

# BPK HUD GRANT WORKFORCE TRAINING CENTER

## BIOLOGICAL ANALYSIS

Prepared using IPaC

Generated by Beren Lindenberg (beren.lindenberg@cfk.edu)

December 8, 2025

The purpose of this document is to assess the effects of the proposed project and determine whether the project may affect any federally threatened, endangered, proposed, or candidate species. If appropriate for the project, this document may be used as a biological assessment (BA), as it is prepared in accordance with legal requirements set forth under [Section 7 of the Endangered Species Act \(16 U.S.C. 1536 \(c\)\)](#).

In this document, any data provided by U.S. Fish and Wildlife Service is based on data as of May 15, 2025.

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# BPK HUD GRANT WORKFORCE TRAINING CENTER BIOLOGICAL ASSESSMENT

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# **1 DESCRIPTION OF THE ACTION**

## **1.1 PROJECT NAME**

BPK HUD Grant Workforce Training Center

## 1.2 EXECUTIVE SUMMARY

The College of the Florida Keys (CFK) is Monroe County's sole provider of public higher education

and workforce training. For 60 years, CFK has developed leaders who help sustain the Keys' \$2.7

billion tourism- driven economy. As a strategic partner for regional development, CFK continues to

respond to evolving workforce demands with sustainable solutions. The College was awarded \$2

million through a HUD Economic Development Initiative – Community Project Fund to launch a

transformative workforce training center on the site of a former correctional facility in Big Pine

Key, Florida.

The lack of a dedicated training center for Commercial Driver's License (CDL), Law Enforcement and

Corrections as well as apprenticeships is a barrier to economic recovery and resilience for the

county. Florida requires in-person driving experience to obtain a CDL. This forces residents to

travel elsewhere to complete training. A similar problem exists for law enforcement training the

Keys. CFK has 80 - 100 law enforcement recruit graduates each year. Because there is no

infrastructure, the College must rent a training track facility in Miami-Dade County. Renting costs

the program and the student. This community has not fully recovered from the devastation of

Hurricane Irma followed by impacts of the weather events of 2023 and 2024. Residents are still

struggling to rebuild due to lack of licensed and trained tradespeople. These economic costs could

be lessened by having a center for workforce training that could be a potential revenue generator

when it is used by businesses that need the trainees or law enforcement agencies and by offering

driver training/re-training.

Create a training facility for law enforcement and corrections, apprentices, and CDL to address

critical workforce shortages in the region. Aligned with state workforce priorities like enhancing CTE readiness and upskilling, this project will be a game-changer. Access to this type of training and apprenticeship opportunities can lead to high-wage employment, boosting regional economic development, resilience, and diversification.

This project turns a blighted, abandoned former correctional facility into an economic engine

supporting public safety and workforce development by providing stability for an unincorporated and

often overlooked part of Monroe County, Florida. The repurposed state surplus land leased to the

College will be the region's first, public multipurpose workforce training center. The property and

area will be revitalized through the removal of derelict buildings and the construction of a

facility featuring a vehicle operations training track (for CDL and Public Safety training), 1-2

classrooms, simulators for CDL and trades, administrative space, a community room, and a lavatory.

This center is the foundation of a community asset that can be expanded and that fills an economic need. The College has a history of working with industry leaders, and partners to procure additional support. CFK contributes \$54.9 million annually to the Keys economy and is well-positioned to provide relief of employment pressures by building a skilled workforce.

### 1.3 EFFECT DETERMINATION SUMMARY

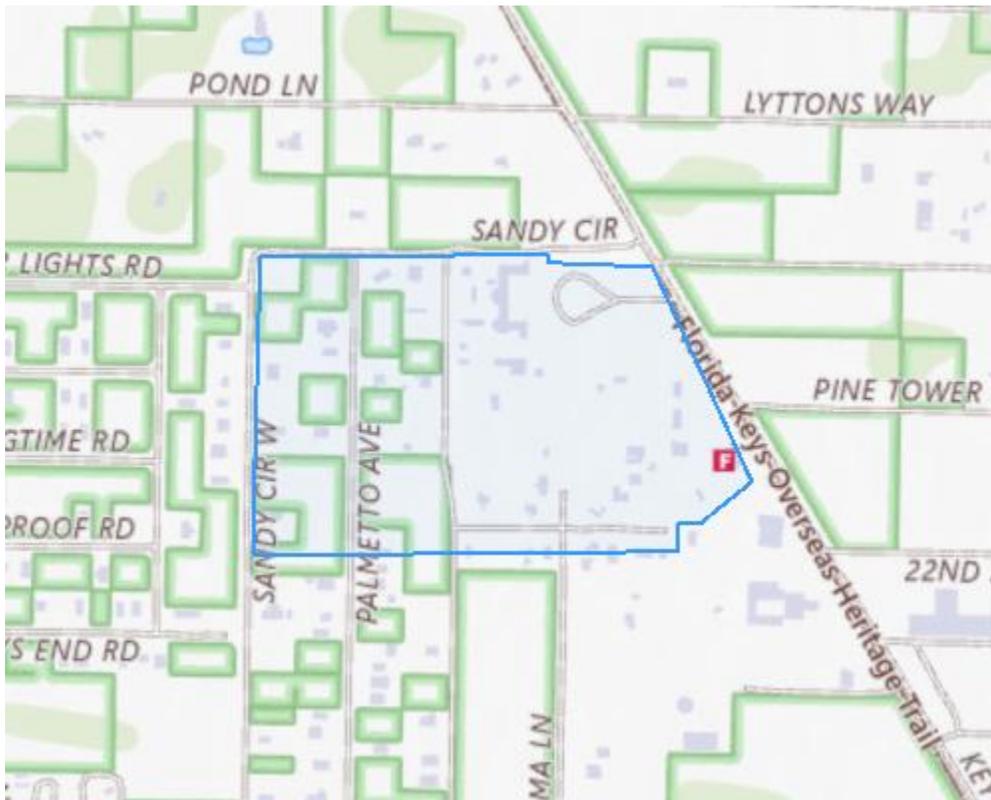
SPECIES (COMMON NAME) OR CRITICAL HABITAT	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
<a href="#">American Alligator</a>	Alligator mississippiensis	Similarity of Appearance (Threatened)	Not Applicable	Not Applicable
<a href="#">American Crocodile</a>	Crocodylus acutus	Threatened	Yes	NLAA
<a href="#">Bartram's Hairstreak Butterfly</a>	Strymon acis bartrami	Endangered	No	NE
<a href="#">Big Pine Partridge Pea</a>	Chamaecrista lineata keyensis	Endangered	No	NE
<a href="#">Blodgett's Silverbush</a>	Argythamnia blodgettii	Threatened	No	NE
<a href="#">Cape Sable Thoroughwort</a>	Chromolaena frustrata	Endangered	No	NE
<a href="#">Eastern Black Rail</a>	Laterallus jamaicensis ssp. jamaicensis	Threatened	No	NE
<a href="#">Eastern Indigo Snake</a>	Drymarchon couperi	Threatened	No	NE
<a href="#">Everglades Bully</a>	Sideroxylon reclinatum ssp. austrofloridense	Threatened	Yes	NLAA
<a href="#">Florida Keys Mole Skink</a>	Plestiodon egregius egregius	Proposed Threatened	Yes	NLAA
<a href="#">Florida Leafwing Butterfly</a>	Anaea troglodyta floralis	Endangered	No	NE
<a href="#">Florida Panther</a>	Puma (=Felis) concolor coryi	Endangered	No	NE
<a href="#">Florida Pineland Crabgrass</a>	Digitaria pauciflora	Threatened	No	NE
<a href="#">Florida Prairie-clover</a>	Dalea carthagenensis floridana	Endangered	No	NE
<a href="#">Florida Semaphore Cactus</a>	Consolea corallicola	Endangered	No	NE
<a href="#">Garber's Spurge</a>	Chamaesyce garberi	Threatened	No	NE
<a href="#">Gulf Sturgeon</a>	Acipenser oxyrinchus (=oxyrhynchus) desotoi	Threatened	No	NE
<a href="#">Hawksbill Sea Turtle</a>	Eretmochelys imbricata	Endangered	No	NE

<b>SPECIES (COMMON NAME) OR CRITICAL HABITAT</b>	<b>SCIENTIFIC NAME</b>	<b>LISTING STATUS</b>	<b>PRESENT IN ACTION AREA</b>	<b>EFFECT DETERMINATION</b>
<a href="#">Kemp's Ridley Sea Turtle</a>	Lepidochelys kempii	Endangered	No	NE
<a href="#">Key Deer</a>	Odocoileus virginianus clavium	Endangered	Yes	NLAA
<a href="#">Key Ring-necked Snake</a>	Diadophis punctatus acricus	Proposed Endangered	Yes	LAA
<a href="#">Key Tree Cactus</a>	Pilosocereus robinii	Endangered	No	NE
<a href="#">Leatherback Sea Turtle</a>	Dermochelys coriacea	Endangered	No	NE
<a href="#">Loggerhead Sea Turtle</a>	Caretta caretta	Threatened	No	NE
<a href="#">Lower Keys Marsh Rabbit</a>	Sylvilagus palustris hefneri	Endangered	Yes	NLAA
<a href="#">Miami Blue Butterfly</a>	Cyclargus thomasi bethunebakeri	Endangered	Yes	NLAA
<a href="#">Monarch Butterfly</a>	Danaus plexippus	Proposed Threatened	Excluded from analysis	Excluded from analysis
<a href="#">Puma (=mountain Lion)</a>	Puma (=Felis) concolor (all subsp. except coryi)	Similarity of Appearance (Threatened)	Not Applicable	Not Applicable
<a href="#">Rim Rock Crowned Snake</a>	Tantilla oolitica	Proposed Endangered	Yes	LAA
<a href="#">Roseate Tern</a>	Sterna dougallii dougallii	Threatened	No	NE
<a href="#">Sand Flax</a>	Linum arenicola	Endangered	No	NE
<a href="#">Silver Rice Rat</a>	Oryzomys palustris natator	Endangered	Yes	NLAA
<a href="#">Tricolored Bat</a>	Perimyotis subflavus	Proposed Endangered	Yes	NLAA
<a href="#">Wedge Spurge</a>	Chamaesyce deltoidea serpyllum	Endangered	No	NE
<a href="#">West Indian Manatee</a>	Trichechus manatus	Threatened	No	NE
<a href="#">Bartram's Hairstreak Butterfly critical habitat</a>	Strymon acis bartrami	Final	No	NE
<a href="#">Florida Keys Mole Skink critical habitat</a>	Plestiodon egregius egregius	Proposed	Yes	LAA
<a href="#">Florida Leafwing Butterfly critical habitat</a>	Anaea troglodyta floralis	Final	No	NE

SPECIES (COMMON NAME) OR CRITICAL HABITAT	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
<a href="#">Key Ring-necked Snake critical habitat</a>	Diadophis punctatus acricus	Proposed	Yes	LAA
<a href="#">Rim Rock Crowned Snake critical habitat</a>	Tantilla oolitica	Proposed	Yes	LAA

## 1.4 PROJECT DESCRIPTION

### 1.4.1 LOCATION



#### LOCATION

Monroe County, Florida

## **1.4.2 DESCRIPTION OF PROJECT HABITAT**

450 Key Deer Boulevard is an expansive, irregularly shaped lot located on Big Pine Key, Florida. It measures approximately 760 feet at its widest, and 680 feet at its longest. The entire

lot is approximately 456,600 square feet and is bordered by a chain link or wooden fence. There

are over 2 dozen scattered existing structures on the lot, most of which are decrepit, and a radio

tower. A paved road also runs through the lot which connects most of these structures.

Vegetation on the lot would transition regularly from open grassland to dense, shrubby hammock. Some of these grasses were maintained, but most of the lot appeared left to nature.

Brazilian Pepper grows in dense along the Western and Southern margins of the lot and there are

some exotic species around the existing structures that are commonly used for landscaping,

however native species dominate the lot, usually in dense clusters. Jamaica Dogwood, Mahogany, and Seagrape trees combine with understory species such as Blackbead, Bushy

Fleabane, Key Thatch Palm, and Sweet Acacia to create nearly impenetrable thickets.

### **RELEVANT DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Species List Florida Ecological Services Field Office 04.21.2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

**1.4.3 PROJECT PROPONENT INFORMATION**

*Provide information regarding who is proposing to conduct the project, and their contact information. Please provide details on whether there is a Federal nexus.*

**REQUESTING AGENCY**

The College of the Florida Keys

**FULL NAME**

Beren Lindenberg

**STREET ADDRESS**

5901 College Road

**CITY**

Key West

**STATE**

FL

**ZIP**

33040

**PHONE NUMBER**

3058093109

**E-MAIL ADDRESS**

beren.lindenberg@cfk.edu

**LEAD AGENCY**

Department of Housing and Urban Development

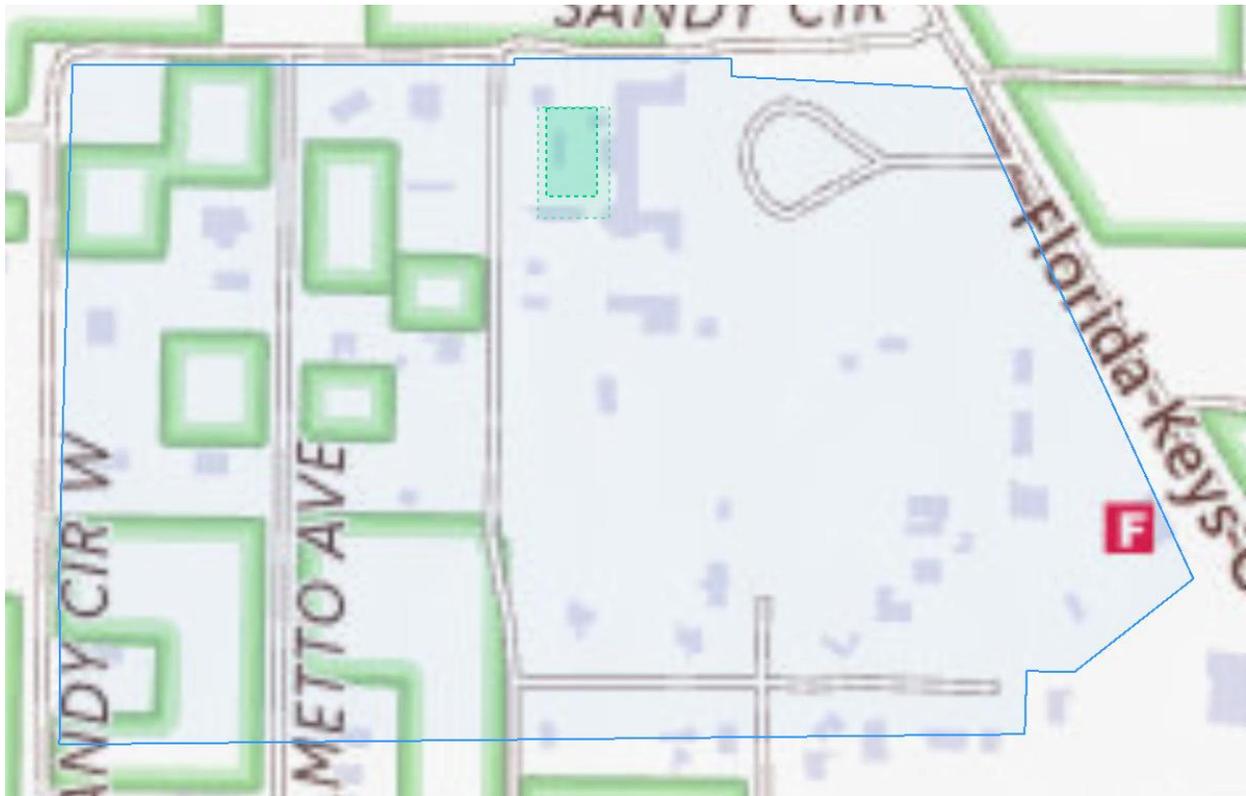
#### **1.4.4 PROJECT PURPOSE**

The Big Pine Key (BPK) Prison to Workforce Training Center project supports economic recovery and workforce development within Monroe County, Florida, by repurposing vacant land for educational and workforce upskilling and training purposes. This initiative will transform a former Florida Department of Corrections correctional facility, designated as state surplus on February 4, 2020, and leased to The College of the Florida Keys (CFK) on November 23, 2021, into a multipurpose educational location to include a vehicle operations training track. This project aligns with regional strategic workforce priorities by enhancing workforce readiness, reducing employment barriers resulting from lack of access to education and/or marketable skills, and promoting economic development and expansion. This project will provide much-needed hands-on training for public safety professionals, law enforcement recruits, and Commercial Driver's License (CDL) trainees to address critical workforce shortages in the region. CFK is a proud member of the Florida College System institutions, a system of 28 institutions which are locally based and governed entities with statutory and funding ties to state government. Further, CFK is legislatively defined through the Florida College System statute 1000.21 (5)(h) to represent Monroe County, Florida. Pursuant to state statute, the College operates as an open-access institution of higher education offering bachelor's and associate degrees, certificates, and career training programs which provide the requisite skills and knowledge. Rural Monroe County, Florida, is an archipelago at the southeastern tip of Florida known as the Florida Keys. The College serves the entirety of the 130-mile stretch of the Florida Keys with Centers in Key Largo and Marathon, and a main campus in Key West, Florida. The College has served the residents of Monroe County, Florida, for 60 years, and is an established leader in education and workforce training, not to mention the only public post-secondary education and workforce training provider in Monroe County. The College is institutionally accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). The College, serves a significant number of non-traditional students, 70% of whom attend part-time, and is located in a community that has long suffered from income inequality, with 42% of residents struggling to afford their basic needs. Recognized by the Aspen Institute in 2017, 2019, and 2020 for commitment to student success, delivery of excellent technical education, and broadening pipelines to high-wage, high-demand jobs, the College continues to strengthen the region's educational framework for historically disadvantaged communities of rural Monroe County.

#### **1.4.5 PROJECT TYPE AND DECONSTRUCTION**

This project is a workforce training and development expansion project.

### 1.4.5.1 PROJECT MAP



#### LEGEND



Project footprint



Concrete Pad: Build concrete forms, concrete pad that will be the foundation for a future building, construct building, building (structure)



Parking Lot: Build concrete forms, construct building, building (structure)

#### **1.4.5.2 BUILDING**

##### **STRUCTURE COMPLETION DATE**

September 23, 2026

##### **REMOVAL/DECOMMISSION DATE (IF APPLICABLE)**

June 30, 2070

##### **STRESSORS**

- [Increase in impervious surfaces](#)
- [Increase in human presence](#)
- [Increase in vehicle traffic](#)

##### **DESCRIPTION**

This is a multi-phase project that will take multiple resources for funding from start to finish. The HUD Big Pine Key project will fund the concrete pad and training track.

### 1.4.5.3 BUILD CONCRETE FORMS

#### ACTIVITY START DATE

April 01, 2026

#### ACTIVITY END DATE

July 31, 2026

#### STRESSORS

- [Decrease in vegetation](#)
- [Increase in contaminants](#)
- [Increase in dust](#)
- [Increase in soil compaction](#)
- [Change in artificial lighting](#)
- [Change in human presence](#)
- [Increase in noise](#)
- [Increase in soil disturbance](#)

#### DESCRIPTION

The motor vehicular tactical training track will be utilized for training students in the College's Institute of Public Safety. CFK's Institute of Public Safety serves as the primary education and training provider for the Monroe County Sheriff's Office, the City of Key West Police Department, and other local municipalities. Since the inception of law enforcement training at the College, students have had to travel to Miami, FL for required vehicle operations training. Although the training has proven adequate, it comes at great cost and logistical challenges (i.e. transportation and lodging in Miami during training) for students attending law enforcement academies in the Florida Keys. The BPK property is ideally located for a law enforcement vehicle operations training track. Once operational, the College expects at least fifty (50) Law Enforcement completers each academic year based on recent outcome trends. The multipurpose vehicle operations training track will also be utilized to conduct Commercial Driver's License (CDL) training. CDL training was identified as a training need within the community. The ability to superimpose the tracks will result in substantial construction cost savings. After the track installation, CFK will be the only entity authorized to conduct CDL training in Monroe County. Data has shown there is an increase in demand for employees with CDL locally, regionally, and nationally.

#### **1.4.5.4 CONCRETE PAD THAT WILL BE THE FOUNDATION FOR A FUTURE BUILDING**

##### **ACTIVITY START DATE**

June 01, 2026

##### **ACTIVITY END DATE**

September 30, 2026

##### **STRESSORS**

- [Change in territory](#)
- [Change in habitat structure](#)
- [Change in human structures](#)
- [Decrease in human debris](#)
- [Change in wind patterns](#)

##### **DESCRIPTION**

The motor vehicular tactical training track will be utilized for training students in the College's Institute of Public Safety. CFK's Institute of Public Safety serves as the primary education and training provider for the Monroe County Sheriff's Office, the City of Key West Police Department, and other local municipalities. Since the inception of law enforcement training at the College, students have had to travel to Miami, FL for required vehicle operations training. Although the training has proven adequate, it comes at great cost and logistical challenges (i.e. transportation and lodging in Miami during training) for students attending law enforcement academies in the Florida Keys. The BPK property is ideally located for a law enforcement vehicle operations training track. Once operational, the College expects at least fifty (50) Law Enforcement completers each academic year based on recent outcome trends. This project reflects phase 1 of a multi-phase project for the College and Community. The multipurpose vehicle operations training track will also be utilized to conduct Commercial Driver's License (CDL) training. CDL training was identified as a training need within the community. The ability to superimpose the tracks will result in substantial construction cost savings. After the track installation, CFK will be the only entity authorized to conduct CDL training in Monroe County. Data has shown there is an increase in demand for employees with CDL locally, regionally, and nationally.

#### 1.4.5.5 CONSTRUCT BUILDING

##### ACTIVITY START DATE

September 23, 2026

##### ACTIVITY END DATE

June 30, 2070

##### STRESSORS

- [Change in vegetation structure](#)
- [Decrease in vegetation](#)
- [Change in topography](#)
- [Increase in impervious surfaces](#)
- [Increase in dust](#)
- [Increase in soil compaction](#)
- [Increase in surface runoff](#)
- [Increase in human presence](#)
- [Increase in noise](#)
- [Increase in soil disturbance](#)
- [Increase in vehicle traffic](#)

##### DESCRIPTION

NEW BUILDING PROGRAM: : 1. NEW 5,000-6,000 S.F. ONE STORY MASONRY NEW 5,000-6,000 S.F. ONE STORY MASONRY BUILDING FOR HOUSING PARTICIPANTS IN SELECT COMMUNITY AND TECHNICAL EDUCATION PROGRAMS. 2. NEW BUILDING TO INCLUDE: NEW BUILDING TO INCLUDE: 2-3 CLASSROOMS (20-30 SEATS PER CLASSROOM) 2-3 OFFICES RESTROOMS JANITOR CLOSET I.T. ROOM ELECTRICAL/MECHANICAL ROOMS COMMON HALLWAY/ENTRY TWO STAIRS, RAMP OR ELEVATOR 3. BUILDING TO MEET 2023 F.B.C. BUILDING TO MEET 2023 F.B.C. 4. BUILDINGS FIRST RAISED FLOOR TO BE TWO FEET BUILDINGS FIRST RAISED FLOOR TO BE TWO FEET ABOVE FLOOD ELEVATION +8.0' (NGVD 1929). EXISTING SITE ELEVATION IS EL. +4.0'±5. PROVIDE REQUIRED PARKING AND LOADING ZONE AS PROVIDE REQUIRED PARKING AND LOADING ZONE AS REQUIRED.

#### 1.4.6 ANTICIPATED ENVIRONMENTAL STRESSORS

*Describe the anticipated effects of your proposed project on the aspects of the land, air and water that will occur due to the activities above. These should be based on the activity deconstructions done in the previous section and will be used to inform the action area.*

#### **1.4.6.1 ANIMAL FEATURES**

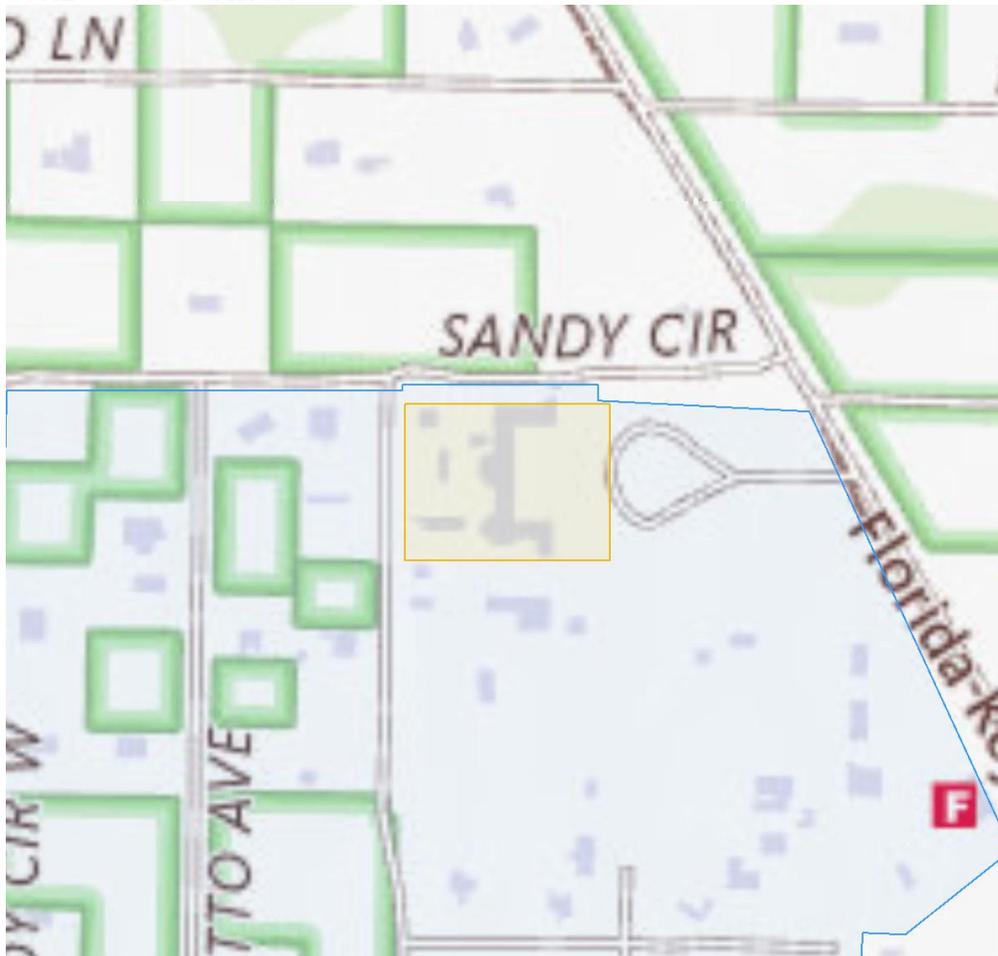
Individuals from the Animalia kingdom, such as raptors, mollusks, and fish. This feature also includes byproducts and remains of animals (e.g., carrion, feathers, scat, etc.), and animal-related structures (e.g., dens, nests, hibernacula, etc.).

