

# Memorandum



**Date:** March 4, 2022

**To:** Honorable Chairman Jose “Pepe” Diaz  
and Members, Board of County Commissioners

**From:** Daniella Levine Cava  
Mayor

A handwritten signature in blue ink that reads "Daniella Levine Cava".

**Subject:** Report on the Assessment of Miami-Dade County Environmentally Endangered Lands Located Within or Adjacent to Miami-Dade County Parks, Related to Uses That are Inconsistent with the Environmentally Endangered Lands Program - Directive No. 210996

---

On May 4, 2021, the Board of County Commissioners (Board) adopted Resolution No. R-465-21, sponsored by Commissioner Raquel Regalado, directing the County Mayor or County Mayor’s designee to prepare a written report on the targeted assessment of 18 Miami-Dade County Environmentally Endangered Lands (EEL) Program managed areas which are located within or adjacent to Miami-Dade County parks, related to uses of County EEL areas that are inconsistent with the EEL Program, and to make specific recommendations to this Board for possible future County actions on these 18 EEL areas to better prevent and halt uses that may be inconsistent with the EEL Program and submit the report to the Board.

The attached report “Assessment of Uses or Activities Associated with Environmentally Endangered Lands Within or Adjacent to 18 County Parks” has been prepared by staff of the Department of Regulatory and Economic Resources (RER) – Division of Environmental Resources Management (DERM) in coordination with the Parks, Recreation and Open Spaces Department (PROS). The report provides general background information on the EEL Program and identifies uses or activities that are inconsistent with the EEL Program’s goals and objectives affecting EEL areas within or adjacent to 18 County parks since conveyance of these sites for management by the EEL program in the early 2000s.

In accordance with Ordinance No. 14-65, this report will be placed on the next available Board meeting agenda. If you have any questions or require additional information, please contact Lee N. Hefty, Assistant Director, Division of Environmental Resources Management in the Department of Regulatory and Economic Resources, at [Lee.Hefty@miamidade.gov](mailto:Lee.Hefty@miamidade.gov).

c: Geri Bonzon-Keenan, County Attorney

Gerald K. Sanchez, First Assistant County Attorney

Jess McCarty, Executive Assistant County Attorney

Office of the Mayor Senior Staff

Maria Nardi, Director, Department of Parks, Recreation, and Open Spaces

Lourdes Gomez, Director, Department of Regulatory and Economic Resources

Yinka Majekodunmi, Commission Auditor

Jennifer Moon, Chief, Office of Policy and Budgetary Affairs

Basia Pruna, Director, Clerk of the Board

# **Assessment of Inconsistent Uses or Activities Associated with Environmentally Endangered Lands Located Within or Adjacent to 18 County Parks**

## **Executive Summary**

Growth and development over the past 100 years has significantly reduced the amount of native forest and wetland habitat throughout much of Miami-Dade County. To address the loss of these valuable natural resources and to maintain the plants and animals that inhabit these sensitive areas, the County's Environmentally Endangered Lands Program was established to acquire, preserve, enhance, restore, and maintain threatened natural forest and wetland communities in Miami-Dade County for the benefit of present and future generations. As stated in Section 24-50.4 of the Code, the purpose of the EEL program includes managing environmentally endangered lands with the primary objective of maintaining and preserving their natural resource values. Furthermore, Section 24-12 of the Code requires management of all properties acquired or managed by the EEL program to be consistent with the purpose of the EEL program as set forth in Section 24-50.4.

Since establishment of the program in the early 1990's, the EEL Program has worked to acquire, lease, and accept environmentally endangered lands for long term preservation and is presently managing approximately 27,000 acres of land comprised of almost entirely of wetlands and forest habitat. In the early to mid-2000's, in effort to provide funding for the management of natural areas located within county parks, the Board of County Commissioners accepted approximately 2,800 acres of natural areas associated with 18 County Park properties into the EEL program through the adoption of a series of Resolutions (R-406-04, R-552-04, R-50-05, R-413-08). The lands are to be managed in perpetuity as environmental lands in accordance with the purpose and requirements of the EEL program. Because these areas are specifically designated for management by the EEL program and are located within or adjacent to active County Parks, this establishes an important relationship between the EEL Program and PROS, as both departments share responsibility for ensuring these sensitive areas are properly managed and protected. PROS plays a significant role in managing daily access to these Parks and their associated EEL managed areas, conducting maintenance activities, and managing Park programming activities in and adjacent to these EEL managed areas. This partnership is key to successful management and long-term preservation of these sensitive natural resources.

EEL managed areas that are located within or adjacent to County parks provide a great opportunity for the public to see and experience the beauty of these unique natural habitats up close as they utilize the County Park system. However, the sensitive natural resources in these EEL managed areas are vulnerable to impact from certain activities associated with the daily use, operation, and maintenance of County Park facilities. In preparing this report, DERM staff identified several uses or activities associated with the subject 18 County Parks that are inconsistent in part or in whole with the EEL program purposes, goals and objectives. They include a variety of activities, some pre-date the EEL program, some have been caused by external factors, and some that may otherwise be acceptable if they were occurring in areas that are not set aside for long term habitat preservation, but when they occur in or adjacent to EEL managed preservation areas, these activities have resulted in negative impacts to sensitive resources. This report includes a description of these inconsistent uses or activities, describes the potential impacts associated with the activity, and provides recommendations on how to minimize inconsistent uses with recommendations on future actions.

Regional Park facilities play an important role in our community by providing public recreational opportunities ranging from highly organized active sports to nature-based resource parks that feature low impact health and fitness, conservation, and stewardship education programs, as well as passive recreation opportunities for the public to enjoy such as walking and viewing nature. In that regard, parks serve to connect people with nature. The County's EEL Program is responsible for the acquisition, management and long-term preservation of environmentally endangered lands containing sensitive natural resources including rare, threatened, and endangered species, as well as educating the public regarding the importance of these unique habitats. Therefore, both PROS' and the EEL program's respective missions can successfully coexist and actually be complimentary with appropriate coordination, and an understanding of the overarching responsibility for consistency with the County's prevailing policies and regulations regarding the protection and long-term preservation of these important natural resources.

