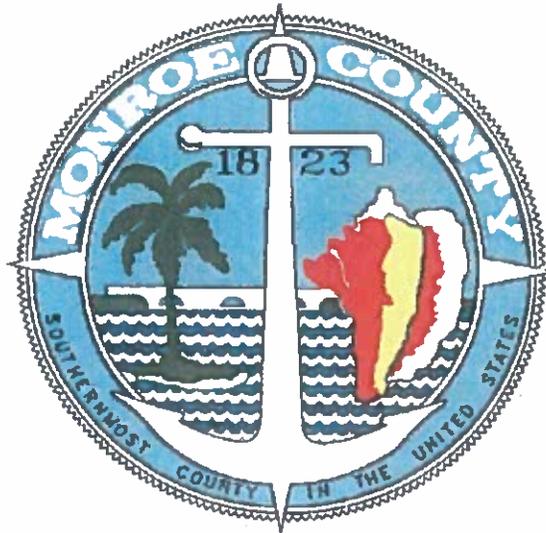


County of Monroe
Planning and Environmental Resources Department



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INCIDENTAL TAKE PERMIT NUMBER TE083411-0

12th ANNUAL BIG PINE / NO NAME KEY MITIGATION REPORT

REPORTING YEAR 12: JANUARY 1, 2017 TO DECEMBER 31, 2017

Table of Contents

INTRODUCTION	3
I. 2017 KEY DEER CENSUS	3
II. KEY DEER MORTALITY SUMMARY	4
III. KEY DEER CENSUS AND MORTALITY DATA DISCUSSION	5
IV. SUMMARY OF HABITAT MANAGEMENT ACTIVITIES	6
V. KEY DEER MORTALITY RATIO	6
VI. ANNUAL IMPACTS TO LOWER KEYS MARSH RABBIT HABITAT 500-METER BUFFERS	7
VII. CUMULATIVE IMPACTS TO LOWER KEYS MARSH RABBIT HABITAT 500-METER BUFFERS	8
VIII. LOWER KEYS MARSH RABBIT ROAD MORTALITY	8
IX. CUMULATIVE IMPACTS TO PROJECT AREA SINCE PERMIT ISSUANCE (6/9/2006)	8
X. DEVELOPMENT ACTIVITIES	11
XI. H-VALUE ASSOCIATED WITH DEVELOPMENT JANUARY 1, 2017 THROUGH DECEMBER 31, 2017	14
XII. CUMULATIVE H-VALUE FOR ALL DEVELOPMENT	14
XIII. CONSTRUCTION OBSERVATIONS	14
XIV. ACQUISITIONS THROUGH DECEMBER 31, 2017	15
XV. ACQUISITIONS FOR 2017	15
XVI. CUMULATIVE "H" ACQUIRED	15
XVII. MANAGEMENT ACTIVITIES CONDUCTED FROM JANUARY 1, 2017 TO DECEMBER 31, 2017	15
XVIII. ASSESSMENT OF ALL MITIGATION PARCELS	15

XIX. EXOTIC / NUISANCE PLANT CONTROL PROGRAM MONITORING REPORT16

XX. MITIGATION CONFIRMATION STATEMENT16

XXI. OTHER PERTINENT INFORMATION17

XXII. UPDATED MASTER LIST OF ALL DEVELOPMENT PERMITTED ON BIG PINE KEY AND NO NAME KEY18

Exhibits

Exhibit 1 Map of Development Activities – Cumulative

Exhibit 2 Map of Development Activities – 2017

Exhibit 3 Map of Acquired Mitigation Parcels – Cumulative

Exhibit 4 Map of Acquired Mitigation Parcels – 2017

Exhibit 5 Map of H Impacts in Lower Keys marsh rabbit habitat – 2017

Appendices

Appendix I Mitigation Lands Invasive Exotic Vegetation Status Report

Appendix II HCP Development Permit Master List Through 2017 (12th Annual Reporting Period)

INTRODUCTION

Efforts to address the development impacts on the habitat of the endangered Key deer and Lower Keys marsh rabbit, and the threatened eastern indigo snake on Big Pine Key and No Name Key, began in the mid-1980s. In 1998, Monroe County (County), the Florida Department of Transportation, and the Florida Department of Community Affairs signed a Memorandum of Agreement in which they committed to develop a Habitat Conservation Plan (HCP) in accordance with Section 10(2)(A) of the Endangered Species Act for these two Keys. In order to determine community needs, the County also carried out a planning effort called the “Livable CommuniKeys Plan” (LCP) that was based on community participation and carried out concurrently with the HCP. The County initiated the LCP in April 2000 and adopted the Master Plan for Future Development of Big Pine Key and No Name Key in December 2004.

The HCP, together with the LCP for Big Pine Key and No Name Key, provide the basis of a Master Growth Management Plan for development on Big Pine Key and No Name Key. It satisfies the functional and recreational needs of a rural community while maintaining the long-term viability of covered species and their habitat. The HCP provides for minimization and mitigation of incidental take by regulating development and acquisition activities. The goals of the HCP are to ensure that future development activity does not have a negative effect on Key deer, Lower Keys marsh rabbit, and eastern indigo snake populations. The federal Incidental Take Permit (ITP), TE083411-0, is the accompanying regulatory document to the HCP. The ITP has a 20-year lifespan from June 9, 2003 through June 30, 2023. To account for development activities authorized prior to the adoption of the LCP, impacts and land acquisitions are included for the period from March 13, 1995 to June 8, 2006. The initial monitoring year is the period from the effective date of the ITP, June 9, 2006, to the end of the same calendar year (December 31, 2006). Items in the cumulative data counts over the 20-year period include numbers of County-acquired parcels, fence permits, single family residential developments, and commercial developments.

