient scientific support for its plans to use prescribed burns on the buttonwood marshes of NKDR as a recovery tool for the LKMR. Until such evidence is provided, we do not believe the use of prescribed burns in these areas is an appropriate management activity for the Service to pursue.

In addition to the use of prescribed fire within National Key Deer Refuge as a proposed LKMR recovery tool, we are also concerned about the Service's ambitious plans for providing increased wildlife dependent recreational use opportunities. While we recognize wildlife dependent recreational uses play an important role in the National Wildlife Refuge System, these uses must be compatible with the primary purpose of the National Key Deer Refuge- the protection and preservation of Key Deer and other listed species. There are many unanswered questions and concerns about the proposed new visitor center on U.S Hwy. 1. It is presented only as a concept, the impacts of which cannot be evaluated without additional detail about the size, location, parking, traffic and level of service impacts, potential impacts on listed species, mitigation, and other information. We believe that the Service's plans to construct additional kiosks and more public trails through sensitive endangered species habitat would result in increased human disturbance and risk to the species.

We would like to see a greater emphasis placed on land acquisition and activities to remove exotic and invasive plants and wildlife. With respect to the former, we would like to see the Service hire a land acquisition specialist to explore opportunities to acquire private lands within Refuge boundaries. We would also like to see the approximately \$2 million allocated to land acquisition be used to acquire additional habitat rather than land to accommodate a new visitor center. We would much prefer the new visitor center be constructed on land already owned by the Federal government. At this time, it is unclear how the \$2 million will be spent. We would also like to see a greater focus on the management of invasive exotics and feral cats, which continue to threaten several endangered plant and animal species.

Lastly, it is urgent that FWS focus more attention on research and planning for climate change and sea level rise, the greatest and most challenging threats facing the refuges and the wildlife of the Keys in the future.

We would sincerely hope that the agency consider the following detailed comments before it takes any final actions in furtherance of these activities. Thank you for your consideration.

COMMENTS ON DRAFT COMPREHENSIVE CONSERVATION PLAN

BIOLOGICAL RESOURCES

FLORA – HABITAT CHARACTERISTICS OF NATIVE VEGETATION/PLANT COMMUNITIES

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Pine Rocklands

A globally imperiled habitat, pine rocklands are a fire-dependent community consisting of an open canopy of slash pines with a patchy understory/groundcover of tropical and temperate shrubs, palms, grasses, and herbs (Folk 1991). Pine rocklands occur at an elevation 6.5 to 10 feet above mean sea level. . . . P. 19

Comment: On BPK pine rocklands start at elevations of +3.5' MSL to +4' MSL (Kruer, personal communication).

Tropical Hardwood Hammock

“Tropical hardwood hammocks are the climax terrestrial plant community in the Florida Keys. Occurring on uplands 6.5 to 10 feet above sea level...” P. 21

Comment: On BPK, Tropical Hardwood Hammocks occur at elevations over +3.5' MSL (Kruer, personal communication).

The highest natural elevations that we have been able to verify on BPK are about +8' MSL, and upland habitats begin at about +3.5' MSL. Data in the draft CCP state that the highest elevation is 13' and uplands start at 6.5' above sea level. In the Keys where average elevation is only about 4', inches matter, and these are significant discrepancies. We attempted to resolve these questions in the course of reviewing the CCP and learned that a topographical survey of BPK has never been performed. The opinion of Mary Wingate of the Monroe County building department is that 7' is about the highest natural elevation on BPK (personal communication with clients 6/20/08). In an environment of rising sea levels, accurate, basic elevation data are of critical importance. If the Service is considerably overestimating the elevations, this may explain why Refuge staff believes that it is appropriate to burn wetlands within National Key Deer Refuge. This uncertainly clearly underscores the urgent need for research and planning for sea level rise, which should receive priority attention in Keys refuges.

Buttonwood Transition Zone

The buttonwood transition zone occurs between mangrove forests and upland forests and consists of open scrub (e.g., sea oxeye) and buttonwood forest... P. 21

Comment: Transitional wetlands “extend from the landward edge of the fringe or scrub mangrove zone to the landward edge of the buttonwood zone where hammock or pinelands begin. . . The transitional wetland community is divided into two components: the open salt marsh and, in slightly higher elevations, the forested buttonwood zone.” (Florida Keys Environmental Story, 1997 p. 147). Here, the Service lumps salt marsh (open scrub) and buttonwoods together as the “Buttonwood Transition Zone”, equivalent to the standard term,

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transitional wetlands.

But on the next page the draft states that salt marshes occur between “buttonwood transition and mangroves zones”. This is confusing. Either the buttonwood transition zone includes salt marsh and is between mangroves and upland forests (as above), or it excludes salt marsh and is between the salt marsh and the upland forests (as below).

Salt marsh

Refuge salt marshes lack trees and usually occur in the interface between buttonwood transition and mangrove zones... P. 22

FAUNA-FISH AND WILDLIFE

Mammals

“Marsh rabbits and silver rice rats are rarely seen. In 1991 there was a high of 300 individual rabbits and by 1993 the population decreased to only 100 individuals (Forys and Humphrey 1994).” P. 25

Comment: This statement leads to a number of unanswered questions that should be resolved prior to taking any significant management actions that may adversely affect the marsh rabbit. For instance, it is unclear if this is the total number of rabbits throughout their range. If there were only 100 individuals, fifteen years ago, how many are there now? The Service should rely on more current population data in making its management decisions. If such data is unavailable, the Service needs to ascertain the current population before trying to determine best management actions. Updating population data for the LKMR would not only assist the Service in its management actions, but it would further the species-level recovery actions for the rabbit as detailed in the species’ Recovery Plan. See USFWS, Multi-Species Recovery Plan for South Florida at 4-165 and 4-166.

Threatened, Endangered and Candidate Species

“By perpetuating intact natural communities, restoring degraded natural communities and processes and eliminating adverse human impacts, the refuge can contribute to species recovery goals and benefit other plants and animals dependent on these endangered ecosystems.” P. 27

Comment: One of our biggest concerns is the lack of scientific support for the Service’s frequent implications that fire is a natural process in Keys wetlands and its decision to use prescribed burns to manage the National Key Deer Refuge’s salt marshes. As we discussed in our attached letters and later on in our comments, the Service provides no support for its statements that salt marsh is a “fire adapted” community and one in which frequent or even periodic fire is a natural

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process. In fact, the Service acknowledges “the historic and ecological role of fire in this habitat is currently being studied.” P. 105. Thus, a concern we have with the statement contained on page 27 is that it provides the Service with significant discretion to take certain management actions to restore “natural” processes even where there is no evidence to support a finding that the process which the agency is attempting to restore is a natural one (i.e. fire in salt marshes). While certain activities are clearly aimed at restoring natural conditions such as the removal of invasive or exotic species, and we wholeheartedly support the Service’s efforts in this area, we cannot support the current language on page 27 unless and until the Service provides sufficient support for what it characterizes as natural processes.

Stock Island tree snail. P. 31

Comment: BPK has its own endemic *Liguus* tree snail whose condition is unknown. It may be disappearing unnoticed. Over 50 forms of *Liguus* snails evolved isolated on different Keys, and many of these varieties were relocated to hammocks on BPK and NNK in the past. Several of these forms have now been extirpated from their original islands, and fires have destroyed populations of tree snails especially on NNK. Research on this invertebrate would provide information on the overall health of the hammocks and their ability to support the full complement of species and functions.