In preparing this report DERM, in collaboration with PROS, has identified the following recommendations relating to awareness of the specific site boundaries for these natural resource areas, and improved communication regarding the sensitivity of these habitats that can help address concerns with inconsistent uses or activities in these EEL managed areas. Additional recommendations are also provided in the section on inconsistent uses to address incompatible uses through communication and coordination in the training of staff, the development of management plans, and the request for supplemental funding, as necessary. RER DERM and PROS will:

- Increase communication and promote further partnership between DERM's EEL Program and PROS for shared responsibility to successfully manage these sensitive areas. This will be achieved by establishing more formal and regularly scheduled ongoing coordination meetings between RER DERM's EEL program and PROS to discuss day-to-day operations and challenges, identify and discuss any emerging concerns, discuss any proposed programming activities or PROS Planning projects, and review EEL program Management Plans activity for the subject site. This will provide early coordination between PROS Planning staff with DERM EEL program staff to discuss projects proposed in these parks at the conceptual development stage. Using this approach allows DERM staff to proactively share scientific expertise in the area of natural resources protection and native habitat management as consultant to PROS to help guide the project scope so as to avoid impacts to sensitive EEL managed areas. RER DERM and PROS have already established ongoing meetings to facilitate this coordination.
- DERM EEL Program staff and PROS staff will collaborate on preparing updated Management Plans for these EEL managed areas, as well as revise/update corresponding Park Master Plans/General Plans for these 18 County Parks to ensure Park Master Plans are consistent with and support EEL Program Management Plans and the goals and objectives of the EEL Program as they relate to these EEL managed areas. This will include clear delineation of the EEL managed area boundary, identify other natural resources protection elements such as Natural Forest Communities, wetlands, US Fish & Wildlife Service critical habitat, as well as clear delineation of required environmental buffer areas, protected or existing structures, developed/cleared open space areas, and will identify uses that are consistent with the preservation, enhancement, and maintenance of the natural resource among other key elements. Uses identified in the updated plans shall, at a minimum, be consistent with uses identified in the initial Management Plan (natural area protection plans) that justified transfer of the environmentally sensitive lands in these 18 Parks to the EEL Program.

- Update information on all County websites to ensure that the EEL managed lands' boundary is properly identified throughout and correct any inaccuracies identified in County Department websites.
- Avoidance of impact must take precedence over "minimize or mitigate" and County Departments should not plan or construct new or expanded infrastructure within EEL managed areas and all Departments shall be educated on this "first do no harm" philosophy. Any new or expanded infrastructure on EEL lands is coordinated with and overseen by the EEL Program, reviewed, approved, and permitted as per MDC Chapter Code and the CDMP. Exceptions can be made for replacement of existing utilities provided they are constructed with the same or less impacts.
- Develop and implement a plan to improve County staff and public awareness of the site-specific boundaries of the EEL Program managed areas located in park facilities, and increase general awareness of the resource preservation requirements, goals and objectives of the EEL program.
- Establish ongoing coordination meetings between DERM's EEL program and various Park's Facility Managers to discuss day-to-day operations and challenges, identify and discuss any emerging concerns, and review EEL program plans activity for the subject site. PROS Staff should coordinate with DERM EEL Program staff prior to preparing or finalizing master plans (and general plans) within the 18 parks that include EEL managed areas. These plans shall include maps that clearly identify the EEL managed areas.
- Activities and/or events proposed within or directly adjacent to EEL managed areas should be reviewed by the EEL program prior to approval. Access to off-trail or restricted areas within EEL managed areas shall be reviewed by the EEL Program at the time of initial proposal and prior to the activity being conducted and should only be authorized by the EEL Program if the activity would benefit the resource, help manage the resource better, increase awareness of EEL managed areas, and be consistent with low impact practices.
- Pursue additional funding to support the broader EEL Program, which includes 25,000 acres outside of the 2,800 that are the subject of this directive. This includes funds for development of Management Plans and to provide additional EEL Program staff for improved maintenance and greater oversight of EEL lands, particularly for EEL preserves that are noted areas for dumping and homeless encampments.

## **Background**

The historic loss, fragmentation, and degradation of native wetland and upland forest communities in Miami-Dade County is well documented and remaining native wetland and upland forest communities are collectively endangered. To address this concern, the voters of Miami-Dade County over thirty years ago (May 1990) authorized the County to levy an ad valorem tax of three-quarters of one mill, for two years, *"for acquisition, preservation, enhancement, restoration, conservation and maintenance of environmentally endangered lands for the benefit of present and future generations, and limiting all uses of, and all investment earnings on such levies for such purposes."* The County's EEL Program was established to implement the referendum mandate and to support its purposes to the fullest. Use of EEL

funding and activities on EEL acquired or managed property must be consistent with the purposes of the original ad valorem tax and the purposes outlined in Section 24-50.4 of the Code.

The purposes of the EEL program include, in part, the following: to acquire, and protect vulnerable, environmentally-endangered lands, which contain native, rare, or endangered flora and fauna, or that function as part of an existing ecosystem; to implement the objectives and policies of the Miami-Dade County Comprehensive Development Master Plan (CDMP) which have been promulgated to preserve and protect environmental protection areas designated in the CDMP and other sensitive natural areas; to manage environmentally-endangered lands with the primary objective of maintaining and preserving their natural resource values by employing management techniques that are most appropriate for each native community so that our natural heritage may be preserved for present and future generations; and also to use EEL lands “to educate Miami-Dade County's school-age population and the general public about the uniqueness and importance of Miami-Dade County's subtropical ecosystems and natural communities,” with minimal risk to the environmental integrity of the EEL lands.

Since establishment of the program in the early 1990's, the EEL Program has worked to acquire, lease, and accept environmentally endangered lands for long term preservation consistent with the aforementioned program purposes. The EEL Program presently manages approximately 27,000 acres comprised almost entirely of wetlands and forest habitat. The EEL Program is charged with managing these environmentally endangered lands with the primary objective of maintaining and preserving their natural resource values by employing management techniques that are most appropriate for each native community so that our natural heritage may be preserved for present and future generations. Some of the land management activities associated with the program include treatment or removal of invasive exotic vegetation, removing fill material to restore native habitats, eliminating ditches and reducing over drainage to improve wetlands hydrology, planting native vegetation as well as conducting controlled burns to eliminate invasive vegetation and stimulate regrowth of native plants within pine rockland habitat. Land management activities also include strategies to minimize direct adverse impacts caused by activities such as inappropriate vehicle access and illegal dumping. Of the more than 27,000 acres of environmental lands managed under this program, approximately 2,800 acres are associated with the 18 County parks addressed in this report.