This document constitutes the *12th Annual Monitoring Report on the Habitat Conservation Plan for the Key Deer and Other Protected Species*, a report that Monroe County prepares annually and presents to the U.S. Fish and Wildlife Service (USFWS or Service) to fulfill the requirements of the ITP. The current document provides an account of development and acquisition activities from March 13, 1995 through December 31, 2017, and includes the balance of the H-values debited by development activities, as well as those credited by acquisitions, dedications, and conservation activities.

I. 2017 KEY DEER INDEX

Results of the Key deer abundance indices, including the calculation of the average number of deer seen.

The Key deer road-count index value is the average count from multiple road-count surveys throughout the year on Big Pine Key and No Name Key. It has also been referred to as the Key deer “census,” “road count,” and “count index”; these labels are often used interchangeably. The road counts have previously been conducted once to bi-monthly with a single sunset survey, but the survey methodology was modified in response to major events requiring a more intensive survey regimen to assess potential effects to the Key deer population. These intensive surveys

were also used to estimate population size on the core islands (Big Pine and No Name Keys) as well as estimate Key deer mortality after Hurricane Irma struck the Lower Florida Keys on September 10, 2017.

Year	Period Covered by Surveys	Survey Method	Number of Surveys	Average Deer Count
2010	January - December	Monthly sunset	10	57
2011	January - December	Monthly sunset	11	61
2012	January - December	Monthly sunset	10	59
2013	January - December	Bi-monthly sunset	5	68
2014	January - December	Bi-monthly sunset	6	67
2015	January - December	Bi-monthly sunset	5	52
2016	January - September	Bi-monthly sunset	5	54
2016	October - December (Screwworm Incident)	Intensive sunrise/sunset	26	53
2017	January - August	Intensive sunrise/sunset	45	97
2017	September - November (Post-Hurricane)	Intensive sunrise/sunset	29	43

Table 1. Summary of Key deer counts during road surveys and averages for 2010-2017.

II. KEY DEER MORTALITY SUMMARY

A summary of Key deer mortality information, including the calculation of the number of human-related deaths.

Another dataset collected on the Key deer population is the mortality index for the core area, *i.e.*, the number of deer deaths reported on Big Pine and No Name Keys. In 2017, the total mortality count on Big Pine and No Name Keys was 151. Of the reported deaths, 96 (64%) were attributed to deer-vehicle collisions (DVC). Five (3%) of Key deer deaths can be attributed to various human-involved (anthropogenic) causes other than motor vehicles such as poaching, entanglement, and dog attacks, bringing the total number of Key deer deaths related to human activities to 101 (67%). One poaching death was documented during 2017 on Little Torch Key (outside the scope of this report), which resulted from injuries sustained while being tied up in a vehicle and was not included in the mortality count. Deaths from natural causes such as drowning, combat-inflicted injury, and disease accounted for 7 (5%) of reported deaths. Death directly attributed to Hurricane Irma included Key deer found during emergency response efforts, among or under storm debris, or in the water immediately after the storm, and accounted for 21 (14%) of the reported deaths. The remaining 20 (13%) of Key Deer deaths reported were assigned an undetermined cause due to lack of physical evidence identifying the cause of death.

	Cause of Death											Total
	Combat	Disease	Dog	Drowning	Entanglement	Human Misc	Screwworm	Poaching	Hurricane Irma	DVC	Undetermined	
2010	1	7	0	7	3	0		0		103	20	141
2011	2	12	6	3	3	2		0		131	16	175
2012	4	17	2	3	5	0		0		151	15	197
2013	0	8	0	5	2	0		0		109	27	151
2014	0	3	3	5	1	0		1		121	13	147
2015	1	6	1	2	2	0		4		75*	13	104
2016	0**	8	0	4	3	3	131	0		109	24	282
2017	0	2	1	5	3	1	2	0	21	96	20	151

Table 2. Summary of Key Deer deaths by cause reported from 2010 - 2017 for Big Pine and No Name Keys, including Little Palm Key and Big Munson Key.

DVC =Deer-vehicle collisions

*Variation in reported deer-vehicle collisions may be due to reporting error

**Screwworm infestation and fatalities occurred primarily in adult males during the fall of 2016

III. KEY DEER INDEX AND MORTALITY DATA DISCUSSION

A discussion and interpretation of census and mortality data.

The Key Deer population has experienced stochastic events during the last two years, which has prompted a change in the intensity of survey efforts to monitor the population. These intensive surveys returned higher values for average deer counts than past surveys, given the increased frequency and number of observers. Average deer counts in the past have represented only the deer seen during sunset surveys, and while adequate for rough estimation of current population trends, it was determined by Key deer researchers that additional effort was needed to understand the impacts of these events on the population. The increased effort in surveying during this time caused variation in the count index dataset. This variation is visible in the increased deer counts due to the number of observers used for surveys during this time. Utilizing trends in key deer count data still provides valuable information on the general abundance of deer, as well as additional data used by experts to calculate population sizes and estimate mortality.