### 1.4.6.1.1 CHANGE IN TERRITORY

#### ANTICIPATED MAGNITUDE

Be cognizant of wildlife and vegetation on site. Be sure to follow all protocols required for any removal or relocation of species. Building has not commenced - basic plans are included in the Preliminary Engineering Report document. The current land parcel was the site of a Florida Road Prison until the oughts. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. There parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

#### STRESSOR LOCATION



#### LEGEND

 Project footprint

 Stressor location

#### **CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

#### **STRUCTURES AND ACTIVITIES**

- [Concrete pad that will be the foundation for a future building](#)

#### **1.4.6.2 PLANT FEATURES**

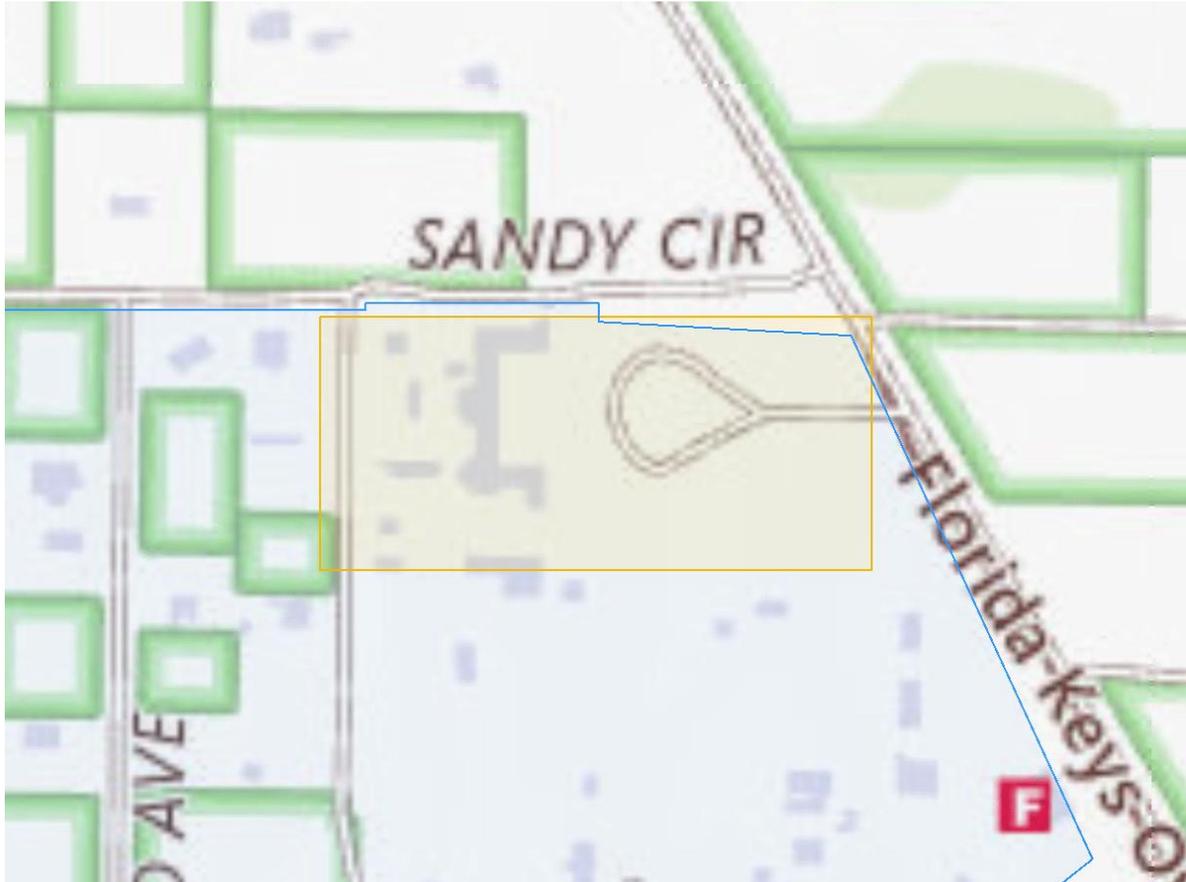
Individuals from the Plantae kingdom, such as trees, shrubs, herbs, grasses, ferns, and mosses. This feature also includes products of plants (e.g., nectar, flowers, seeds, etc.).

### 1.4.6.2.1 CHANGE IN VEGETATION STRUCTURE

#### ANTICIPATED MAGNITUDE

No change has occurred as construction cannot begin until the College receives approval from HUD including this environmental review.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

**STRUCTURES AND ACTIVITIES**

- [Construct building](#)

### 1.4.6.2.2 DECREASE IN VEGETATION

#### ANTICIPATED MAGNITUDE

The College has obtained a detailed vegetation survey for the land and has identified the non-native vegetation that can be removed and any vegetation requiring prior approval and/or permit. The College will remain in compliance with ESA and consider mitigation for project components addressed within this document.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

#### **STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)
- [Construct building](#)

### **1.4.6.3 AQUATIC FEATURES**

Bodies of water on the landscape, such as streams, rivers, ponds, wetlands, etc., and their physical characteristics (e.g., depth, current, etc.). This feature includes the groundwater and its characteristics. Water quality attributes (e.g., turbidity, pH, temperature, DO, nutrients, etc.) should be placed in the Environmental Quality Features.

### **1.4.6.4 CHEMICALS / CONTAMINANTS**

Substances that pollute, spoil, or poison the environment (e.g., herbicides, heavy metals, oil, etc.).

#### **1.4.6.4.1 INCREASE IN CONTAMINANTS**

##### **ANTICIPATED MAGNITUDE**

This stressor is not expected to occur; the following explanation has been provided:

This stressor was completely avoided by implementing a conservation measure.

##### **CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

##### **STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)

### **1.4.6.5 ENVIRONMENTAL QUALITY FEATURES**

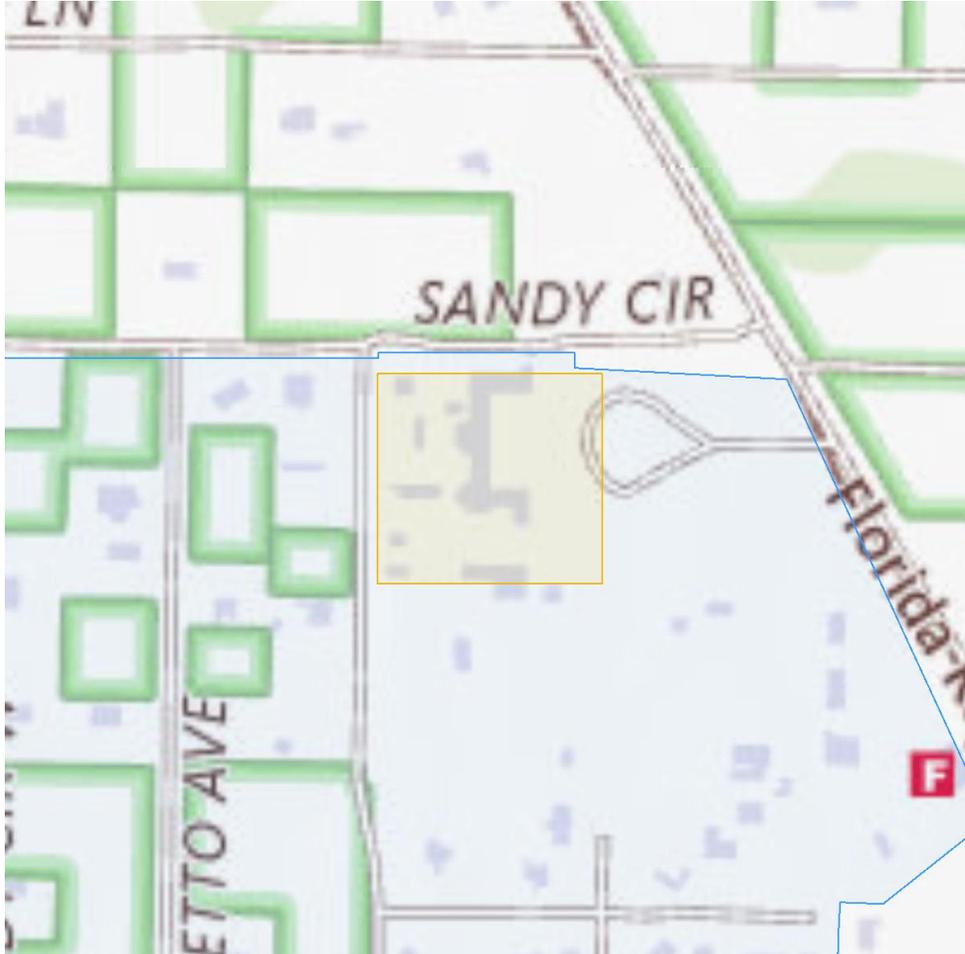
Abiotic attributes of the landscape (e.g., temperature, moisture, slope, aspect, etc.).

#### 1.4.6.5.1 CHANGE IN HABITAT STRUCTURE

##### ANTICIPATED MAGNITUDE

This land parcel has already been built upon by the State of Florida. The impact to habitat of species that have migrated to the parcel should not experience difficulty in finding an alternate habitat on Big Pine Key. The development of the Workforce Training Center will be completed with considerations for local ecology and in accordance with statute.

##### STRESSOR LOCATION



##### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)

#### **STRUCTURES AND ACTIVITIES**

- [Concrete pad that will be the foundation for a future building](#)

#### **1.4.6.6 HUMAN FEATURES**

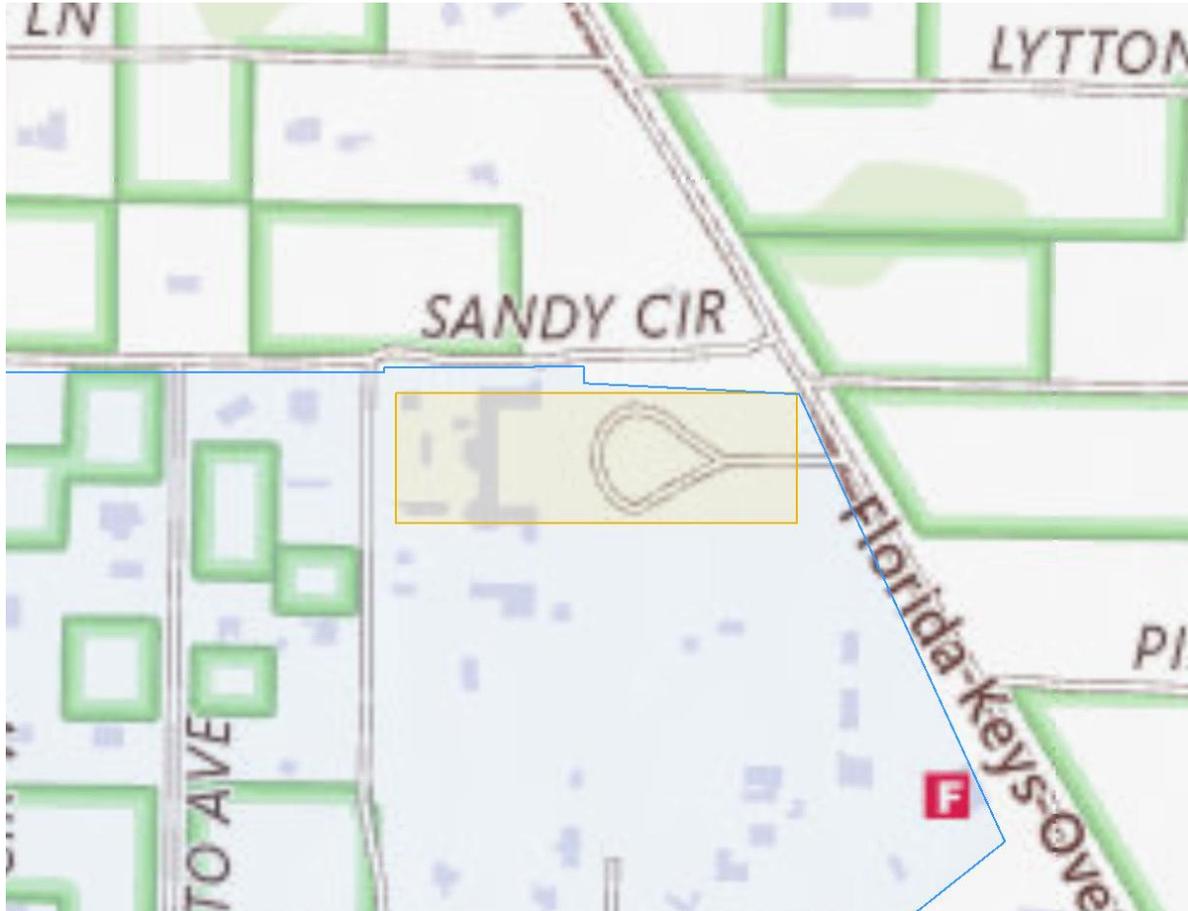
Man-made Structures on the landscape (e.g., roads, trails, buildings, bridges, farm fields, etc.).

### 1.4.6.6.1 CHANGE IN HUMAN STRUCTURES

#### ANTICIPATED MAGNITUDE

Through this award there are concrete pathways from the prior setup that will be removed to accommodate the phase one of the project which is to install the track and concrete pad. The second phase of the project (to be applied for under another federal agency) will include the construction of a 6,000 square foot building - the focal point of economic diversification in the Lower Keys . Impact is minimal and expands the workforce presence in the area (located next to Fire Department).

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

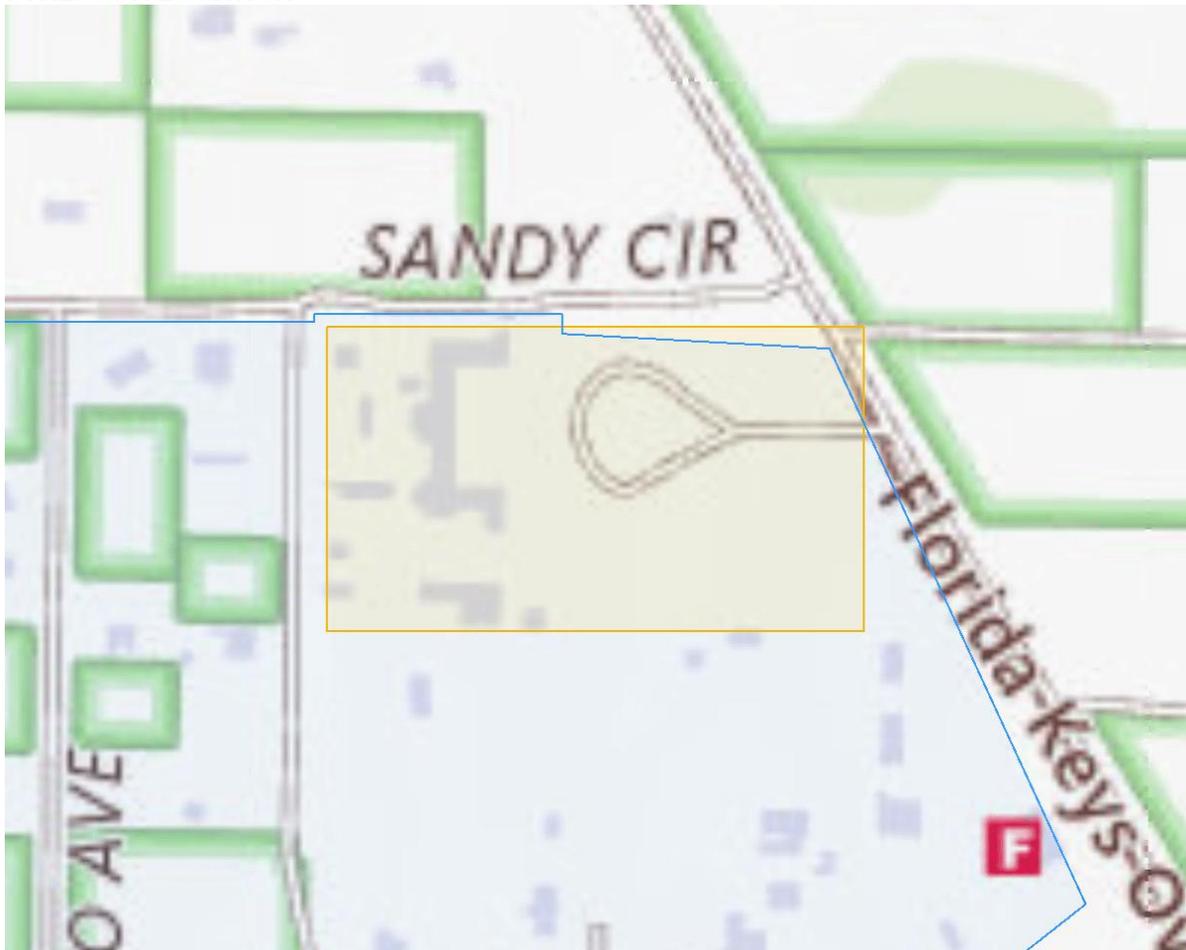
- [Concrete pad that will be the foundation for a future building](#)

#### 1.4.6.6.2 DECREASE IN HUMAN DEBRIS

##### ANTICIPATED MAGNITUDE

The site was declared State Surplus and leased to the College in November 2021. The lease is for fifty years and set to expire in 2071. Area was site of former Florida Department of Corrections Big Pine Key Road Prison. The property consists of sixteen (16) unoccupied one-story buildings constructed in as early as 1958, according to tax records with additional ancillary structures built in 1976 and 1977. This former FLDOC prison included structures designated for different occupancies including a laundry room, pump room, generator house, cells, bathrooms, chapel, barbershop, gym, etc. A hard surface asphalt paved parking area is provided on the eastern portion of the subject property. Domestic water and sanitary sewer service is provided by Florida Keys Aqueduct Authority, but as-built size and current condition are beyond the scope of this report. A Phase I Environmental Site Assessment was performed by CA&T Laboratories. These structures are in very poor condition and the College was advised by a certified Florida Contract Building Code Administrator, Fire Code Official that none of the structures were in a condition to be rehabbed or re-designed, all would need to be demolished.

##### STRESSOR LOCATION



**LEGEND**

 Project footprint

 Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

- [Concrete pad that will be the foundation for a future building](#)

**1.4.6.7 LANDFORM (TOPOGRAPHIC) FEATURES**

Topographic (landform) features that typically occur naturally on the landscape (e.g., cliffs, terraces, ridges, etc.). This feature does not include aquatic landscape features or man-made structures.

### 1.4.6.7.1 CHANGE IN TOPOGRAPHY

#### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the oughts. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

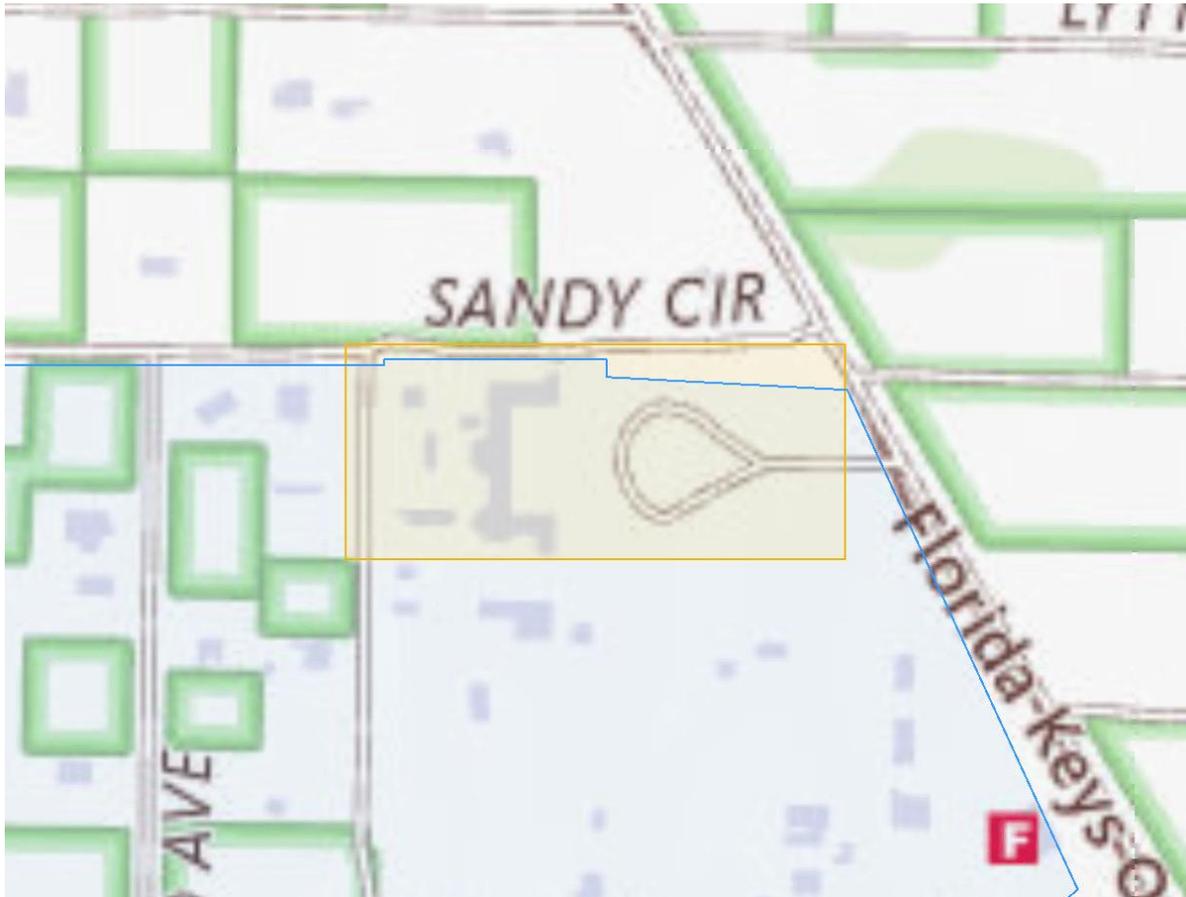
- [Construct building](#)

### 1.4.6.7.2 INCREASE IN IMPERVIOUS SURFACES

#### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the oughts. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

- [Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.](#)
- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

#### **STRUCTURES AND ACTIVITIES**

- [Building](#)
- [Construct building](#)

### **1.4.6.8 SOIL AND SEDIMENT**

The topmost layer of earth on the landscape and its components (e.g., rock, sand, gravel, silt, etc.). This feature includes the physical characteristics of soil, such as depth, compaction, etc. Soil quality attributes (e.g, temperature, pH, etc.) should be placed in the Environmental Quality Features.

#### **1.4.6.8.1 INCREASE IN DUST**

##### **ANTICIPATED MAGNITUDE**

This stressor is not expected to occur; the following explanation has been provided:

This stressor was completely avoided by implementing a conservation measure.

##### **CONSERVATION MEASURES**

- [Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.](#)
- [Dust prevention](#)

##### **STRUCTURES AND ACTIVITIES**

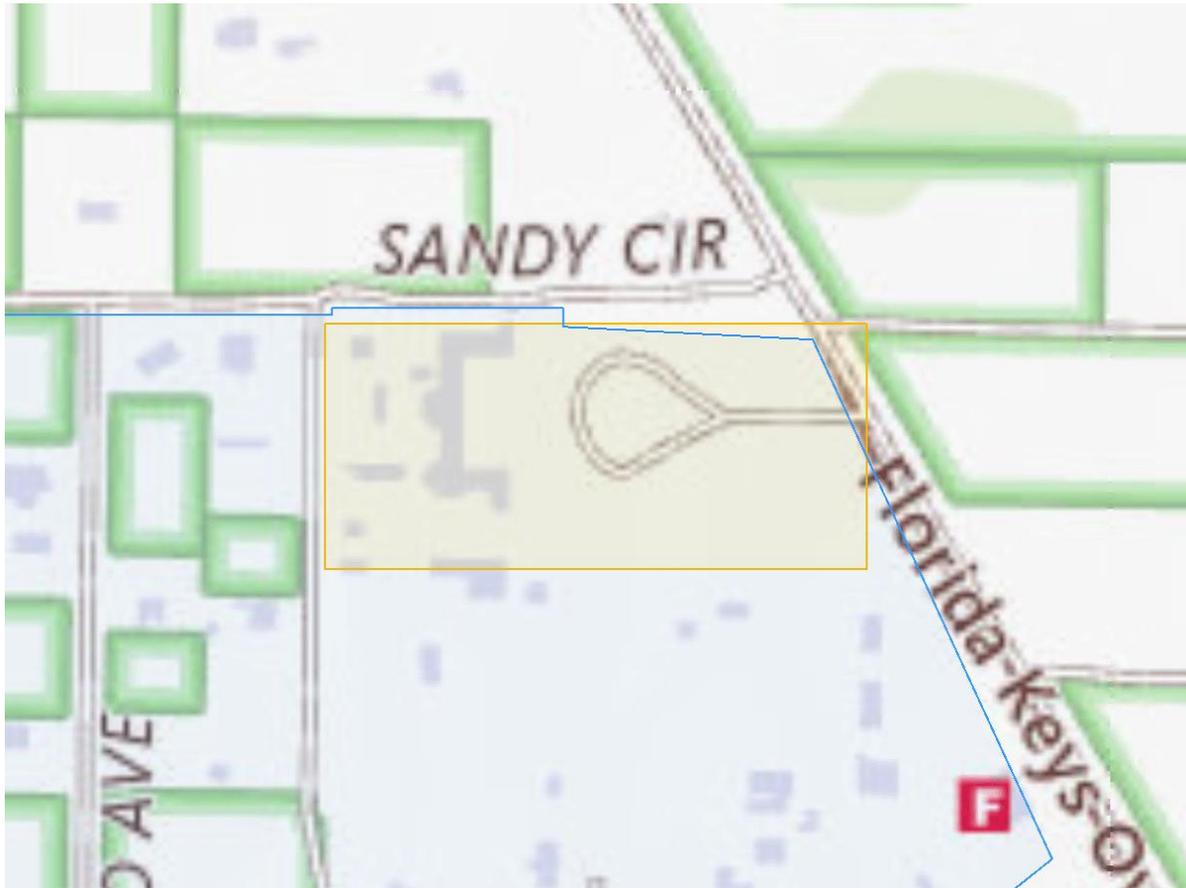
- [Build concrete forms](#)
- [Construct building](#)

#### 1.4.6.8.2 INCREASE IN SOIL COMPACTION

##### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the oughts. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

##### STRESSOR LOCATION



##### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

*No conservation measures for this stressor*

#### **STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)
- [Construct building](#)

#### **1.4.6.9 ENVIRONMENTAL PROCESSES**

Abiotic processes that occur in the natural environment (e.g., erosion, precipitation, flood frequency, photoperiod, etc.).