CULTURAL RESOURCES P. 31

Comment: Watsons Hammock was an Indian shell mound, site of the pre-Columbian village of Cuchiaga. The shells, soil, and other remains have been removed over the years, and there has been little effort to protect this cultural resource or educate the public. Artifacts at the refuge, such as an old dugout canoe, should be properly curated and preserved. Archaeological surveys have been done by the state on the refuge.

RECREATION USE AND VISITOR SERVICES

Many visitors come to the refuge to see the endangered Key deer; most of the population is found on Big Pine and No Name Keys. There are other designated wildlife viewing areas on Big Pine Key off Long Beach Road, and the newly designated Buttonwood Marsh Trail at the north end of Key Deer Boulevard. P. 35

Comment: As discussed in greater detail later, we strongly disagree with the Service’s plans to construct new kiosks and create additional trails in the habitat of the critically endangered marsh rabbit and other listed species. An increase in recreational use and visitor services will introduce more human disturbance in these out of the way areas, and are not in the best interest of the rabbit and other sensitive wildlife. Encouraging visitors to drive out to the end of Key Deer Blvd. creates undesirable traffic and increases risk of road kill for deer and other animals.

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PLAN DEVELOPMENT

HABITAT MANAGEMENT

Habitat Fragmentation

While roads, residential development, ditches, and canals have all contributed to habitat fragmentation, increased recreational opportunities such as trails may further contribute to habitat fragmentation. The Service needs to carefully consider these impacts before it plans any additional recreational opportunities.

Climate Change

We applaud the Service's inclusion of climate change consideration in its CCP. As a 2001 Order from the Secretary of the Interior directs, the Service needs to consider the effects of sea level rise in its planning decisions. DOI, Office of the Secretary, Order No. 3226, January 19, 2001. Accordingly, the Service needs to consider sea level when it makes management decisions which may have unknown environmental risks and when combined with such events as sea level rise, have a significant impact on a particular species or the Refuge as a whole.

The low lying Keys are on the cutting edge of climate change. Research and planning for impacts on the already stressed wildlife and habitats should be a major priority for the Service. We are literally losing ground, and Keys refuges will either adapt or perish. What can we do in the face of global climate change? The refuge must actively seek solutions to offset the devastating effects of sea level rise.

Native Americans who lived here thousands of years ago devised solutions that included building elevated mounds that supported rich hammock ecosystems. A prime example of this was Watsons Hammock before its elevated substrates were carted away. Now at the mercy of storm surges, it can no longer support the formerly majestic and unique hammock containing rare trees like *lignum vitae* and *cupania*. The refuge might consider restoring the Watsons Hammock mound. It might also research the possibilities and impacts of raising elevations in dead pinelands, gradually augmenting ridges in former LKMR habitat, and artificially enhancing banks in the back country now becoming too deep for wading birds.

What can be done to support at-risk freshwater resources? A hydrologist should be hired to assess changes in freshwater sources over the last 20 years, using the Folk et al. data, and to recommend actions the refuge can take to maintain this critical resource before it is too late. Researchers should try to model the effects of sea level rise on priority species to identify ways to help them survive into the future. This may ultimately be the most important issue facing the Keys refuges, and there should be a step down plan and funds allocated just to address climate change. We are facing the imminent extinction of numerous species and even whole ecosystems

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like pine rocklands. This is the time for creative thinking and far-sighted management of our refuges, rather than relying on prescribed burns, which we believe may be magnifying the negative impacts of climate changes on these already struggling ecosystems.

Fire Management

“Fire is also an appropriate habitat management tool to maintain and restore grassland and saltmarsh habitats.” P. 41

Comment: We strongly disagree. There is no evidence to support this statement and as the Service notes on page 105 the historic and ecological role of fire in these areas remains unstudied. Tropical Keys salt marsh is hurricane adapted, rather than fire adapted. Fire kills many salt marsh species and removes the thin soil. After a fire the habitat may re-grow at a lower successional level making it more vulnerable to hurricanes and rising sea levels (Kruer, personal communication with clients). Introducing an unnatural element like fire is not an appropriate way to restore a natural condition in Keys salt marshes.

“The lack of a consistent burn regime in the fire-dependent pine rockland community increases fuel loads and undesirably alters natural species composition and community processes. Prescribed fire is the primary tool for effectively managing and restoring pine rocklands.” P. 41

Comment: The natural burn regime for Keys pine rocklands is unknown, but natural fires have been infrequent. Prescribed burning practices appropriate in other parts of North America need to be adapted to the tropical Caribbean pinelands of the Keys. The process of succession to hardwood hammock is slower where pinelands are growing on rock ridges as in the Keys. “Alexander and Dickson (1972) estimated that in the lower Keys it may take fifty years for hardwoods to overgrow pineland completely, presumably because of water-limited productivity.” (Snyder, James R., Alan Herndon, and William B. Robertson, Jr., “South Florida Rockland” in Ecosystems of Florida, 1990, University of Central Florida Press, Orlando). The uniqueness of Keys pine rocklands has not been appreciated in the past. Wilmers documented post-fire mortality of mature pines up to 81% and saplings up to 100% on Cudjoe, Sugarloaf, and north Big Pine Key after five prescribed burns in 2004 and 2005 (“Factors Associated with Post Fire Survival of Slash Pines in the National Key Deer Refuge, 2005). In addition to killing pines, prescription burns have removed soil, decreased biodiversity, and made these ecosystems more vulnerable to hurricanes and sea level rise. Pine rocklands on Cudjoe and Sugarloaf, for example, stressed by sea level rise, devastated by prescription burns, and flooded by Hurricane Wilma have all but disappeared. There is the risk that these globally endangered ecosystems may become extinct in our lifetimes, and the refuge’s burning practices may actually be hastening that process.

“Prescribed fire is also an appropriate tool to manage the encroachment of overstory vegetation and to restore open habitat features of coastal salt marsh and freshwater marsh habitats.” P. 41

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Comment: As discussed above we strongly disagree with this statement. Interestingly, there is also no mention of fire as being appropriate in Buttonwood transition zones, which was proposed for burning on NBPK. There is a confusion or inconsistency through out this document between salt marsh, buttonwood transition zone, transitional wetlands, salt marsh/buttonwood, marl prairie, and buttonwood prairie. We also strongly disagree that burning is appropriate in freshwater wetlands, as the Service provides no scientific evidence in support of such action.

“To date, prescribed burns in the National Key Deer Refuge have focused on pine rocklands yielding differing results; however, there has been no comprehensive post-burn monitoring to quantify whether habitat management objectives were achieved.” P. 41

Comment: The unfortunate lack of clearly stated objectives as well as consistent post-burn monitoring has led to several devastating prescription burns that have decreased the acreage of healthy pine rockland. We ask the Service to initiate a moratorium on prescribed burning until there is a comprehensive, objective assessment of the results of all past prescription burns, what worked and what didn't, and a burn plan tailored to the special conditions of the Keys and site specific to each individual burn unit. Prescription burning may be appropriate in pine rocklands, but on a smaller Keys scale and at greater time interludes.