The January-August 2017 surveys documented an average of 86 deer seen during morning surveys and 107 deer seen during evening surveys, with an average of 97 deer per survey. Fall surveys are performed during the rut period when males vastly increase their territories, drive off competitors, and cause females to avoid grouping in conspicuous areas, while January-August surveys are performed over a time period where new fawns and post-partum females are more conspicuous in the observed population, and males are not spread out looking for reproductive opportunities. A decrease of 19% was detected in the average raw count of deer observed from fall 2016 to fall (post-Irma) 2017. This shift is likely due to a combination of effects, including a loss of a portion of the herd to the recent hurricane, as well as changes in detection rates because of the presence of storm-related debris along the roadsides and changes in behavior of the deer during this time. As the road survey relies on these areas to count deer, the loss of forage and presence of debris piles have likely affected the tendency of deer to loiter in these areas and altered visibility of deer from the road, thus affecting the counts.

Reported mortality for 2017 has fallen back into the typical range of values, with reported roadkill deaths below 100. The 21 hurricane-related deer deaths reported may represent only a portion of the estimated potential loss (-22% average; range: -1.3% to -49.5%) of the Key deer population as reported by Texas A&M researchers. This is due to the difficulty in locating the physical remains of animals immediately after the hurricane and associating the deaths with conditions caused by the storm. The estimated population after Hurricane Irma was within the range, but on the lower end, of pre-storm numbers (Parker et al. 2017).

LITERATURE CITED

Parker, I. D., M. Grassi, R. R. Lopez, N. J. Silvy. 2017. Key deer Hurricane Irma report October 2017. National Key Deer Refuge, Big Pine Key, FL, USA. Available on the National Key Deer Refuge website.

IV. SUMMARY OF HABITAT MANAGEMENT ACTIVITIES

The Monroe County Land Steward is responsible for managing all of the County's conservation lands, including the County's mitigation properties on Big Pine and No Name Keys. Over the past year, the Land Steward, with the assistance of the County's contracted crew of invasive exotic plant technicians and other contractors, has conducted numerous invasive exotic plant removal projects, site cleanup projects, and native plantings on County mitigation properties. Larger scale work sites included parcels within Sands, Eden Pines, Cahill Pines and Palms, and Palm Villa Subdivisions.

Many of the County's mitigation parcels were severely impacted by Hurricane Irma in September 2017. A storm surge of approximately 4 – 6 feet covered most of the east and south sides of Big Pine and No Name Keys and all areas experienced hurricane force winds. As a result, much of the vegetation on these parcels was either damaged or destroyed. Additionally, large amounts of debris (natural and manmade) were deposited in the areas inundated by the storm surge. Since the storm, the Monroe County Land Steward, with the assistance of Monroe County Public Works and hired contractors, has begun the process of cleaning up the County's conservation lands. It is anticipated that this cleanup effort could take up to a year or more. The cleanup process and restoration effort will also require careful monitoring by the County for potential invasive exotic plant species infestations which will likely attempt to colonize these now disturbed areas.

V. KEY DEER MORTALITY RATIO

An assessment of the ratio of the number of anthropogenic (human-caused) deaths to the average number of deer seen.

In 2017, the ratio of human-related deaths to the average number of deer seen was 1.33. This value was obtained with the value from the total surveys conducted in 2017. This value falls below the upper boundary of the 95% confidence interval (1.53) defined in the county HCP.

Year	Anthropogenic Deaths	Average Deer Seen	Ratio
2010	113	57	1.98
2011	145	61	2.38
2012	161	57	2.82
2013	116	68	1.71
2014	131	67	1.96
2015	84	52	1.62
2016	119	53	2.25
2017	101	76	1.33

Table 3. Ratio of anthropogenic (human-related) deaths to average deer count for entire years surveys.

VI. ANNUAL IMPACTS TO LOWER KEYS MARSH RABBIT HABITAT 500-METER BUFFERS (January 1, 2017 – December 31, 2017)

Item G 20 of the ITP stipulates: *“No development will be allowed in Lower Keys marsh rabbit habitat. No residential or commercial development will be allowed within 500 meters of marsh rabbit habitat, with the exception of isolated areas (i.e., the green-hatched areas on HCP Figure 2.2).”*

For Reporting Year 12, a total of eight development permits were issued for parcels in the Lower Keys marsh rabbit (LKMR) 500-meter habitat buffers (Table 4). All eight development permits within the habitat buffers are located in the green-hatched subareas illustrated on Figure 2.2 of the HCP. These are areas within the buffers wherein the ITP allows development due to the presence of canals and other barriers to the species.

The issued permits resulted in an area of 1.04 acres affecting the LKMR habitat 500-meter habitat buffers. (Table 4).

Table 4. Development impacts for 2017 to Lower Keys marsh rabbit habitat 500-meter buffers.

2017 DEVELOPMENT IMPACTS TO LKMR HABITAT BUFFER				
REAL ESTATE NUMBER	PERMIT NUMBER	ISSUE DATE	LAND USE DEVELOPMENT TYPE	IMPACTS (ACRES)
00245260-000000	16101245	01/25/17	SFR	0.14
00248540-000000	15101689	03/09/17	SFR	0.17
00270270-000000	17102024	05/02/17	SFR-POOL	0.18

00245730-000000	17102437	05/19/17	SFR-REPLACEMENT	0.00
00285270-000000	16103723	06/30/17	SFR	0.12
00285380-000000	14102226	08/15/17	SFR	0.12
00249910-000000	17103274	12/18/17	SFR	0.17
00245150-000000	16101284	12/18/17	SFR	0.14
TOTAL AREA IMPACTED (ACRES)				1.04

VII. CUMULATIVE IMPACTS TO LOWER KEYS MARSH RABBIT HABITAT 500-METER BUFFERS

Since 2003, the cumulative impact of all development projects affecting buffer areas for the LKMR through 2017 is 55.14 acres. Cumulative impacts to the LKMR buffer since permit issuance (June 9, 2006) are 29.88 acres.