### 1.4.6.9.1 CHANGE IN WIND PATTERNS

#### ANTICIPATED MAGNITUDE

Minimal impact. Some non native vegetation will be removed but should not have a significant effect on wind patterns.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

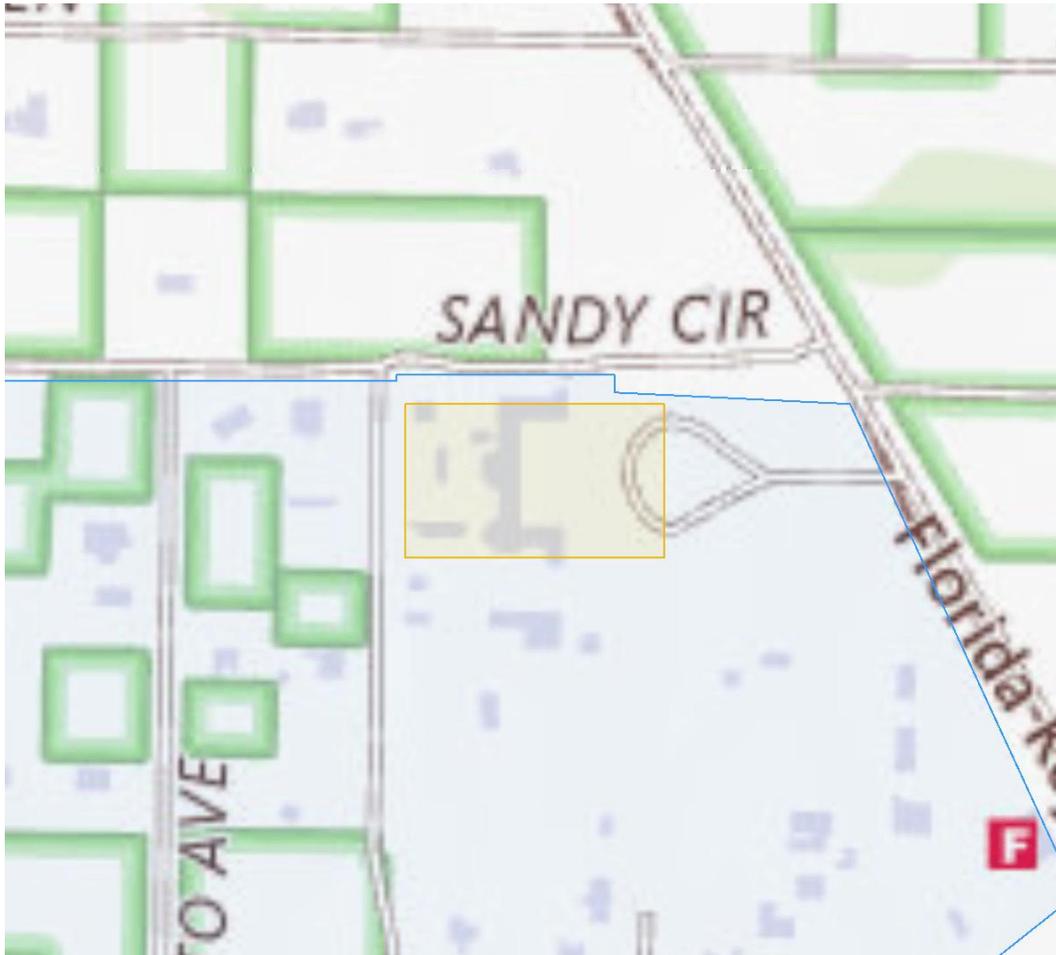
- [Concrete pad that will be the foundation for a future building](#)

### 1.4.6.9.2 INCREASE IN SURFACE RUNOFF

#### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the 1980s. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

*No conservation measures for this stressor*

#### **STRUCTURES AND ACTIVITIES**

- [Construct building](#)

#### **1.4.6.10 HUMAN ACTIVITIES**

Human actions in the environment (e.g., fishing, hunting, farming, walking, etc.).

### 1.4.6.10.1 CHANGE IN ARTIFICIAL LIGHTING

#### ANTICIPATED MAGNITUDE

The level of artificial lighting cannot be provided at this time. The College intends to utilize the land parcel as a hub to support economic diversification, workforce development, apprenticeships at this location (pending funding awards applied for [i.e. HUD] and those not yet applied for [i.e. EDA]). There will likely be an aspect of outdoor lighting and will be in compliance with applicable building code and/or environmental code.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)

### 1.4.6.10.2 CHANGE IN HUMAN PRESENCE

#### ANTICIPATED MAGNITUDE

The College has proposed that the vacant and dilapidated parcel be refreshed and serve as the Big Pine Key Workforce Training Center. This center would provide a location for the College to expand its current apprenticeship program and to add CDL training to the list of programs on offer. Since the land is vacant, it will undergo a few different phases of human presence from site prep, site demo, site build, and site launch.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

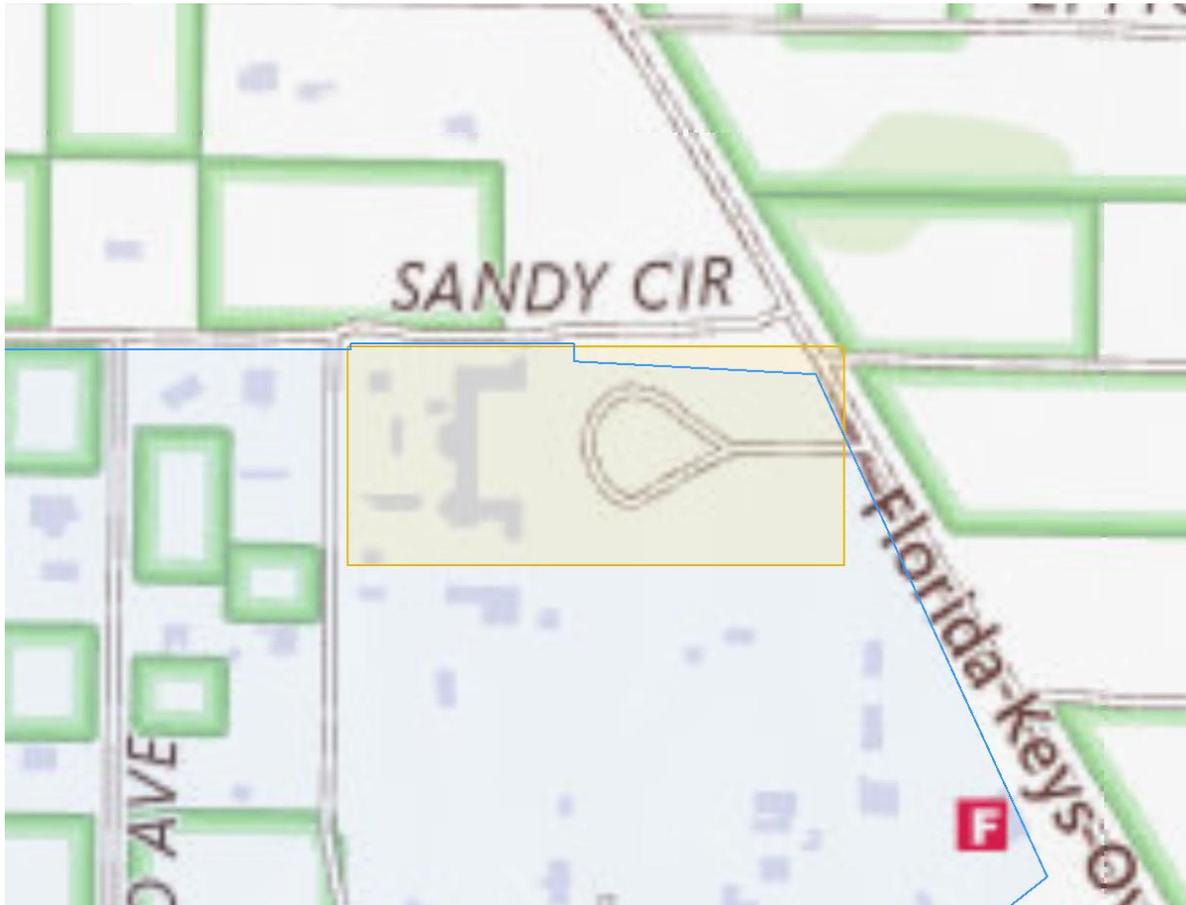
- [Build concrete forms](#)

### 1.4.6.10.3 INCREASE IN HUMAN PRESENCE

#### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the oughts. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

#### STRESSOR LOCATION



#### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

- [Building](#)
- [Construct building](#)

#### 1.4.6.10.4 INCREASE IN NOISE

##### ANTICIPATED MAGNITUDE

The specific increase in noise is unknown at this time however, this change will also occur in phases as the College is able to fund each project (site prep, site demo, site build, site launch). The goal is to build a Workforce Training Center for the community which aims to reinvigorate the local economy with the opportunities for skilled professional positions in the construction trades and CDL, strengthen the local workforce in general and pre/post disaster recovery, and support community partnerships.

##### STRESSOR LOCATION



##### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)
- [Construct building](#)

#### 1.4.6.10.5 INCREASE IN SOIL DISTURBANCE

##### ANTICIPATED MAGNITUDE

The current land parcel was the site of a Florida Road Prison until the 1980s. The parcel contains man-made structures and buildings (though not salvageable). The College intends to repurpose the property (currently derelict) to provide capacity building for workforce employment. This parcel will be funded over several years and not all by one agency. Currently, the College has identified the concrete pad and training track for CDL testing and Law Enforcement training. Another phase is to construct a 6,000 sq ft building to house apprenticeships and CDL training.

##### STRESSOR LOCATION



##### LEGEND

-  Project footprint
-  Stressor location

**CONSERVATION MEASURES**

*No conservation measures for this stressor*

**STRUCTURES AND ACTIVITIES**

- [Build concrete forms](#)
- [Construct building](#)

#### 1.4.6.10.6 INCREASE IN VEHICLE TRAFFIC

##### ANTICIPATED MAGNITUDE

The College cannot predict the amount of traffic at this time. The College will gladly accept any recommended mitigation efforts or amelioration tips from the RE.

##### STRESSOR LOCATION



##### LEGEND

-  Project footprint
-  Stressor location

#### **CONSERVATION MEASURES**

*No conservation measures for this stressor*

#### **STRUCTURES AND ACTIVITIES**

- [Building](#)
- [Construct building](#)

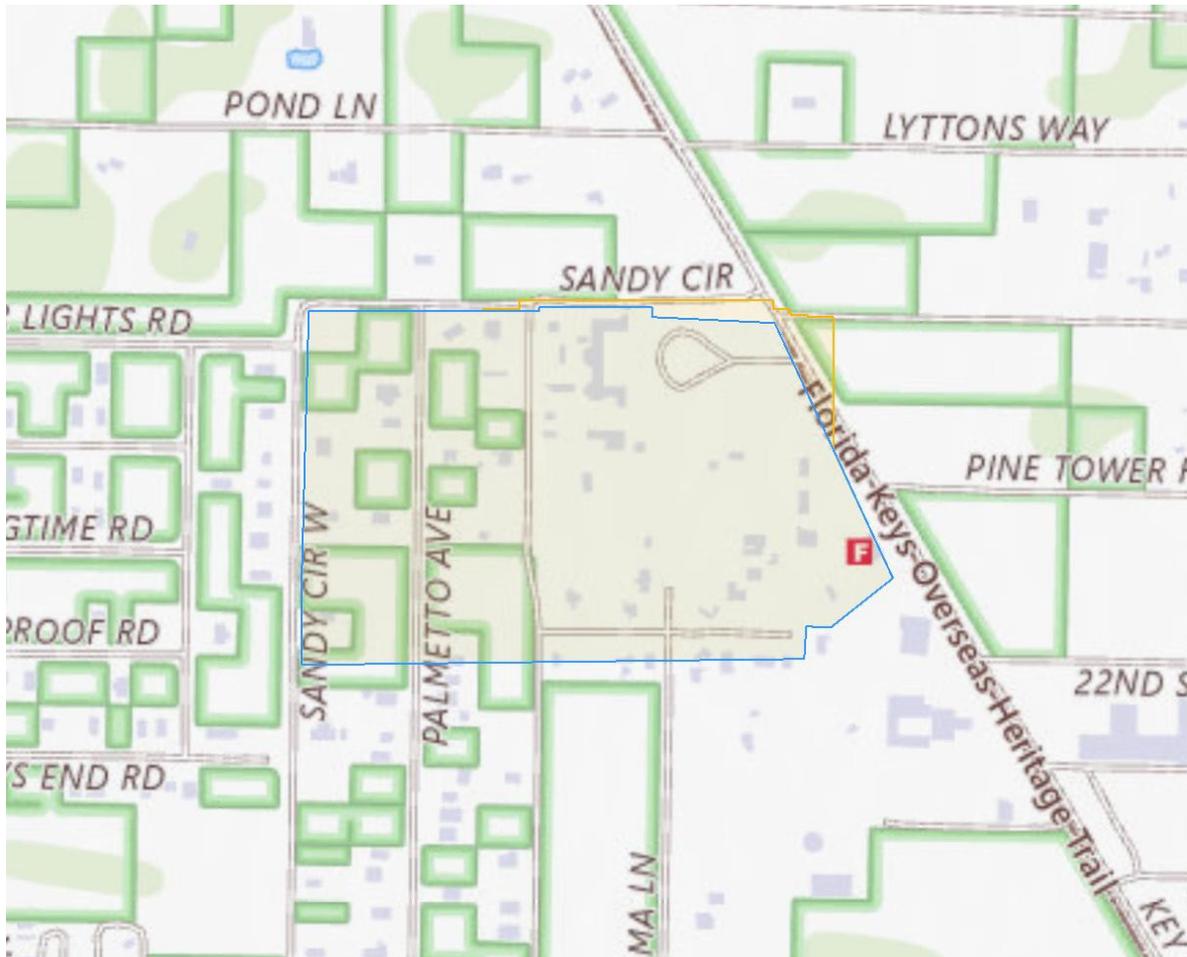
#### **1.4.6.11 SPECIES INTERACTIONS / INTRODUCTIONS**

Interactions that occur between two or more different species (e.g., competition, pollination, predation, symbiosis, etc.).

#### **1.4.6.12 MISCELLANEOUS**

Miscellaneous should only be used if the created feature does not fit into one of the other categories or if the creator is not sure in which category it should be placed.

## 1.5 ACTION AREA



### LEGEND

-  Project footprint
-  Stressor location

## 1.6 CONSERVATION MEASURES

### 1.6.1 BE COGNIZANT OF WILDLIFE AND VEGETATION ON SITE. BE SURE TO FOLLOW ALL PROTOCOL REQUIRED FOR ANY REMOVAL OR RELOCATION OF SPECIES.

#### DESCRIPTION

To implement site protocols at 450 Key Deer Blvd., the plan involves **pre-project surveys, strict site management (slowing down, minimizing impact), clear demarcation of sensitive areas, training personnel on local Key deer/wildlife/plant needs (mangroves, hammocks), mandatory use of approved native species for restoration, immediate reporting of any wildlife encounters, and coordination with FWC/USFWS for specific relocation permits (especially for endangered Key deer),** ensuring all actions are documented and follow federal/state laws to protect the unique Florida Keys ecosystem and its imperiled species.

1. **Habitat Assessment:** Conduct detailed surveys (flora/fauna) with a qualified biologist to map sensitive habitats (hardwood hammocks, pine rocklands, wetlands) and identify Key deer pathways, nesting sites, and specific vegetation. **DONE**
2. **Regulatory Review:** Consult FWC and US Fish & Wildlife Service (USFWS) for specific regulations concerning Key deer (a federally endangered species) and other protected species/plants in the Florida Keys. **DONE**
3. **Permitting:** Secure all necessary permits for vegetation clearing (if any), wildlife handling, or relocation, as Key deer removal/relocation is highly regulated. **DONE**
4. **Site Demarcation:** Install clear signage and temporary fencing around sensitive vegetation and known wildlife corridors to prevent accidental intrusion. **IF APPLICABLE**
5. **Expert Handling:** Only certified wildlife experts (FWC/USFWS approved) handle capture and relocation.
6. **Documentation:** Maintain records of any removals/relocations, including species, time, location, and reason.
7. **Permitted Process:** Follow strict protocols for tranquilization, transport, and release into approved, suitable habitats (e.g., within the National Key Deer Refuge or similar protected areas).
8. **Incident Reporting:** Immediate reporting of any injured animals, habitat damage, or policy violations to project management and relevant authorities.

#### STRESSORS

- [Change in habitat structure](#)
- [Change in territory](#)
- [Change in vegetation structure](#)
- [Decrease in vegetation](#)
- [Increase in contaminants](#)
- [Increase in impervious surfaces](#)

## RESOURCE NEEDS

- [calcium carbonate \(caco3\) \(OOLITIC LIMESTONE\)](#)
- [eggs \(Reproduction: The species is assumed to be egg-laying, requiring suitable sites for breeding and rearing offspring.\)](#)
- [forest \(Forests: They prefer mixed forests with mature trees, using leaves \(live/dead\), Spanish moss \(abundant in the Keys\), and tree cavities for roosting\)](#)
- [herbaceous vegetation \(Dense Herbaceous Cover: Critical habitat features include dense, low-lying vegetation for food, cover, and nesting. The rabbit relies on a mixture of grasses, sedges, and forbs, and avoids areas with high canopy cover or mature woody vegetation like mature buttonwoods. Specific Plant Species: Key plant species providing essential food and cover include: Sawgrass \(Cladium jamaicense\) Seashore dropseed \(Sporobolus virginicus\) Cordgrass \(Spartina spp.\) Bushy seaside tansy \(Borrichia frutescens\)\)](#)
- [larval host plant \(Larval Host Plants: The larvae \(caterpillars\) feed exclusively on specific host plants. Females lay eggs on the flowers, buds, and terminal growth of these plants. Gray nickerbean \(Caesalpinia bonduc\) Blackbead \(Pithecellobium spp.\) Balloonvine \(Cardiospermum spp.\)\)](#)
- [pollination \(biological vector\) \(Reproduction: The butterfly produces multiple generations each year, requiring a suitable climate that allows for year-round activity in the Florida Keys, though reproduction slows during the winter dry season. \)](#)
- [snakes \(, crevices, rock rubble piles, and solution holes which the snakes use for shelter and movement within the soil. Moisture and Freshwater Sources: The snakes require access to moist microhabitats and sources of freshwater to prevent desiccation. They are often found near freshwater pockets that accumulate in the limestone depressions. Cover and Shelter: The species is fossorial \(living underground or under cover\) and needs abundant hiding places such as: Shallow soil over limestone formations Rotting stumps and fallen logs Piles of rock rubble and organic matter Dense leaf litter \)](#)
- [wetland \(swamp\)](#)

## DIRECT INTERACTIONS

- [acoustic interference](#)
- [visibility \(decreased\)](#)
- [visual disturbance](#)

## CRITICAL HABITAT EFFECTS OF THE ACTION

- [Florida Keys Mole Skink critical habitat impact analysis](#)
- [Key Ring-necked Snake critical habitat impact analysis](#)
- [Rim Rock Crowned Snake critical habitat impact analysis](#)

## 1.6.2 DUST PREVENTION

### DESCRIPTION

To implement dust control on a construction site, use a multi-pronged approach and will determine the best method for the situation. They could include the following: **wetting surfaces** with water trucks or misting systems, applying **suppressants**, creating **windbreaks**, covering **material piles**, using **HEPA vacuums/dust extractors**, managing **vehicle speed**, and stabilizing **bare soil** with mulch or covers, all within a comprehensive dust management plan.

### STRESSORS

- [Change in territory](#)
- [Change in vegetation structure](#)
- [Decrease in vegetation](#)
- [Increase in contaminants](#)
- [Increase in dust](#)
- [Increase in impervious surfaces](#)

### RESOURCE NEEDS

- [calcium carbonate \(caco3\) \(OOLITIC LIMESTONE\)](#)
- [eggs \(Reproduction: The species is assumed to be egg-laying, requiring suitable sites for breeding and rearing offspring.\)](#)
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- [wetland \(swamp\)](#)

## **DIRECT INTERACTIONS**

- [acoustic interference](#)
- [visibility \(decreased\)](#)
- [visual disturbance](#)

## **CRITICAL HABITAT EFFECTS OF THE ACTION**

- [Florida Keys Mole Skink critical habitat impact analysis](#)
- [Key Ring-necked Snake critical habitat impact analysis](#)
- [Rim Rock Crowned Snake critical habitat impact analysis](#)

### 1.6.3 KEEPING WORKSITE CLEAN, MANAGING ANY CONTAMINANT SUPPLY WITH THE PROPER PPE AND IN GUIDANCE WITH MANUFACTURERS INSTRUCTIONS.

#### DESCRIPTION

The College will work with the contractor closely to ensure that there is awareness of the delicate biome in which the College is working. The College will follow all applicable laws and local legislation with respect to worksite cleanliness.

#### STRESSORS

- [Change in habitat structure](#)
- [Change in territory](#)
- [Change in vegetation structure](#)
- [Decrease in vegetation](#)
- [Increase in contaminants](#)
- [Increase in dust](#)
- [Increase in impervious surfaces](#)

#### RESOURCE NEEDS

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- [larval host plant \(Larval Host Plants: The larvae \(caterpillars\) feed exclusively on specific host plants. Females lay eggs on the flowers, buds, and terminal growth of these plants. Gray nickerbean \(\*Caesalpinia bonduc\*\) Blackbead \(\*Pithecellobium\* spp.\) Balloonvine \(\*Cardiospermum\* spp.\)\)](#)
- [pollination \(biological vector\) \(Reproduction: The butterfly produces multiple generations each year, requiring a suitable climate that allows for year-round activity in the Florida Keys, though reproduction slows during the winter dry season.\)](#)
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- [wetland \(swamp\)](#)

#### **DIRECT INTERACTIONS**

- [acoustic interference](#)
- [visibility \(decreased\)](#)
- [visual disturbance](#)

#### **CRITICAL HABITAT EFFECTS OF THE ACTION**

- [Florida Keys Mole Skink critical habitat impact analysis](#)
- [Key Ring-necked Snake critical habitat impact analysis](#)
- [Rim Rock Crowned Snake critical habitat impact analysis](#)

### **1.7 PRIOR CONSULTATION HISTORY**

National Register for Historic Places, Assistant Supervisor, Chris Fowler

Monroe County Planning & Environmental Resources Department, Assistant Director,  
Michael Roberts

Monroe County Planning & Environmental Resources Department, Acquisition Manager,  
Cynthia Guerra

M.T. Causley, LLC , Contract Building Code Administrator, Otto J. Letzelter

State of Florida Clearinghouse, Chris Stahl

Huckleberry Environmental Services, Mike Finn PhD and ESA Certified Senior Ecologist

Lisa Yarbrough, Fish and Wildlife Biologist on detail with NRCS as State Biologist  
Florida Ecological Services Field Office Location: Panama City Office 1601 Balboa Ave,  
Panama City FL

850-273-4584 (office) 850-640-8383 (cell)

Devin M, Hughes, Hughes Eco Assessments, LLC 305-395-0833

Florida Department of Environmental Protection, Maps, Florida Geological Survey

### **1.8 OTHER AGENCY PARTNERS AND INTERESTED PARTIES**

HUD as the funding agency

## 1.9 OTHER REPORTS AND HELPFUL INFORMATION

### RELEVANT DOCUMENTATION

- [BPK Map for app](#)
- [Vegetation survey February 2025](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Monroe County ECR](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)

## **2 SPECIES EFFECTS ANALYSIS**

*This section describes, species by species, the effects of the proposed action on listed, proposed, and candidate species, and the habitat on which they depend. In this document, effects are broken down as direct interactions (something happening directly to the species) or indirect interactions (something happening to the environment on which a species depends that could then result in effects to the species).*

*These interactions encompass effects that occur both during project construction and those which could be ongoing after the project is finished. All effects, however, should be considered, including effects from direct and indirect interactions and cumulative effects.*

### **2.1 AMERICAN CROCODILE**

#### **2.1.1 STATUS OF THE SPECIES**

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

##### **2.1.1.1 LEGAL STATUS**

The American Crocodile is federally listed as 'Threatened' and additional information regarding its legal status can be found on the [ECOS species profile](#).

##### **2.1.1.2 RECOVERY PLANS**

Available recovery plans for the American Crocodile can be found on the [ECOS species profile](#).

### **2.1.1.3 LIFE HISTORY INFORMATION**

A large lizard-shaped reptile, the crocodile closely resembles the alligator. Hatchlings are about 23 centimeters in length; adults may grow to 4.5 meters or larger. Florida crocodiles may be distinguished from alligators by their more slender build and their difference in snout shape. The crocodile's snout tapers forward from the eyes while the alligator's snout is untapered and rounded at the end. When the mouth is closed, the fourth tooth in the lower jaw is exposed in the crocodile but concealed in the alligator. The adult crocodile's diet includes fish, crabs, birds, turtles, snakes, and small mammals. The young feed chiefly on aquatic invertebrates and small fish. As a general rule crocodylians feed on any prey items which can be caught and overpowered.

### **IDENTIFIED RESOURCE NEEDS**

The 'american crocodile' ( *crocodylus acutus* ) requires a range of physical and biological features and corresponding environmental conditions to ensure survival and reproduction.

The 'american crocodile' ( *crocodylus acutus* ) requires a range of physical and biological features and corresponding environmental conditions to ensure survival and reproduction.

#### **2.1.1.4 CONSERVATION NEEDS**

These conservation needs and specific recovery actions are outlined in the U.S. Fish and Wildlife Service's (USFWS) recovery plan for the species, including the 1999 South Florida Multi-Species Recovery Plan and its 2019 amendment, which provides the criteria for delisting the species.

##### General, Principal Conservation Needs

**Habitat Protection and Enhancement:** The primary historical and ongoing threat has been habitat loss and destruction from human development in coastal areas.

**Protect Existing Habitats:** Maintain and protect established critical habitats, such as Everglades National Park, Biscayne National Park, and Crocodile Lake National Wildlife Refuge, which provide essential nesting and basking areas.

**Restore Hydrology:** Restore natural freshwater flows to estuaries and manage salinity levels. Crocodiles thrive in healthy estuarine environments, and proper salinity regimes are crucial for nesting success and the survival and growth of hatchlings and juveniles.

**Create Nesting Sites:** Create and maintain artificial nesting sites (e.g., elevated berms) in suitable areas to offset the loss of natural habitat and ensure successful incubation environments.

**Management of Human-Crocodile Conflicts and Mortality:** As the crocodile population has increased and expanded into areas occupied by humans, managing interactions has become critical.

**Public Education:** Implement proactive education programs to foster public awareness and appreciation for the species, which helps reduce fear and conflicts.

**Manage Anthropogenic Mortality:** Address sources of human-caused mortality, such as illegal hunting (poaching), vehicle strikes (especially on roads near habitats), and entanglements.

**Relocation Programs:** Use relocation programs (often as a last resort) for problematic crocodiles to suitable refuges to ensure continued protection for both humans and the animals.

**Mitigation of Environmental and Climate Change Impacts:** New challenges from climate change and other environmental factors require ongoing management and monitoring.

**Monitor and Mitigate Climate Change Effects:** Monitor the effects of sea-level rise and changing temperatures on nesting habitats. Strategies may include creating artificial habitats that are less vulnerable to inundation and managing shade to ensure balanced sex ratios (sex is temperature-dependent in crocodiles).

**Control Invasive Species:** Continue efforts to monitor and control non-native predators, such as Burmese pythons and Argentine black and white tegus, which pose a significant threat to crocodile eggs, hatchlings, and juveniles.

Ongoing Monitoring and Research: Continue population surveys, growth and survival studies, and research to adapt management strategies to changing environmental conditions.