FISH AND WILDLIFE POPULATION MANAGEMENT

Lack of Inventorying and Monitoring

“Wildlife populations need to be adequately inventoried and monitored to establish baseline data, determine population trends, identify management needs, set priorities, and evaluate the impacts of management actions. There are many imperiled species and a small staff dedicated to biological work. Past emphasis has been placed primarily on studying the Key deer and monitoring nesting sea turtles, white-crowned pigeons, and key wading bird species. As a result, baseline data are lacking for many species that now require attention... At a minimum, baseline inventory data of flora and fauna are needed at a level to detect changes from catastrophic wildfires, hurricanes, and other events in order to determine if a management response is necessary.” P. 41-42

Comment: More inventorying and monitoring needs to be done for the LKMR to determine what the best management activities are to ensure the recovery of this species. We entirely agree with the Service's statement that baseline data is needed. With respect to the LKMR, the Service needs to develop this baseline data before it even considers conducting prescribed burns in LKMR habitat. Such data may very well reveal that the LKMR is still recovering from the effects of a major hurricane and that a prescribed burn would be an inappropriate and risky management activity.

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“[T]his Draft CCP/EA places wildlife conservation first as its priority for management of the refuges.” P. 45

Comment: Wildlife conservation must take precedent over increased visitor services.

MANAGEMENT DIRECTION

Summary

Habitat *enhancement* for critically imperiled species, such as the Lower Keys marsh rabbit and Key tree-cactus, would occur to ensure the long-term sustainability of these species... P. 46 (emphasis added).

Strategies are proposed to improve the fire-dependent pine rocklands and to *enhance* habitat features in saltmarsh and freshwater wetlands that benefit priority species in the National Key Deer Refuge. Prescribed fire and mechanical or manual vegetation treatments would be used as habitat management tools to reduce wildland fuels and benefit priority species and habitats where appropriate. P. 46 (emphasis added).

Comment: We do not support single species management and we are concerned that the Service’s use of “enhancement” seems to be a euphemism for change or a deviation from naturally occurring conditions. While the goal of the refuge system is “to sustain and, *where appropriate*, restore and enhance, healthy populations of fish, wildlife, and plants,” 16 USC 668dd(a) and 668ee(4), this mandate requires the Service to utilize methods and procedures associated with modern scientific resource programs. *Id.*

The Service should be trying to support natural process of regeneration and restore habitats to a natural state rather than artificially create non-historic conditions. As the Refuge Improvement Act makes clear, the Service shall “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans. 16 USC 668dd(a)(4)(B). For the Service, **the “highest measure of biological integrity, diversity and environmental health is viewed as those intact and self-sustaining habitats and wildlife populations that existed during *historic conditions*.”** Policy on Maintaining the Biological Integrity, Diversity and Environmental Health of the National Wildlife Refuge System, 66 Fed. Reg. 3810 (U.S. Fish & Wildlife Service January 16, 2001); 601 FW 3.10 (emphasis added). Accordingly, the Service relies on the historic condition of a particular site as the ecological frame of reference for making management decisions. 601 FW 3.12. Service regulations define “historic condition” as the “composition, structure and functioning of ecosystems resulting from natural processes that we [the Service] believe, based on sound professional judgment were present prior to substantial human related changes to the landscape.” 601 FW 3.6.

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The Service does not provide sufficient scientific evidence to demonstrate that the historic condition of the high salt marsh occurring within the NKR is one that is fire adapted. To the contrary, historic records suggest that man introduced fire to the area as part of a once-active charcoal industry in the late 1800s and early 1900s. Because these areas are not fire adapted, there is no evidence that wildlife of the salt marshes and freshwater wetlands would benefit from fire. It is likely these rare species could be negatively impacted by loss of their cover and food sources. The Service needs to study the historic and ecological role of fire in these areas (see page 105) and not take any actions that create and perpetuate an artificial, unnatural condition. Therefore, any action to “enhance” the salt marshes and LKMR habitat through prescribed burning at this time would be inappropriate and not consistent with the goals of wildlife sustainability.

“A primary focus of the visitor services program, as proposed, is to enhance environmental education and outreach efforts substantially to reach larger numbers of students, educators, and visitors.” P. 47

Comment: While environmental education efforts are an important component of the National Wildlife Refuge System, we feel that increased visitation may negatively impact several sensitive endangered species and other wildlife in the National Key Deer Refuge if it results in the introduction of visitors into undisturbed areas.

The 1997 Improvement Act requires that “the Secretary shall not . . . renew, or extend an existing use of a refuge, unless the Secretary has determined that the use is a compatible use.” 16 USC 668dd(d)(3)(A)(i). Compatible use is defined as “a wildlife-dependant recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.” *Id.* The primary purpose of the National Key Deer Refuge is for conservation, specifically the protection and preservation of the Key Deer and other wildlife resources in the Florida Keys. See 71 Stat. 412, dated Aug. 22, 1957.

We are concerned that the extension of such visitor services as kiosks, ecotourism maps, and new recreational trails into previously untrammled areas is incompatible with the purposes of the NKD Refuge because they will materially impair the recovery efforts underway for a number of listed species. These areas may not be able to support a substantial increase in the number of visitors and could be degraded by the increased waste, foot traffic, and noise that would result from increased use.

HABITAT MANAGEMENT

Goal 1. Maintain, restore, and enhance a natural diversity and abundance of habitats for native plants and animals.

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Comment: We support efforts to maintain and restore the natural diversity and abundance of native plants and animals but as we explained earlier, we oppose “enhancement” measures that are not rooted in sound scientific principles.

“Identify alternative treatments for maintaining stands of pine rocklands and reducing organic fuels where prescribed burning is no longer feasible due to adjacent urban development (high density neighborhoods).” P. 49

Comment: The Service should allow natural succession of hardwood hammock in the urban interface. “The shaded, humid microclimate of hammocks is not conducive to fire spread. A fire with flame lengths greater than 1 m burning through pineland can reach a hammock margin and die out within seconds.” (Snyder, James R., Alan Herndon, and William B. Robertson, Jr., “South Florida Rockland” in Ecosystems of Florida, 1990, University of Central Florida Press, Orlando).

Objective 3: Manage hardwood hammock communities to protect rare and endangered species.

Comment: Hardwood hammock should be managed for the whole ecosystem, not just for individual species. As noted in this CCP, hardwood hammocks require little management except for removal of exotic plants and animals.

“Delineate areas where prescribed burning would be an appropriate tool for maintaining and enhancing freshwater marsh vegetation.” P. 49

Comment: We do not support prescription burning in Keys freshwater marshes absent scientific support for such actions. Protecting the limited freshwater resources on which Keys wildlife depends is critical. The Service should be studying current trends, not experimenting with fire in a non-fire adapted habitat. We suggest that the Service utilize the site specific field monitoring of salinity and other data collected for Folk, M.L., W.D. Klimstra, and C.R. Kruer. 1991. This valuable information should be the baseline for determining the health and condition of over 1000 nontidal and freshwater wetlands in the lower Keys. It is likely that a number of these on the margins of uplands have already been lost or modified as a result of sea level rise in the 20 years since this data was collected (Kruer, personal communication).

Objective 5: Manage saltmarsh/buttonwood communities to benefit native wildlife, with an emphasis on recovery actions for the Lower Florida Keys marsh rabbit.

Comment: Saltmarsh/buttonwood communities need to be managed for the overall health of the system. These communities should not be experimentally altered to benefit one species. The result will likely be negative impacts on the rabbit.

Strategies:

Evaluate the impacts of landscape alterations, such as abandoned roads, canals, and mosquito ditches, on saltmarsh habitat and conduct restoration where feasible.