VIII. LOWER KEYS MARSH RABBIT ROAD MORTALITY

A summary of reported Lower Keys marsh rabbit road mortality.

No mortality was reported for the Lower Keys Marsh Rabbit during 2017. It is likely that the population on Big Pine saw a reduction as a result of the hurricane with damage to occupied critical habitat. Texas A&M University researchers are analyzing data from post-storm occupancy surveys and will inform the refuge on recommended management activities.

IX. CUMULATIVE IMPACTS TO PROJECT AREA SINCE PERMIT ISSUANCE (6/9/2006)

CUMULATIVE IMPACTS TO PROJECT AREA 2006 - 2017				
REAL ESTATE NUMBER	PERMIT NUMBER	ISSUE DATE	PERMIT TYPE	ACRES
00249720-000000	98100115	10/26/06	SFR	0.34
00316150-000000	97101902	10/26/06	SFR	0.41
00313100-000000	98100811	11/22/06	SFR	0.26
00245720-000000	03103814	01/02/07	SFR	0.15
00249130-000000	04104077	01/10/07	SFR	0.17
00248460-000000	04102831	01/17/07	SFR	0.17
00248980-000000	04101652	01/18/07	SFR	0.17
00245880-000000	07100308	01/19/07	SFR	0.15
00249660-000000	06106296	01/19/07	SFR	0.17
00249900-000000	07100309	01/19/07	SFR	0.17
00249150-000000	03104466	01/24/07	SFR	0.17

00248390-000000	05101386	01/25/07	SFR	0.18
00285290-000000	03102339	01/25/07	SFR	0.19
00285300-000000	04100750	01/25/07	SFR	0.12
00247780-000000	04104936	02/23/07	SFR	0.17
00312571-000200	97101893	03/12/07	SFR	0.37
00248700-000000	05101709	03/26/07	SFR	0.17
00249380-000000	05102876	03/26/07	SFR	0.17
00248310-000000	05103866	03/30/07	SFR	0.17
00312572-003300	02100058	04/23/07	SFR	0.14
00309761-000101	97101413	05/03/07	SFR	0.58
00286360-000000	07101477	07/31/07	Commercial	10.17
00248960-000000	02105130	08/16/07	SFR	0.17
00247930-000000	05104608	08/24/07	SFR	0.18
00245900-000000	05106221	08/30/07	SFR	0.15
00245600-000000	06100466	09/20/07	SFR	0.14
00109340-000300	99103072	12/21/07	SFR	0.14
00111420-000100	05105317	02/01/08	Commercial	1.02
00111420-000500	05105321	02/01/08	Commercial	1.02
00111420-000100	07102786	02/01/08	SFR	-
00111420-000100	07103037	02/01/08	SFR	-
00111420-000500	07102787	02/01/08	SFR	-
00111420-000500	07103036	02/01/08	SFR	-
00111460-000000	02100313	04/23/08	Public	1.64
00289710-000000	03102303	04/29/08	SFR	0.12
00249660-000000	06106296	05/13/08	SFR	0.17
00245880-000000	07100308	06/05/08	SFR	0.15
00249900-000000	07100309	06/05/08	SFR	0.17
00246170-000000	07105045	08/13/08	SFR	0.14
00249040-000000	07104806	09/16/08	SFR	0.17
00111090-000000 & 00275620-000000	07105046	11/21/08	Commercial	1.26
00312572-003400	04100574	12/08/08	SFR	0.14
00266770-000000	06104582	02/09/09	SFR	0.35
00266780-000000	06104582	02/19/09	SFR	0.00
00248690-000000	08102594	03/12/09	SFR	0.17
00111690-000900	08103853	04/24/09	Commercial	3.02
00247820-000000	08103005	08/25/09	SFR	0.17
00250410-000000	09101886	10/30/09	SFR	0.17
00296820-000000	97101361	12/16/09	SFR	0.17
00111690-000400	09105095	01/04/10	Commercial	1.99
00250510-000000	09102323	03/08/10	SFR	0.17
00248640-000000	09102011	05/20/10	SFR	0.17
00313510-000000	05103051	12/01/10	SFR	0.20
00247640-000000	10105246	01/19/11	SFR	0.18
00310700-000000	05101712	02/11/11	SFR	0.15
00110830-000103	08103871	07/12/11	SFR	1.12
00313820-000000	05102824	08/16/11	SFR	0.17
00313620-000000	05102823	08/25/11	SFR	0.17