The County's EEL areas include (1) properties specifically acquired for environmental preservation under the EEL Program and (2) areas, such as portions of County parks, that were approved by the Board of County Commissioners for management as environmental lands under the EEL Program.

A number of the County's parks contain or are adjacent to significant natural resource areas. From 2004 to 2008, the Board of County Commissioners adopted resolutions pursuant to section 24-50.7 of the Code accepting certain natural areas located within several County Parks for management by the EEL Program. All 18 of the EEL areas discussed in this report are located within County parks and were approved for management as Environmentally Endangered Land pursuant to the above-mentioned Board resolutions (see Table 1). For the purpose of this report, these lands accepted into the EEL Program are referred to as “EEL managed areas.” Many of these areas approved by the Board for management under the EEL program also included areas with existing infrastructure, such as paved roads, trails, and cabins, and those County legislative items noted that PROS would continue to maintain responsibility for the buildings and other developed, landscaped, or cleared areas.

**Table 1 List of 18 EEL Managed Areas in Parks Accepted by Resolution**

<b>Resolution</b>	<b>Date of Reso</b>	<b>Park with EEL Managed Area</b>
R-406-04	4/13/2004	Castellow Hammock Park
		Deering Estate at Cutler
		Fuchs Hammock
		Navy Wells Pineland
		Nixon Smiley Pineland Preserve
		Pine Shore Pineland Preserve
R-552-04	5/11/2004	Bill Sadowski Park
		Camp Owaissa Bauer
		Larry & Penny Thompson Park
		Matheson Hammock Park
		R. Hardy Matheson Preserve
R-50-05	1/20/2005	Arch Creek Park
		A.D. Barnes Park
		Crandon Park
		Greynolds Park
		East & East East Greynolds Park
		Tropical Park
R-413-08	4/8/2008	Zoo Miami

The presence of EEL managed areas within County parks provides a great opportunity for the public to see and experience the beauty of these unique habitats up close. It can also allow the public to gain a greater understanding and appreciation of the benefits of preserving these important areas through the County’s EEL program. However, this juxtaposition can also present challenges to the proper stewardship of these sensitive areas where certain actions or activities can result in direct or indirect adverse impacts to these preservation areas. Section 24-50.12(5) of the Code states that “No use, infrastructure, or improvement shall be permitted on any property acquired or managed under the EEL Program that is inconsistent with the purposes of the program or that is not provided by an approved management plan for the property.”

## **Incompatible Uses on EEL Managed Lands within County Parks**

As noted above, the EEL program was established to preserve environmentally endangered lands and their habitat for present and future generations. To achieve this goal, EEL areas must be protected from activities that destroy or degrade sensitive habitat and natural resources. However, certain uses, actions or activities that may otherwise seem appropriate for traditional recreational park facilities can destroy, damage, or degrade the natural resource values, habitat, ecological function, flora, or fauna when they occur in or even adjacent to sensitive EEL Lands. The following uses even if only temporary or periodic, may contribute to the degradation of certain EEL lands and may make County management and restoration of EEL lands more difficult or costly. Incompatible activities occurring on County EEL lands can also result in harmful impacts to wildlife that would otherwise be present by displacing wildlife from the area or disturbing their routines and creating stress that may have negative impacts on wildlife. The following list of incompatible and potentially compatible uses was developed using best available practices from the fields of ecology, biology, botany, forestry, landscape architecture, resource management and other relevant fields, and County staff experience managing EEL lands with recreational components. Further information was also gathered through collaborations with experts in managing sensitive natural areas. It is important to note that some of the incompatible uses listed can be attributed to external factors, such as illegal dumping, unauthorized actions by park patrons, homeless encampments and structures, poaching of wildlife or plants, and adjacent roadway or residential lighting. It should be noted that this is a comprehensive list and that the occurrence of these inconsistent uses at each of the subject 18 EEL managed areas varied from site to site. In addition, while these activities were identified as inconsistent with the EEL Program when they occur within or immediately adjacent to EEL managed areas, some of these activities may not be inconsistent with other County goals and objectives when they occur outside of sensitive areas.

**1) Construction or Installation of Structures, Infrastructure, or Park Recreational Amenities** – This includes constructing new structures, installing infrastructure, or constructing new park recreational amenities within EEL managed areas including but not limited to roads, buildings, utilities, trail improvements, boardwalks, picnic areas, play areas or other uses that directly or indirectly adversely impact natural resources within EEL managed areas.

**Impact:** Construction activities and installation of structures or infrastructure that are not directly related to environmental restoration of the natural resources within EEL managed areas can cause damage to the flora, fauna, and the sensitive habitats that they rely on. These uses can displace imperiled species and/or degrade or destroy their habitat and cause direct impacts to the environmentally sensitive resources. These uses also lead to the deposition and presence of waste within or adjacent to EEL managed areas which negatively impacts preservation and management of sensitive environmental resources within EEL managed areas. These uses and activities can facilitate the spread of invasive species which become costly to manage.

### **Avoidance and Minimization Strategy and Recommended Future Actions:**

No structures, infrastructure, or recreational amenities should be constructed or placed within EEL managed areas unless this work is directly related to the ecological restoration of the area's habitat and natural resources or unless it is related to environmental education and would have a minimal impact to the resources. In addition, when planning installation of Park amenities outside of EEL areas, care should be taken to ensure new uses in non-EEL areas do not directly or indirectly impact flora, fauna or habitat function within adjacent EEL managed areas. No structures, infrastructure or recreational amenities or

uses that have adverse impacts on natural resources (including even temporary impacts) should be proposed or approved within EEL managed areas. Further protection from encroachment of these uses can be accomplished and mitigated by the strategic placement of signage, fencing, or barriers, and strict enforcement of current county policies and ordinances. Early coordination between PROS Planning staff and DERM EEL program staff at the conceptual phase of project development can help identify any potential concerns and guide solutions.