## **2.1.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### **2.1.2.1 SPECIES PRESENCE AND USE**

Per the FESFO Species list, American "Crocodile *Crocodylus acutus* Population: U.S.A. (FL)

There is final critical habitat for this species. Your location does not overlap the critical habitat."

### **2.1.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

These conservation needs and specific recovery actions are outlined in the U.S. Fish and Wildlife Service's (USFWS) recovery plan for the species, including the 1999 South Florida Multi-Species Recovery Plan and its 2019 amendment, which provides the criteria for delisting the species.

#### General, Principal Conservation Needs

**Habitat Protection and Enhancement:** The primary historical and ongoing threat has been habitat loss and destruction from human development in coastal areas.

**Protect Existing Habitats:** Maintain and protect established critical habitats, such as Everglades National Park, Biscayne National Park, and Crocodile Lake National Wildlife Refuge, which provide essential nesting and basking areas.

**Restore Hydrology:** Restore natural freshwater flows to estuaries and manage salinity levels. Crocodiles thrive in healthy estuarine environments, and proper salinity regimes are crucial for nesting success and the survival and growth of hatchlings and juveniles.

**Create Nesting Sites:** Create and maintain artificial nesting sites (e.g., elevated berms) in suitable areas to offset the loss of natural habitat and ensure successful incubation environments.

**Management of Human-Crocodile Conflicts and Mortality:** As the crocodile population has increased and expanded into areas occupied by humans, managing interactions has become critical.

**Public Education:** Implement proactive education programs to foster public awareness and appreciation for the species, which helps reduce fear and conflicts.

**Manage Anthropogenic Mortality:** Address sources of human-caused mortality, such as illegal hunting (poaching), vehicle strikes (especially on roads near habitats), and entanglements.

**Relocation Programs:** Use relocation programs (often as a last resort) for problematic crocodiles to suitable refuges to ensure continued protection for both humans and the animals.

**Mitigation of Environmental and Climate Change Impacts:** New challenges from climate change and other environmental factors require ongoing management and monitoring.

**Monitor and Mitigate Climate Change Effects:** Monitor the effects of sea-level rise and changing temperatures on nesting habitats. Strategies may include creating artificial habitats that are less vulnerable to inundation and managing shade to ensure balanced sex ratios (sex is temperature-dependent in crocodiles).

**Control Invasive Species:** Continue efforts to monitor and control non-native predators, such as Burmese pythons and Argentine black and white tegus, which pose a significant threat to crocodile eggs, hatchlings, and juveniles.

Ongoing Monitoring and Research: Continue population surveys, growth and survival studies, and research to adapt management strategies to changing environmental conditions.

### **2.1.2.3 HABITAT CONDITION (GENERAL)**

American crocodiles in **Big Pine Key, Florida**, utilize the area's characteristic **mangrove swamps, brackish or saltwater ponds, creeks, and coves** as habitat. This region represents the northernmost extent of their global range and is a critical habitat area, primarily within the National Key Deer Refuge.

#### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Monroe County ECR](#)

### **2.1.2.4 INFLUENCES**

Activities on and near Key Deer Boulevard in Big Pine Key can affect American crocodiles by causing habitat fragmentation, reducing food sources, increasing human-wildlife conflict, and introducing pollution from roads and other infrastructure. As a shy species that prefers coastal, brackish, or saltwater environments, crocodiles can be negatively impacted by the disturbance and habitat alteration associated with development and human presence in the area.

Potential impacts of nearby activities

**Habitat fragmentation:** The road and surrounding development can break up the coastal habitats that crocodiles need for foraging, breeding, and nesting, leading to a less connected and more vulnerable population.

**Reduced food sources:** Increased activity can lead to a decline in the natural prey species, such as fish and crabs, that are essential for a crocodile's diet.

**Human-wildlife conflict:** The presence of humans and pets in crocodile habitats can lead to direct conflict, with crocodiles being harmed by people or their pets, and vice versa.

**Pollution:** Runoff from roads and other development can carry pollutants into coastal waters, affecting water quality and the health of both the crocodiles and their prey.

**Noise and light pollution:** The constant noise and light from human activity can disturb the crocodiles, which are shy and reclusive animals.

**2.1.2.5 ADDITIONAL BASELINE INFORMATION**

None exists - none reported on property.

**2.1.3 EFFECTS OF THE ACTION**

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

**2.1.3.1 INDIRECT INTERACTIONS**

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
<p>The 'american crocodile' ( crocodylus acutus ) requires a range of physical and biological features and corresponding environmental conditions to ensure survival and reproduction. (the 'american crocodile' ( crocodylus acutus ) requires a range of physical and biological features and corresponding environmental conditions to ensure survival and reproduction. )</p>			<p><i>This resource is not present in the action area</i> None reported- no historical crocodiles in area outside of The Blue Hole.</p>	<p><i>There will be no impacts to this resource, so no individuals will be affected.</i></p>

**2.1.3.2 DIRECT INTERACTIONS**

No direct interactions leading to effects on species are expected to occur from the proposed project.

**Justification:**

No history of crocodiles outside of The Blue Hole

**2.1.4 CUMULATIVE EFFECTS**

The introduction of a workforce training course and 6,000 sq ft building would not be assessed in isolation. It would be evaluated based on the existing ecosystem of Big Pine Key, requiring substantial effort to ensure the project will not have a net negative impact and to provide adequate mitigation as required by the Monroe County Comprehensive Plan and any applicable federal regulations.

## 2.1.5 DISCUSSION AND CONCLUSION

**DETERMINATION: NLAA**

### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

## 2.2 BARTRAM'S HAIRSTREAK BUTTERFLY

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)

### JUSTIFICATION FOR EXCLUSION

The Bartram's Hairstreak butterfly feeds exclusively on the pineland croton. This plant species was surveyed for during February 2025 and no individual plants were found. The effects determination for the Florida Leafwing butterfly is "no effect".

## 2.3 BIG PINE PARTRIDGE PEA

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### JUSTIFICATION FOR EXCLUSION

Not present on property per the Monroe County ECR and Huckleberry Eco Services reports

## 2.4 BLODGETT'S SILVERBUSH

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### JUSTIFICATION FOR EXCLUSION

No Blodgett's Silverbush was discovered on property per the Monroe County ECR and Huckleberry Eco Services.

## 2.5 CAPE SABLE THOROUGHWORT

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Species List Florida Ecological Services Field Office 04.21.2025](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### JUSTIFICATION FOR EXCLUSION

No reports of Cape Sable Thoroughwort from Monroe County ECR or Huckleberry Eco Services. Per the FESFO Species List, "Cape Sable Thoroughwort *Chromolaena frustrata* Population: There is final critical habitat for this species. Your location does not overlap the critical habitat."

## 2.6 EASTERN BLACK RAIL

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### JUSTIFICATION FOR EXCLUSION

No Eastern Black Rail found on property per Huckleberry Eco Services and Monroe County ECR.

## 2.7 EASTERN INDIGO SNAKE

*This species has been excluded from analysis in this environmental review document.*

### JUSTIFICATION FOR EXCLUSION

No discovery of snake sheds, tracks, lots of refugia and cavities present in the area no reported presence of gopher tortoises and burrows

## 2.8 EVERGLADES BULLY

### 2.8.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.8.1.1 LEGAL STATUS

The Everglades Bully is federally listed as 'Threatened' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### 2.8.1.2 RECOVERY PLANS

Available recovery plans for the Everglades Bully can be found on the [ECOS species profile](#).

#### 2.8.1.3 LIFE HISTORY INFORMATION

No description available

### IDENTIFIED RESOURCE NEEDS

#### Shrubs

Primarily requires open-canopy pine rocklands and marl prairies, as well as the ecotones (transitional edges) between these habitats. sunlight: the open canopy is critical for ensuring sufficient sunlight reaches the plant to support its growth and flowering. soil: it is reliant on well-drained, calcareous soils (high in calcium).

#### 2.8.1.4 CONSERVATION NEEDS

Not applicable.

### 2.8.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under*

review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.

### **2.8.2.1 SPECIES PRESENCE AND USE**

Presence of Everglades Bully not listed in Monroe County ECR or Huckleberry Eco Services

### **2.8.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

Not applicable

### **2.8.2.3 HABITAT CONDITION (GENERAL)**

**SHRUBS (PRIMARILY REQUIRES OPEN-CANOPY PINE ROCKLANDS AND MARL PRAIRIES, AS WELL AS THE ECOTONES (TRANSITIONAL EDGES) BETWEEN THESE HABITATS. SUNLIGHT: THE OPEN CANOPY IS CRITICAL FOR ENSURING SUFFICIENT SUNLIGHT REACHES THE PLANT TO SUPPORT ITS GROWTH AND FLOWERING. SOIL: IT IS RELIANT ON WELL-DRAINED, CALCAREOUS SOILS (HIGH IN CALCIUM).)**

The Florida Keys have plenty of sunlight and pine rocklands but the soil the specified address is likely *not* high in calcium and is likely poorly to moderately well-drained due to its location in the Florida Keys. The area is primarily composed of *porous limestone*, which contains calcium, but the soil itself is generally thin and sandy, with poor drainage characteristics common to the Florida Keys' shallow soil and high water table.

- Calcium: The underlying limestone rock is rich in calcium carbonate, but this does not necessarily mean the soil is high in bioavailable calcium. The thin, sandy soil is likely to have low organic matter and may not hold onto nutrients well.
- Drainage: The Florida Keys have a high water table and low elevation, which leads to poor drainage. While there may be some limestone outcrops that provide a more rocky, somewhat better-draining base, the soil in this region is not considered well-drained, particularly compared to other parts of the mainland.

[1] <https://www.fws.gov/refuge/national-key-deer>

[2] <https://floridawildlifefederation.org/floridas-key-deer-a-tiny-treasure-worth-protecting/>

### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

#### **2.8.2.4 INFLUENCES**

Past, present, and ongoing activities and influences affecting the reproduction, numbers, and distribution of the Everglades Bully (*Sideroxylon reclinatum* ssp. *austrofloridense*) include both anthropogenic and natural sources.

##### **Anthropogenic Influences**

**Habitat Destruction and Fragmentation:** The primary threat is the present or threatened destruction, modification, and curtailment of its pine rockland habitat. Urban and agricultural development in Miami-Dade County has reduced the historical extent of pine rocklands to a small fraction of its original range outside of protected areas. This fragmentation leads to isolated, small populations with reduced genetic diversity and a higher risk of localized extinction.

**Fire Suppression:** The Everglades bully and its pine rockland habitat are dependent on frequent, natural fires (historically every 3-7 years) to maintain an open canopy and prevent succession into hardwood hammocks. Past and ongoing fire suppression efforts have drastically altered the natural fire regime, leading to a decline in habitat suitability and plant numbers.

**Inadequate Regulatory Mechanisms:** Historically, and in some cases currently on private lands, existing federal, state, and local laws have been insufficient to prevent impacts to the species and its habitat.

**Off-Road Vehicle (ORV) Disturbance:** In areas like Big Cypress National Preserve, ORV use has been identified as a pressure on populations and their habitat.

**Drainage:** Alterations to natural hydrology and drainage of the landscape have impacted the species' habitat.

**Introgression/Hybridization:** The subspecies is threatened by introgression (hybridization) with the more widespread *S. reclinatum* ssp. *reclinatum* where their ranges overlap, which can affect the genetic integrity of the Everglades bully.

##### **Natural and Climate-Related Influences**

**Non-native Invasive Plants:** Competition with non-native invasive plant species is a major ongoing threat. Invasive plants like Brazilian pepper and Old World climbing fern can outcompete native vegetation, further degrading the habitat.

##### **Climate Change and Sea Level Rise (SLR):**

**Sea Level Rise:** While the overall threat level from SLR is currently low, it is expected to become severe in the future, particularly for coastal populations in low-lying areas, through inundation and saltwater intrusion.

**Hurricanes and Extreme Weather:** Events such as hurricanes can directly impact populations through storm surges and high winds, affecting distribution and numbers.

Altered Hydrology: Changes in precipitation patterns due to climate change can alter the timing and duration of wet periods in the marl prairies and pine rocklands, impacting the plant's life stages and potentially making ephemeral wetlands more susceptible to drying or permanent connection to other water bodies.

Small Population Size and Isolation: The fragmentation of populations into small, isolated groups increases their vulnerability to environmental stochasticity (random events) and reduces their ability to adapt to changes.

Disease or Predation: No specific diseases or predation threats are currently well-documented or considered a major threat to the plant itself. The decline of native mammal populations due to invasive pythons (an indirect effect) may also alter the ecosystem balance, though a direct link to the plant is not specified.

### 2.8.2.5 ADDITIONAL BASELINE INFORMATION

Not applicable to land parcel

### 2.8.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

#### 2.8.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Shrubs (primarily requires open-canopy pine rocklands and marl prairies, as well as the ecotones (transitional edges) between these habitats. sunlight: the open canopy is critical for ensuring sufficient sunlight reaches the plant to support its growth and flowering. soil: it is reliant on well-drained, calcareous soils (high in calcium).)	<a href="#">Decrease in vegetation</a> <a href="#">Change in habitat structure</a> <a href="#">Change in human structures</a> <a href="#">Increase in impervious surfaces</a> <a href="#">Change in vegetation structure</a> <a href="#">Change in topography</a>		<p><b><i>There will be no impacts to this resource</i></b>            Likely no impact as no Bully has been identified on property through any of the eco assessments conducted to this point from both the County and private environmental review entities.</p>	<p><b><i>There will be no impacts to this resource, so no individuals will be affected.</i></b></p>

### 2.8.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Disturbance		Yes	Not likely to occur but cannot rule out entirely. No Bully has been found on the property parcel by either the Monroe County eco review or additional private eco review entities.

### 2.8.4 CUMULATIVE EFFECTS

The College is not currently aware of any non-federal funding state plans or private activities for the action area.

### 2.8.5 DISCUSSION AND CONCLUSION

**DETERMINATION: NLAA**

**COMPENSATION MEASURES**  
N/A

#### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

## 2.9 FLORIDA KEYS MOLE SKINK

### 2.9.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.9.1.1 LEGAL STATUS

The Florida Keys Mole Skink is federally listed as 'Proposed Threatened' and additional information regarding its legal status can be found on the [ECOS species profile](#).

### **2.9.1.2 RECOVERY PLANS**

Available recovery plans for the Florida Keys Mole Skink can be found on the [ECOS species profile](#).

### **2.9.1.3 LIFE HISTORY INFORMATION**

No description available

#### **IDENTIFIED RESOURCE NEEDS**

Coastal shore

They live in sandy shorelines, beach berms, and coastal hammocks.

#### **2.9.1.4 CONSERVATION NEEDS**

The principal conservation needs of the Florida Keys mole skink (*Plestiodon egregius egregius*) primarily focus on **habitat preservation and restoration** in the face of threats from coastal development, climate change, and invasive species.

##### **General, Principal Conservation Needs:**

Habitat Protection, Restoration, and Acquisition: The highest priority is to acquire, protect, and manage as much suitable habitat as possible within its range. This includes:

Maintaining existing suitable habitats (beaches, dunes, and coastal hammocks) and restoring altered ones.

Ensuring the presence of essential physical features, such as dry, loose, sandy, or friable (crumbly) soils for burrowing and nesting, and sufficient ground cover (leaf litter, tidal wrack, and vegetative debris) for cover and prey sources.

Protecting land through fee-simple acquisition or conservation easements, especially areas that act as natural buffers against storms and sea-level rise.

Mitigation of Climate Change Impacts: Strategies to address the primary threat of sea-level rise, increased tidal flooding, and severe storm events are crucial. This involves developing climate-smart management practices, such as using living shorelines instead of hard armoring for coastal protection wherever possible.

##### **Management of Invasive Species:**

Controlling and removing non-native, invasive plants that can make habitats unsuitable by changing ground cover, soil conditions, and shade.

Managing predators, particularly the control of imported red fire ants and feral animals (like cats) that prey on eggs, hatchlings, and adults.

Minimizing Human-related Threats: Reducing habitat loss and degradation from land development and human activities. This also includes minimizing vehicle strikes, exposure to pollution and pesticides, and overcollection.

Research and Monitoring: Conducting further research to better understand the species' habitat needs, population dynamics, and the effectiveness of current management actions.

Population Management: In the long term, due to extreme vulnerability to sea-level rise, the development of a captive breeding program may be a necessary adaptation strategy to ensure species survival.

Public Awareness and Cooperation: Encouraging private landowners and the public to participate in conservation efforts, including education, awareness, and private land conservation.

## 2.9.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### 2.9.2.1 SPECIES PRESENCE AND USE

Beach berm and coastal hammock are identified as potential Florida Keys mole skink habitat .

While no beach berm was observed on the lot, the paved road and the landscaped areas match some of the specific mentions for the species in the Lower Keys, and Big Pine Key specifically. Pine Rockland habitat is not present on the subject Lot itself. No Mole Skink viewed on property. The areas of dense native vegetation, while somewhat fragmented, also match the possibility of this species inhabiting microhabitats. Due to these considerations this assessment concludes that the Florida Keys Mole Skink May Affect –Likely to Adversely Affected by a proposed project.

### RELEVANT DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### 2.9.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

The location at 450 Key Deer Boulevard, Big Pine Key, FL, contributes to the conservation needs of the Florida Keys mole skink by being situated within an area of lands dedicated to preserving critical Florida Keys habitats. While the specific address was historically associated with a road prison, the surrounding region is integral to regional conservation strategies.

Key contributions of this area include:

Habitat Preservation: The Florida Keys mole skink ( *Plestiodon egregius egregius*) is a state-threatened subspecies that relies on specific sandy, loose soil habitats with ground cover like leaf litter and tidal wrack. This land parcel is not subject to tidal wrack.

Critical Habitat Connectivity: Big Pine Key is one of the few islands that supports a significant population of mole skinks between various patches of suitable habitat however the land parcel at 450 Key Deer Boulevard does not have tidal wrack necessary for the Mole Skinks survival and it is difficult for them to migrate between isolated islands.

Protection from Threats: Established and state or federally managed conservation lands help mitigate threats to the mole skink, such as removing non-native species (like invasive fire ants, which prey on skink eggs) and implementing fire management plans essential for a healthy ecosystem.

### 2.9.2.3 HABITAT CONDITION (GENERAL)

Need coastal tidal wrack and beach berm for food, nesting and shelter.

#### SUPPORTING DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### 2.9.2.4 INFLUENCES

Past activity in area/region may have affected the Florida Keys Mole Skink through habitat loss and degradation from development, increased human presence, and the introduction of invasive species like red fire ants. Other influences include pollution from stormwater runoff and septic leachate, increased road mortality due to infrastructure, and direct disturbance from tourism, beach cleaning, and feral animals.

Habitat loss and degradation

Land development: Construction of homes, hotels, and businesses destroys the skink's coastal and upland forest habitats, leaving less room for them to live and burrow.

Habitat fragmentation: Human development can break up a continuous habitat into smaller, isolated patches, which hinders the skink's ability to move and find resources.

Coastal erosion: Development and human activity contribute to coastal erosion, reducing the amount of beach habitat available for the skinks.

Pollution: Runoff from land-based sources and septic leachate can degrade the quality of the skink's environment, affecting both freshwater and marine areas.

Increased human presence: Tourism, beach cleaning, and general human activity can lead to the disturbance and displacement of skinks.

Road mortality: The construction of roads and the increase in traffic associated with development can lead to a higher number of skinks being hit by cars.

Invasive species: Activities on land can facilitate the spread of invasive species. The red imported fire ant, for example, preys on the skink's eggs and hatchlings.

Sea level rise: Rising sea levels directly inundate and reduce the skink's already limited shoreline habitat. Projections show significant habitat loss in the coming decades.

Intensifying storms: More frequent and intense hurricanes caused by climate change increase the risk of flooding and storm surges that can destroy the skinks' habitat.

### **2.9.2.5 ADDITIONAL BASELINE INFORMATION**

None reported however, the College did receive a May Likely Affect Determination from a private eco assessment for the Florida Keys Mole Skink (*Plestiodon egregius*) in May 2025: here is that report

#### **Species Focus**

The three species focused on in this report are the Florida Keys Mole Skink (*Plestiodon egregius*), the Key Ring-necked Snake (*Diadophis punctatus acricus*), and the Rim Rock Crowned

Snake (*Tantilla oolitica*). Each species' habitat preferences, as outlined in the US Fish and Wildlife's

Species Status Assessment reports, will be summarized for easy reference, followed by observations

from field work related to each species, then concluded with the initial determination if a proposed project may affect the species or not. Pictures are also added for reference.

"May Affect" determinations are made using information provided by US Fish and Wildlife, which will be attached to this report for reference. A summary of the conclusions will also be added at the end of this section.

section.

**Florida Keys Mole Skink**

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the

#### **Florida Keys Mole Skink**

Florida Keys Mole Skink in reference to their preferred habitat:

"Loose soils that allow for "swimming" mobility through substrate are conducive to burrowing and

nesting, and so the species requires, or highly prefers, loose soils (Christman 1992, p. 179).

Mount (1963, p. 359) identified the two key ecological factors affecting mole skink distribution as

soil and moisture conditions and seldom encountered mole skinks where the soil was not well drained

and friable. The Florida Keys mole skink has been found in wave-washed wrack, debris, and piles of

rocks. They have also been found among rocks a few feet above the water on railroad embankments in the Upper Keys (Carr 1940, p. 75). Individual skinks have also been observed in shaded areas beneath stones in sandy areas of Key West and Stock Island (Duellman and Schwartz 1958, p. 289).

The Florida Keys mole skink is documented in the beach berm zones and coastal hammocks in the Upper and Middle Keys (Monroe County 2016a, n.p.; Service 2021, n.p.). However, evidence suggests that the species can live in small areas of habitat or microhabitats within other mapped habitat types, including developed areas; individuals have been detected in developed areas of Key West (a backyard garden), Big Pine Key (along a road), and Key Vaca (in a landscaped area) and within pine rockland habitat on Big Pine Key (Emerick 2017a, pp. 4–5; iNaturalist 2020, entire). However, the vast majority of detections are within the beach berm habitat type and adjacent dunes (Emerick 2017a, p. 5). “Beach berm and coastal hammock are identified as potential Florida Keys mole skink habitat in, although these habitat classifications do not represent all of the potential habitat, as skinks have been located in other areas, as described above.”

During the assessment, dry loose soil and large amounts of leaf litter were observed in several scattered areas throughout the lot. While no beach berm was observed on the lot, the paved road and the landscaped areas match some of the specific mentions for the species in the Lower Keys, and Big Pine Key specifically. Pine Rockland habitat is not present on the subject Lot itself, but there is large, contiguous Pine Rockland Forest neighboring some of this lot. The areas of dense native

vegetation, while somewhat fragmented, also match the possibility of this species inhabiting

microhabitats. Due to these considerations this assessment concludes that the Florida Keys Mole Skink May Affect – Likely to Adversely Affected by a proposed project.

### 2.9.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

#### 2.9.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Coastal shore (they live in sandy shorelines, beach berms, and coastal hammocks.)			<i>This resource is not present in the action area</i> Require tidal wrack not present at land parcel 450 Key Deer Blvd	<i>There will be no impacts to this resource, so no individuals will be affected.</i>

#### 2.9.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Disturbance		Yes	It is unknown how the project might impact the Mole Skink. The parcel does not include the desired habitat of coastal berm or tidal wrack required for the skink to thrive, nest and hunt.

### 2.9.4 CUMULATIVE EFFECTS

The College is not aware of anticipated or future state or private activities not involving Federal activities to occur within the area.

## 2.9.5 DISCUSSION AND CONCLUSION

**DETERMINATION: NLAA**

### COMPENSATION MEASURES

N/A no coastal berm or tidal wrack present for desired skink habitat. Debris that is currently present would be lessened with the construction of the concrete pad and training track.

### RELEVANT DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

## 2.10 FLORIDA LEAFWING BUTTERFLY

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)

### JUSTIFICATION FOR EXCLUSION

The Florida Leafwing butterfly feeds on the pineland croton. This plant species was surveyed for during February 2025 and no individual plants were found. The effects determination for the Florida Leafwing butterfly is "no effect".

## 2.11 FLORIDA PANTHER

*This species has been excluded from analysis in this environmental review document.*

### JUSTIFICATION FOR EXCLUSION

The average population size south of the Caloosahatchee River over the past 7 years is 86. This location is outside of the designated Panther habitat. No panther or panther habitat mentioned in the Monroe county ECR or Huckleberry Eco Services.

## **2.12 FLORIDA PINELAND CRABGRASS**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

No Florida Pineland Crabgrass was observed in Monroe County ECR

## **2.13 FLORIDA PRAIRIE-CLOVER**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

No Florida Prairie-clover observed in Monroe County ECR or Huckleberry Eco Services

## **2.14 FLORIDA SEMAPHORE CACTUS**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Species List Florida Ecological Services Field Office 04.21.2025](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

No Florida Semaphore Cactus discovered on property per Monroe County ECR and Huckleberry Eco Services. Per the Species List from FESFO "Florida Semaphore Cactus *Consolea corallicola* Population: There is final critical habitat for this species. Your location does not overlap the critical habitat."

## **2.15 GARBER'S SPURGE**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

No Garber's Spurge identified on the parcel in the Monroe County ECR or Huckleberry Eco Associates Report.

## **2.16 GULF STURGEON**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Species List Florida Ecological Services Field Office 04.21.2025](#)

### **JUSTIFICATION FOR EXCLUSION**

Per the FESFO Species List, "Gulf Sturgeon *Acipenser oxyrinchus (=oxyrhynchus) desotoi*

There is final critical habitat for this species. Your location does not overlap the critical habitat."

## **2.17 HAWKSBILL SEA TURTLE**

*This species has been excluded from analysis in this environmental review document.*

### **JUSTIFICATION FOR EXCLUSION**

Per the FESFO, "Hawksbill Sea Turtle *Eretmochelys imbricata*: There is final critical habitat for this species. Your location does not overlap the critical habitat."

## 2.18 KEMP'S RIDLEY SEA TURTLE

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### JUSTIFICATION FOR EXCLUSION

Parcel property is not on a wetland. No Kemps Ridley Sea Turtle was observed by the Monroe County ECR, huckleberry Eco Services or the May Affect Determination.

## 2.19 KEY DEER

### 2.19.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.19.1.1 LEGAL STATUS

The Key Deer is federally listed as 'Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### 2.19.1.2 RECOVERY PLANS

Available recovery plans for the Key Deer can be found on the [ECOS species profile](#).

### 2.19.1.3 LIFE HISTORY INFORMATION

This is the smallest race of North American deer. Adults measure 25 to 30 inches at the shoulder and have an average weight of 55 to 75 pounds for males and 45-65 pounds for females. The body is stockier, legs shorter, and skull wider than other races of white-tailed deer. The coat varies from a deep reddish brown to a grizzled, gray color. Bucks usually have antlers by their second year, and eight points by the fifth. The Key deer's primary food source is the red mangrove (*Rhizophora mangle*), but approximately 60 other plants are also known to form part of its diet. Possibly most of the available plant species are used at one time or another. The selection of some food plants changes seasonally, probably reflecting availability and nutritional needs. Other plants are browsed almost continuously resulting in their stunting and near extirpation.