00250150-000000	11100039	08/26/11	SFR	0.17
00250390-000000	11102869	10/21/11	SFR	0.17
00250520-000000	11101010	11/28/11	SFR	0.17
00285310-000000	10107566	12/22/11	SFR	0.12
00248280-000000	12104710	05/21/13	SFR	0.17
00248310-000000	12105054	08/20/13	SFR	0.17
00248780-000000	12104815	05/21/13	SFR	0.17
00249610-000000	12105028	09/13/13	SFR	0.17
00110830-000500	14101053	04/17/14	Commercial	2.14
00111420-001300	08100720	09/16/14	Commercial	1.02
00111420-001300	08100719	09/16/14	SFR	-
00111420-001300	07102788	09/16/14	SFR	-
00248160-000000	14101905	06/06/14	SFR	0.17
00285491-001200	12103130	09/24/14	SFR	0.20
00312470-000000	06101006	07/03/14	SFR	0.14
00312571-002000	06101002	07/02/14	SFR	0.14
00247990-000000	13103734	09/18/14	SFR	0.18
00109350-000500	06106156	07/20/15	SFR	0.28
00245860-000000	05106290	04/23/15	SFR	0.33
00313370-000000	05101328	02/24/15	SFR	0.61
00312880-000000	04105552	02/24/15	SFR	0.65
00313060-000000	99100786	04/21/15	SFR	0.21
00248820-000000	14101264	07/14/15	SFR	0.18
00312572-002100	06101005	09/04/15	SFR	0.14
00269910-000000	03105296	12/11/15	SFR	0.16
00303500-000000	15105649	11/20/15	SFR	-
00306560-000000	15101786	06/16/15	SFR	-
00111420-000500	11105561	04/24/15	Commercial	1.02
00111420-000100	11105559	02/27/15	Commercial	1.02
U.S. Hwy. 1	NA	Pre-2010	Public	1.65
00310280-000000	07100485	03/18/16	SFR	0.40
00112270-000400	16100219	03/23/16	SFR	0.60
00310220-000000	07100486	06/06/16	SFR	0.38
00310240-000000	07100479	06/06/16	SFR	0.34
00248140-000000	13103839	06/17/16	SFR	0.17
00111340-000000	15101160	07/20/16	SFR	-
00312572-000300	06101001	09/07/16	SFR	0.15
00249560-000000	14101545	11/18/16	SFR	0.17
00271270-000000	07102237	12/15/16	SFR	0.14
00310490-000000	07103911	12/19/16	SFR	0.11
00111078-000200	NA*	NA	Institutional	2.01
00111078-000000	16106247**	01/20/17	Commercial	-
00319493-000700	16107960***	01/25/17	SFR	-
00245260-000000	16101245	01/25/17	SFR	.14
00248540-000000	15101689	03/09/17	SFR	.17
00270270-000000	17102024	05/02/17	SFR-POOL	.18

00245730-000000	17102437	05/19/17	SFR	-
00309550-000000	17101088	06/12/17	SFR	-
00285270-000000	16103723	06/30/17	SFR	.12
00285491-002600	14103524	08/01/17	SFR	.38
00285380-000000	14102226	08/15/17	SFR	.12
00249910-000000	17103274	12/18/17	SFR	.17
00245150-000000	16101284	12/18/17	SFR	.14
			TOTAL:	47.35

**The new National Key Deer Refuge visitor center did not require a permit from Monroe County. The acreage of the project area for the visitor center is included in this table, and the Himpact for "Institutional" land use is accounted for in the HCP Development Permit Master List (see Appendix II)*

***Permit 16106247 was redevelopment from accessory use, boat and trailer storage, to affordable housing with 16 units.*

****Permit 16107960 is a reissue of expired permits A16232 (1986), 91103581 (1992), and 03103613 (2008). The house is visible in aerials back to at least 1991.*

X. DEVELOPMENT ACTIVITIES

The H_{impact} for Reporting Year 12, from January 1, 2017 to December 31, 2017, is 0.0976. The cumulative H-impact of all development activities between March 13, 1995 and December 31, 2017 is 0.5557 (see Appendix II).

The following tables detail the H_{impact} for different permit types for the current reporting year.

2017 SINGLE FAMILY RESIDENTIAL (SFR) PERMIT H-IMPACTS						
RE Number	Permit No.	Permit Issue Date	Parcel H	H Impact	Tier	Permit Type
00319493-000700	1610796*0	01/25/17	0.0017	0.0000	1	SFR
00245260-000000	16101245	01/25/17	0.0004	0.0004	3	SFR
00248540-000000	15101689	03/09/17	0.0008	0.0008	3	SFR
00270270-000000	17102024	05/02/17	0.0005	0.0001	2	SFR-POOL
00245730-000000	17102437	05/19/17	0.0008	0.0000	3	SFR MOD from MH
00309550-000000	17101088	06/12/17	0.0013	0.0000	2	SFR-REPLACEMENT
00285270-000000	16103723	06/30/17	0.0011	0.0011	3	SFR
00285491-002600	14103524	08/01/17	0.0015	0.0015	3	SFR
00285380-000000	14102226	08/15/17	0.0006	0.0006	3	SFR
00249910-000000	17103274	12/18/17	0.0008	0.0008	3	SFR
00245150-000000	16101284	12/18/17	0.0004	0.0004	3	SFR
TOTAL H-IMPACT SFR				0.0057		

**Permit 16107960 is a reissue of expired permits A16232 (1986), 91103581 (1992), and 03103613 (2008). The house is visible in aerials back to at least 1991.*

2017 FENCE PERMIT H-IMPACTS						
RE Number	Permit No.	Permit Issue Date	Parcel H	H Impact	Tier	Permit Type
00319492-004000	16106794	01/05/17	0.0017	0.0000	1	FENCE
00270420-000000	17100365	02/14/17	0.0017	0.0000	1	FENCE
00272130-000000	17100464	02/22/17	0.0012	0.0000	2	FENCE
00302000-000000	17101122	03/08/17	0.0010	0.0002	3	FENCE
00248360-000000	17101923	04/06/17	0.0005	0.0000	3	FENCE
00285491-001000	17102616	04/26/17	0.0007	0.0000	3	FENCE
00285560-000000	17102601	04/26/17	0.0028	0.0000	1	FENCE
00268230-000000	17103251	05/01/17	0.0012	0.0002	1	FENCE
00312930-000000	17102971	05/10/17	0.0015	0.0003	2	FENCE
00310730-000000	17103064	05/12/17	0.0006	0.0001	2	FENCE
00304480-000000	16106574	05/16/17	0.0003	0.0001	3	FENCE
00312572-002100	17103854	06/05/17	0.0010	0.0002	2	FENCE
00248900-000000	17103787	06/29/17	0.0012	0.0002	3	FENCE
00248510-000000	17103491	07/10/17	0.0012	0.0002	3	FENCE
00248730-000000	17104558	08/09/17	0.0005	0.0001	3	FENCE
00315230-000000	17105547	12/04/17	0.0021	0.0000	1	FENCE
00295620-000000	17106115	12/13/17	0.0014	0.0000	1	FENCE
00290980-000000	17105262	12/14/17	0.0013	0.0003	1	FENCE
00277240-000100	17105936	12/21/17	NO DATA		2	FENCE
TOTAL H-IMPACT FENCES				0.0019		