Unauthorized facilities or structures within EEL managed lands should be removed and those areas restored to their appropriate habitat. Some structures such as unauthorized encampments should also be removed, and the area should be restored to its original condition. Other structures such as fences to establish a dog park within EEL lands should be relocated at the time of regular maintenance/update on an agreed upon time frame. It is recommended that DERM and PROS staff collaborate to conduct a detailed review of the EEL managed areas associated with Park facilities to identify any unauthorized structures and develop a plan for removal and restoration of the area. This should include a park-by-park detailed review of such facilities at A.D. Barnes, Deering Estate, East Greynolds, Greynolds, Matheson Hammock, Nixon Smiley, and the Zoo. Rehabilitation of structures that have been designated as historic should be prioritized for funding. Areas where structures are removed should be restored to their appropriate habitat. It should be noted that structures or recreational facilities legally authorized with applicable permits and approvals and constructed by the County or its contractors prior to the acceptance of the natural areas into the EEL program may remain and be maintained.

Existing recreational facilities adjacent to or within EEL managed areas are critically important to benefiting the community and exposing urban populations to resources that they would not be able to enjoy in their neighborhoods. Existing recreational facilities within EEL managed areas within Parks are exposed to elements that can result in faster degradation (creating hazards for human and habitat alike), therefore regular and adequate maintenance should be a priority. Authorized facilities or structures within EEL managed lands that are no longer being maintained or that have fallen into disrepair should be properly addressed.

**Cost:** The approximate cost of initial removal of incompatible structures is estimated at approximately \$250,000-500,000. This cost may increase based on results of the facility review conducted by DERM and PROS and may be significant if certain facilities are identified for removal or restoration. Funding for relocation of some existing facilities that may have a relocation requirement should coincide with the time of scheduled maintenance.

2) **Incompatible Park Maintenance and Operational Activities** – This includes but is not limited to park maintenance activities involving the use of heavy equipment, vehicles, and certain landscaping activities such as mowing and weed whacking or storing of vegetative debris within sensitive EEL managed areas. This can also include litter and trash from park patrons deposited or accumulating in EEL managed areas.

**Impact:** These activities can result in both direct and indirect impacts to sensitive natural resources including impacts to listed species, damage to tree resources, and impacts to jurisdictional wetlands habitat. Damage resulting from these activities is not consistent with or supportive of long-term stewardship of these sensitive preservation areas.



**Avoidance and Minimization Strategy and Recommended Future Actions:**

Limit vehicle and heavy equipment access to sensitive resource areas within EEL managed areas. Increase education for both county staff and public patrons who are using EEL managed areas regarding the vulnerability and importance of the natural resources in EEL managed areas. Improving communication and coordination between DERM EEL Program managers and PROS Park facility managers and operations staff can reduce inadvertent resource impacts and help to quickly address any emerging concerns. This will also promote opportunities for developing successful solutions through shared goals and a teamwork approach. A fundamental component of this coordination will be to improve awareness of the EEL program managed area boundaries and associated natural resources preservation requirements. It is recommended that DERM EEL Program staff develop educational information such as a guide or video that can be easily utilized for training of PROS operation staff working within or adjacent to EEL program managed areas. This should include information on limiting vehicle and heavy equipment access to sensitive resource areas and use of best management practices regarding landscape maintenance activities such as mowing or weed whacking in or near sensitive resource areas. DERM EEL program technical staff should be consulted and be available to provide onsite assistance and guidance to Parks facility staff regarding the presence and identification of Federal and State listed species located in or adjacent to EEL managed areas. Periodic meetings between PROS Park facility managers and the EEL preserve manager for their specific facility would increase coordination on activities related to park operations and help support ongoing awareness of EEL managed area boundaries and EEL program goals and objectives.

It is recommended that DERM and PROS staff work to develop more effective litter management strategies for locations where recreational uses contribute to this problem in sensitive areas. In addition, it is recommended that trash receptacles adjacent to EEL managed areas are designed to prevent wind driven litter from reaching EEL managed areas or spilling out. Trash receptacles should include appropriate lids designed to prevent wildlife as well as feral animals and community cats from being able to access the waste. In addition, for trash receptacles within EEL managed areas, the placement and design of trash receptacles shall prevent any adverse impacts to the environmental integrity of the site.

**3) Non-passive Recreational Uses** – This includes but is not limited to non-passive recreational activities such as paintball, obstacle courses, races, and off-trail uses that have adverse impacts to environmentally sensitive resources.

**Impact:** These uses can displace imperiled habitat and cause direct impacts to environmentally sensitive resources. These uses also lead to the deposition and presence of waste within or adjacent to EEL managed areas which is not consistent with the preservation and management of sensitive environmental resources within EEL managed areas. These uses can facilitate the spread of invasive species which become costly and difficult to manage.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

No non-passive recreational uses that have adverse impacts (even temporary ones) should be proposed or approved within EEL managed areas. Avoid using EEL managed areas for paintball games, races, and obstacle courses. For paintball games, races, and obstacle courses proposed in areas outside of EEL managed areas, a buffer zone should be provided consistent with nationwide conservation standards related to animals including but not limited to migratory birds as well as buffers to prevent the spreading of plant seeds or spores to the natural areas. The creation of new camping or campfire areas within or

adjacent to EEL areas should be avoided. Prevention of unauthorized non-passive recreational uses within EEL managed lands can also be accomplished and mitigated by the strategic placement of signage, fencing, or barriers and enforcement of county policies and ordinances.

**4) Unauthorized Construction of Trails/Paths/Access** – This includes unauthorized clearing of vegetation or impacts to substrate to create new access paths or uses within EEL managed areas beyond what was existing when the County Commission approved these respective areas for management under the EEL Program, unless approved by the EEL Program.

**Impact:** Constructing new pedestrian paths can damage resources and displace imperiled habitat inconsistent with the purposes of the EEL program. Additionally, new paths can disrupt natural behaviors of wildlife and can become corridors for dispersal of non-native and nuisance species. Edges along paths can become more costly to maintain and/or create circumstances that facilitate impact to the habitat (ex. Impacts from the maintenance and upkeep of the path, easier access for pedestrians to walk off trails, sometimes impede full restoration potential). Visitors to County parks may veer off designated access trails and thereby unknowingly damage sensitive native vegetation on EEL managed lands

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Multiple parks contain unauthorized trails through the EEL managed lands. The unauthorized trails should be closed using the least impactful methods possible. In some cases, installation of vegetation or temporary (or if deemed necessary permanent) physical infrastructure is required. Prevention of unauthorized, non-passive recreational uses within the EEL managed lands can be accomplished and mitigated by the strategic placement of signage, fencing, or barriers and enforcement of county policies and ordinances. Any signage on unauthorized trails that encourages their use shall be removed.