### IDENTIFIED RESOURCE NEEDS

#### Freshwater resources

The single most critical physical or biological requirement for the key deer is access to a reliable source of fresh drinking water. While the key deer (a subspecies of white-tailed deer) can tolerate mildly brackish water and feed on salt-tolerant plants like mangroves for short periods, permanent freshwater sources (found primarily in the limestone substrate of pine rockland habitats) are essential for their long-term survival. This need for fresh water is the primary factor limiting their range and driving their movements between islands, especially during the dry season.

### 2.19.1.4 CONSERVATION NEEDS

The principal conservation needs of the Key deer (*Odocoileus virginianus clavium*) primarily involve **habitat preservation and restoration**, managing the impacts of **human development**, and mitigating the existential threat of **climate change and sea-level rise**.

### 2.19.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

#### 2.19.2.1 SPECIES PRESENCE AND USE

Key Deer . With the project properly fenced and awareness campaigns for local stakeholders, employees and the public, the College can mitigate disruption to the Key Deer.

Most threatening to the Key Deer are disease, climate change and habitat loss due to sea level rise.

### **2.19.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

The College of the Florida Keys has been in operation in the Florida Keys for 60 years. Two of the Colleges strategic values speak to the spirit of conservation efforts that the College will as required by any applicable legislation. **Civic and Environmental Responsibility** (individual, institutional, and **societal accountability**) and **Community Partnerships** (community pride, economic development, and unity).

### **2.19.2.3 HABITAT CONDITION (GENERAL)**

**FRESHWATER RESOURCES (THE SINGLE MOST CRITICAL PHYSICAL OR BIOLOGICAL REQUIREMENT FOR THE KEY DEER IS ACCESS TO A RELIABLE SOURCE OF FRESH DRINKING WATER. WHILE THE KEY DEER (A SUBSPECIES OF WHITE-TAILED DEER) CAN TOLERATE MILDLY BRACKISH WATER AND FEED ON SALT-TOLERANT PLANTS LIKE MANGROVES FOR SHORT PERIODS, PERMANENT FRESHWATER SOURCES (FOUND PRIMARILY IN THE LIMESTONE SUBSTRATE OF PINE ROCKLAND HABITATS) ARE ESSENTIAL FOR THEIR LONG-TERM SURVIVAL. THIS NEED FOR FRESH WATER IS THE PRIMARY FACTOR LIMITING THEIR RANGE AND DRIVING THEIR MOVEMENTS BETWEEN ISLANDS, ESPECIALLY DURING THE DRY SEASON. )**

The physical area currently provides shelter and areas for foraging. There is no freshwater source.

#### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [CFK Pig Pine Key dhr-compliancereviewconsultationform](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

#### **2.19.2.4 INFLUENCES**

Past activities like poaching and hunting drastically reduced Key Deer numbers, but conservation efforts and listing as endangered have led to a recovery. Ongoing threats at 450 Key Deer Boulevard, and the surrounding area, include high-density human presence, vehicle collisions, habitat fragmentation, and the effects of climate change like sea-level rise and increased hurricane intensity. Natural factors like disease and predation, along with human interactions like feeding and harassment by dogs, also impact the population.

##### **PAST**

**Hunting and poaching:** These activities decimated the population, dropping the numbers to a few dozen by the 1950s.

**Habitat loss:** Historic development reduced the Key Deer's range, and a lack of protection for key areas led to the population's decline.

##### **PRESENT AND ONGOING**

###### **Anthropogenic (human-related)**

**Vehicle collisions:** Road mortality is the leading cause of death for Key Deer, particularly on roads like the one near 450 Key Deer Boulevard.

**Habitat fragmentation and loss:** Human development continues to fragment their habitat, pushing deer into neighborhoods where they may encounter more threats.

###### **Human-deer interaction:**

**Illegal feeding:** This causes deer to associate humans with food, leading them to approach roads and unhealthy conditions.

**Dog harassment:** Dogs, often pets in residential areas, are a source of stress and can attack the deer.

**Entanglement:** Deer can become tangled in backyard structures like hammocks and batting cages.

##### **NATURAL and CLIMATE RELATED**

**Disease and predation:** These are natural parts of a wild population, with higher population densities potentially leading to increased spread of illness.

**Hurricane impacts:** Major storms like Hurricane Irma have damaged vegetation and contaminated freshwater sources with saltwater, severely impacting the deer population.

**Sea-level rise:** As sea levels rise, the low-lying habitat of the Florida Keys is at risk of being inundated with saltwater, threatening the deer's home and food sources.

## 2.19.2.5 ADDITIONAL BASELINE INFORMATION

N/A

## 2.19.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

### 2.19.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
<p>Freshwater resources (the single most critical physical or biological requirement for the key deer is access to a reliable source of fresh drinking water. while the key deer (a subspecies of white-tailed deer) can tolerate mildly brackish water and feed on salt-tolerant plants like mangroves for short periods, permanent freshwater sources (found primarily in the limestone substrate of pine rockland habitats) are essential for their long-term survival. this need for fresh water is the primary factor limiting their range and driving their movements between islands, especially during the dry season. )</p>	<p><a href="#">Change in human presence</a>  <a href="#">Decrease in vegetation</a>  <a href="#">Increase in noise</a>  <a href="#">Increase in vehicle traffic</a></p>		<p><i>There will be no impacts to this resource</i>                      The ability for any humans to be present and not interact with the Key Deer is significantly within the control of the individual. The College will ensure that any contractor working on the project is aware of the sensitive environmental nature of the biosphere.</p>	<p><i>There will be no impacts to this resource, so no individuals will be affected.</i></p>

### 2.19.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
<p>Visibility (decreased)</p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>Yes</p>	<p>The College cannot predict the real impact of any project activities at this stage. Building on Big Pine Key decreases Key Deer visibility in the long term through habitat loss and vehicle collisions, the primary threats posed by human development. However, the deer have also become urbanized, meaning they are frequently visible in residential areas as they adapt to the altered landscape.</p> <p>Increased building and associated human activity affect the Key Deer population and their presence in several key ways:</p> <p>Development replaces the deer's natural pine rockland and hardwood hammock habitats with buildings, roads, and yards. Fences and other infrastructure obstruct historical migration and movement routes, breaking up their available range.</p> <p>The most significant direct cause of Key Deer death is motor vehicle collisions, which account for over 100 deaths annually. More roads and traffic associated with development increase this risk, especially at night when deer are more active.</p> <p>As freshwater sources are compromised (partially due to loss of freshwater source (not applicable to current land parcel) and/or saltwater intrusion via sea-level rise, deer are forced into neighborhoods to find food (potential for consumption of manmade</p>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>substance, poisonous non native or ornamental plants) and water. This congregation in unnaturally high densities increases the risk of disease transmission among the population.</p> <p>Living in close proximity to humans increases negative interactions, such as illegal feeding, which causes dependence and health problems, and encounters with domestic animals.</p> <p>While development makes deer less present in pristine wilderness areas (which become smaller and more fragmented), it can make them more visible to residents and tourists in developed areas due to their adaptation to an urbanized environment.</p>

**2.19.4 CUMULATIVE EFFECTS**

The College is unaware of any future state or private activities, not involving federal funds, at the site of this project.

**2.19.5 DISCUSSION AND CONCLUSION**

**DETERMINATION: NLAA**

**COMPENSATION MEASURES**

The College attempted contact with the Key Deer Refuge via phone and email on October 10, 2025, February 13, 2025, August 22, 2025. I have received one response indicating one day and time to speak with a ranger.

## **2.20 KEY RING-NECKED SNAKE**

### **2.20.1 STATUS OF THE SPECIES**

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### **2.20.1.1 LEGAL STATUS**

The Key Ring-necked Snake is federally listed as 'Proposed Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### **2.20.1.2 RECOVERY PLANS**

Available recovery plans for the Key Ring-necked Snake can be found on the [ECOS species profile](#).

#### **2.20.1.3 LIFE HISTORY INFORMATION**

No description available

### **IDENTIFIED RESOURCE NEEDS**

#### **Snakes**

, crevices, rock rubble piles, and solution holes which the snakes use for shelter and movement within the soil. moisture and freshwater sources: the snakes require access to moist microhabitats and sources of freshwater to prevent desiccation. they are often found near freshwater pockets that accumulate in the limestone depressions. cover and shelter: the species is fossorial (living underground or under cover) and needs abundant hiding places such as: shallow soil over limestone formations rotting stumps and fallen logs piles of rock rubble and organic matter dense leaf litter

#### **2.20.1.4 CONSERVATION NEEDS**

The conservation needs of the Key Ring-necked Snake (*Diadophis punctatus acricus*) are unique and specific due to its status as an endemic subspecies found only in a few lower Florida Keys, primarily Big Pine Key. Therefore, nearly all conservation needs for this subspecies are relevant to Big Pine Key.

General conservation needs for the wider *Diadophis punctatus* species that are irrelevant to Big Pine Key include:

Den site selection for freezing temperatures: Northern ring-necked snake populations require deep dens to avoid freezing, a concern nonexistent in the Florida Keys' tropical climate.

Widespread habitat types: While the species occupies diverse habitats across the US, the Key Ring-necked Snake is restricted to specific pine rockland and rockland hammock ecosystems.

The primary conservation needs for the Key Ring-necked Snake overall, which are directly applicable to Big Pine Key, Florida, are focused on habitat preservation, climate change mitigation, and predator control:

Habitat preservation: The clearing of pine rockland and rockland hammock habitats for development is a major threat. Protection of remaining undeveloped lands, especially near freshwater sources, is crucial. Monroe County's Habitat Conservation Plan requires mitigation for development on Big Pine and No Name Keys.

Climate change and sea-level rise: Storm surge, short-term flooding events, and long-term sea-level rise pose the greatest existential threats to the snake's low-elevation island habitat. Many snakes can drown in floodwaters, and saltwater intrusion can eliminate freshwater wetlands that the snakes and their prey rely on.

Road mortality: Extensive road networks on Big Pine Key present a danger of mortality from vehicle strikes.

Invasive species management: Increased predation by invasive species, particularly the red imported fire ant, is a significant threat to the snakes and their eggs.

Maintaining natural water flow and fire regimes: Historically, elevated roadways cut off natural water flow on Big Pine Key, allowing salinities to increase. Restoration projects help manage water levels. A regular fire regime (every 5 to 7 years) is also necessary to maintain the health of the pine rockland ecosystem.

Federal and state protection: The subspecies is listed as state-threatened by the Florida Fish and Wildlife Conservation Commission and has been proposed for federal endangered status by the U.S. Fish and Wildlife Service. Much of the suitable habitat on Big Pine Key is protected within federal preserves such as the National Key Deer Refuge.

## **2.20.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### **2.20.2.1 SPECIES PRESENCE AND USE**

While no preferred habitats from the Species Status Assessment report were found on the lot, a

large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt

road to the north and paved road to the east.

The description of this species being restricted to freshwater sources was also a guiding factor

for this species. During the assessment exposed capstone and large amounts of decaying

vegetation were observed and may provide pooling opportunities or the decrepit structures may

be holding moisture, however no permanent sources of freshwater were directly observed.

Utilizing ArcGIS habitat overlays the nearest permanent sources of freshwater appear to be

approximately 215 meters away from the lot.

With the above in consideration as well as the additional presence of old buildings falling apart

and the clustered, dense native vegetation on the lot, this assessment concludes that the Key

Ring-necked Snake “May Affect – Likely to Adversely Affect” by proposed development on

the lot.

### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### **2.20.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

Climate Change and Sea-Level Rise (SLR): This is considered the most significant threat to the subspecies. The low elevation of the Keys makes the snake's habitat highly vulnerable to storm surges, increased high-tide flooding, and saltwater intrusion into the shallow freshwater lens it relies on. Snakes and their prey can drown in floodwaters.

Historical and ongoing residential and commercial development have led to the destruction and fragmentation of essential pine rockland and tropical hardwood hammock habitats.

Predation by the invasive red imported fire ant is a major concern, as these ants can prey on the small, secretive snakes.

Extensive road networks, particularly on Big Pine Key, contribute to snake mortality from vehicle collisions.

Pine rockland ecosystems require periodic natural fires (every 5-7 years) to maintain optimal habitat conditions. Fire suppression in developed areas can degrade this environment.

Conservation efforts are primarily managed by state and federal agencies and private organizations, with a specific focus on Big Pine Key, which contains most of the remaining suitable habitat.

The snake is listed as state-Threatened by the Florida Fish and Wildlife Conservation Commission (FWC). The U.S. Fish and Wildlife Service (USFWS) has proposed listing the subspecies as federally Endangered and designating critical habitat to ensure stronger protections.

A significant amount of habitat is protected within federal preserves, most notably the National Key Deer Refuge on Big Pine Key. Monroe County implemented a Habitat Conservation Plan (HCP) for Big Pine and No Name Keys in 2006, requiring mitigation for new development projects to conserve native pine rocklands.

Management Strategies:

Habitat Management: Actions include land acquisition, restoration projects (such as pine rockland restoration since 2019), and the use of prescribed fires to maintain healthy ecosystems.

Invasive Species Control: Removal and management of non-native predators like red imported fire ants are crucial to population stability.

Hydrological Planning: To combat sea-level rise effects, proposed management actions include installing culverts under roads to prevent water impoundment and filling canals to limit saltwater intrusion.

Research: Ongoing research and population monitoring help fill knowledge gaps regarding the snake's life history and response to habitat changes, informing future conservation plans.

### 2.20.2.3 HABITAT CONDITION (GENERAL)

SNAKES (, CREVICES, ROCK RUBBLE PILES, AND SOLUTION HOLES WHICH THE SNAKES USE FOR SHELTER AND MOVEMENT WITHIN THE SOIL. MOISTURE AND FRESHWATER SOURCES: THE SNAKES REQUIRE ACCESS TO MOIST MICROHABITATS AND SOURCES OF FRESHWATER TO PREVENT DESICCATION. THEY ARE OFTEN FOUND NEAR FRESHWATER POCKETS THAT ACCUMULATE IN THE LIMESTONE DEPRESSIONS. COVER AND SHELTER: THE SPECIES IS FOSSORIAL (LIVING UNDERGROUND OR UNDER COVER) AND NEEDS ABUNDANT HIDING PLACES SUCH AS: SHALLOW SOIL OVER LIMESTONE FORMATIONS ROTTING STUMPS AND FALLEN LOGS PILES OF ROCK RUBBLE AND ORGANIC MATTER DENSE LEAF LITTER )

The site is disturbed but supports a notable amount of native vegetation. The substrate in undeveloped portions of the parcel consists of areas of exposed caprock interspersed with areas of peat. A cleared The species composition of the cleared vegetation could not be determined.

Within the proposed development area, the dominant species are *Swietenia mahagoni* (West Indian mahogany) and *Vachellia farnesiana* (pineland acacia). Other native species observed include *Pithecellobium guadalupense* (blackbead) and *Piscidia piscipula* (Jamaican dogwood). In contrast, the groundcover is largely dominated by the invasive exotic *Zoysia matrella* (*Zoysia* grass). The most notable native specimen is a large West Indian mahogany located in front of the U-shaped building

#### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)
- [BPK Map for app](#)

#### **2.20.2.4 INFLUENCES**

The Key deer population on Big Pine Key has been and continues to be significantly influenced by a combination of anthropogenic and natural factors, as detailed in various listing, recovery, and SSA documents.

Past and ongoing human activities have severely affected the Key deer's population numbers, reproduction, and distribution:

- **Habitat Loss and Fragmentation:** Historically, over-hunting brought the species to fewer than 50 individuals in the 1940s. Today, urban and commercial development on Big Pine and No Name keys is the greatest long-term threat, causing substantial habitat loss and fragmentation. This forces deer into urban areas and obstructs their natural migration routes.
- **Vehicular Collisions:** Road mortality is currently the single largest cause of death for Key deer in an average year, accounting for approximately 45 deaths annually. Increased traffic on US 1 and other paved roads significantly impacts population numbers, particularly as deer move through residential areas.
- **Illegal Feeding:** The illegal practice of feeding wild deer causes them to lose their natural fear of humans and congregate in residential areas, increasing the spread of disease and parasites and making them more vulnerable to car strikes.
- **Introduced Species:** Mosquito control ditches, originally created for an introduced fish, pose drowning risks for both fawns and adult deer.
- **Inadequate Regulatory Mechanisms:** Historically, a lack of adequate protections contributed to the species' initial decline, though the establishment of the National Key Deer Refuge and the Big Pine/No Name Key Habitat Conservation Plan have since provided vital, albeit challenged, conservation efforts. [1, 6, 7, 8, 9, 10, 11]

Natural events and processes also play a critical role, often exacerbated by anthropogenic climate change:

- **Climate Change and Sea Level Rise (SLR):** Climate change is a primary future threat. SLR is expected to cause saltwater intrusion, which diminishes the essential permanent freshwater sources in the pinelands and wetlands of Big Pine Key. This is projected to lead to the loss of a significant portion of their core habitat in the coming decades, forcing changes in their distribution.
- **Extreme Weather Events:** Stronger, more frequent hurricanes associated with climate change pose a major threat through storm surge, which can inundate low-lying islands, directly impact deer numbers, and damage habitat and freshwater supplies. Hurricane Irma in 2017 caused a significant population dip.

- Disease and Predation: The deer population is vulnerable to diseases and parasites, which can spread quickly when deer numbers are concentrated. A notable screwworm outbreak in 2016-2017 caused a sharp decline in population numbers, particularly affecting adult males with sparring wounds. While natural predation exists, its impact is less severe than other threats.

- Habitat Changes: The natural shift in habitat types (e.g., mangroves replacing pine rocklands due to saltwater intrusion) alters the available food and cover for the deer. [2, 3, 7, 11, 16]

[1] <https://myfwc.com/wildlifehabitats/profiles/mammals/land/key-deer/>

[2] <https://scholarship.stu.edu/cgi/viewcontent.cgi?article=1009&context=stlr>

[3] <https://www.fws.gov/story/2022-07/outrunning-climate-change>

[4] <https://a-z-animals.com/animals/key-deer/>

[5] <https://nwdistrict.ifas.ufl.edu/nat/2018/04/14/ice-age-tree-in-peril-florida-torrey/>

[6] <https://www.fws.gov/story/2022-07/key-deer-recovery-plan-amendment>

[7] [https://nri.tamu.edu/media/2842/parker-et-al-2020\\_key-deer-screwworm.pdf](https://nri.tamu.edu/media/2842/parker-et-al-2020_key-deer-screwworm.pdf)

[8] <https://myfwc.com/wildlifehabitats/profiles/mammals/land/key-deer/>

[9] <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Mammals/Key-Deer>

[10] <https://www.nwf.org/Magazines/National-Wildlife/1997/Whats-Killing-the-Key-Deer>

[11] [https://www.keysnews.com/news/local/floridas-iconic-key-deer-face-an-uncertain-future-as-seas-rise/article\\_bec5d344-a8ce-11ef-a874-efb53e1748b7.html](https://www.keysnews.com/news/local/floridas-iconic-key-deer-face-an-uncertain-future-as-seas-rise/article_bec5d344-a8ce-11ef-a874-efb53e1748b7.html)

[12] <https://www.montgomeryschoolsmd.org/siteassets/schools/curriculum/outdoored/uploadedfiles/programs/oh-deer-project-wild.pdf>

[13] <https://onlinelibrary.wiley.com/doi/10.1111/ddi.12339>

[14] [https://link.springer.com/chapter/10.1007/978-3-031-81276-7\\_30](https://link.springer.com/chapter/10.1007/978-3-031-81276-7_30)

[15] <https://mndeerhunters.com/about-mdha/news/88-from-whitetales/160-whitetail-adaptability-and-the-predator-boom>

[16] <https://newsroom.ap.org/detail/FloridasiconicKeydeerfaceanuncertainfutureasseasrise/bde0f82e4d2040caa6a7aba9605e029a/video>

**2.20.2.5 ADDITIONAL BASELINE INFORMATION**

The environmental baseline for Key deer in Big Pine Key includes their reliance on pine rockland habitat, a mixture of native plants like pineland croton, and freshwater sources like the freshwater holes on Big Pine and No Name Keys. This baseline is threatened by habitat loss and fragmentation due to development, leading to a dependence on human infrastructure for water and food, and by sea-level rise, which is shrinking both their habitat and freshwater supply. Management efforts focus on preserving the remaining undeveloped land, restoring habitats, and mitigating threats like vehicle collisions.

Threat mitigation: Management may include traffic-calming measures and a highway corridor project to reduce deer-vehicle collisions.

Long-term strategies: While translocation to other keys occurred in the past, more recent discussions are focused on long-term adaptation strategies for climate change, such as assisted migration or captive breeding programs, as the low-lying keys are particularly vulnerable.

**2.20.3 EFFECTS OF THE ACTION**

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

**2.20.3.1 INDIRECT INTERACTIONS**

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
<p>Snakes (, crevices, rock rubble piles, and solution holes which the snakes use for shelter and movement within the soil. moisture and freshwater sources: the snakes require access to moist microhabitats and sources of freshwater to prevent desiccation. they are often found near freshwater pockets that accumulate in the limestone depressions. cover and shelter: the species is fossorial (living underground or under cover) and needs abundant hiding places such as: shallow soil over</p>	<p><a href="#">Decrease in vegetation</a>  <a href="#">Increase in noise</a>  <a href="#">Change in habitat structure</a>  <a href="#">Change in human structures</a>  <a href="#">Decrease in human debris</a>  <a href="#">Increase in human presence</a>  <a href="#">Increase in impervious surfaces</a>  <a href="#">Increase in vehicle traffic</a>  <a href="#">Change in vegetation structure</a></p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a>  <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a>  <a href="#">Dust prevention</a></p>	<p>There are no known freshwater deposits within the land parcel.</p>	<p>The College is unable to determine scope of impact though it is expected to be minimal. No nests or active snakes were viewed during biological evaluations</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
limestone formations rotting stumps and fallen logs piles of rock rubble and organic matter dense leaf litter )				

### 2.20.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Visibility (decreased)	<p><a href="#">Be cognizant of wildlife and vegetation on site, be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	Yes	<p>While no preferred habitats from the Species Status Assessment report were found on the lot, a large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt road to the north and paved road to the east.</p> <p>The description of this species being restricted to freshwater sources was also a guiding factor for this species. During the assessment exposed capstone and large amounts of decaying vegetation were observed and may provide pooling opportunities or the decrepit structures may be holding moisture, however no permanent sources of freshwater were directly observed.</p> <p>Utilizing ArcGIS habitat overlays the nearest permanent sources of freshwater appear to be approximately 215 meters away from the lot.</p> <p>With the above in consideration as well as</p>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>the additional presence of old buildings falling apart and the clustered, dense native vegetation on the lot, this assessment concludes that the Key Ring-necked Snake "May Affect – Likely to Adversely Affect" by proposed development on the lot.</p>

#### **2.20.4 CUMULATIVE EFFECTS**

While no preferred habitats from the Species Status Assessment report were found on the lot, a

large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt

road to the north and paved road to the east.

The description of this species being restricted to freshwater sources was also a guiding factor

for this species. During the assessment exposed capstone and large amounts of decaying

vegetation were observed and may provide pooling opportunities or the decrepit structures may

be holding moisture, however no permanent sources of freshwater were directly observed.

Utilizing ArcGIS habitat overlays the nearest permanent sources of freshwater appear to be

approximately 215 meters away from the lot.

With the above in consideration as well as the additional presence of old buildings falling apart

and the clustered, dense native vegetation on the lot, this assessment concludes that the Key

Ring-necked Snake “May Affect – Likely to Adversely Affect” by proposed development on

the lot.

#### **2.20.5 DISCUSSION AND CONCLUSION**

**DETERMINATION: LAA**

#### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

## **2.21 KEY TREE CACTUS**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

No Key Tree Cactus discovered in Monroe County ECR

## **2.22 LEATHERBACK SEA TURTLE**

*This species has been excluded from analysis in this environmental review document.*

### **JUSTIFICATION FOR EXCLUSION**

Per the FESFO Species List, "Leatherback Sea Turtle Dermochelys coriacea: There is final critical habitat for this species. Your location does not overlap the critical habitat."

## **2.23 LOGGERHEAD SEA TURTLE**

*This species has been excluded from analysis in this environmental review document.*

### **JUSTIFICATION FOR EXCLUSION**

Per the FESFO Species List, "Loggerhead Sea Turtle Caretta caretta Population: Northwest Atlantic Ocean DPS: There is final critical habitat for this species. Your location does not overlap the critical habitat."

## **2.24 LOWER KEYS MARSH RABBIT**

### **2.24.1 STATUS OF THE SPECIES**

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### **2.24.1.1 LEGAL STATUS**

The Lower Keys Marsh Rabbit is federally listed as 'Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

### 2.24.1.2 RECOVERY PLANS

Available recovery plans for the Lower Keys Marsh Rabbit can be found on the [ECOS species profile](#).

### 2.24.1.3 LIFE HISTORY INFORMATION

The Lower Keys Rabbit (*Sylvilagus palustris hefneri*) is a subspecies of the marsh rabbit (*S. palustris*), a species widespread in the southeastern United States. The Lower Keys rabbit is distinguished from the adjacent subspecies, *S.p. paludicola*, in skull proportions and sculpturing and in its darker coloration (Lazell 1984). The Lower Keys rabbit is about 16 inches in length, with brownish dorsal and greyish ventral fur.

### IDENTIFIED RESOURCE NEEDS

#### Herbaceous vegetation

Dense herbaceous cover: critical habitat features include dense, low-lying vegetation for food, cover, and nesting. the rabbit relies on a mixture of grasses, sedges, and forbs, and avoids areas with high canopy cover or mature woody vegetation like mature buttonwoods. specific plant species: key plant species providing essential food and cover include: sawgrass (*cladium jamaicense*) seashore dropseed (*sporobolus virginicus*) cordgrass (*spartina spp.*) bushy seaside tansy (*borrichia frutescens*)

#### Wetland

Wetland habitat: the rabbit is semi-aquatic and requires access to permanent water sources for escape from predators and foraging. it is found in freshwater and brackish wetlands, including salt marshes, freshwater marshes, wet prairies, and the edges of mangrove communities.

### 2.24.1.4 CONSERVATION NEEDS

The Lower Keys Marsh Rabbit (LKMR) on Big Pine Key needs urgent conservation focused on habitat protection/restoration, especially freshwater marshes; controlling predators like feral cats; managing threats from sea-level rise/hurricanes, habitat fragmentation, and exotic plants; and increasing connectivity between small populations for long-term survival. Key strategies involve habitat acquisition, predator removal programs (especially cats), maintaining water quality, and potentially creating new habitat patches through translocation efforts.

### 2.24.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### 2.24.2.1 SPECIES PRESENCE AND USE

No Lower Keys marsh rabbit was observed while conducting the review (section Iv. p. 8-12)

#### RELEVANT DOCUMENTATION

- [Monroe County ECR](#)

### 2.24.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

The Lower Keys Marsh Rabbit (LKMR) on Big Pine Key needs urgent conservation focused on habitat protection/restoration, especially freshwater marshes; controlling predators like feral cats; managing threats from sea-level rise/hurricanes, habitat fragmentation, and exotic plants; and increasing connectivity between small populations for long-term survival. Key strategies involve habitat acquisition, predator removal programs (especially cats), maintaining water quality, and potentially creating new habitat patches through translocation efforts.