2017 LAND CLEARING PERMIT H-IMPACTS						
RE Number	Permit No.	Permit Issue Date	Parcel H	H Impact	Tier	Permit Type
NO IMPACTS						
TOTAL H-IMPACT LAND CLEAR				0.0000		

2017 U.S. Hwy. 1 WIDENING/PAVING H-IMPACTS						
RE Number	Permit No.	Permit Issue Date	Parcel H	H Impact	Tier	Permit Type
NO IMPACTS						
TOTAL H-IMPACT US-1 PAVING/WIDENING				0.0000		

2017 COMMERCIAL BUILDING PERMITS						
RE Number	Permit No.	Permit Issue Date	Parcel H	H Impact	Tier	Permit Type
00111078-000000	16106247	01/20/17	0.0097	0.0875	3	COMMERCIAL – AFFORDABLE HOUSING
TOTAL COMMERCIAL H-IMPACT				0.0875		

The 2017 commercial building permit allowed redevelopment of a parcel with accessory uses along with boat and trailer storage to multi-family affordable housing with 16 units. The H_{impact} was determined using the calculation for H based on redevelopment of a developed parcel from Table 2.6 of the HCP:

Type of Parcel	Type of Development	H Calculation	Description
Developed	Redevelopment (different use)	$H_{\text{impact}} = H_{\text{parcel}} * \left\{ \left[\frac{M_{LUx} * (\text{sq.ft.}_{\text{dev}} / \text{sq.ft.}_{\text{parcel}})_{\text{new}}}{(\text{sq.ft.}_{\text{dev}} / \text{sq.ft.}_{\text{parcel}})_{\text{old}}} \right] - M_{LUx} \right\}$	The impact is the difference between the effect of the new footprint/land use and the old footprint/land use.

Staff determined that the appropriate approach was to consider the project as redevelopment and used a M_{LUx} of 16 for the proposed development (1 X each proposed housing unit). In order to calculate the H_{impact} , staff reviewed the approved site plan to determine the developed area (in square feet) of the proposed project and multiplied the square footage of the site (52,990) by 0.2 to reflect the existing condition (accessory use, boat & trailer storage). The calculations are depicted below:

H_{parcel}	M_{LUx} (new)	Sq ft dev/sq ft parcel (new)	M_{LUx} (old)	Sq ft dev/sq ft parcel (old)	H_{impact}
.0097	16	.5765	.2	1	.0875

Sq ft dev/sq ft parcel (new):
 $30,551 \text{ sf impervious} / 52,990 \text{ sf parcel} = 0.5765$

Sq ft dev/sq ft parcel (old):
 $52,990 \text{ sf use} / 52,990 \text{ sf parcel} = 1$

$.0097 \times ((16 \times .5765) - (.2 \times 1)) =$
 $.0097 \times ((9.22) - (.2)) =$
 $.0097 \times 9.02 = 0.0875 H_{\text{impact}}$

XI. H-VALUE ASSOCIATED WITH DEVELOPMENT JANUARY 1, 2017 THROUGH DECEMBER 31, 2017

H-VALUE SUMMARY FOR REPORTING YEAR 12 (2017)							
Reporting Year 11	H impact	H mitigation	No. of SFR Permits	No. of Permits in Tier 1	Tier 1 H	Native Habitat (acres)	Rabbit Buffer (acres)
1/1/2017 - 12/31/2017	0.0976	0.2779	11	0	0	1.42	1.04

XII. CUMULATIVE H-VALUE FOR ALL DEVELOPMENT

The total H_{impact} for all time periods is 0.5533 "H" (See Appendix II).

SUMMARY OF H-IMPACT FOR BIG PINE KEY AND NO NAME KEY							
		SFR	Fence	Commercial	Public*	Accessory	TOTALS
Baseline		0.0513	0.0189	0.0590	0	0.0002	0.1294
Year 1A,B	2006	0.0341	0.0159	0.0211	0	0	0.0711
Year 2	2007	0.0177	0.0001	0.0890	0	0	0.1068
Year 3	2008	0.0058	0.0016	0.0255	0.0012	0	0.0341
Year 4	2009	0.0049	0	0	0	0	0.0049
Year 5	2010	0.0025	0.0016	0.0014	0	0	0.0055
Year 6	2011	0.0067	0.0007	0	0	0	0.0074
Year 7	2012	0.0016	0.0013	0	0	0	0.0029
Year 8	2013	0.0024	0.0023	0	0	0	0.0047
Year 9	2014	0.0173	0.0018	0.0065	0	0	0.0256
Year 10	2015	0.0143	0.0029	0.0010	0.0101	0	0.0283
Year 11	2016	0.0062	0.0042	0	0.0272	0	0.0376
Year 12	2017	0.0057	0.0019	0.0875	0	0	0.0951
TOTAL		0.1705	0.0532	0.2910	0.0385	0.0002	0.5534**

*Includes road widening and paving, and NKDR Visitor Center ("Institutional" land use) for 2016 only

**Discrepancy with Appendix II total H_{impact} (0.5533) due to rounding errors

XIII. CONSTRUCTION OBSERVATIONS

The permittees made no observations of direct or incidental take of Key deer during construction monitoring of County facilities and road expansion activities.