Development of new pedestrian paths would generally be incompatible within EEL managed areas unless it is demonstrated that the proposed path would have minimal impact to resource. In addition, where new paths are permissible, they should be collocated with a new restoration intervention or be infrastructure required for resource management. Allowable uses on existing paths should be limited to low impact uses such as walking, nature study, hiking, jogging, birdwatching, and photography. Existing trails are to be maintained in safe low impact conditions that maximize protection of the resource. When upgrades are required, upgrades should be limited to the existing footprint and the allowed/planned use of the trail and comply with all applicable requirements and natural areas best practices and should maximize preservation of sensitive natural resources. In cases where such upgrades would have an impact to imperiled organisms or environmentally sensitive resources, such trails should be constrained to a maintenance (non-recreational) use or in some cases the trail should be abandoned, and the area restored. Trail systems should be continually evaluated, and redundant trails closed and restored. A trail system should be clearly marked, and a map installed at the trail heads to reduce the chances of off-trail access or uses.

**Cost:** Estimated costs consist of construction of barriers, replacing and/or installing signage where appropriate and creating trail maps for the authorized trails. Estimate costs range between \$150,000 and \$500,000 for implementation. The cost should include consideration for adaptive management practices, for example if signage does not work use of temporary fencing may be required.

**5) Spread of Invasive/Non-native Species** – This includes uses or activities that facilitate or cause the release or spread of non-native and nuisance plant species within or adjacent to EEL managed areas.

This includes impacts that may result from incompatible landscape plants located immediately adjacent to EEL managed areas.

**Impact:** On an annual basis, the most costly and difficult natural resources management intervention of the EEL program is control and removal of invasive plant species. Displacement of habitat by undesirable plant species infestation is a major cause of habitat decline locally and globally. It is also thought to be one of the main drivers of ecosystem loss.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Promote site-appropriate native landscaping in developed areas. The planting of problematic plant species should be prohibited wherever possible throughout the entire park including all PROS managed areas. Equipment decontamination and vehicle washing between work sites and/or work areas should be required to prevent the spread of invasive plants and should be performed prior to entering sensitive habitats to prevent introduction of non-native plants. Prevent the spread of pests by inspecting procured plant materials prior to acceptance (for example New Guinea flat worm and invasive Climbing Fern have been discovered in contracted plant materials). Update and strengthen Chapter 24 and the Landscape Ordinance consistent with policies and practices to limit the known and accidental installation of invasive plant materials within the County. Incorporate invasive plant species information in educational materials and participate in regional invasive species initiatives such as the Florida Exotic Pest Plant Council and the Everglades Cooperative Invasive Species Management Area. Target invasive plant species wherever they are detected when they are at the initial stages of the Early Detection Rapid Response curve. For habitat restoration/enhancement, use native and local (when possible) seed and plant stock. It is recommended that future landscape or other plantings by Miami-Dade County near EEL managed areas including areas within Parks and County rights of way be coordinated with the EEL program technical staff for review prior to finalization of the species list.

**Cost:** It is recommended that additional funding be provided to assist PROS with the initial removal of invading plant species from areas adjacent to EEL managed areas. It is recommended that PROS work with input from DERM technical staff on developing a coordinated work plan to improve habitat conditions by mitigating the ability of harmful species to invade sensitive natural habitat areas. This plan should include reasonable timetables for implementation that are acceptable to both PROS and DERM for the eradication of controlled and prohibited species from areas managed by PROS that are or have the potential to invade EEL managed areas.

**6) Potential Impacts to Habitats that Could Support Listed Plants and Animals** – This includes any uses that may destroy and/or degrade habitat that may support listed species within EEL managed areas including all state, federal and county listed species. This also includes impacts to listed plants resulting from indiscriminate landscape activities such as mowing or weed-whacking protected areas or plant species.

**Impact:** Habitat destruction and/or degradation of micro-climate conditions may diminish the suitability of habitat for plants and animal species. Destruction and/or degradation of habitat decreases biodiversity. When an animal loses the natural home or habitat that it needs to survive, its numbers decline rapidly, and the population moves closer towards extinction. Destruction and/or degradation of habitat could affect components such as availability of host plants, prey (food sources), water, and flight/path clearances.

Destruction and/or degradation of host plants interferes with the life cycle of interdependent animal species.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Actions that may inhibit habitat quality, such as improper drainage within EEL managed areas should be avoided. Actions that create swings in hydrology should also be avoided, as these actions have been demonstrated to degrade micro-habitat conditions needed for native species. Prey and host plant abundance can be depleted by planting and development interventions and such actions should be carefully evaluated regarding possible impacts on the quality of the habitat for listed species. Management and development actions should always maintain flight, clearance, and cover requirements for listed species. Snags or dead trees with cavities provide important habitat for wildlife and should therefore be preserved unless said tree poses a hazard and then in those cases the tree may be removed if such removal may be accomplished without impacts to wildlife including nesting or roosting; A minimization or habitat replacement strategy should also be implemented, where appropriate.

7) **Unauthorized Vehicle Access** – This includes unauthorized access and parking on EEL managed areas by vehicles cars, trucks, heavy equipment, off-road vehicles (ORVs), motorized bikes and All-Terrain Vehicles (ATVs).