### 2.24.2.3 HABITAT CONDITION (GENERAL)

HERBACEOUS VEGETATION (DENSE HERBACEOUS COVER: CRITICAL HABITAT FEATURES INCLUDE DENSE, LOW-LYING VEGETATION FOR FOOD, COVER, AND NESTING. THE RABBIT RELIES ON A MIXTURE OF GRASSES, SEDGES, AND FORBS, AND AVOIDS AREAS WITH HIGH CANOPY COVER OR MATURE WOODY VEGETATION LIKE MATURE BUTTONWOODS. SPECIFIC PLANT SPECIES: KEY PLANT SPECIES PROVIDING ESSENTIAL FOOD AND COVER INCLUDE: SAWGRASS (CLADIUM JAMAICENSE) SEASHORE DROPSEED (SPOROBOLUS VIRGINICUS) CORDGRASS (SPARTINA SPP.) BUSHY SEASIDE TANSY (BORRICHIA FRUTESCENS))

Mature Buttonwoods were identified in the Huckleberry Environmental Services, Inc. report

#### SUPPORTING DOCUMENTATION

- [Monroe County ECR](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)

## 2.24.2.4 INFLUENCES

### Anthropogenic Influences

- **Habitat Loss and Fragmentation:** Historically, extensive human development (residential, commercial, roads) has destroyed and fragmented over 50% of the rabbit's habitat. This has isolated populations into small, unsustainable patches and prevented dispersal, which is crucial for a healthy metapopulation.
- **Predation by Non-Native Species:** Free-roaming domestic and feral cats are considered one of the greatest current threats. High cat densities on Big Pine Key lead to significant mortality and negatively impact rabbit occurrence and colonization of new habitats. Other non-native predators posing a threat include free-roaming dogs, exotic constrictor snakes (like Burmese pythons), and fire ants, which can prey on newborns.
- **Vehicular Traffic:** Road mortality on highways, particularly U.S. Highway 1, is a direct cause of death, which is a significant issue for the already small and fragmented population.
- **Invasive Vegetation:** Non-native plants can outcompete and displace the native grasses, sedges, and forbs that make up the rabbit's primary food sources and cover, thereby degrading habitat quality.
- **Habitat Degradation and Pollution:** Increased nutrients from septic tanks and fertilizers degrade water quality, while illegal dumping and off-road vehicle use also harm the marsh rabbit's habitat.
- **Fire Suppression:** Human activities, including fire suppression, have altered natural fire regimes, leading to habitat succession and hardwood encroachment, which degrades the open, herbaceous marsh habitat preferred by the rabbits.
- **Poaching:** Although potentially less frequent than other threats, illegal hunting has been noted as an issue in the past.
- **Natural and Climate Change Influences**
- **Sea-Level Rise:** This is a grave and impending threat due to global climate change. As a ground-nesting species inhabiting low-lying transitional zones, rising sea levels and associated saltwater intrusion into freshwater habitats directly inundate nesting areas and dramatically reduce the extent of suitable habitat.
- **Hurricanes and Storm Surges:** Intense weather events, such as hurricanes (e.g., Hurricane Irma in 2017), cause direct mortality and significant habitat degradation due to storm surge and flooding. Such events can lead to a drastic temporary reduction in population numbers and abandonment of habitat patches.
- **Habitat Succession:** Natural ecological processes, like hardwood encroachment into marsh areas, can reduce the quality and availability of suitable habitat, especially in the absence of natural disturbances like fire.
- **Native Predators:** Raccoons and other native predators can also pose a threat to rabbit populations, and their activity has been linked to lower marsh rabbit pellet counts in some areas.

**2.24.2.5 ADDITIONAL BASELINE INFORMATION**

As with the Key Deer section, I did contact the Key Deer Refuge multiple times. I have been unable to speak with a ranger.

The species are most active during dawn and dusk (crepuscular) and also at night (nocturnal). While present, they are elusive and difficult to spot. Refuge staff often monitor their population by looking for their distinctive disk-shaped pellets (scat). Given their aversion to humans and noise/disturbance of surroundings, it is expected that there will be no likely adverse affect.

**2.24.3 EFFECTS OF THE ACTION**

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

**2.24.3.1 INDIRECT INTERACTIONS**

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Herbaceous vegetation (dense herbaceous cover: critical habitat features include dense, low-lying vegetation for food, cover, and nesting. the rabbit relies on a mixture of grasses, sedges, and forbs, and avoids areas with high canopy cover or mature woody vegetation like mature buttonwoods. specific plant species: key plant species providing essential food and cover include: sawgrass (cladium jamaicense) seashore dropseed (sporobolus virginicus) cordgrass (spartina spp.) bushy seaside tansy (borrichia frutescens))	<a href="#">Decrease in vegetation</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	If Marsh Rabbit habitat, only Buttonwoods on property, is removed, it could be expected that the Marsh Rabbit would relocate to another area habitat.	Unknown at this time. Should any Marsh Rabbit habitat be discovered on the property, the College will reach out to FWS and the Key Deer Refuge for direction.

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Wetland (wetland habitat: the rabbit is semi-aquatic and requires access to permanent water sources for escape from predators and foraging. it is found in freshwater and brackish wetlands, including salt marshes, freshwater marshes, wet prairies, and the edges of mangrove communities.)			<i>This resource is not present in the action area</i> Per the Monroe County ECR provided, freshwater resources were not definitively located and recommended to be reviewed by a land surveyor.	<i>There will be no impacts to this resource, so no individuals will be affected.</i>

### 2.24.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Acoustic interference	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	Yes	The nature of a construction project includes a level of noise. Marsh Rabbits are alert and avoidant of human interaction. Likely that Marsh Rabbit would not visit property or be widely adversely impacted.
Visibility (decreased)	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	No	The land parcel was previously used as a Florida State Road prison. The property is currently vacated and it can be reasonable to think that he proposed project may lead to a reduction in visibility of the rabbit from that land parcel.

### 2.24.4 CUMULATIVE EFFECTS

The College is not aware of any anticipated future state or private activities not involving federal activities that are reasonably certain to occur in the action area.

## 2.24.5 DISCUSSION AND CONCLUSION

**DETERMINATION: NLAA**

### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

## 2.25 MIAMI BLUE BUTTERFLY

### 2.25.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.25.1.1 LEGAL STATUS

The Miami Blue Butterfly is federally listed as 'Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### 2.25.1.2 RECOVERY PLANS

Available recovery plans for the Miami Blue Butterfly can be found on the [ECOS species profile](#).

#### 2.25.1.3 LIFE HISTORY INFORMATION

No description available

### IDENTIFIED RESOURCE NEEDS

#### Larval host plant

Larval host plants: the larvae (caterpillars) feed exclusively on specific host plants. females lay eggs on the flowers, buds, and terminal growth of these plants. gray nickerbean (caesalpinia bonduc) blackbead (pithecellobium spp.) balloonvine (cardiospermum spp.)

#### Pollination (biological vector)

Reproduction: the butterfly produces multiple generations each year, requiring a suitable climate that allows for year-round activity in the florida keys, though reproduction slows during the winter dry season.

#### **2.25.1.4 CONSERVATION NEEDS**

Habitat protection and restoration, captive breeding and reintroduction programs, and managing threats such as invasive species and pesticide use.

#### **2.25.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

##### **2.25.2.1 SPECIES PRESENCE AND USE**

Habitat or food source. Nothing has been found on the property

##### **2.25.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

Habitat protection and restoration, captive breeding and reintroduction programs, and managing threats such as invasive species and pesticide use. The College does not plan to introduce invasive species or use pesticides that could adversely impact the butterfly.

##### **2.25.2.3 HABITAT CONDITION (GENERAL)**

**LARVAL HOST PLANT (LARVAL HOST PLANTS: THE LARVAE (CATERPILLARS) FEED EXCLUSIVELY ON SPECIFIC HOST PLANTS. FEMALES LAY EGGS ON THE FLOWERS, BUDS, AND TERMINAL GROWTH OF THESE PLANTS. GRAY NICKERBEAN (CAESALPINIA BONDUC) BLACKBEAD (PITHECELLOBIUM SPP.) BALLOONVINE (CARDIOSPERMUM SPP.)**

Blackbead is present.

**POLLINATION (BIOLOGICAL VECTOR) (REPRODUCTION: THE BUTTERFLY PRODUCES MULTIPLE GENERATIONS EACH YEAR, REQUIRING A SUITABLE CLIMATE THAT ALLOWS FOR YEAR-ROUND ACTIVITY IN THE FLORIDA KEYS, THOUGH REPRODUCTION SLOWS DURING THE WINTER DRY SEASON.)**

Blackbead is present on property however, the species is generally assumed restricted to Key West National Wildlife Refuge, with reintroduction efforts in other Keys (like Bahia Honda & Long Key State Parks). The primary host plants are not on premises and are the gray nickerbean (host plant) and balloonvine (nectar). Once common, it's now extirpated from much of its range and considered critically imperiled.

#### **SUPPORTING DOCUMENTATION**

- [Monroe County ECR](#)

#### **2.25.2.4 INFLUENCES**

The Miami Blue butterfly (*Cyclargus thomasi bethunbakeri*) population in the Big Pine Key area is influenced by a range of habitat, climate, and biotic factors. While the primary remaining wild populations are now restricted to remote islands in the Key West and Great White Heron National Wildlife Refuges, Big Pine Key contains critical historical habitat types and is a focus for conservation efforts.

Key influences in the Big Pine Key area include:

##### **Habitat and Food Sources**

The presence and health of specific host and nectar plants are crucial influences on the Miami Blue butterfly.

**Host Plants:** Larvae feed exclusively on a few native leguminous plants, primarily gray nickerbean (*Caesalpinia bonduc*), Florida Keys blackbead (*Pithecellobium keyense*), and native balloonvine (*Cardiospermum corindum*).

**Nectar Sources:** Adult butterflies require a variety of flowering plants for nectar, such as Spanish needles (*Bidens alba*), scorpiontail (*Heliotropium angiospermum*), and snow squarestem (*Melanthera nivea*).

**Specific Habitats:** The butterfly historically occupied tropical pine rocklands, tropical hardwood hammocks, and beachside scrub habitats, which are present in the Big Pine Key region.

##### **Threats and Environmental Stressors**

Several negative influences have contributed to the butterfly's decline in the region and pose ongoing threats:

**Habitat Loss and Fragmentation:** Coastal development has drastically reduced and fragmented the butterfly's native habitat throughout South Florida and the Keys.

**Invasive Species:** Non-native green iguanas voraciously consume the gray nickerbean host plant, severely impacting populations. Invasive exotic plants also displace native host vegetation.

**Pesticide Use:** Active mosquito control measures, including aerial spraying of adulticides, can be lethal to both larval and adult butterflies.

**Climate Change and Extreme Weather:** As a low-lying island species, the Miami Blue is extremely vulnerable to sea-level rise which inundates habitat. The small, isolated populations are also highly susceptible to single catastrophic events like severe hurricanes or prolonged droughts.

##### **Conservation and Management**

Positive human influences, largely managed by agencies like the Florida Fish and Wildlife Conservation Commission (FWC) and the U.S. Fish and Wildlife Service, also play a major role:

Protected Lands: The presence of federal and state protected lands (such as the National Key Deer Refuge on Big Pine Key, and nearby National Wildlife Refuges and Bahia Honda State Park) provides areas where habitat can be managed and restored.

Captive Rearing and Reintroduction: Research programs at the Florida Museum of Natural History successfully breed Miami Blues in laboratories for reintroduction into suitable historic habitats in the Keys.

Habitat Restoration: Biologists work to manage conservation areas by removing invasive plants and planting native host and nectar species to improve habitat quality.

### 2.25.2.5 ADDITIONAL BASELINE INFORMATION

None known.

### 2.25.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

#### 2.25.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Larval host plant (larval host plants: the larvae (caterpillars) feed exclusively on specific host plants. females lay eggs on the flowers, buds, and terminal growth of these plants. gray nickerbean (caesalpinia bonduc) blackbead (pithecellobium spp.) balloonvine (cardiospermum spp.))	<a href="#">Decrease in vegetation</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	<i>There will be no impacts to this resource</i> <ul style="list-style-type: none"> <li>▪ <b>Current Location:</b> Mostly restricted to Key West National Wildlife Refuge, with reintroduction efforts in other Keys (like Bahia Honda &amp; Long Key State Parks).</li> <li>▪ <b>Host Plant:</b> Depends on native plants like gray nickerbean (host plant) and</li> </ul>	<i>There will be no impacts to this resource, so no individuals will be affected.</i>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			balloonvine (nectar). <ul style="list-style-type: none"> <li>▪ <b>Rarity:</b> Once common, it's now extirpated from much of its range and considered critically imperiled.</li> </ul>	
Pollination (biological vector) (reproduction: the butterfly produces multiple generations each year, requiring a suitable climate that allows for year-round activity in the florida keys, though reproduction slows during the winter dry season. )	<a href="#">Decrease in vegetation</a> <a href="#">Change in vegetation structure</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	<ul style="list-style-type: none"> <li>▪ <b>Current Location:</b> Mostly restricted to Key West National Wildlife Refuge, with reintroduction efforts in other Keys (like Bahia Honda &amp; Long Key State Parks).</li> <li>▪ <b>Rarity:</b> Once common, it's now extirpated from much of its range and considered critically imperiled.</li> </ul>	<i>No individuals will be affected</i> <ul style="list-style-type: none"> <li>▪ <b>Current Location:</b> Mostly restricted to Key West National Wildlife Refuge, with reintroduction efforts in other Keys (like Bahia Honda &amp; Long Key State Parks).</li> <li>▪ <b>Host Plant:</b> Depends on native plants like gray nickerbean (host plant) and balloonvine (nectar).</li> <li>▪ <b>Rarity:</b> Once common, it's now extirpated from much of its range and considered critically imperiled.</li> </ul>

### 2.25.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Visibility (decreased)	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	Yes	Though the exact number is unknown, since it cannot be ruled out with 100% certainty, I expect that visibility may decrease.

### 2.25.4 CUMULATIVE EFFECTS

The College is unaware of any anticipated future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area.

### 2.25.5 DISCUSSION AND CONCLUSION

DETERMINATION: **NLAA**

#### RELEVANT DOCUMENTATION

- [Monroe County ECR](#)

## 2.26 MONARCH BUTTERFLY

*This species has been excluded from analysis in this environmental review document.*

#### JUSTIFICATION FOR EXCLUSION

Per the FESFO Species List, "Monarch Butterfly *Danaus plexippus* There is proposed critical habitat for this species. Your location does not overlap the critical habitat."

## 2.27 RIM ROCK CROWNED SNAKE

### 2.27.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

### 2.27.1.1 LEGAL STATUS

The Rim Rock Crowned Snake is federally listed as 'Proposed Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

### 2.27.1.2 RECOVERY PLANS

Available recovery plans for the Rim Rock Crowned Snake can be found on the [ECOS species profile](#).

### 2.27.1.3 LIFE HISTORY INFORMATION

No description available

#### IDENTIFIED RESOURCE NEEDS

Calcium carbonate (caco3)

OOLITIC LIMESTONE

Eggs

Reproduction: the species is assumed to be egg-laying, requiring suitable sites for breeding and rearing offspring.

### 2.27.1.4 CONSERVATION NEEDS

**Mitigation of Sea Level Rise and Saltwater Intrusion:** Actions are needed to protect existing habitats from the effects of rising sea levels and storm surges, which cause saltwater infiltration of the species' crucial freshwater sources and can lead to habitat inundation. Strategies may include:

- Securing the availability of permanent, managed freshwater sources.
- Addressing hydrological barriers (e.g., installing culverts under roads to prevent water impoundment or filling canals and ditches to prevent saltwater intrusion).

**Habitat Management:** Proper management of existing protected areas is essential. This includes:

- Implementing a suitable fire regime in pine rocklands to maintain ecosystem health.
- Rehydration of the aquifer in some areas where human activity has lowered water tables, negatively affecting the snake's prey (centipedes).
- Control or elimination of non-native, invasive species, such as the red imported fire ant, which may prey on the snakes.

### 2.27.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under*

*review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### **2.27.2.1 SPECIES PRESENCE AND USE**

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### **2.27.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

- Implementing a suitable fire regime in pine rocklands to maintain ecosystem health.
- Rehydration of the aquifer in some areas where human activity has lowered water tables, negatively affecting the snake's prey (centipedes).
- Control or elimination of non-native, invasive species, such as the red imported fire ant, which may prey on the snakes.

### 2.27.2.3 HABITAT CONDITION (GENERAL)

#### CALCIUM CARBONATE (CaCO<sub>3</sub>) (OOLITIC LIMESTONE)

##### Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

**EGGS (REPRODUCTION: THE SPECIES IS ASSUMED TO BE EGG-LAYING, REQUIRING SUITABLE SITES FOR BREEDING AND REARING OFFSPRING.)**

Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife’s Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

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lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property. Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

#### **SUPPORTING DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

#### **2.27.2.4 INFLUENCES**

The Rim Rock Crowned Snake in Big Pine Key and Florida Keys faces major threats from human development (habitat loss/fragmentation), climate change (sea level rise, storm surges), and altered fire regimes, impacting their specialized rockland habitat, leading to population decline and range restriction, though conservation plans aim to protect remaining areas.

### 2.27.2.5 ADDITIONAL BASELINE INFORMATION

#### Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCs likely come to the

surface after rains (Porrás and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

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lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

### 2.27.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

#### 2.27.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Calcium carbonate (CaCO <sub>3</sub> ) (OOLITIC LIMESTONE)	<a href="#">Change in habitat structure</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply</a>	Rim Rock Crowned Snake  The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock	Rim Rock Crowned Snake  The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
		<p><a href="#">with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>Crowned Snake in reference to their preferred habitat.</p> <p>“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from human-altered habitats</p> <p>such as roadsides, vacant lots, and pastures with shrubby growth and</p>	<p>Crowned Snake in reference to their preferred habitat.</p> <p>“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from human-altered habitats</p> <p>such as roadsides, vacant lots, and pastures with shrubby growth and</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>slash pines (<i>Pinus elliotii</i>)</p> <p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356)."</p> <p>"The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99; Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400). Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the</p>	<p>slash pines (<i>Pinus elliotii</i>)</p> <p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356)."</p> <p>"The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99; Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400). Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its</p> <p>underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the</p> <p>lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p> <p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>	<p>surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its</p> <p>underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the</p> <p>lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p> <p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>
Eggs (reproduction: the species is assumed to be egg-laying, requiring suitable sites	<a href="#">Change in habitat structure</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any</a>	Rim Rock Crowned Snake	Rim Rock Crowned Snake

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
<p>for breeding and rearing offspring.)</p>		<p><a href="#">removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock</p> <p>Crowned Snake in reference to their preferred habitat.</p> <p>"Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from</p>	<p>The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock</p> <p>Crowned Snake in reference to their preferred habitat.</p> <p>"Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>human-altered habitats</p> <p>such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (<i>Pinus elliottii</i>)</p> <p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356)."</p> <p>"The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99; Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400). Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and</p>	<p>human-altered habitats</p> <p>such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (<i>Pinus elliottii</i>)</p> <p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356)."</p> <p>"The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99; Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400). Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSS likely come to the</p> <p>surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its</p> <p>underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the</p> <p>lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p> <p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>	<p>shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSS likely come to the</p> <p>surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its</p> <p>underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the</p> <p>lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p> <p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>

### 2.27.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
<p>Visibility (decreased)</p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>Yes</p>	<p>Rim Rock Crowned Snake</p> <p>The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock</p> <p>Crowned Snake in reference to their preferred habitat.</p> <p>"Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from human-altered habitats</p> <p>such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (<i>Pinus elliottii</i>)</p>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”</p> <p>“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;</p> <p>Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).</p> <p>Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>

## 2.27.4 CUMULATIVE EFFECTS

### Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCs likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

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Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

## 2.27.5 DISCUSSION AND CONCLUSION

**DETERMINATION:** LAA

### COMPENSATION MEASURES

Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

"Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356)."

"The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSS likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

## **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

## 2.28 ROSEATE TERN

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [Monroe County ECR](#)

Roseate Tern not listed on the attached

### JUSTIFICATION FOR EXCLUSION

If there is nothing present on the property, likely to have no significant impact.

## 2.29 SAND FLAX

*This species has been excluded from analysis in this environmental review document.*

### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [Monroe County ECR](#)

No Sand Flax recorded in any report regarding vegetation on the site

### JUSTIFICATION FOR EXCLUSION

No observation of the species at the land parcel.

## 2.30 SILVER RICE RAT

### 2.30.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.30.1.1 LEGAL STATUS

The Silver Rice Rat is federally listed as 'Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### 2.30.1.2 RECOVERY PLANS

Available recovery plans for the Silver Rice Rat can be found on the [ECOS species profile](#).

### 2.30.1.3 LIFE HISTORY INFORMATION

The silver rice rat is of generalized rat-like appearance, with a slender skull and coarse fur which is colored silver-gray along its back. This rat has a sparsely-haired tail and reaches 250 millimeters (10 inches) in total length.

### IDENTIFIED RESOURCE NEEDS

Wetland  
Swamp

### 2.30.1.4 CONSERVATION NEEDS

The principal conservation needs of the endangered **Silver Rice Rat** (*Oryzomys palustris argentatus* or *Oryzomys palustris natator* in older literature) focus on **habitat preservation and restoration**, control of invasive predators and competitors, and proactive strategies to mitigate the effects of **sea-level rise**. These needs primarily apply to its endemic range in the Lower Florida Keys, but future strategies may involve areas beyond this region. Key conservation needs include:

- **Protecting and restoring wetland habitats:** The primary threat is the degradation and loss of high-quality salt marsh, freshwater marsh, mangrove swamps, and transitional buttonwood habitats due to human development ("dredge and fill"). Conservation actions involve protecting existing patches and restoring degraded areas, such as replanting mangrove shorelines to protect against storm surges.
- **Managing the impacts of sea-level rise:** As an island-endemic species, rising sea levels are a significant long-term threat that can inundate their low-lying habitats. Conservation needs involve:
- **Controlling invasive species:** Predation by feral and free-roaming domestic cats is a major threat. Competition with non-native black rats (*Rattus rattus*) is also a concern. Management requires targeted removal programs and public outreach to encourage keeping pet cats indoors.
- **Minimizing other threats:** Effective conservation requires a comprehensive, multi-faceted approach to address the unique and accumulating threats this specialized species faces.

### 2.30.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### **2.30.2.1 SPECIES PRESENCE AND USE**

Silver Rice Rat was not observed as present during the vegetation survey (Section IV p. 8-12).

#### **RELEVANT DOCUMENTATION**

- [Monroe County ECR](#)

### **2.30.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

The Silver Rice Rat (SRR) on Big Pine Key needs habitat protection, invasive species control (cats, rats, plants), and adaptation to sea-level rise to survive, requiring habitat restoration (mangroves) and managing human impacts like development, with action areas focusing on these threats within crucial coastal zones like the National Key Deer Refuge (NKDR) where they reside and seek refuge on higher ground as sea levels rise, balancing immediate threats with long-term climate resilience.

**Habitat Protection & Restoration:** SRRs rely on low-elevation coastal marshes, feeding at low tide on small invertebrates. Development, "dredge and fill," and invasive plants (like Brazilian Pepper) destroy and fragment this critical habitat, necessitating restoration of native mangroves and vegetation.

**Threat Control:** Feral cats, black rats, and other invasive exotics are major predators/competitors. Aggressive, coordinated removal programs are crucial.

**Sea-Level Rise Adaptation:** As a coastal species, SRRs are highly vulnerable to inundation. They need upslope migration corridors, meaning protecting higher ground and allowing human-dominated areas to be abandoned for natural habitat, as they shift elevation.

**Genetic Health:** Small, isolated populations face low genetic variability, requiring careful management.

**Action Area (e.g., National Key Deer Refuge):** Big Pine Key hosts vital SRR populations, particularly within the NKDR. This area serves as a refuge and a key site for implementing conservation strategies.

**Management Units:** Key management efforts occur within the NKDR and on adjacent public/private lands, focusing on invasive exotic plant (IEP) control and monitoring.

**Habitat Condition:** While efforts exist, habitat conditions remain threatened by sea-level rise and past development. The ability for SRRs to move to higher ground (upslope migration) is vital, as current habitat shrinks.

**Habitat Management:** Control invasive plants (IEPs) on Big Pine Key and No Name Key to improve habitat quality.

**Threat Mitigation:** Implement programs to remove feral cats and black rats from occupied islands.

**Monitoring:** Continue monitoring populations on Big Pine Key to understand trends and effectiveness of actions.

**Land Acquisition:** Protect remaining unprotected habitat through conservation easements or acquisition to secure future refuge.

**Climate Adaptation:** Plan for upslope habitat shifts by managing human impacts and development patterns, allowing natural landward migration as sea levels rise

### 2.30.2.3 HABITAT CONDITION (GENERAL)

#### WETLAND (SWAMP)

It is unknown as none have been seen on the property.

Silver rice rats are omnivores ([https://www.google.com/search?q=omnivores&rlz=1C1CHBF\\_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6](https://www.google.com/search?q=omnivores&rlz=1C1CHBF_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6)

, foraging for a varied diet of plants like mangrove seeds, coconut palm, saltwort, and grasses, alongside animal matter such as crabs ([https://www.google.com/search?q=crabs&rlz=1C1CHBF\\_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6](https://www.google.com/search?q=crabs&rlz=1C1CHBF_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6)

, snails ([https://www.google.com/search?q=snails&rlz=1C1CHBF\\_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6](https://www.google.com/search?q=snails&rlz=1C1CHBF_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6)

, isopods ([https://www.google.com/search?q=isopods&rlz=1C1CHBF\\_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6](https://www.google.com/search?q=isopods&rlz=1C1CHBF_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6)

, and insects, opportunistically taking what's available in their salt marsh habitats ([https://www.google.com/search?q=salt+marsh+habitats&rlz=1C1CHBF\\_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6](https://www.google.com/search?q=salt+marsh+habitats&rlz=1C1CHBF_enUS1103US1103&oq=what+kind+of+food+does+the+silver+rice+rat+foraging&ved=2ahUKewjismZ6hm6)

, often during low tides. This is not a tidal parcel and the likelihood of the animal matter is low. There is probability of plant foraging available.

#### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

#### 2.30.2.4 INFLUENCES

The Silver Rice Rat (*Oryzomys argentatus*, Lower Florida Keys population) on Big Pine Key has been affected by several past, present, and ongoing anthropogenic and natural influences that have impacted its reproduction, numbers, and distribution.