XIV. ACQUISITIONS THROUGH DECEMBER 31, 2017

A total of 1,411 parcels comprise the mitigation lands on both Big Pine Key and No Name Key under the Habitat Conservation Plan. These lands are managed by the Monroe County Land Steward and, in some instances, staff of the National Key Deer Refuge.

March 13, 1995 – December 31, 2017

For the reporting period of March 13, 1995 through December 31, 2017 (the end of Reporting Year 11), Monroe County acquired parcels with a total H-value of 3.2480 “H”.

XV. ACQUISITIONS FOR 2017

January 1, 2017 – December 31, 2017

During Reporting Year 12, Monroe County acquired 20 parcels with a total “H” of 0.2779.

XVI. CUMULATIVE “H” ACQUIRED

Total cumulative “H” mitigation credit acquired through 2017 (Reporting Year 17) is 3.2480. The cumulative “H” mitigation credit acquired to date (3.2480) is 98% of the 3.3 mitigation “H” required for the maximum allowable H-impact of 1.1.

XVII. MANAGEMENT ACTIVITIES CONDUCTED FROM JANUARY 1, 2017 TO DECEMBER 31, 2017

The Monroe County Land Steward is responsible for managing all of the County’s conservation lands, including the County’s mitigation properties on Big Pine and No Name Keys. Over the past year, the Land Steward, with the assistance of the County’s contracted crew of invasive exotic plant technicians and other contractors, has conducted numerous invasive exotic plant removal projects, site cleanup projects, and native plantings on County mitigation properties. Larger scale work sites included parcels within Sands, Eden Pines, Cahill Pines and Palms, and Palm Villa Subdivisions. Assistance was also provided by the County’s Public Works Department. Many of the County’s mitigation parcels were severely impacted by Hurricane Irma in September 2017. A storm surge of approximately 4 – 6 feet covered most of the east and south sides of Big Pine and No Name Keys and all areas experienced hurricane force winds. As a result, much of the vegetation on these parcels was either damaged or destroyed. Additionally, large amounts of debris (natural and manmade) were deposited in the areas inundated by the storm surge. Since the storm, the Monroe County Land Steward, with the assistance of Monroe County Public Works and hired contractors, has begun the process of cleaning up the County’s conservation lands. It is anticipated that this cleanup effort could take up to a year or more. The cleanup process and restoration effort will also require careful monitoring by the County for potential invasive exotic plant species infestations which will likely attempt to colonize these now disturbed areas.

XVIII. ASSESSMENT OF ALL MITIGATION PARCELS

There are 1,411 mitigation parcels on Big Pine and No Name Keys. Many of these parcels are individual lots within developed subdivisions. This situation creates a large amount of edge

between developed parcels and the subject mitigation lands. The edge effects include the constant threat of invasive exotic plant invasion and the potential for dumping and encroachment by neighboring residents. The Monroe County Land Steward is working to address these management issues by conducting invasive exotic plant removal projects (with the assistance of the County's contracted crew of invasive exotic plant technicians and other independent contractors), notifying residents of encroachment issues, and working with Monroe County Solid Waste to clean up dumped debris. Additionally, the Land Steward has created an informational brochure for homeowners, which provides information regarding invasive exotic plant species, native plants, and the proper disposal of landscape debris.

XIX. EXOTIC / NUISANCE PLANT CONTROL PROGRAM MONITORING REPORT

Site visits were conducted and aerial photo interpretation was used to determine the level of infestation of invasive exotic vegetation. For the purposes of this report, an "invasive exotic plant" is one that is listed on the Florida Exotic Pest Plant Council's list as either a Category I or a Category II species. A total of 50 parcels were found to have an invasive exotic infestation level greater than 10 percent aerial coverage. These parcels comprise approximately 3.5 percent of the total number of parcels (1,411).

The greatest concentration of invasive exotics occurring on Monroe County Mitigation Lands is found in the Sands Subdivision. However, Monroe County continues to make progress on the eradication of exotics in Sands. Additional invasive exotic removal projects are planned for the coming years, subject to available funding.

The Monroe County Land Steward, with the assistance of independent contractors, continues to monitor and treat invasive exotic plant species on Monroe County Mitigation Lands. Due to the disturbance to the habitat created by Hurricane Irma, the County will be carefully monitoring the Mitigation Lands over the next year to control any exotic plant infestations attempting to colonize the disturbed areas.

Please see the attached "Invasive Exotic Vegetation Status Report" for additional information.

XX. MITIGATION CONFIRMATION STATEMENT

3:1 H-mitigation to impact ratio

The cumulative H-value of lands acquired as mitigation since March 13, 1995 through the end of the reporting period, December 31, 2017, is 3.2480 "H".

The cumulative H_{impact} of parcels impacted by development activities since March 13, 1995 through the end of the reporting period, December 31, 2017 is 0.5533 "H".

The ratio of mitigation "H" (acquired lands) to H_{impact} (from development activities) is:

$$3.2480/0.5533 = 5.870 \text{ "H"}$$

5% lag in meeting mitigation requirements

H_{impact} : = 0.5533
Mitigation required ($H_{\text{impact}} \times 3$): = 1.6599
Mitigation provided: = 3.2480

Percent of required mitigation provided: 196%

There is nearly twice the required amount of mitigation H for the present reporting period. The permittees are not lagging behind the required 3:1 H-mitigation-to-impact ratio by more than 5%.