**Impact:** Indiscriminate use of vehicles or parking within EEL managed areas causes direct and indirect impacts to habitat and is not consistent with preservation and management of sensitive environmental resources within EEL managed areas. ATVs and ORVs within natural areas cause outsized impacts from single or repeated visits including rutting or destruction of soil/rock substrate and take of wildlife including endangered species that can concentrate in utilized paths. Additional impacts include introduction or spread of non-native plant seeds and air and noise pollution which disrupt wildlife. Parking within edge areas can damage vegetation and destroy important edge habitat.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Authorized vehicular use should be allowed only on existing roads within EEL managed areas. Additionally, vehicles or machinery needed for restoration of the resources are also authorized. Minimization includes signage, installation of access barriers such as lime rock boulders, and coordination with appropriate law enforcement agencies when vehicular misuses occur. Signage should be compliant with state requirements to allow for enforcement actions against unauthorized individuals entering protected natural areas by vehicle. Strategies should be put in place where interfaces are used for unauthorized parking. In addition, the County should identify areas specifically designed to accommodate ATV and ORV uses in order to provide alternatives to the public that will not impact EEL managed areas and other sensitive areas.

Although vehicles or machinery needed for restoration of the resources are permitted, all contractors including County crews should follow the EEL Program’s resource management and/or restoration vehicle access plan. Authorized vehicular use should be limited only to existing roads within EEL managed areas. In particular, at the Deering Estate and Matheson Hammock there have been instances where physical barriers could aid in protecting sensitive habitat and rare species that have otherwise been impacted by motorized vehicles. It is recommended that access for motorized and non-motorized vehicle be limited to designated paved or improved roads except when coordinated with and directed by DERM EEL staff in connection with habitat restoration.

8) **Domesticated Animals** - This includes allowing domesticated pets such as dogs regardless of whether they are on leash or off leash, horses or livestock within or immediately adjacent to EEL managed areas.

**Impact:** These uses can displace imperiled habitat and cause direct impacts to the environmentally sensitive resources. Allowing domesticated animals in sensitive natural areas disrupts natural behaviors of wildlife, results in deposition of waste (feces and waste associated with feeding and care of the animals) and can allow such areas to become corridors for distributing non-native and nuisance species. Off-leashed and leashed domesticated animals within or immediately adjacent to EEL managed areas could cause a decline in species diversity and can result in harmful impacts to wildlife that would otherwise be present by displacing wildlife from the area or disturbing their routines and creating stress that may have negative impacts on wildlife. These uses also lead to the deposition and presence of waste within or adjacent to EEL managed areas which is fundamentally at odds with the preservation and management of the sensitive environmental resources within EEL managed areas. These uses can facilitate the spread of invasive species which also become costly to manage.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

No new dog parks should be proposed adjacent to or within EEL managed areas, and new dog parks adjacent to EEL managed areas should not be proposed unless the proposed dog park will prevent dogs access the EEL managed areas. In addition, PROS should work with DERM and other County Departments as needed to develop and implement a plan to prohibit dogs from utilizing Park facilities that include EEL managed areas where such use is not officially sanctioned and approved by the County. Similarly, no new equestrian trails should be proposed or approved in areas adjacent to or within EEL managed areas unless the use will not introduce horses within the EEL managed areas. Informal dog parks or equestrian trails or dog parks or equestrian trails that have not been formally established or approved should be considered new uses for the purpose of these analyses. Dog parks and/or equestrian trails proposed in areas adjacent to EEL managed areas should have a buffer zone consistent with nationwide conservation standards related to migratory birds and these buffers shall also be adequate to prevent the spread of plant seeds or spores to the natural areas. In addition, collection and proper disposal of the feces and waste associated with feeding and care of the animals adjacent to EEL managed areas should occur daily. Furthermore, fences should be installed along the borders between PROS managed lands where dogs are permitted and sensitive EEL managed areas including restoration areas in order to prevent dogs from entering these sensitive EEL managed areas

PROS Planning staff has coordinated with DERM EEL Program staff regarding the potential for siting a dog park in West Matheson Hammock Park. DERM's recommendation regarding any further consideration for siting a dog park at West Matheson is that the dog park must be located outside of sensitive resources in EEL managed areas, and use of the dog park shall not facilitate or allow dogs or any other domesticated pets to enter or be directed through the sensitive forest habitat or other sensitive resource areas at West Matheson. This should include mechanisms to control inadvertent dog access to sensitive habitat areas by directing uses associated with the dog park to within a fenced-in area. If such a project is further pursued, DERM recommends continued and close coordination between PROS and DERM staff to ensure the planning and construction of such an amenity will not result in impacts to sensitive habitat or natural resources in the EEL managed area.

9) **Release and/or Feeding of Animal Species** – This includes but is not limited to release and or feeding of abandoned pets, stray, and feral animals.

**Impact:** Release and feeding of animal species (including feral and domesticated pets) lead to the deposition and presence of waste within or adjacent to EEL managed areas which is fundamentally at odds with the preservation and management of sensitive environmental resources within EEL managed areas. Release and feeding of animal species (including feral, stray and/or domesticated pets) disrupts natural wildlife behaviors including sensitive behaviors such as roosting, nesting or feeding, results in the deposition of waste (feces and waste associated with feeding and care of the animals) and can become corridors for distributing non-native and nuisance species. Release and feeding of these animals (including feral, stray and/or domesticated pets) within or adjacent to EEL managed areas can result in a decline in species diversity and can also result in harmful impacts to wildlife that would otherwise be present by displacing wildlife from the area or by disturbing their routines and creating stress that may have negative impacts on wildlife. Release of non-native animals such as large constrictor snakes, Black and White Tegus and other exotic predatory reptiles impacts species diversity and could also harm humans.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Work with State and Federal partners to limit presence of harmful invasive, exotic wildlife in Miami-Dade County. Increase enforcement of County ordinances to further prohibit the release and feeding of animals (including stray, feral and/or domesticated pets) not only within EEL managed areas but throughout the entire extent of county owned land near where the EEL managed areas are located.

It is recommended that any County ordinances and policies relating to prohibition of releasing any exotic animals or the abandonment of any animals into an EEL managed area be reviewed and revised if existing regulations are found to be inadequate. The feeding by any person of any exotic or native animal in an EEL managed area or in public areas immediately adjacent to an EEL managed area including parks as well as public right of way should be strictly prohibited unless specifically authorized in writing by the EEL Program and the appropriate state or federal wildlife agency. Exotic animals roaming free in EEL managed areas also constitute a nuisance. The EEL Program should establish a work plan with procedures to control and remove nuisance species from the EEL managed areas. The EEL Program should continue to work with State and Federal partners to limit and control the presence of harmful invasive, exotic wildlife in Miami-Dade County. The EEL Program shall work to determine if certain native species located within EEL managed areas constitute a nuisance. Native species shall be determined to be a nuisance when, in the determination of the Director of the EEL Program, in consultation with the Florida Fish and Wildlife Conservation Commission, that the number, location, behavior or other characteristics of the native species or the remains of deceased animals constitute a hazard to human health and/or safety or to the resources of the particular EEL managed area.