Evaluate selectively removing buttonwoods to create and maintain optimal habitat conditions for marsh rabbits. Delineate areas where prescribed burning would be an appropriate tool for maintaining and enhancing saltmarsh vegetation and reducing woody encroachment. P. 50

Comment: This is a rather confusing statement. How can buttonwoods be considered encroaching into a buttonwood prairie? There is no evidence that removing buttonwoods will create optimal conditions for rabbits. On the contrary, BPK rabbits coevolved with these buttonwood ecosystems and could suffer negative impacts from their removal or alteration. Just because there are a number of rabbits on Boca Chica does not mean the Service should try to make BPK resemble the openness of a military installation. Further, BPK rabbits are genetically different. Lazelle (1989) hypothesizes that the BPK rabbits may be a separate sub-species. Their darker coloring adapts them to the shadier buttonwood habitats. They live and take cover from predators under the buttonwoods. Buttonwoods were cut recently and the results of this action should be analyzed before proceeding with plans to cut more of this critically endangered animals' habitat. Are there now more rabbits in these areas, or less? In the absence of baseline data, there is no way to assess the results and whether the objectives of producing more rabbits were achieved or whether there are less rabbits as a result of increased predation when cover was removed. The cut trees left on the ground appear to be killing the desirable grasses that the rabbits eat, and make perfect artificial habitats for rattlesnakes known to prey on rabbits. The Service needs to study and address such unintended consequences before the Service proposes to do more habitat alteration. Human alteration of habitat is known to be one of the leading causes of extinction. (USFWS Biological Opinion, September 9, 1992, on potential effects of operational activities at Boca Chica Field on the LKMR).

Objective 8 (P. 50)

Comment: We support current closure of backcounty islands within the Refuge as necessary to protect nesting, resting and feeding sites for birds. We also urge the Service to implement a cap on capacity of public users on day-use beaches, where allowed. The Service should also station an enforcement officer at Boca Grande on high-use weekends to enforce the predetermined capacity and prevent trespass in this island's no-entry zone.

Objective 9

“Update and implement the land protection step-down plan by continuing to seek willing sellers to acquire fee title to lands within the approved acquisition boundary of the three refuges whenever funds are appropriated through the Land and Water Conservation Fund.” P. 51

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Comment: We strongly support aggressive land acquisition efforts on the refuge. The Service should also actively seek additional funds for conservation land acquisition with priority on endangered species habitat.

Goal 2. Protect, restore, and enhance populations of threatened, endangered, rare, and imperiled plants and animals and their native habitats.

Objective 1: Implement necessary measures to ensure the viability of all imperiled species and their habitats.

Strategies:

Develop an inventorying and monitoring step-down plan to address research needs for all imperiled species.

Conduct rapid ecological assessments and emergency response strategies as needed.

Include protection of imperiled species and their habitats in environmental education, marine science, and interpretive programs and literature offered by the refuge.

Develop and implement an animal control plan to control non-native and predator species.

Maintain a sufficient law enforcement presence to prevent illegal take and disturbance of imperiled species.

Adopt a mosquito management step-down plan according to Service policy guidance that will reduce or eliminate impacts to non-target species from mosquito control operations on and adjacent to refuge lands.

Work with partners to evaluate the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats, and develop adaptive management strategies as feasible. P. 52

Comment: The Service should also aggressively pursue acquisition of endangered species habitat, and consider closing listed species habitat or take other actions to stop human disturbance.

Objective 2: Marsh rabbit – Recover and enhance the population viability of the Lower Keys marsh rabbit.

Strategies:

Maintain, restore, or enhance Lower Keys marsh rabbit habitat through all appropriate means,

[including prescribed burning and mechanical or manual clearing]. P. 52

Comment: The Service should omit bracketed phrase. Prescribed burning and clearing of the rabbits' natural habitat are not appropriate, and may well have negative impacts on the rabbit. We also recommend that the Service add the following LKMR strategies:

- Develop a land acquisition plan to buy rabbit habitat, identify and pursue various funding sources, and move quickly to buy suitable habitat and corridors to connect patches of habitat.
- Investigate locations and causes of road kills, and take measures to reduce vehicle mortality, including signage, speed bumps, chatter strips, speed limit reductions, and other protective actions.
- Educate the public about the rabbit and the risks from feral cats, and vehicles. Laws against feeding wildlife need to be enforced. Additional rules and regulations may need to be adopted to control feeding of feral cats and other exotic animals.
- Minimize human disturbance and habitat alteration.
- Recognize genetic and environmental distinctions between populations on different islands, and ensure that any management actions are based on research specific to that particular area and tailored to the natural conditions and needs of that particular habitat and population.

“Consider creation and maintenance of a mainland facility to establish a captive population of sufficient size and genetic variability to ensure against extinction.” P. 53

Comment: Research is needed to determine the current status of the LKMR, their specific habitat needs, what they eat, etc., and the potential effects of removing rabbits from their natural habitat. Any establishment of mainland populations or captive breeding should be done on a small trial basis (maybe 3 pairs of rabbits) and taking into account the sizeable genetic differences between populations.

Objective 4: Silver rice rat – Maintain the population viability of the silver rice rat.

Discussion: Prior to Hurricane Wilma in 2005, the population of silver rice rats was stable. Its status since the hurricane is unknown.

Strategy:

Initiate trapping surveys and habitat evaluation to determine a population status and recovery requirements. P. 54

Comment: The Service should also actively acquire known rice rat habitat and control predators including feral cats and black rats.

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Invertebrates

Objective 11: Lepidopterans – Maintain or restore refuge populations of lepidopterans of conservation concern, particularly Bartram’s hairstreak, Florida leafwing, and Miami blue butterflies.

Fire suppression and inconsistent use of prescribed burning may have reduced the abundance of pine rockland butterfly larval-host species, such as pine croton. P. 56

Comment: We are unaware of any historic evidence that supports this assertion. There have been few natural fires to suppress. We believe that mosquito spraying is a more significant cause of population declines.

Objective 12: Stock Island tree snails – Actively manage Stock Island tree snail habitat, including nesting, resting, and foraging areas for the long-term survival of the species.

Strategies:

Within 10 years of adoption of the CCP, develop a nesting, nest production, and population trends monitoring plan for the Stock Island tree snail. P. 56

Comment: The Service needs to take more immediate action in developing a monitoring plan for the Stock Island tree snail. It is unclear why it will take up to 10 years to develop a monitoring plan. This species could be extinct by then.

Comment: For both Objectives 11 and 12 we encourage the curtailment of broad spectrum adulticides on Refuge lands. There is evidence they are highly toxic and present a major risk for non-targeted terrestrial invertebrates.

GOAL 4. Promote an understanding and appreciation of natural and cultural resources and provide visitors with a quality, safe, and enjoyable experience compatible with wildlife and wildland conservation.

Objective 4-Environmental interpretation and research

Strategies:

“Seek a new location on U.S. Highway 1 on Big Pine Key to relocate the refuge’s visitor center operations.” P. 61

Comment: We must reserve support for a new visitor center on US1 on Big Pine Key. Until more details are provided it is impossible to assess the impacts. A new visitor center should be an appropriate size and scale to complement our existing community, and have minimal impacts

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of the habitat, wildlife, and human environment. The goal should be to concentrate visitors at the center and minimize human disturbance in critical wildlife habitat. It might include a penned area of native vegetation with a few Key Deer (possibly rehabilitated from injuries) to provide a photo opportunity for visitors. This may help satisfy visitors' desires to see a live Key Deer, thereby reducing illegal feeding of Key Deer in Port Pine Heights and No Name Key by tourists. This could also help reduce the number of vehicle collisions on Key Deer Blvd and Watson Avenue as fewer people use these roads to seek out opportunities to feed and/or photograph Key Deer.