- **Development:** Historically, extensive damage occurred due to "dredge and fill" operations for construction activities, resulting in direct habitat loss.
- **Habitat Fragmentation:** The construction of roads and canals has fragmented the remaining habitat, creating barriers that limit dispersal and genetic exchange between different metapopulations (e.g., the eastern Big Pine Key area population is genetically distinct from the western Saddlebunch area population).
- **Hydrology Alteration:** Development and pervasive mosquito ditching have transformed the natural hydrology of these wetlands.
- **Habitat Management:** A lack of natural disturbances, such as fire, can lead to the encroachment of upland vegetation into wetland habitats, although regulatory constraints and land acquisition for conservation have curtailed some direct habitat loss in recent decades.
- **Sea-Level Rise:** Ongoing sea-level rise is the main driver of terrestrial habitat loss in the area over the last 40 to 50 years. It causes frequent saltwater incursions, which inundate low-lying habitats essential for the rats. While the rats have demonstrated a limited ability to shift their range upslope, this strategy is not sustainable in the long term due to the low elevation of the Keys and the "coastal squeeze" effect, where development blocks further inland migration.
- **Storm Events:** As an island-endemic species with a small geographic range, the Silver Rice Rat is highly vulnerable to hurricanes and tropical storms, particularly the devastating effects of storm surges that can flood entire habitats.
- **Non-native Predators:** Predation by free-roaming domestic cats (*Felis catus*) and other non-native predators remains a potential and significant threat to the rats' numbers.
- **Interspecific Competition:** Competition with the non-native black rat (*Rattus rattus*) is a major factor, as black rats are generalist species and potentially stronger competitors for resources.
- **Low Genetic Variation:** The subspecies exhibits low genetic variability, which makes the population less resilient to environmental changes, disease, or other threats.
- **Reduced Numbers:** Habitat loss, fragmentation, and predation/competition reduce the overall population size and viability of the species on Big Pine Key.
- **Altered Distribution:** The rats' distribution has shifted, with populations moving to higher elevations to escape sea-level rise and appearing as transient, isolated individuals in peripheral areas like northern Big Pine Key, likely dispersing from source keys like Howe Key.

- **Affected Reproduction:** While breeding can occur year-round, environmental variables and potential competition/stress likely influence the reproductive success and survival of juveniles. Northern populations of the *Oryzomys palustris* species group have larger litters than southern ones, which may suggest a naturally lower reproductive capacity in the Florida Keys population.
- **Reduced Numbers:** Habitat loss, fragmentation, and predation/competition reduce the overall population size and viability of the species on Big Pine Key.
- **Altered Distribution:** The rats' distribution has shifted, with populations moving to higher elevations to escape sea-level rise and appearing as transient, isolated individuals in peripheral areas like northern Big Pine Key, likely dispersing from source keys like Howe Key.
- **Affected Reproduction:** While breeding can occur year-round, environmental variables and potential competition/stress likely influence the reproductive success and survival of juveniles. Northern populations of the *Oryzomys palustris* species group have larger litters than southern ones, which may suggest a naturally lower reproductive capacity in the Florida Keys population.

**2.30.2.5 ADDITIONAL BASELINE INFORMATION**

None.

**2.30.3 EFFECTS OF THE ACTION**

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

**2.30.3.1 INDIRECT INTERACTIONS**

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Wetland (swamp)	<a href="#">Decrease in vegetation</a>	<a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a> <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a> <a href="#">Dust prevention</a>	A silver rice rat would primarily deal with a decrease in swamp marsh habitat in Big Pine Key by <b>moving to higher elevations</b> ; however, this behavioral adaptation is a short-term solution and would ultimately lead to significant population decline due to habitat reduction and "coastal squeeze". The species is endangered, and	A silver rice rat would primarily deal with a decrease in swamp marsh habitat in Big Pine Key by <b>moving to higher elevations</b> ; however, this behavioral adaptation is a short-term solution and would ultimately lead to significant population decline due to habitat reduction and "coastal squeeze". The species is endangered, and

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>habitat loss is its primary threat. Specific responses to a decrease in swamp marsh would include:</p> <ul style="list-style-type: none"> <li>▪ <b>Habitat Shift:</b> The rats would move upslope to higher elevation habitats, such as buttonwood transition zones and hammock areas, to escape inundation from saltwater. Studies have shown they can temporarily shift their range faster than the rate of sea-level rise.</li> <li>▪ <b>Population Concentration:</b> As the total area of suitable low-elevation marsh habitat shrinks, the rats would become concentrated in smaller, fragmented patches of high ground, leading to higher densities in limited areas.</li> <li>▪ <b>Increased Competition and Predation:</b> Concentrated populations in transitional or developed areas face increased threats from non-native predators like domestic cats and raccoons, which thrive in human-altered landscapes. They also face</li> </ul>	<p>habitat loss is its primary threat. Specific responses to a decrease in swamp marsh would include:</p> <ul style="list-style-type: none"> <li>▪ <b>Habitat Shift:</b> The rats would move upslope to higher elevation habitats, such as buttonwood transition zones and hammock areas, to escape inundation from saltwater. Studies have shown they can temporarily shift their range faster than the rate of sea-level rise.</li> <li>▪ <b>Population Concentration:</b> As the total area of suitable low-elevation marsh habitat shrinks, the rats would become concentrated in smaller, fragmented patches of high ground, leading to higher densities in limited areas.</li> <li>▪ <b>Increased Competition and Predation:</b> Concentrated populations in transitional or developed areas face increased threats from non-native predators like domestic cats and raccoons, which thrive in human-altered landscapes. They also face</li> </ul>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>competition for resources with black rats.</p> <ul style="list-style-type: none"> <li>▪ <b>Reduced Foraging Area:</b> Swamp marshes and intertidal zones are primary foraging areas where the rats find crabs, snails, insects, and seeds at low tide. A decrease in this specific habitat would reduce food availability.</li> <li>▪ <b>Long-Term Decline:</b> Due to the limited availability of high-elevation land in the low-lying Florida Keys and ongoing development that prevents inland migration, this "coastal squeeze" is predicted to cause dramatic habitat loss and potential extinction for the species in the wild within decades if current trends continue.</li> </ul> <p>Conservation efforts aim to manage existing critical habitat and explore options like controlling non-native species or potentially assisted migration to mainland habitats as a last resort to ensure the species' survival. The U.S. Fish and Wildlife Service's recovery</p>	<p>competition for resources with black rats.</p> <ul style="list-style-type: none"> <li>▪ <b>Reduced Foraging Area:</b> Swamp marshes and intertidal zones are primary foraging areas where the rats find crabs, snails, insects, and seeds at low tide. A decrease in this specific habitat would reduce food availability.</li> <li>▪ <b>Long-Term Decline:</b> Due to the limited availability of high-elevation land in the low-lying Florida Keys and ongoing development that prevents inland migration, this "coastal squeeze" is predicted to cause dramatic habitat loss and potential extinction for the species in the wild within decades if current trends continue.</li> </ul> <p>Conservation efforts aim to manage existing critical habitat and explore options like controlling non-native species or potentially assisted migration to mainland habitats as a last resort to ensure the species' survival. The U.S. Fish and Wildlife Service's recovery</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			plan for the species is available for review on their website.	plan for the species is available for review on their website.

### 2.30.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Visibility (decreased)	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	Yes	<p>It is not practical to give an exact number of individual 'Silver Rice Rats' that will experience 'visibility (decrease)' in Big Pine Key due to a specific project. Instead, a <b>surrogate</b> measure of <b>potential habitat loss</b> is used to assess the impact. The common and necessary surrogate used is the <b>area of suitable or critical habitat lost or altered</b>. The effect of this habitat loss is a <b>decrease in the species' overall carrying capacity</b> in the region, making the remaining population more vulnerable to other threats and reducing the potential for population growth and recovery.</p> <p><b>Key Mitigation Strategies for Silver Rice Rats</b></p> <p>Habitat Protection &amp; Restoration: Conserving existing high-quality salt marsh/mangrove habitat, restoring degraded areas (e.g., planting mangroves), and managing for appropriate bunchgrass/ forb density.</p> <p>Invasive Species Control: Aggressively managing predators like feral cats and competitors like black rats, which prey on or compete with rice rats.</p>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>Habitat Compensation: Requiring developers to create or restore equivalent habitat (like salt marsh) for lost areas, with credit often given at a partial value for newer vegetation.</p> <p>Regulatory Measures: Implementing strong local ordinances (like those in Monroe County) and habitat conservation plans (HCPs) to limit habitat loss and fragmentation from development.</p> <p>Connectivity &amp; Climate Adaptation: Creating wildlife corridors to allow movement and gene flow, and planning for sea-level rise by protecting higher-elevation areas where rats can move.</p> <p><b>Development-Specific Actions</b></p> <p>Avoidance &amp; Minimization: Using assessment guides (like those from USFWS) to ensure projects have "no effect" or minimal impact on critical habitat.</p> <p>Habitat Compensation: Implementing rules where lost habitat acreage is compensated with "like-for-like" restoration, potentially at a reduced credit value.</p> <p>Public Engagement: Encouraging residents to keep cats indoors to reduce predation pressure.</p>

**2.30.4 CUMULATIVE EFFECTS**

The College is unaware of any anticipated future or state private activities, not involving Federal activities, that are reasonably certain to occur.

## 2.30.5 DISCUSSION AND CONCLUSION

**DETERMINATION: NLAA**

### COMPENSATION MEASURES

The College will follow all legal requirements and if possible, follow recommendations for mitigation,

### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [CFK Pig Pine Key dhr-compliance review consultation form](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)
- [BPK Map for app](#)

## 2.31 TRICOLORED BAT

### 2.31.1 STATUS OF THE SPECIES

*This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.*

#### 2.31.1.1 LEGAL STATUS

The Tricolored Bat is federally listed as 'Proposed Endangered' and additional information regarding its legal status can be found on the [ECOS species profile](#).

#### 2.31.1.2 RECOVERY PLANS

Available recovery plans for the Tricolored Bat can be found on the [ECOS species profile](#).

### **2.31.1.3 LIFE HISTORY INFORMATION**

The tricolored bat is a small insectivorous bat that is distinguished by its unique tricolored fur and often appears yellowish to nearly orange. The once common species is wide ranging across the eastern and central United States and portions of southern Canada, Mexico and Central America. During the winter, tricolored bats are often found in caves and abandoned mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts where they exhibit shorter torpor bouts and forage during warm nights. During the spring, summer, and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, but may also be found in Spanish moss, pine trees, and occasionally human structures. Tricolored bats face extinction due primarily to the rangewide impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. White-nose syndrome has caused estimated declines of more than 90 percent in affected tricolored bat colonies across the majority of the species range. To address the growing threat of white-nose syndrome to the tricolored bat and other bats across North America, the U.S. Fish and Wildlife Service is leading the White-nose Syndrome National Response Team, a coordinated effort of more than 150 non-governmental organizations, institutions, Tribes, and state and federal agencies. Together we are conducting critical white-nose syndrome research and developing management strategies to minimize impacts of the disease and recover affected bat populations. For more information on white-nose syndrome, please see: <https://www.whitenosesyndrome.org/> For more information on tricolored bats, please see: <https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus>

### **IDENTIFIED RESOURCE NEEDS**

#### **Forest**

Forests: they prefer mixed forests with mature trees, using leaves (live/dead), spanish moss (abundant in the keys), and tree cavities for roosting

#### **Riparian vegetation**

foraging happens along waterways and forest edges, especially near water.

#### **2.31.1.4 CONSERVATION NEEDS**

The Tricolored Bat's main needs center on combating White-Nose Syndrome (WNS), preserving roosting habitats (trees, dead fronds, buildings, caves) from loss, reducing wind turbine mortality, and mitigating habitat fragmentation/disturbance, with specific Florida actions focusing on monitoring WNS, protecting diverse roosts (trees/Spanish moss), and careful management around development/tourism, all detailed in recovery plans like the Federal Register document.

#### **General Conservation Needs**

**Disease Management:** Control White-Nose Syndrome (WNS), a fungal disease causing mass fatalities in hibernating bats, by reducing stress in hibernacula and preventing spread.

**Habitat Protection & Restoration:** Conserve diverse roosts (trees, dead leaves, human structures, caves) for summer/maternity and winter hibernation, preventing habitat loss and fragmentation.

**Climate Change Adaptation:** Address impacts like increased storm intensity (roost loss) and temperature shifts, requiring more energy for foraging/movement.

**Wind Energy Mitigation:** Reduce mortality from turbine collisions through better siting and operational changes (e.g., curtailment at low speeds).

**Disturbance Reduction:** Minimize human entry into hibernating sites and protect maternity roosts from disruption.

#### **Needs & Actions in Florida (Big Pine Key Area)**

**WNS Monitoring:** Prevent WNS introduction/spread into Florida, as it's devastating elsewhere, by managing cave entry and monitoring fungal presence.

**Roost Habitat Focus:** Protect live/dead trees, Spanish moss, and man-made structures (bridges, buildings) used as roosts, as these are crucial for roosting and maternity.

**Habitat Connectivity:** Maintain habitat corridors for foraging and migration, especially around development in the Keys.

**Development & Tourism Management:** Implement guidelines (like FDOT's for tree trimming/clearing during maternity season) to avoid impacts on maternity roosts and bat activity, especially near sensitive areas like Big Pine Key.

**Research & Monitoring:** Conduct surveys (acoustic/mist-netting) to understand local populations, roosts, and WNS presence, informing targeted actions.

#### **Key Actions**

**Habitat Restoration:** Restore degraded areas to increase insect prey and provide suitable roosts.

Artificial Roosts: Deploy heated bat boxes or insect-attracting lures to support populations.

**Stakeholder Collaboration: Work with engineers, biologists, and landowners to implement protective measures and minimize habitat impact.**

Regulatory Framework: Utilize the Endangered Species Act (ESA) for federal projects and develop Habitat Conservation Plans (HCPs) for non-federal actions to balance development with species protection.

## **2.31.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

### **2.31.2.1 SPECIES PRESENCE AND USE**

The Tricolored Bat is listed as a Proposed species

### **2.31.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA**

**Stakeholder Collaboration: Work with engineers, biologists, and landowners to implement protective measures and minimize habitat impact.**

### 2.31.2.3 HABITAT CONDITION (GENERAL)

#### FOREST (FORESTS: THEY PREFER MIXED FORESTS WITH MATURE TREES, USING LEAVES (LIVE/DEAD), SPANISH MOSS (ABUNDANT IN THE KEYS), AND TREE CAVITIES FOR ROOSTING)

Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast, rockland hammock contains more hardwood shrubs and trees due to less fire influence. Considering both land types occur in conjunction with limestone substrate in south Florida and the Keys and RRCs have been observed in both, we may refer to these two habitats as rockland habitat throughout the report. There are also occurrence records from human-altered habitats such as roadsides, vacant lots, and pastures with shrubby growth and slash pines

#### **SUPPORTING DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [450 Key Deer Blvd. Pineland Croton survey February 2025 Invoice](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

### 2.31.2.4 INFLUENCES

- Within Big Pine Key, Florida, the tricolored bat (*Perimyotis subflavus*) population is primarily threatened by white-nose syndrome across its range. However, several other local human activities and their secondary effects contribute to stressors on the species, primarily through **habitat loss and modification**. Activities within Big Pine Key that may have affected the tricolored bat population include:
  - **Habitat Loss and Fragmentation**
  - **Climate Change Impacts (Exacerbated by Human Activity)**
  - **Other Disturbances and Contamination**

### 2.31.2.5 ADDITIONAL BASELINE INFORMATION

None known.

### 2.31.3 EFFECTS OF THE ACTION

*This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.*

### 2.31.3.1 INDIRECT INTERACTIONS

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
<p>Forest (forests: they prefer mixed forests with mature trees, using leaves (live/dead), spanish moss (abundant in the keys), and tree cavities for roosting)</p>	<p><a href="#">Change in vegetation structure</a></p>	<p><a href="#">Be cognizant of wildlife and vegetation on site, be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>General information on the tricolored bat in Florida indicates it is a Species of Greatest Conservation Need, with a proposed federal endangered status due primarily to the spread of white-nose syndrome (WNS), which has caused severe population declines in affected areas (90-100% in some winter colonies). However, specific, quantifiable data regarding the exact size, scope, or magnitude of a <i>specific</i> forest change impacting the tricolored bat population at the precise location of <b>450 Key Deer Blvd, Big Pine Key, FL</b> is not available in the provided sources. More broadly, the potential for forest changes to impact the tricolored bat population on Big Pine Key can be quantified in terms of habitat loss due to sea-level rise and general deforestation, as these are known threats to the species. Impact Details</p> <ul style="list-style-type: none"> <li>▪ <b>Florida Population Decline:</b> The overall tricolored bat population in Florida has declined by an estimated <b>70%</b></li> </ul>	<p>General information on the tricolored bat in Florida indicates it is a Species of Greatest Conservation Need, with a proposed federal endangered status due primarily to the spread of white-nose syndrome (WNS), which has caused severe population declines in affected areas (90-100% in some winter colonies). However, specific, quantifiable data regarding the exact size, scope, or magnitude of a <i>specific</i> forest change impacting the tricolored bat population at the precise location of <b>450 Key Deer Blvd, Big Pine Key, FL</b> is not available in the provided sources. More broadly, the potential for forest changes to impact the tricolored bat population on Big Pine Key can be quantified in terms of habitat loss due to sea-level rise and general deforestation, as these are known threats to the species. Impact Details</p> <ul style="list-style-type: none"> <li>▪ <b>Florida Population Decline:</b> The overall tricolored bat population in Florida has declined by an estimated <b>70%</b></li> </ul>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>since 2014, though the exact cause for the Florida decline is unknown (WNS has not yet been detected in Florida).</p> <ul style="list-style-type: none"> <li>▪ <b>General Habitat Loss:</b> Deforestation and habitat fragmentation are recognized major threats, leading to loss of feeding and roosting areas. Loss of forest cover can force bats to travel further between roosting and foraging sites, increasing energetic costs and potentially impacting reproductive success.</li> <li>▪ <b>Location-Specific Impacts (Big Pine Key):</b> The general Big Pine Key area is experiencing significant habitat changes due to <b>sea-level rise</b> and <b>saltwater intrusion</b>, which is converting upland pine rocklands to mangrove and</li> </ul>	<p>since 2014, though the exact cause for the Florida decline is unknown (WNS has not yet been detected in Florida).</p> <ul style="list-style-type: none"> <li>▪ <b>General Habitat Loss:</b> Deforestation and habitat fragmentation are recognized major threats, leading to loss of feeding and roosting areas. Loss of forest cover can force bats to travel further between roosting and foraging sites, increasing energetic costs and potentially impacting reproductive success.</li> <li>▪ <b>Location-Specific Impacts (Big Pine Key):</b> The general Big Pine Key area is experiencing significant habitat changes due to <b>sea-level rise</b> and <b>saltwater intrusion</b>, which is converting upland pine rocklands to mangrove</li> </ul>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
			<p>estuarine habitats.</p> <ul style="list-style-type: none"> <li>▪ <b>Specific Site (450 Key Deer Blvd):</b> This address is within the National Key Deer Refuge area. While broad, landscape-level threats from climate change are documented, the sources do not specify the exact area of forest loss (e.g., in acres or square footage) <i>at this specific address</i> and the direct, quantifiable impact solely on the tricolored bat population at that precise location.</li> </ul> <p>The primary threats to the species are rangewide WNS and general habitat loss. The magnitude of impact at a specific, local site like 450 Key Deer Blvd would depend entirely on the scale of any specific development or natural changes occurring there.</p>	<p>and estuarine habitats.</p> <ul style="list-style-type: none"> <li>▪ <b>Specific Site (450 Key Deer Blvd):</b> This address is within the National Key Deer Refuge area. While broad, landscape-level threats from climate change are documented, the sources do not specify the exact area of forest loss (e.g., in acres or square footage) <i>at this specific address</i> and the direct, quantifiable impact solely on the tricolored bat population at that precise location.</li> </ul> <p>The primary threats to the species are rangewide WNS and general habitat loss. The magnitude of impact at a specific, local site like 450 Key Deer Blvd would depend entirely on the scale of any specific development or natural changes occurring there.</p>

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Riparian vegetation ( foraging happens along waterways and forest edges, especially near water.)			<i>This resource is not present in the action area</i> No observable fresh water source was located on the property.	<i>There will be no impacts to this resource, so no individuals will be affected.</i>

### 2.31.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Visual disturbance	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	Yes	<p>It is not practical to express the number of individual Tricolored Bats experiencing 'visual disturbance' as a precise number of individuals. I</p> <ul style="list-style-type: none"> <li>▪ Tricolored Bats are small, mobile, and nocturnal, making precise population counts and tracking of individuals extremely difficult.</li> <li>▪ They roost in varied locations in Florida, including tree foliage, Spanish moss, and human structures, and can change locations.</li> <li>▪ Their presence in the Florida Keys is generally considered uncommon, making the local population size at a specific address like 450 Big Pine Key highly variable and unknown without intensive, long-term site-specific surveys.</li> <li>▪ Environmental impact assessments for development projects often rely on predictable, measurable metrics, and bat populations are highly dynamic</li> </ul>

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			<p>and difficult to quantify at an individual level for a specific disturbance like visual changes.</p> <ul style="list-style-type: none"> <li>▪ <b>The surrogate measure is the size of the habitat area impacted by the proposed activity (vehicle track and concrete pad construction).</b></li> </ul>

**2.31.4 CUMULATIVE EFFECTS**

The College is unaware of any anticipated future state or private activities, not involving Federal activities, that are reasonably certain to occur within the land parcel.

## 2.31.5 DISCUSSION AND CONCLUSION

### DETERMINATION: NLAA

#### COMPENSATION MEASURES

It is not practical to express the number of individual Tricolored Bats experiencing 'visual disturbance' as a precise number of individuals. Instead, a **surrogate measure is necessary**, and in this case, the **acreage of affected habitat is used**. Why a Surrogate is Necessary Directly counting the number of individual Tricolored Bats that would be visually disturbed is impossible due to the nature of the species and the environment:

- Tricolored Bats are small, mobile, and nocturnal, making precise population counts and tracking of individuals extremely difficult.
- They roost in varied locations in Florida, including tree foliage, Spanish moss, and human structures, and can change locations.
- Their presence in the Florida Keys is generally considered uncommon, making the local population size at a specific address like 450 Big Pine Key highly variable and unknown without intensive, long-term site-specific surveys.
- Environmental impact assessments for development projects often rely on predictable, measurable metrics, and bat populations are highly dynamic and difficult to quantify at an individual level for a specific disturbance like visual changes.
- **Causal Link:**
- **Quantitative Link:**

Causal and Quantitative Links to Individuals The **surrogate measure is the size of the habitat area impacted by the proposed activity (vehicle track and concrete pad construction)**.

#### RELEVANT DOCUMENTATION

- [Vegetation survey February 2025](#)
- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)
- [State Clearinghouse Coastal Mgmt approval](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)
- [Monroe County ECR](#)

## **2.32 WEDGE SPURGE**

*This species has been excluded from analysis in this environmental review document.*

### **RELEVANT DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [Monroe County ECR](#)

### **JUSTIFICATION FOR EXCLUSION**

Not listed on either report as being present on the property.

## **2.33 WEST INDIAN MANATEE**

*This species has been excluded from analysis in this environmental review document.*

### **JUSTIFICATION FOR EXCLUSION**

There is no wetland that is being built on.

## **3 CRITICAL HABITAT EFFECTS ANALYSIS**

### **3.1 BARTRAM'S HAIRSTREAK BUTTERFLY CRITICAL HABITAT**

*This critical habitat has been excluded from analysis in this environmental review document.*

#### **RELEVANT DOCUMENTATION**

- [Vegetation survey February 2025](#)

#### **JUSTIFICATION FOR EXCLUSION**

The Croton habitat was not present.

### **3.2 FLORIDA KEYS MOLE SKINK CRITICAL HABITAT**

#### **3.2.1 CRITICAL HABITAT DESCRIPTION**

Critical habitat has been designated for the 'Florida Keys Mole Skink', the final rule can be found at [ECOS species profile](#). The rule outlines required physical and biological features needed for critical habitat to be present.

#### **3.2.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the condition of the critical habitat within the action area only at the time of the consultation, and does not include the effects of the action under review.*

### 3.2.2.1 CONDITION OF PHYSICAL AND BIOLOGICAL FEATURES

You indicated that Florida Keys Mole Skink critical habitat is present in your action area it in the following manner.

Florida Keys Mole Skink

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Florida

Keys Mole Skink in reference to their preferred habitat:

"Loose soils that allow for "swimming" mobility through substrate are conducive to burrowing and

nesting, and so the species requires, or highly prefers, loose soils (Christman 1992, p. 179). Mount

(1963, p. 359) identified the two key ecological factors affecting mole skink distribution as soil and

moisture conditions and seldom encountered mole skinks where the soil was not well drained and

friable. The Florida Keys mole skink has been found in wave-washed wrack, debris, and piles of rocks.

They have also been found among rocks a few feet above the water on railroad embankments in the

Upper Keys (Carr 1940, p. 75). Individual skinks have also been observed in shaded areas beneath stones

in sandy areas of Key West and Stock Island (Duellman and Schwartz 1958, p. 289). The Florida Keys

mole skink is documented in the beach berm zones and coastal hammocks in the Upper and Middle

Keys (Monroe County 2016a, n.p.; Service 2021, n.p.). However, evidence suggests that the species

can live in small areas of habitat or microhabitats within other mapped habitat types, including

developed areas; individuals have been detected in developed areas of Key West (a backyard garden),

Big Pine Key (along a road), and Key Vaca (in a landscaped area) and within pine rockland habitat

on Big Pine Key (Emerick 2017a, pp. 4–5; iNaturalist 2020, entire). However, the vast majority of

detections are within the beach berm habitat type and adjacent dunes (Emerick 2017a, p. 5).”

“Beach berm and coastal hammock are identified as potential Florida Keys mole skink habitat in,

although these habitat classifications do not represent all of the potential habitat, as skinks have been

located in other areas, as described above.”

During the assessment, dry loose soil and large amounts of leaf litter were observed in several scattered

areas throughout the lot. While no beach berm was observed on the lot, the paved road and the landscaped

areas match some of the specific mentions for the species in the Lower Keys, and Big Pine Key

specifically. Pine Rockland habitat is not present on the subject Lot itself, but there is large, contiguous

Pine Rockland Forest neighboring some of this lot. The areas of dense native vegetation, while somewhat

fragmented, also match the possibility of this species inhabiting microhabitats.

Due to these considerations this assessment concludes that the Florida Keys Mole Skink May Affect –

Likely to Adversely Affected by a proposed project.

#### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### **3.2.2.2 CONSERVATION NEEDS OF PHYSICAL AND BIOLOGICAL FEATURES**

The Florida Keys Mole Skink needs protection for its sandy, vegetated coastal habitats (beach berms, coastal hammocks) against sea-level rise, erosion, and development, requiring habitat acquisition/restoration, controlling invasive fire ants/plants, and managing human impacts, with specific needs for dry, friable soil and ground cover (leaf litter, wrack) for survival, shelter, and foraging, all crucial for this secretive burrowing lizard's persistence in the Keys.

#### Physical Features & Needs (Habitat)

**Sandy, Well-Drained Soils:** Skinks "swim" through loose, crumbly (friable) sand, requiring deep enough substrate for movement and cover.

**Coastal Vegetation & Debris:** Needs leaf litter, tidal wrack (washed-up vegetation), rocks, and root masses for protection, temperature moderation, and to attract insect prey (spiders, crickets, roaches).