Prohibition of feeding animals at Tropical Park has been enforced in many areas but is apparently not enforced in the EEL managed area. The forest parcel in Tropical Park is a critical wildlife habitat pocket and is one of the only areas in the world that crenulate lead plant, a federally endangered plant species only found in Miami-Dade County, is found in the wild. The resulting selective enforcement displaced this activity from certain areas of the park, but it has created an inadvertent use of the EEL managed preserve area where feeding feral cats is occurring, which result in a diminished ability to sustain wildlife in this sensitive area. Additional enforcement regarding unauthorized feeding feral/stray cats at this Park facility is needed to eliminate this inadvertent impact to the EEL managed areas.

**Cost:** The EEL managed areas should be prioritized for enforcement relating to controlling the release of exotic species or feeding of feral and domesticated pets. Additional actions may include improved and strengthened code enforcement provisions promulgated in Chapter 24 of the County Code, in addition to on-the-ground measures such as improved/increased signage, and placement of additional barriers to entry.

**10) Poaching or Unauthorized Collection of Plant Material** – This includes but is not limited to taking plants, animals, seeds, spores and cuttings as well as unauthorized removal/theft of fungi, animals, etc. within EEL managed areas.

**Impact:** Removal or impacts to native organisms within or adjacent to EEL managed areas is fundamentally at odds with the preservation and management of sensitive environmental resources within EEL managed areas.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Collection and harvesting of native plants required for restoration of the resources can be conducted as long as such collection and harvesting has been approved by the EEL Program to be consistent with the EEL purposes and as long as the permittee obtains any necessary federal, state and local permits. Avoid permanent removal of native animals from the EEL managed areas except in circumstances related to the health and well-being of the animal. For restoration purposes native animals may be temporarily relocated for their health and well-being. In addition, modification of chapter 24 of the Code to include regulations prohibiting the poaching of natural resources from EEL areas should be considered.

**11) Post-disaster Debris Staging** – This includes staging and placing of materials, equipment, vegetative and mulched debris within or adjacent to EEL managed areas associated with post disaster recovery at County Parks.

**Impact:** Storing or handling post disaster related debris within EEL managed areas result in direct and indirect impacts to sensitive resources and is not consistent with EEL Program goals and objectives. This can include direct impacts and loss of native plant and animals, as well as impacts related to leaching of wastes and/or hazardous materials. Deposition and storage of storm debris within or adjacent to EEL managed areas can also facilitate the spread of invasive species which become costly and difficult to manage.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Coordination with staff managing storm recovery efforts at County Park sites should include maps identifying boundaries of EEL managed areas within the park to ensure these sensitive areas are not impacted. This should be included as part of the County's Emergency Management Operations. Staging of storm related debris or mulch within county owned or county authorized facilities adjacent to EEL managed areas should include a minimum a 500-foot buffer (consistent with encroachment guidelines found within the landscape code of Miami-Dade County), temporary exceptions can be provided with regard to, for example, mulching for the purposes of environmental restoration of EEL managed areas.

12) **Pesticide Use** - This includes aerial adulticide spraying for mosquitoes and other pest insects within EEL managed areas.

**Impact:** May cause mortality and general species decline for insects including butterflies and other native pollinators (some of which are imperiled/endangered species).

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Create and enforce no-spray zones. The County already has an approved EEL arthropod control plan, which generally prohibits aerial adulticide spraying operations on EEL areas, and the County should coordinate between departments, including the Department of Solid Waste Management's Mosquito Control Division so that County staff and contractors act consistent with the EEL arthropod control plan for the EEL managed areas. Exceptions can be provided for targeted larvicide applications provided they are demonstrated not to harm the resource. Restoration/management goals should be updated from time to time to provide opportunities to target larval stages of pest insects when conflicts arise. Individual plans should be created for areas where deficiencies are identified in the general EEL arthropod control plan or where improvements are needed to address site specific issues in EEL managed areas.

13) **Light Pollution** – This includes nighttime lighting in or adjacent to EEL managed areas may disrupt wildlife behavior and natural systems.

**Impact:** Nighttime lighting interrupts wildlife patterns such as foraging, socializing, and other behaviors. Lighting near plant populations can disrupt photo sensitive life cycle stages such as flowering and vegetative growth.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Within or adjacent to EEL managed areas, where no lighting exists *none* should be installed. If lighting is determined to be necessary for safety and security purposes adjacent to EEL managed areas, it should be designed consistent with wildlife best practices to avoid light pollution impacts to sensitive habitat areas. If existing infrastructure needs to be upgraded with lighting only upgrades consistent with wildlife lighting best practices should be installed. These best practices should be compliant with the Guidelines for Outdoor Lighting (Low-Impact Lighting) manual by the RASC Dark-Sky Protection Program (created March 2008, updated in Autumn 2018) as updated from time to time. Night-time lighting guidelines that protect habitat functions provided by federal and state agencies should be adhered to. Existing lighting infrastructure within or near EEL managed areas not consistent with these best practices should be upgraded to low impact lighting such as low wattage bollard lighting or railing mounted lighting should be used or if appropriate removed. In addition, the light should be directed down and along the path (not directly on the water, habitat, or plants). Lighting within or adjacent to EEL managed areas should be turned off when not in use or during a period of time that use is not expected. In cases of lighting for security purposes outside an EEL managed area, those areas identified that are casting light into an EEL managed area or critical wildlife corridor should be adjusted to avoid sensitive habitat areas. In some EEL managed areas, streetlights shine directly into vegetation. When upgrades are needed to streetlighting, the streetlights should be modified to be consistent with wildlife best management practices or, if possible, relocated at the time of maintenance upgrade, including for example relocation to the other side of the street.