“Create two kiosks describing Key deer biology and behavior and to discourage illegal feeding. The displays would be installed at the Watson/Mannillo Nature Trail parking lot and on the west side of Key Deer Boulevard at the edge of the field at Port Pine Heights.” P. 61

“Develop a tear-sheet map for visitors to better orient them to National Key Deer Refuge lands from Ohio to Sugarloaf Keys. The map will also depict the Big Pine area and the Key Deer Boulevard corridor, and it will emphasize visitor facilities as well as the side trails used mainly by residents.” P. 61

“Install a kiosk with interpretive information at the edge of the field along Key Deer Boulevard buffering the community of Port Pine Heights to educate visitors about Key deer and their habitat.” P. 61

Comment: While a kiosk with interpretive information at the end of the field along Key Deer Blvd. entrance to Port Pine Heights subdivision may prove beneficial to the visitor, the additional traffic it would generate along Key Deer Blvd. could prove dangerous for the wildlife. The goal should be to keep visitors at the visitor center on the highway where they can learn about Keys ecosystems and maybe see captive permanently injured Key deer, driving only as far as Blue Hole. Kiosks at Port Pine Heights and maps showing trails through sensitive habitat should be omitted. Tourists now drive all over the island looking for deer, feeding deer, and occasionally running over wildlife. The refuge should not be promoting more human disturbance of endangered species. Remember wildlife conservation is the number one priority.

“Install a kiosk with interpretive information at the north end of Key Deer Boulevard to educate visitors about the wildlife and habitat found along the trail in the buttonwood and salt marsh habitats.” P. 61

Comment: We do not support trails in marsh rabbit habitat. These shy, critically endangered species should not be subjected to more human disturbance. This trail is clearly not in the rabbits' best interest and there may be unknown consequences that could easily lead to the extinction of the small population in this area. The Service should actually be considering closing this area at NBPK not promoting more visitation.

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“Build a wildlife observation platform on National Key Deer Refuge at a site that meets approval with the community. Construct a hiking trail linking the Blue Hole to the Mannillo and Watson Trails.” P. 62

“Install a wildlife basking area in the Blue Hole to increase wildlife viewing opportunities for visitors.” P. 62

Comment: Suggested sites for a wildlife observation platform are at a new visitor center or in the parking area for the Manillo and Watson trails. We oppose construction in any area that will attract additional visitors into a wild area.

Creating additional trails will decrease and fragment habitat and we oppose construction of a new trail linking the Blue Hole to the Manillo and Watson trails. It could require the removal of a number of rare plants and result in the degradation and/or loss of additional habitat. We are also opposed to designating a new trail on Cudjoe Key in a very sensitive area where the Service has succeeded in establishing a new population of Key deer after great effort and expense. Encouraging ecotourism in this remote area could disrupt this fragile colonization process and antagonize neighbors with increased traffic and no available parking. We further believe the current trails are underutilized and that any new trail is thus unnecessary.

Installing a large wildlife basking area in the Blue Hole may make alligators, who are already susceptible to harassment from humans, more vulnerable. Therefore, we recommend keeping it a safe distance from the observation deck. We agree that small basking areas that could be utilized by turtles would be beneficial because they allow turtles’ shells to dry, thereby inhibiting parasites. A Blue Hole live webcam could also be installed at the Visitor Center to enhance visitor education.

Objective 9- Partnerships

“Partner with the Chamber of Commerce regarding opportunities to promote the refuges’ mission through ecotourism.” P. 62

Comment: The National Key Deer Refuge and particularly its designated wilderness areas needed to be protected and preserved and not serve as moneymaking opportunities for local businesses. We fear that an ecotourism initiative could ultimately, over time, turn this rare and special place into a de facto theme park full of trams, parking lots, and commercial vendors and guides. As we have already seen in many of our Nation’s National Parks, the commercialization of these special places can result in a number of significant, unintended consequences, both for wildlife and humans. Under the Refuge Improvement Act, the Service may authorize these economic uses only where they contribute to the achievement of a refuge purpose or the System mission, (see 50 CFR 29.1), and we would hope that the Service carefully scrutinizes any future

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proposed economic use to ensure the use will contribute to the achievement of National Key Deer Refuge's purpose of endangered species protection.

Goal 7. Provide administrative resources to ensure that the goals and objectives for refuge habitats, fish, and wildlife populations, land conservation, visitor services, and partnerships are achieved.

Objective 1

Strategies

Comment: With regard to increasing permanent staff by 6 new positions, one of these positions should include a land acquisition specialist. As the CCP explains on page 40, habitat fragmentation is a primary threat resulting in a loss of ecosystem function. Among the 6 new hires should also be additional biologists as wildlife populations need to be adequately inventoried and monitored and there are many imperiled species that require the attention of a small staff.

Plan Implementation

Fire Management Program-Biological Evaluations

“The role and application of fire in maintaining hardwood hammocks, freshwater marshes, and salt marshes in the Lower Keys are not as well understood, but are considered to be important components of the disturbance regime.” P. 67

Comment: Considered by whom? These ecosystems are not fire adapted or fire tolerant. Fire can kill hammock trees, and there is no evidence that fire is “an important component” in any of these habitats. This statement admits this issue is not well understood, but proceeds anyway to make a statement that without support should be deleted.

Ensure the Population Viability of the Lower Keys Marsh Rabbit

“Numbers have plummeted drastically over the past several decades” P. 69

Comment: It is unknown how many rabbits there are at this time. This is an important question to answer in order to have an accurate understanding of trends, etc.

“Therefore, \$50,000 per year will be allocated annually for predator trapping.” P. 69

Comment: FWS should partner with local government and animal control agencies to remove all feral cats from the habitat and educate the public on this issue.

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“Habitat enhancement is needed in both formerly and currently occupied sites to promote connectivity, dispersal, and genetic exchange. To this end, \$100,000 will be allocated annually.” P. 69

Comment: Research is essential to understand what factors are limiting the rabbits’ population now. This needs to be determined before any management actions are taken to alter the habitat or to translocate rabbits into patches that have been depopulated.

Moreover, habitat acquisition should be number one on this list, but it is not even mentioned. Protecting the habitat and corridors between patches is of utmost importance to preserving this species.

Land Acquisition

Many land in-holdings of vacant parcels with high quality wildlife habitat remain within the acquisition boundaries for National Key Deer Refuge and Great White Heron NWR. These refuges consistently rank high in the Service’s Land Acquisition Priority System and thus qualify for Land and Water Conservation funds. The Service would like to acquire all available inholdings from willing sellers to enhance its ability to manage large tracts of habitat and reduce habitat fragmentation for the recovery of threatened and endangered species. Land values change rapidly in the Florida Keys, thus the estimated costs will vary.

Comment: If habitat loss is the greatest risk to endangered species, then Land Acquisition should be the main priority. This meager paragraph is entirely inadequate to address the overwhelming need to acquire additional habitat. One of the new employees should be a land acquisition specialist and a land acquisition plan should be prepared and implemented as soon as possible.