**Beach Berms & Coastal Hammocks:** These specific island microhabitats are essential for nesting and living.

#### Biological Features & Needs (The Skink)

**Secretive & Semi-Fossorial:** Spends most time underground, using its body to "swim" through sand.

**Cryptic Coloration:** Tan/brown body with a bright pinkish-red tail (lost when threatened) helps camouflage.

**Reproduction:** Females guard and lick eggs until hatching.

#### Special Management & Protection Needs

**Habitat Protection & Restoration:** Acquire and protect coastal lands, restore natural storm buffers, and manage development impacts.

**Invasive Species Control:** Eradicate red imported fire ants (major predator/stressor) and non-native plants that alter soil/cover.

**Climate Adaptation:** Develop strategies for sea-level rise, as inundation threatens island survival.

**Habitat Enhancement:** Create/maintain coverboards in suitable areas to monitor populations and provide habitat.

**Legal Protection:** Maintain state (Threatened) and federal (proposed/listed as Threatened) protections, including 4(d) rules for tailored conservation.

Relevance to 450 Key Deer Blvd Area

While 450 Key Deer Blvd isn't specified in the results, the general needs apply to the Keys: protect sandy shorelines, manage development, control fire ants, and preserve natural ground cover, especially if the skinks occur in the sandy scrub or coastal areas nearby, which are vital for their burrowing and foraging

### 3.2.2.3 INFLUENCES

The area around 450 Key Deer Boulevard, which is within the **National Key Deer Refuge** on Big Pine Key, has been significantly affected by a combination of past and ongoing **anthropogenic and natural influences**. These influences have shaped the physical landscape and the distribution and condition of biological features, particularly the endangered Key deer and their habitat. Anthropogenic (Human-related) Influences

- **Hunting and Poaching:** Historically, unregulated hunting and poaching drastically reduced the Key deer population to fewer than 50 individuals by the 1950s. The establishment of the National Key Deer Refuge in 1957 and endangered species listing in 1967 helped the population recover.
- **Urban Development and Habitat Loss:** Significant residential and commercial development, especially since the 1970s, has led to substantial **habitat loss and fragmentation**. This development replaced natural vegetation and freshwater sources with buildings, roads, and saltwater canals, pushing the deer into closer contact with human settlements.
- **Vehicle Collisions:** Today, collisions with vehicles on local roads and U.S. Highway 1 are the primary cause of Key deer mortality. Speed limit enforcement and fencing have been implemented as management strategies.
- **Illegal Feeding:** Humans illegally feeding deer has conditioned them to approach people and enter residential areas, increasing their vulnerability to diseases, parasites, and vehicle strikes.
- **Natural Influences**
  - **Climate Change and Sea Level Rise:** This is the most significant long-term threat. Sea level rise leads to:
  - **Hurricanes and Storm Surges:** Frequent and intense hurricanes and associated storm surges cause widespread damage to habitat and lead to acute salinization events of remaining freshwater supplies. For example, Hurricane Irma in 2017 heavily impacted the deer population and their environment.
  - **Disease and Parasites:** Natural occurrences of disease or parasites, such as the screwworm outbreak in 2016, have caused significant, sudden declines in the Key deer population

### 3.2.2.4 ADDITIONAL BASELINE INFORMATION

#### Florida Keys Mole Skink

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the

Florida Keys Mole Skink in reference to their preferred habitat:

“Loose soils that allow for “swimming” mobility through substrate are conducive to burrowing and

nesting, and so the species requires, or highly prefers, loose soils (Christman 1992, p. 179).

Mount (1963, p. 359) identified the two key ecological factors affecting mole skink distribution as

soil and moisture conditions and seldom encountered mole skinks where the soil was not well drained

and friable. The Florida Keys mole skink has been found in wave-washed wrack, debris, and piles of

rocks. They have also been found among rocks a few feet above the water on railroad embankments in

the Upper Keys (Carr 1940, p. 75). Individual skinks have also been observed in shaded areas

beneath stones in sandy areas of Key West and Stock Island (Duellman and Schwartz 1958, p. 289).

The Florida Keys mole skink is documented in the beach berm zones and coastal hammocks in the Upper

and Middle

Keys (Monroe County 2016a, n.p.; Service 2021, n.p.). However, evidence suggests that the species

can live in small areas of habitat or microhabitats within other mapped habitat types, including

developed areas; individuals have been detected in developed areas of Key West (a backyard garden),

Big Pine Key (along a road), and Key Vaca (in a landscaped area) and within pine rockland habitat

on Big Pine Key (Emerick 2017a, pp. 4–5; iNaturalist 2020, entire). However, the vast majority of

detections are within the beach berm habitat type and adjacent dunes (Emerick 2017a, p. 5).”

“Beach berm and coastal hammock are identified as potential Florida Keys mole skink habitat in,

although these habitat classifications do not represent all of the potential habitat, as skinks

have been located in other areas, as described above.”

During the assessment, dry loose soil and large amounts of leaf litter were observed in several

scattered areas throughout the lot. While no beach berm was observed on the lot, the paved road and

the landscaped areas match some of the specific mentions for the species in the Lower Keys, and Big

Pine Key specifically. Pine Rockland habitat is not present on the subject Lot itself, but there is

large, contiguous Pine Rockland Forest neighboring some of this lot. The areas of dense native

vegetation, while somewhat fragmented, also match the possibility of this species inhabiting

microhabitats.

Due to these considerations this assessment concludes that the Florida Keys Mole Skink May Affect –

Likely to Adversely Affected by a proposed project.

### 3.2.3 EFFECTS OF THE ACTION

All of the anticipated effects of the action to Florida Keys Mole Skink critical habitat are captured in the table below.

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
<p><a href="#">Change in human presence</a></p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>Yes</p>	<p>F lorida Keys Mole Skink</p> <p>The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the</p> <p>Florida Keys Mole Skink in reference to their preferred habitat:</p> <p>"Loose soils that allow for "swimming" mobility through substrate are conducive to burrowing and</p> <p>nesting, and so the species requires, or highly prefers, loose soils (Christman 1992, p. 179).</p> <p>Mount (1963, p. 359) identified the two key ecological factors affecting mole skink distribution as</p> <p>soil and moisture conditions and seldom encountered mole skinks where the soil was not well drained</p> <p>and friable. The Florida Keys mole skink has been found in wave-washed wrack, debris, and piles of</p> <p>rocks. They have also been found among rocks a few feet above the water on railroad embankments in</p> <p>the Upper Keys (Carr 1940, p. 75). Individual skinks have also been observed in shaded areas</p> <p>beneath stones in sandy areas of Key West and Stock Island (Duellman and Schwartz 1958, p. 289).</p>

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
			<p>The Florida Keys mole skink is documented in the beach berm zones and coastal hammocks in the Upper and Middle Keys (Monroe County 2016a, n.p.; Service 2021, n.p.). However, evidence suggests that the species can live in small areas of habitat or microhabitats within other mapped habitat types, including developed areas; individuals have been detected in developed areas of Key West (a backyard garden), Big Pine Key (along a road), and Key Vaca (in a landscaped area) and within pine rockland habitat on Big Pine Key (Emerick 2017a, pp. 4–5; iNaturalist 2020, entire). However, the vast majority of detections are within the beach berm habitat type and adjacent dunes (Emerick 2017a, p. 5).”</p> <p>“Beach berm and coastal hammock are identified as potential Florida Keys mole skink habitat in, although these habitat classifications do not represent all of the potential habitat, as skinks have been located in other areas, as described above.”</p> <p>During the assessment, dry loose soil and large amounts of leaf litter were observed in several</p>

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
			<p>scattered areas throughout the lot. While no beach berm was observed on the lot, the paved road and</p> <p>the landscaped areas match some of the specific mentions for the species in the Lower Keys, and Big</p> <p>Pine Key specifically. Pine Rockland habitat is not present on the subject Lot itself, but there is</p> <p>large, contiguous Pine Rockland Forest neighboring some of this lot. The areas of dense native</p> <p>vegetation, while somewhat fragmented, also match the possibility of this species inhabiting</p> <p>microhabitats.</p> <p>Due to these considerations this assessment concludes that the Florida Keys Mole Skink May Affect –</p> <p>Likely to Adversely Affected by a proposed project.</p>

**3.2.4 CUMULATIVE EFFECTS**

Not known to the College.

**3.2.5 DISCUSSION AND CONCLUSION**

**DETERMINATION: LAA**

**RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### **3.3 FLORIDA LEAFWING BUTTERFLY CRITICAL HABITAT**

*This critical habitat has been excluded from analysis in this environmental review document.*

#### **RELEVANT DOCUMENTATION**

- [Vegetation survey February 2025](#)
- [Huckleberry Eco Services 450 Key Deer Blvd. Pineland Croton survey February 2025](#)

#### **JUSTIFICATION FOR EXCLUSION**

The Leafwing butterfly feeds on the pineland croton. This plant species was surveyed for during February 2025 and no individual plants were found. The effects determination for the Leafwing butterfly is "no effect".

### **3.4 KEY RING-NECKED SNAKE CRITICAL HABITAT**

#### **3.4.1 CRITICAL HABITAT DESCRIPTION**

Critical habitat has been designated for the '**Key Ring-necked Snake**', the final rule can be found at [ECOS species profile](#). The rule outlines required physical and biological features needed for critical habitat to be present.

#### **3.4.2 ENVIRONMENTAL BASELINE**

*The environmental baseline describes the condition of the critical habitat within the action area only at the time of the consultation, and does not include the effects of the action under review.*

### 3.4.2.1 CONDITION OF PHYSICAL AND BIOLOGICAL FEATURES

You indicated that Key Ring-necked Snake critical habitat is present in your action area it in the following manner.

#### Key Ring-necked Snake

The following is an excerpt from the US Fish and Wildlife's Species Status Assessment for the Key

Ring-necked Snake in reference to their preferred habitat.

"Based on limited information, suitable habitat appears to consist of pinelands, pine rocklands,

tropical hammock, rockland hammock, limestone outcroppings and rocky pine scrub areas (McDiarmid

1978, p. 41; Lazell 1989, p. 134; Auth and Scott 1996, p. 33; Enge et al. 2003, pp. 26–28). Most of

the observations in the Florida Keys were from pine rocklands or nearby rockland hammocks. This

subspecies appears to be restricted to areas near permanent freshwater that often occur as small

holes in the limestone (Lazell 1989, pp. 134, 136). All *Diadophis* apparently require moist

microhabitats to balance evaporative water loss from the body (Myers 1965, p. 4; Clark 1967, pp.

492–494). In addition, this subspecies has been found crossing roads at night and under flat rocks and boards (Paulson 1968, p. 300; Lazell 1989, p. 134; FWC 2013, While no preferred habitats from the Species Status Assessment report were found on the lot, a large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt road to the north and paved road to the east.

The description of this species being restricted to freshwater sources was also a guiding factor

for this species. During the assessment exposed capstone and large amounts of decaying vegetation

were observed and may provide pooling opportunities or the decrepit structures may be holding

moisture, however no permanent sources of freshwater were directly observed.

Utilizing ArcGIS habitat overlays the nearest permanent sources of freshwater appear to be

approximately 215 meters away from the lot.

With the above in consideration as well as the additional presence of old buildings falling apart

and the clustered, dense native vegetation on the lot, this assessment concludes that the Key

Ring-necked Snake “May Affect – Likely to Adversely Affect” by proposed development on

the lot

#### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### 3.4.2.2 CONSERVATION NEEDS OF PHYSICAL AND BIOLOGICAL FEATURES

The Key ring-necked snake at Big Pine Key needs protection from habitat loss ([pine rockland](https://www.google.com/search?q=pine+rockland&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=pine+rockland&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=pine+rockland&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)),

development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

development restrictions (like Monroe County's HCP), and careful management of freshwater sources, as this tiny, secretive snake relies on specific moist, rocky, forested microhabitats for shelter, foraging ([earthworms](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=earthworms&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and thermoregulation, all threatened by climate change and urbanization. Physical Features & Needs

development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

development restrictions (like Monroe County's HCP), and careful management of freshwater sources, as this tiny, secretive snake relies on specific moist, rocky, forested microhabitats for shelter, foraging ([earthworms](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=earthworms&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and thermoregulation, all threatened by climate change and urbanization. Physical Features & Needs

development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

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development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

development restrictions (like Monroe County's HCP), and careful management of freshwater sources, as this tiny, secretive snake relies on specific moist, rocky, forested microhabitats for shelter, foraging ([earthworms](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=earthworms&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=earthworms&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBSnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and thermoregulation, all threatened by climate change and urbanization. Physical Features & Needs

development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

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development, road mortality, [sea level rise](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3) ([https://www.google.com/search?q=sea+level+rise&sca\\_esv=796ee9412d452537&rlz=1C1CHBF\\_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w\\_EcXwo\\_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3](https://www.google.com/search?q=sea+level+rise&sca_esv=796ee9412d452537&rlz=1C1CHBF_enUS1103US1103&sxsrf=AE3TifOuBnecked+Snake+at+450+Key+Deer+Boulevard+Big+Pine+Key%2C+FL+33042.+lf+physical+and+biolAEBmAlAoAlAmAMA4gMFEgExIECSBwCgBwCyBwC4BwDCBwDIBwCACAA&sclient=gws-wiz-serp&mstk=AUtExfBeiOcfjRkLV6XZ4IXduUIWK9GegbQLKAMNTLSVUMtwqtoPzV2aLRKNolli3lkn46lqz4th1w_EcXwo_Z33TZys3AX2fsI9T8SWzp8V5tCYEkLtQkj5kvZG9yZELPT5N-KuYe01YGfqYCUlrvbldt&csui=3)), and storm surge, requiring habitat conservation,

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- **Habitat Structure:** Needs moist, rocky substrates with deep leaf litter (4-8 inches), rotting logs, and root systems for burrowing, nesting, and predator avoidance.
- **Microclimate:** Requires stable, humid conditions (65-85% humidity, 40-80% canopy cover) to regulate temperature and prevent desiccation.
- **Water:** Relies on freshwater sources, which are threatened by saltwater intrusion from sea-level rise.
- **Specific Locations:** Found in pine rocklands and rockland hammocks, often near water features, including residential areas where they get trapped in pools.

- **Diet:** Eats small, soft-bodied prey like earthworms, which are also vulnerable to habitat changes.
- **Behavior:** Secretive, fossorial (burrowing), using bright belly colors and musk as defense; susceptible to being crushed during yard work or in pools.
- **Population Vulnerability:** Restricted range, habitat fragmentation (98% loss), and threats from flooding/storms make populations precarious.
- **Habitat Preservation:** Protect remaining pine rocklands/hammocks from clearing for development or landscaping.
- **Development Controls:** Adhere to Monroe County's Habitat Conservation Plan (HCP) for Big Pine Key to mitigate impacts on native habitats.
- **Storm Preparedness:** Address flood risks from severe storms and sea-level rise through better planning.
- **Road Safety:** Reduce road mortality through public awareness and habitat connectivity.
- **Residential Management:** Residents should leave leaf litter, rocks, and logs in place; use skimmers for pool rescues; report sightings to FWC.
- **Invasive Species:** Control fire ants, which are a predator.
- **State Threatened:** Protected in Florida.
- **Federal Proposal:** Proposed for Endangered Species Act listing due to existential threats.
- **Management Plans:** FWC's Imperiled Species Management Plan and Federal Habitat Conservation Plans guide actions.

### 3.4.2.3 INFLUENCES

The area around 450 Key Deer Boulevard in Big Pine Key, Florida, part of the **National Key Deer Refuge**, has been significantly affected by both human and natural influences, leading to changes in the physical landscape and biological features of the local ecosystem. Anthropogenic (Human) Influences

- **Habitat Loss and Fragmentation:** Historically, uncontrolled hunting severely reduced the Key deer population. In recent decades, extensive **urban development**, including the construction of houses and commercial areas (bars, restaurants, gas stations), has fragmented and destroyed native habitats like the pine rocklands that once defined the area. This development has pushed the deer into closer contact with human populations.
- **Roads and Vehicular Traffic:** The development of roads, especially US Highway 1 and Key Deer Boulevard, and increased traffic are the leading causes of Key deer mortality today. Fencing along highways and other developments obstructs natural migration routes.
- **Altered Hydrology:** Elevated roadways and other development have cut off natural freshwater flow and impounded wetlands for decades, leading to increased salinities in historically freshwater areas. A current restoration project is working to remove abandoned roads and install water control structures to restore natural water flow and improve freshwater availability.
- **Introduced Species and Pollution:** The intentional introduction of fish (*Gambusia*) in mosquito ditches, and unintentional introduction of invasive plants/animals, has affected the ecosystem. Runoff from septic tanks, fertilizers, and general pollution also impact the surrounding marine and terrestrial environments.
- **Climate Change and Sea-Level Rise (SLR):** This is the dominant long-term threat. SLR is causing saltwater intrusion into the island's unique karst bedrock, which naturally stores rainwater. This contaminates and shrinks the available freshwater supply, a critical resource for Key deer and other wildlife.
- **Extreme Weather Events:** Stronger hurricanes and storm surges, exacerbated by climate change, lead to major salinization events, further damaging deer habitat, freshwater sources, and vegetation (e.g., killing Florida slash pines, allowing mangroves to encroach).
- **Fire Ecology:** Pine rockland ecosystems are naturally fire-dependent. Historical data suggests fire has long been a natural part of the environment, with a history of lightning-induced fires. Fire suppression efforts by humans may have altered this natural cycle, but current management plans are reintroducing prescribed fire to clear underbrush and restore native plant communities.
- **Disease Outbreaks:** Natural events such as screwworm outbreaks have caused significant, though temporary, drops in the Key deer population in recent years

#### **3.4.2.4 ADDITIONAL BASELINE INFORMATION**

While no preferred habitats from the Species Status Assessment report were found on the lot, a

large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt

road to the north and paved road to the east.

### 3.4.3 EFFECTS OF THE ACTION

All of the anticipated effects of the action to Key Ring-necked Snake critical habitat are captured in the table below.

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
<p><a href="#">Change in habitat structure</a>  <a href="#">Increase in human presence</a></p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a>  <a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a>  <a href="#">Dust prevention</a></p>	<p>Yes</p>	<p>While no preferred habitats from the Species Status Assessment report were found on the lot, a large contiguous area of Pine Rockland habitat is nearby, separated from the subject lot by a dirt road to the north and paved road to the east.</p> <p>The description of this species being restricted to freshwater sources was also a guiding factor for this species. During the assessment exposed capstone and large amounts of decaying vegetation were observed and may provide pooling opportunities or the decrepit structures may be holding moisture, however no permanent sources of freshwater were directly observed.</p> <p>Utilizing ArcGIS habitat overlays the nearest permanent sources of freshwater appear to be approximately 215 meters away from the lot.</p> <p>With the above in consideration as well as the additional presence of old buildings falling apart and the clustered, dense native vegetation on the lot, this assessment concludes that the Key Ring-necked Snake “May Affect – Likely to Adversely Affect” by proposed development on</p>

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
			the lot.

### 3.4.4 CUMULATIVE EFFECTS

Unknown by the College.

### 3.4.5 DISCUSSION AND CONCLUSION

DETERMINATION: LAA

### RELEVANT DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

## 3.5 RIM ROCK CROWNED SNAKE CRITICAL HABITAT

### 3.5.1 CRITICAL HABITAT DESCRIPTION

Critical habitat has been designated for the 'Rim Rock Crowned Snake', the final rule can be found at [ECOS species profile](#). The rule outlines required physical and biological features needed for critical habitat to be present.

### 3.5.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the condition of the critical habitat within the action area only at the time of the consultation, and does not include the effects of the action under review.*

### **3.5.2.1 CONDITION OF PHYSICAL AND BIOLOGICAL FEATURES**

You indicated that Rim Rock Crowned Snake critical habitat is present in your action area it in the following manner.

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

#### **RELEVANT DOCUMENTATION**

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

### 3.5.2.2 CONSERVATION NEEDS OF PHYSICAL AND BIOLOGICAL FEATURES

The Rim Rock Crowned Snake (RRC) at 450 Key Deer Blvd, Big Pine Key, needs habitat protection focused on preserving its rare pine rockland/hardwood hammock home, managing threats from sea-level rise/saltwater intrusion via freshwater source protection, controlling development, and removing invasive species like fire ants, while also securing habitat under rock/debris for shelter and food (centipedes). Specific needs include safeguarding limestone formations, maintaining leaf litter, minimizing development impacts, and managing water quality to combat climate change effects on its limited habitat. Physical Feature Needs: Limestone & Shelter

- **Habitat Type:** RRCs live in fragile pine rocklands and tropical hardwood hammocks, using the limestone rock formations as primary shelter.
- **Protection:** Keep limestone rocks, logs, and leaf litter undisturbed; these secretive snakes hide underneath them. Seal small structural gaps (over 1/4 inch) in nearby buildings to prevent entry and entrapment.
- **Management:** Avoid clearing dense undergrowth; maintain leaf litter and debris piles, which are crucial for cover and foraging.
- **Diet:** They feed on centipedes, so maintaining healthy invertebrate populations is vital.
- **Water:** Freshwater sources are critical. Protect these from saltwater intrusion caused by sea-level rise, a major threat in the Keys.
- **Management:** Control invasive fire ants, which prey on the snakes and their food.
- **Climate Change:** Sea-level rise and increased storm intensity directly threaten Keys populations by flooding and salinating freshwater.
- **Development:** Urban sprawl fragments habitat and increases risks.
- **Management:** Protect existing habitat (like the Big Pine Key/No Name Key HCP), restore habitat, and research captive breeding as a long-term strategy as climate impacts worsen

### 3.5.2.3 INFLUENCES

#### Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCs likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

### 3.5.2.4 ADDITIONAL BASELINE INFORMATION

#### Rim Rock Crowned Snake

The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock

Crowned Snake in reference to their preferred habitat.

“Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland

hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically

imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and dominated by pine trees and a diverse understory of grasses and forbs/herbs. In contrast,

rockland hammock contains more hardwood shrubs and trees due to less fire influence.

Considering both land types occur in conjunction with limestone substrate in south Florida and

the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland

habitat throughout the report. There are also occurrence records from human-altered habitats

such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (*Pinus elliottii*)

(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”

“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone

formations, and it can sometimes be found in rotten stumps and under anthropogenic surface

detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;

Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to

desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).

Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the

limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and

shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCs likely come to the

surface after rains (Porras and Wilson 1979, pp. 218–220), possibly because of flooding of its

underground refugia.”

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property.

Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot

enhances the likelihood of this species utilizing the area.

This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to Adversely Affect by proposed development.

### 3.5.3 EFFECTS OF THE ACTION

All of the anticipated effects of the action to Rim Rock Crowned Snake critical habitat are captured in the table below.

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
<p><a href="#">Change in territory</a></p>	<p><a href="#">Be cognizant of wildlife and vegetation on site. be sure to follow all protocol required for any removal or relocation of species.</a></p> <p><a href="#">Keeping worksite clean, managing any contaminant supply with the proper PPE and in guidance with manufacturers instructions.</a></p> <p><a href="#">Dust prevention</a></p>	<p>Yes</p>	<p>Rim Rock Crowned Snake</p> <p>The following are excerpts from the US Fish and Wildlife's Species Status Assessment for the Rim Rock</p> <p>Crowned Snake in reference to their preferred habitat.</p> <p>"Based on limited information, suitable habitat for RRCS consists of pine rocklands and rockland</p> <p>hammock (also called tropical hardwood hammocks). Pine rocklands is currently listed as critically</p> <p>imperiled globally (FNAI 2010, p. 3). Pine rocklands habitat is fire-maintained and</p> <p>dominated by pine trees and a diverse understory of grasses and forbs/ herbs. In contrast,</p> <p>rockland hammock contains more hardwood shrubs and trees due to less fire influence.</p> <p>Considering both land types occur in conjunction with limestone substrate in south Florida and</p> <p>the Keys and RRCSs have been observed in both, we may refer to these two habitats as rockland</p> <p>habitat throughout the report. There are also occurrence records from human-altered habitats</p>

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
			<p>such as roadsides, vacant lots, and pastures with shrubby growth and slash pines (<i>Pinus elliottii</i>)</p> <p>(Duellman and Schwarz 1958, p. 306; Hines 2011, pp. 352–356).”</p> <p>“The RRCS is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations, and it can sometimes be found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99;</p> <p>Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400).</p> <p>Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and shallow depressions in the limestone (Enge et al. 2003, pp. 27–28). RRCSs likely come to the surface after rains (Porrás and Wilson 1979, pp. 218–220), possibly because of flooding of its underground refugia.”</p> <p>During the assessment, it was noted that in the absence of various types of development on the</p>

STRESSORS	CONSERVATION MEASURES	CRITICAL HABITAT IMPACTED	IMPACT EXPLANATION
			<p>lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species</p> <p>transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also</p> <p>observed in various areas, although no solution holes were observed on the property.</p> <p>Furthermore, as previously stated, the proximity of a large Pine Rockland forest to the lot</p> <p>enhances the likelihood of this species utilizing the area.</p> <p>This assessment concludes that the Rim Rock Crowned Snake May Affect – Likely to</p> <p>Adversely Affect by proposed development.</p>

### 3.5.4 CUMULATIVE EFFECTS

Unknown by the College

### 3.5.5 DISCUSSION AND CONCLUSION

**DETERMINATION: LAA**

#### RELEVANT DOCUMENTATION

- [May Affect Determination - 450 Key Deer Blvd - Big Pine Key - College of the Florida Keys - 14May25](#)

## 4 SUMMARY DISCUSSION AND CONCLUSION

### 4.1 SUMMARY DISCUSSION

450 Key Deer Boulevard is an expansive, irregularly shaped lot located on Big Pine Key, Florida. It measures approximately 760 feet at its widest, and 680 feet at its longest. The entire

lot is approximately 456,600 square feet and is bordered by a chain link or wooden fence. There

are over 2 dozen scattered existing structures on the lot, most of which are decrepit, and a radio

tower. A paved road also runs through the lot which connects most of these structures.

Vegetation on the lot would transition regularly from open grassland to dense, shrubby hammock. Some of these grasses were maintained, but most of the lot appeared left to nature.

Brazilian Pepper grows in dense along the Western and Southern margins of the lot and there are

some exotic species around the existing structures that are commonly used for landscaping,

however native species dominate the lot, usually in dense clusters. Jamaica Dogwood, Mahogany, and Seagrape trees combine with understory species such as Blackbead, Bushy

Fleabane, Key Thatch Palm, and Sweet Acacia to create nearly impenetrable thickets.

There are some critical habitats located within the [project area]. The College has consulted with multiple individuals to get the most comprehensive assessment possible at this stage. None of the critical species were viewed on the property but there is a sufficient habitat for these animals if they were to choose to relocate. Given the abandonment of the area for several years, if animals were going to make this place their permanent home, it makes sense that one of the consultants would have viewed a species or its actual current habitat.

## 4.2 CONCLUSION

During the assessment, it was noted that in the absence of various types of development on the

lot, the typical vegetation consisted of shrubby, grassy areas with isolated understory species

transitioning into dense, low-lying hammock. Vegetative debris and piles of rock were also

observed in various areas, although no solution holes were observed on the property. The required habitat for all of these critical habitats were not observed on the property but the evaluation led to MAA due to the prime location.

With awareness of potential impacts and any useful and achievable mitigation taken into consideration, The College should be able to make new use of this State Road Prison. A renewed mission will serve the area in the best way.