**Cost:** Approximate costs for simple retrofits at all eligible preserves is not expected to exceed \$15,000.00. More expensive retrofits such as relocation of lighting or replacing impactful lights with bollard style or



rail lights shall be assessed at the time of scheduled maintenance. If lighting changes are required to come into compliance with state and federal requirements or guidance, those changes should be implemented immediately.

**14) Staging of Equipment and Materials** – Staging, placing materials and use of heavy equipment within EEL managed areas (exceptions provided) and staging/installation of hazards adjacent to or within managed areas when their presence creates a fire hazard and constrains the ability to perform prescribed burns.

**Impact:** Staging, placing materials, and use of heavy equipment (except for use in restoration purposes where the overall benefit to the resource is outweighed by the temporary impacts) within EEL managed areas can damage natural resources within EEL managed areas. Staging, placing materials, and use of heavy equipment within natural areas cause outsized impacts from single or repeated visits including rutting or destruction of soil/rock substrate. Additional impacts may include introduction or spread of non-native plant seeds and air and noise pollution which disrupt wildlife. Fire hazards adjacent to or within EEL managed areas increase threats of wildfires. Fire hazards placed adjacent to or within EEL managed areas can also create constraints on the ability to perform prescribed burns which negatively impacts forest management.

**Avoidance and Minimization Strategy and Recommended Future Actions:**

Maximize use of disturbed land outside of the EEL managed areas for all project activities that involve the use of heavy equipment. Include educational information for all employees, contractors, and/or site visitors related to the EEL Program and relevant rules and regulations that protect habitat, wildlife, and plants species. Analyze existing infrastructure for replacement with fire-wise infrastructure. Avoid placing fire hazards in EEL managed areas. It is recommended that additional coordination with the EEL program be conducted when granting authorization for the staging of materials and equipment associated with event staging, construction in adjacent Rights of Way or any other construction or maintenance activities at Government Facilities. These coordinated reviews shall include maps identifying proposed staging areas as well as all ingress/egress corridors.

**15) Other Uses Involving Access to Restricted Areas in EEL Managed Areas Impact Sensitive Environmental Resources** – This includes uses that access remote, off-trail, or otherwise restricted sensitive natural resource areas within EEL managed areas that have the potential to significantly alter and/or impact the environmentally sensitive resources. This includes but is not limited to research projects, non-EEL volunteer activities, art projects, or other activities that may access remote or restricted areas within EEL managed areas.

**Impact:** Repetitive or improperly managed access to remote or off-trail areas may result in impacts such as trampling of rare species, harassment of wildlife, overcollection and irreversible damage to native plant species, and/or overuse that threatens the health and potentially the continued existence of these sensitive resources. Indiscriminate proprietary approval for access to EEL managed areas for activities such as research projects, non-EEL program sponsored volunteer activities, art projects, or other access to off-trail or restricted areas can cause direct and indirect impacts to habitat which would not be consistent with long-term preservation and management of sensitive environmental resources within EEL managed areas.

**Minimization Strategy and Recommended Future Actions:**

Access to Park facilities and approval for special event permits for use of Park property is managed by PROS on a day-to-day basis. However, authorizations for access to off-trail or restricted areas within EEL managed areas should be reviewed and authorized by the EEL Program prior to the activity being approved and should only be allowed if the activity would benefit the resource, help manage the resource better, and increase awareness of EEL managed areas and be consistent with low impact practices. Proposed projects should demonstrate that natural resources will not be unacceptably damaged, and any approval should require that the EEL managed areas generally remain in the pre-project condition following completion of the project. The activity should facilitate adaptive resource management by establishing and enhancing communication and coordination among the public and EEL managed area management personnel. The authorization should prevent conflicting projects and co-occurring projects from impacting one another and measures should be included that prevent overuse of these sensitive areas. In addition, events proposed at Park facilities that will occur adjacent to EEL managed lands should also be coordinated with the DERM EEL Program prior to the event. This will help ensure activities from the event do not impact EEL managed areas and that adequate measures are taken to avoid impact to sensitive resources. This includes but is not limited to any large public events, research projects, non-EEL volunteer activities, art projects, installation or construction of infrastructure, including temporary structures (such as tents) immediately adjacent to EEL managed areas.

**Conclusion**

As previously noted, the above list of inconsistent uses is comprehensive, and the occurrence of these inconsistent uses or activities at each of the subject 18 EEL managed areas varies from site to site. This analysis was prepared by reviewing aerial photographs, researching files and historic records, and through the direct experience DERM staff has with these EEL managed areas. Incidents occurring in the EEL managed lands have in some instances occurred or initiated prior to the transfer of these areas to the EEL Program but may continue to this day.

It is important to acknowledge that some of the uses or activities highlighted in this report may reasonably be expected to be associated with traditional park and recreation operation and facilities. However, those same activities may not be appropriate for sensitive habitat areas associated with conservation lands. For example, EEL managed areas may not be suitable for construction of a recreational building facility or certain high impact recreational uses. However, these same uses in non-natural area parks would not likely result in a similar environmental impact. Similarly, while unauthorized encampments or illegal dumping also impact non-EEL areas of park facilities, the impact from these activities is more significant and costly to remediate when they occur in sensitive environments such as EEL managed areas.

The County PROS Department is responsible for managing a premier regional park system with numerous facilities that support a large variety of recreational activities in various locations across the entire County ranging from highly urbanized parks to parks associated with some of the County's most important nature-based settings. The DERM EEL program is responsible for managing thousands of acres of land for long-term preservation of unique natural resources for present and future generations. In addition to preserving important natural resources habitat, EEL preservation lands also play a critical role in protecting our community's water resources through the vast areas of wetlands that are held and managed in the EEL

program. Where the PROS and the EEL Program goals intersect, is in the ability to provide opportunities for the public to access and enjoy the unique natural beauty of our EEL preservation lands in conjunction with their experience visiting premier County parks. These rare and sensitive areas provide unique opportunities for public enjoyment, critical scientific study and education through watching nature, including birds, flowers, trees and animals that could face extinction if not for the safe haven provided by the EEL Program managed areas. The public's continued enjoyment and use of these special places can be successfully achieved with improved coordination and understanding of the overarching responsibility for consistency with the County's prevailing policies and regulations regarding protection of these important natural resources, and better delineation of EEL managed areas within parks to prevent avoidable impacts associated with inconsistent uses.