“Given consistently rising property values, the faster the vacant properties can be acquired from willing sellers, the lower the costs will be. The current estimated cost is \$2 million annually.” (Linkage: Goal 1, Objective 9.) P. 71-72

Comment: Actually property values have dropped in recent years. Overall the average sale price in the lower Keys decreased by 19% in 2007 and 38% in 2006. Through March, 2008, the average sale price of vacant waterfront lots (excluding Key West) has dropped 39% since 2005, and non-waterfront lots have dropped 9%. (Source: Tri-Services Multiple Listing Service (MLS) Board Key Largo to Key West). This is a great time to buy Keys property. More than \$2 million annually is needed, and it should be allocated for conservation land and not land for refuge buildings.

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Visitor Center and Environmental Education

“[T]his location will provide better access to visitors and is expected to capture about five times the current annual rate of visitation—from 10,000 to 50,000 persons.” P. 72

Comment: While we recognize the need for a new center, we are troubled by the Service’s desire to capture 50,000 persons. While the Service suggests closing beaches in Key West Refuge because over use is damaging the resource, it proposes increasing visitation at Key Deer Refuge by 500%. We believe that this is short sighted and will lead to negative impacts on BPK and its many endangered species, the protection of which is supposed to be the highest priority. Expansion should be taken slowly and the impacts of vastly increased ecotourism monitored carefully.

Outdoor Facility Improvements

“The construction of a new hiking trail linking the Blue Hole area to the Watson and Mannillo Nature Trails to provide refuge hikers a more natural area than the bicycle path on Key Deer Boulevard. Construction and maintenance is planned by use of volunteers.” P. 73

Comment: We do not support the construction of a new trail in this area. This proposed trail will reduce and fragment habitat, two very negative factors for wildlife. Existing trails are under utilized and no new trails are needed or desirable.

“Install an interpretive trail sign with a brochure box and maps at one of the refuge fire roads on No Name Key.” P. 72

Comment: Visitors should not be encouraged to drive across the islands to these remote areas. Even at current levels of visitation, tourists impact wildlife through illegal feeding and road kills. Enforcement is a problem in these areas and ecotourism should not be promoted at the ends of NNK or BPK.

“Construct two kiosks, one at the field in Port Pine Heights and one at the north end of Key Deer Boulevard.” P. 73

Comment: New kiosks or maps are likely to attract more people into these sensitive areas at the far end of the island. This could result in unintended adverse impacts to species that rely on these areas for habitat.

Table 5 (P. 74)

Fire Management - Biological Evaluations-Staffing

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Comment: A biologist, not a forestry technical, should have this position.

Land Acquisition

Comment: The Service should add an Acquisition Specialist in the staff column.

Biological Inventorying and Monitoring Plan

“A priority issue and critical need is for data collecting in order to guide wildlife habitat management on the refuge. Wildlife populations need to be adequately monitored to properly determine population trends, identify management needs, and evaluate the impacts of management actions. This plan will describe inventorying and monitoring techniques and methodologies for surveys of priority species or species groups. Priority will be set considering trust and listed species.” P. 77

Comment: Yes, research is needed on individual species, but the Service needs to go beyond single species management and manage for the whole ecosystem needs and functions. We would like to see the refuge put more emphasis on restoring natural ecosystems, especially pine rocklands. Because of the widespread mortality of the keystone slash pines, collecting seeds and establishing a plant nursery is an urgent need. Research, planning, and experimentation are essential to bring back Big Pine’s namesake.

“Plant communities will also be addressed.”

Comment: This statement is vague and requires further explanation.

Fire Management Plan

“Guidance will be provided to staff for carrying-out fire management operations, including the conduct or prescribed burning for habitat improvement and fuel reduction, as well as wildfire suppression activities.” P. 77

Comment: FWS service’s mission is to maintain habitat and only restore and enhance such habitat where appropriate. Because the Service has not provided scientific support for its burn plans in National Key Deer Refuge, any prescribed burning at this time should not be used for habitat “improvement” and burning for fuel reduction should be pursued only after evaluation of the results of previous burns and consideration of alternatives such as allowing hammock succession in urban interface areas.

Integrated Predator Management Plan

“Native and non-native animal species on the refuge may require direct management strategies and intervention to control their abundance, distribution, and effect upon refuge resources, particularly predation of endangered species at risk of extinction. Management of native raccoon

populations may also be addressed to reduce high concentrations or densities of raccoons due to artificial food sources, such as garbage and feeding.” P. 78

Comment: Research is needed to determine if raccoon populations are in fact inflated. Hundreds of raccoons have been killed as a result of the Service’s efforts to trap cats. There has been no research on the effects of this action. Raccoons are now absent from some areas. Here the Service is lumping together a native species that evolved in this habitat and a dangerous, introduced, exotic species- - cats. The Service should place primary focus on feral cats, which are documented as the main cause of mortality for marsh rabbits. (Forys, Elizabeth A., 1995, Metapopulations of Marsh Rabbits: A Population Viability Analysis of the Lower Keys Marsh Rabbit (*Sylvilagus palustris hefneri*), Ph.D. dissertation, University of FL, Gainesville)). The secondary focus should be on other exotic animals. Actions that may inadvertently affect native species should be conducted with caution. Raccoons are a major seed disperser in a habitat where deer herbivory is negatively impacting regeneration of many plant species. Also when the Service has removed raccoons, it appears that their niche is being filled by a much more dangerous exotic predator - the opossum which did not coevolve with the marsh rabbits. Additional studies are needed on the ecological role of raccoons and their relationship with marsh rabbits, and the negative impacts of removing native raccoons must be evaluated by the Service.

In addition, among the 11 step down plans listed, there is no land acquisition plan. There is a Land Protection Plan, but in this draft CCP “land protection” is treated separately from land acquisition and generally refers to the management of properties already owned by the Department of the Interior and partner conservation agencies rather than the acquisition of additional conservation lands. (P.71). Land acquisition is probably the most important thing the Service can do to support the wildlife, yet it receives little attention in the CCP. We urge the Service to produce a separate Land Acquisition step down plan to underscore its importance and make land acquisition the major priority and focus of the Service’s attention and funding that it needs to be.

Table 7 Lower Florida Keys National Wildlife Refuges step-down management plans and completion dates (P. 79):

Comment: The revision or completion date for the Fire Management step down plan is not until 2013, but the refuge is planning prescription burns in the meantime. Burns should be put on hold to allow habitats to recover from hurricane Wilma and until an appropriate, scientifically supported the fire plan is adopted.

COMMENTS ON ENVIRONMENTAL ASSESSMENT (P. 81)

Alternatives

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NEPA requires a “detailed statement” of “alternatives to the proposed action.” 42 U.S.C. § 4332(2)(c). The alternatives analysis should address “the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for the choice among options by the decision maker and the public.” 40 C.F.R. § 1502.14. This analysis must “rigorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14(a) (emphasis added).

The purpose of this section is “to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means.” *Environmental Defense Fund v. Corps of Engineers*, 492 F.2d 1123, 1135 (5th Cir. 1974). The Council on Environmental Quality describes the alternatives requirement as the “heart” of the environmental impact statement. 40 C.F.R. § 1502.14.

While an agency is not obliged to consider every alternative to every aspect of a proposed action, reviewing courts have insisted that the agency “consider such alternatives to the proposed action as may partially or completely meet the proposals goal.” *Natural Resources Defense Council, Inc. v. Callaway*, 524 F.2d. 79, 93 (2d Cir. 1975).

The alternative analysis for this CCP is severely lacking in both the range of alternatives considered and the extent to which they are evaluated. The draft CCP offers only three alternatives, a no action Alternative (A), the preferred Alternative (B) and a third alternative, Alternative C. However, alternatives B and C essentially call for the same management practices in a number of different areas, including visitor services (P. 92), habitat loss and fragmentation (P. 94) and control of invasive and exotic species (P. 101). They call for an increase in visitor services and rather modest land acquisition and exotic species removal programs. As such, they do not explore other ways of managing these issues such as limiting the expansion of trails, hiring additional staff who specialize in acquiring private lands, and controlling invasive species by limiting the amount of additional human disturbance in sensitive areas and increased predator control programs.

Therefore, Refuge staff should consider analyzing a wider range of alternatives that take different management approaches to these and other issues. For example, the Service could look to the CCP for the Sherburne NWR in Minnesota, which many feel is the “gold standard” for CCPs, for guidance. See Robert Fischman, *From Words to Action: The Impact and Legal Status of the 2006 National Wildlife Refuge System Management Policies*, 26 Stan. Envtl. L.J. 77 (2007). In that CCP, the Service examined five alternatives. These alternatives differed in many respects, including the ecological frame of reference (pre-settlement vs. pre-European), priority species (wetland and grassland birds v. migratory species) and the Refuge’s place in a larger, ever-changing landscape. As explained in Section 601 of the FWS Manual, the Refuge planning team, using public input, focused management not only on the duck, geese, crane, and bald eagle conservation expressed when the refuge was established, but also recognized the current needs of

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all migratory birds, other species of interest and concern, and the conservation of ecosystem stability and health. “This approach recognizes that the refuge purpose remains paramount.” FWS 601. By analyzing five different alternatives, while honoring the overarching conservation purpose of the Refuge, the Service was then able to select an alternative that promoted the protection and preservation of the larger ecosystem. The truly comprehensive, ecosystem based approach utilized by the Service in the Sherburne CCP strongly supports the biological integrity, diversity and health mandate of the Refuge Improvement Act. The Service should take a similar approach here and explore additional alternatives, which will facilitate the development of a preferred alternative that focuses on the larger ecosystem and honors the Refuge’s primary mission of wildlife protection.

We understand that the mandate for this refuge is to protect certain priority species. However, basic ecology has taught us that the best and most effective way to accomplish this is to manage for the health of their whole, intact ecosystem. To manipulate the habitat in an attempt to “enhance” it for a single species ends up skewing and distorting natural systems often to the detriment of the very species we are trying to protect. The past emphasis of traditional management on single species led to misguided efforts such as predator eradication, which resulted in disastrous and unexpected consequences. “Maintaining and restoring large blocks of ecosystems is the eventual route of choice to saving their endangered and threatened species.” (Brewer, Richard, 1994 The Science of Ecology, Saunders College Publishing, Harcourt, Brace and Company, Orlando, FL, p. 621).

The Service must also better analyze the purpose, need and effects of the three proposed alternatives. For the most part, the EA summarizes the specific management actions of all three plans in a chart and does not actually explain for example, what Alternative C would actually call for. A more thorough explanation of Alternative C is necessary because unlike Alternative A, which is the current management approach, and Alternative B, which the CCP embodies, Alternative C is the one alternative the public knows the least about. Alternative C also appears to call for certain management actions which may be much more desirable and appropriate, such as using mechanical and hand-clearing of vegetation to mimic prescribed fire in certain areas and allowing pine rocklands to succeed to hammock in the urban interface. Alternative C also appears to come out on top in the Service’s evaluation of the impacts of these alternatives. For instance, C appears to do the most in exotic plant species removal while producing the fewest impacts to salt and freshwater marsh. Yet, the analysis ends there and the Service summarily concludes that Alternative B is the best option. While we do not necessarily support everything Alternative C calls for, a more thorough explanation as to why Alternative C is not the best approach is warranted, particularly when so little is known about the role of fire in salt marsh, and loss of habitat due to private development and the infestation of invasive exotic plants and animals continue to threaten these refuges.

Direct and Indirect Impacts on the Environment

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“NEPA imposes procedural requirements designed to force agencies to take a ‘hard look’ at [the] environmental consequences” of their actions. *Earth Island Inst. v. United States Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003). “This includes considering all foreseeable direct and indirect impacts. *Id.* See also 40 C.F.R. § 1508.25 (c).

This EA fails to consider a wide range of foreseeable direct and indirect impacts on the area’s resources. In addition, many of your discussions on direct and indirect impacts are contradictory and inconsistent with past findings. You must correct these and other deficiencies and provide a thorough and well-reasoned discussion of all direct, indirect and reasonably foreseeable environmental impacts.

Fire Impacts

The EA makes several false, contradictory and/or unsupported assumptions as to the importance and role of fire in Keys freshwater wetland and saltmarsh/buttonwood transition communities. In some instances the Service characterizes these communities as “fire dependent” (P.112); in other portions of the CCP/EA fire is considered an appropriate tool (P. 49); and in others the role and application is “not as well understood.” (P. 67). The EA later concedes “the historic and ecological role of fire in this habitat is currently being studied.” (P. 105). Because of these false and/or contradictory assumptions and the lack of information on the role of fire in these areas, the Service cannot accurately determine at this time that the soil impacts would be “negligible” (P. 105), or that impacts to water quality should not be discussed. In addition, because the role of fire needs additional study, the Service should address the number of potential environmental impacts associated with the use of fire in salt marshes such as injury or death to listed animal and plant species such as the LKMR, silver rice rat, mangroves, and other state protected tree species. None of these impacts has been analyzed.

Visitor Impacts

The EA also contains a number of contradictory statements on the human impacts to wildlife and habitat, resulting from a significant increase in visitors to the Refuge. While the EA estimates that the new visitor center will likely generate a 500% increase in annual visitation, Blue Hole visitation will double from 90,000 visits to 180,000 visits, and nature trails will experience an increase from 60,000 to 120,000 visitors, no additional vehicle traffic would be generated on Highway US 1. It is entirely unclear how the Service reached this determination absent some sort of traffic study or polling. Instead, it is much more likely that at least a modest if not significant increase in traffic would result from a five-fold increase in visitors. The Service’s statements that ecotourism opportunities could result in an additional 30,000 more vehicles annually (P. 114), cast further doubt on the agency’s conclusions that traffic patterns will remain unchanged.

The new visitor center is presented only as a concept in the draft CCP/EA. Without knowing the specifics, it is impossible to accurately evaluate the impacts. For example, will the visitor center

be on BPK or on another island? Will it be in an existing building or new construction? Will it be located on an already scarified parcel, or will it require some clearing of native habitat. What Tier will it be in? Which side of the highway and which side of the BPK traffic light will it be located on? What will be the size of the visitor center and parking facilities? If located on BPK, how will the huge projected increase in visitors affect traffic flow, turning, and level of service? How will all these additional visitors impact the number of road kills? Have the impacts of projected visitor increases been adjusted for peak season use? If level of service is decreased, will a building moratorium be reinstated as in the past? Will FDOT be forced to build a fourth lane? If so, will road kills of endangered species increase? Increasing the level of take of deer could reopen the HCP. Since road improvements are tied into the HCP, and require mitigation, will the Service provide mitigation, even though it is not subject to the HCP? Will it abide by the restrictions in the county comprehensive plan? The real impacts have not been addressed at all and will depend upon the specifics. We are unable to support a new visitor center on U.S. 1, until the details have been completely described and traffic and other impacts assessed.

Regardless of the impacts from a new visitor center and increased traffic, there is no discussion of the impacts all of these visitors would have on the Refuge. The EA does not discuss the potential degradation of air quality caused by additional automobiles, the noise impacts of additional visitors to NKDR, the additional waste that is likely to be generated by these visitors along the trails, and the increased needed for law enforcement to control ongoing illegal feeding of deer and other wildlife. The EA also glosses over the real potential for increased wildlife disturbance resulting from a significant increase in visitors and the potential for user group conflicts as all these visitors compete for a limited number of resources. The Service must analyze these impacts now rather than simply state that the agency will “adjust its programs” to address these impacts should they occur. The EA also improperly characterizes the impact to vegetation resulting from the creation of additional trails as “short-term.” The creation of new trails will likely require the removal of a number of trees, many of which are federal or state listed. However, the impacts do not stop there. In addition to a loss and fragmentation of habitat, the removal of these trees may encourage the growth of invasive or exotic species in these areas, which then compete with the remaining native plants and trees. Disturbed sites also encourage the introduction of other invasive species such as fire ants, which could threaten the young of certain listed animal species, including LKMR.

Endangered, Threatened and Sensitive Species

The CEQ regulations mandate that an agency evaluate “[t]he degree to which the action may adversely affect an endangered or threatened species” when determining whether an action will significantly affect the environment. 40 C.F.R. § 1508.27(b)(9). We do not believe the Service has adequately evaluated the impacts of prescribed burns in salt marshes on threatened and endangered species, particularly the LKMR.

As we explained in our January and February 2008 letters to the Service regarding this issue, the

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intra-service biological evaluation on the use of prescribed fire in the NKD Refuge was not only deficient but also recognized the potential harm prescribed burns posed to LKMR. Following our March 2008 meeting with Service staff in Big Pine Key, we were assured that the burns would be cancelled pending additional review and preparation of a response by Refuge staff to our letters. We have not yet received a response from the Service. We believe that in view of the unanswered questions surrounding the impacts of these burns and the inadequacy of the BE, the Service should reinitiate consultation and prepare a Biological Opinion that provides a comprehensive assessment of its Refuge management plans and activities as it had done in the past for Boca Chica.¹

Cumulative Impacts

A cumulative impact is an impact on the natural or human environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes such other actions. *See* 40 CFR 1508.7.

The Service's cumulative impacts analysis is entirely deficient. It is entirely unclear why the Service concluded that it was simply "unaware of any past, present, or future planned actions that would result in significant cumulative impacts." The Keys are under incredible development pressure, including everything from residential housing, marinas, commercial/retail development and even airport expansion. All these developments result in additional habitat loss and fragmentation every year. This habitat loss includes everything from wetlands to tropical hardwood hammocks, as evidenced by the number of 404 permits, ERP permits, and Incidental Take Permits that are applied for and granted by the U.S. Army Corps of Engineers, South Florida Water Management District, and the Service, respectively. Thus, it is critically important that the Service analyze how its actions when added to these individual actions will cumulatively effect the environment. Will the preferred alternative result in additional habitat or a loss of habitat, and to what extent? Will the endangered species protection measures called for in this CCP help offset impacts to listed species occurring off-site? Will the increase in visitors to the refuge take pressure off other areas, or will it induce additional traffic and visitation to other sensitive resources outside Refuge boundaries? Will the level of invasive exotic control when added to other invasive control programs off-site reduce the threat of invasive species or will there be no cumulative benefit to the lower keys ecosystem? Will the preferred alternative strengthen or weaken existing partnerships and public awareness or have a negligible effect?

¹ The USFWS issued a BO on September 9, 1992, pursuant to Section 7 of the ESA on potential effects of operational activities at Boca Chica Field on the LKMR. The BO considered motor vehicle usage (including off-road), habitat alteration (i.e., mowing of suitable and occupied areas), habitat degradation (invasive exotic plant species), feral cats, humans and their dogs, and raccoons, as sources of potential impacts on rabbits present on Navy lands.

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These and other questions must be answered and the Service should not just summarily conclude that it is unaware of any cumulative effects when it is abundantly clear that numerous federal, state and private actions are continually impacting the lower Keys ecosystem.

Substantial Public Controversy

In determining the significance of a proposed action's effects on the environment, an agency must evaluate "[t]he degree to which the effects on the quality of the human environment are likely to be highly controversial." 40 C.F.R. § 1508.27(b)(4).

A controversy sufficient to require preparation of an EIS occurs "when substantial questions are raised as to whether a project...may cause significant degradation of some human environmental factor, or there is a substantial dispute [about] the size, nature or effect of the major Federal action." *Protect Our Water v. Flowers*, 377 F.Supp.2d 844, 861 (E.D. Cal. 2004)(quoting *Nat'l Parks Conservation Ass'n v. Babbitt*, 241 F.3d 722, 736 (9th Cir. 2001). A substantial dispute exists when evidence, raised prior to the preparation of an EIS or FONSI casts serious doubt upon the reasonableness of an agency's conclusions. *Protect Our Water*, 377 F. Supp.2d at 861. "An outpouring of public protest" has been held to satisfy the requirement of "substantial dispute." *Pub. Citizen v. Dep't of Transp.*, 316 F.3d 1002, 1027 (9th Cir. 2003).

Once a substantial controversy arises, NEPA places a burden on the agency to come forward with a "well reasoned explanation" demonstrating why those responses do not suffice to create a public controversy. *Nat'l Parks Conservation Ass'n*, 241 F.3d at 736.

There is a substantial public controversy with respect to a major component of the draft CCP-the Service's plans for prescribed burns in the NKD Refuge. The undersigned, as well as other organizations brought this issue to the Service's attention in January and February of 2008 and met with Refuge staff, members of the Vero Beach Ecological Services office, and the Florida Refuges Supervisor in March 2008 on Big Pine Key. Following that meeting, Refuge staff agreed to cancel the prescribed burning of LKMR habitat pending additional review and documentation in response to our January and February letters. In view of the EA's failure to analyze the impacts of these burns and the public controversy surrounding these burns, the Service should prepare a more thorough analysis of the environmental impacts of these burns before it issues a final CCP.

Burning even fire-adapted pine rocklands has been controversial because of the significant pine mortality resulting from some past burns. Manual thinning of vegetation in the urban interface has also aroused controversy because of the killing of listed species.

Finally, the new visitor center may be a positive addition or may be extremely controversial depending on size, where it is sited, impacts of traffic, impacts of Key deer and other details unknown at this time. The proposal to locate a Walgreens drug store in an existing commercial

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site on U.S. 1 has been tied up in lawsuits for several years because of concerns about intensifying use and other impacts. Building the visitor center on an island other than BPK would avoid a great deal of the potential conflict and negative reaction from the community. While this might be less convenient for visitors, it would probably be more beneficial for wildlife, the highest priority.

An Environmental Impact Statement is Warranted

In consideration of the significant environmental impacts that could result from the use of “experimental” prescribed fire in salt and freshwater marshes and the number of adverse impacts that could result from the Service’s overly ambitious plans to increase visitation up to 500%, amidst the continued decline of a number of listed species within Refuge boundaries, we believe the Service should prepare an EIS for the Lower Keys Refuge System.

CONCLUSION

Thank you for the opportunity to comment on the draft CCP and EA. We hope the Service will reconsider its planned prescribed burning activities within the salt marshes of National Key Deer Refuge as well as its plans for new trails and other public services. We further hope that whatever final preferred alternative the Service selects, that it embodies an ecosystem wide approach and honors the primary wildlife conservation purpose of National Key Deer Refuge.

Sincerely,

s/Jason Totoiu

Jason Totoiu