Statement of confirmation

The permittees confirm that mitigation as of December 31, 2017 is sufficient to maintain a 3:1 H-mitigation-to-impact ratio with respect to development activities. The calculations above demonstrate that the cumulative H-value of lands acquired to mitigate the cumulative H_{impact} through the reporting period is not less than the required minimum five-percent.



Senior Director of Planning and Environmental Resources

XXI. OTHER PERTINENT INFORMATION

The Incidental Take Permit allows development of ten dwelling units or 0.0220 H_{impact} in Tier 1 on Big Pine and No Name keys, whichever results in a lower "H". A total of 17 ROGO allocations have been awarded to date in Tier 1 on Big Pine Key and No Name Key. Four of these allocation awards had issued permits that subsequently received certificates of occupancy with a resulting combined H_{impact} of 0.0074.

SUMMARY OF H-IMPACT FOR TIER 1 PERMITS AND ALLOCATIONS					
RE#	Permit #	Issue Date	H Value	H Impact	Tier
00285550-000000	95101813	6/1/2005	0.0028	0.0028	1
00289510-000000	96101622	5/1/2006	0.0022	0.0022	1
00289710-000000	03102303	4/29/2008	0.0013	0.0013	1
00296820-000000	97101361	12/16/2009	0.0011	0.0011	1
00319494-001300	96101472	Allocation award expired 9/22/2012	0.0026	0	1
00319494-001000	96101470	Allocation award expired 7/22/2015	0.0029	0	1
00319494-000900	96101469	Allocation award expired 7/22/2015	0.0032	0	1
00319494-000500	96101464	Allocation award expired 7/22/2015	0.0024	0	1
00319494-000400	96101463	Allocation award expired 7/22/2015	0.0019	0	1
00319494-001400	96101473	Allocation award expired 7/22/2015	0.0023	0	1
00319494-000300	96101462	Allocation award expired 1/30/2016	0.0026	0	1
00319494-000200	96101461	Allocation award expired 1/30/2016	0.0022	0	1
00319494-000100	96101460	Allocation award expired 1/30/2016	0.0043	0	1
00319494-000600	96101465	Allocation award expired 1/30/2016	0.0026	0	1

00319494-000700	96101467	Allocation award expired 9/05/2016	0.0034	0	1
00319494-000800	96101468	Allocation award expired 9/05/2016	0.0025	0	1
00319494-0011000	96101471	Allocation award expired 9/05/2016	0.0027	0	1
TOTAL H-IMPACT FOR ISSUED BUILDING PERMITS				0.0074	
TOTAL H-IMPACT FOR ISSUED ALLOCATIONS				0.0000	
H-IMPACT OF ALLOCATIONS + ISSUED PERMITS				0.0074	

Thirteen of the issued but unused allocation awards for Tier 1 parcels have expired (see table above). There are currently no active allocations and, consequently, no assigned allocation "H". The total amount of used allocation "H" is 0.0074 which leaves 0.0146 "H" (0.0220 "H" - 0.0074"H") remaining of the total amount allowed by the ITP. The number of issued building permits and the remaining H_{impact} are both well under their respective maximum limits. Also, there are four Tier 1 applications currently competing in ROGO for parcels with a combined "H" value of 0.0051.

In order to address the potential for having insufficient Tier I allocations to meet demand prior to the expiration date of the HCP (2023), the Monroe County Board of County Commissioners adopted Comprehensive Plan Policy Policy 101.6.2 and amended Section 138-24 (Residential ROGO Allocations) to limit the annual maximum number of residential permit allocations awarded in Tier I on Big Pine Key and No Name Key to be no more than one (1) every 2 years.

XXII. UPDATED MASTER LIST OF ALL DEVELOPMENT PERMITTED ON BIG PINE KEY AND NO NAME KEY

The HCP Development Permit Master List is attached as Appendix II. The "H" balance reflected in this 12th Annual Report is the cumulative H_{impact} from all impacts occurring from March 13, 1995 through December 31, 2017. The H-value remaining for impacts is calculated as follows:

- Maximum H-value allowed for impacts 1.1000
- Cumulative H_{impact} for all approved permits from March 13, 1995 through December 31, 2017 -0.5533

Remaining "H" available for development impacts: 0.5467

For the allowed 1.1000 H_{impact} for development, Monroe County is required to mitigate "H" on a 3:1 basis with "H" credits through land acquisitions or dedications. The mitigation required for the current level of development is 1.6599 "H" (0.5533 H_{impact} x 3). The County currently has 3.2480 "H" mitigation credits, which is 1.96 times the amount presently required. Thus, the mitigation "H" satisfies the ITP requirement that the cumulative H-value of lands acquired as mitigation does not lag more than five percent behind what is necessary to fully mitigate the cumulative H_{impact} .

Exhibits

Exhibit 1

Map of Development Activities – Cumulative



Map and List of Development Activities
 March 13, 1995 to December 31, 2017
 Incidental Take Permit TE083411-0

Development Activities Permit	
	Commercial 12
	Archaeological Removal 5
	Fences 317
	Intolerant 1
	Land Clear 22
	SFR 170
	Tree Removal 22
	Roads
	Marsh Rabbit Core Habitat
	Marsh Rabbit Core Habitat Buffer
Tier Overlay District	
	Tier I - Native Area
	Tier II - Transition and Sprawl Area
	Tier III - Infill Area
	Tier III-A - Special Protection Area



Source: Florida Department of Planning & Environmental Resources

Exhibit 2

Map of Development Activities – 2017



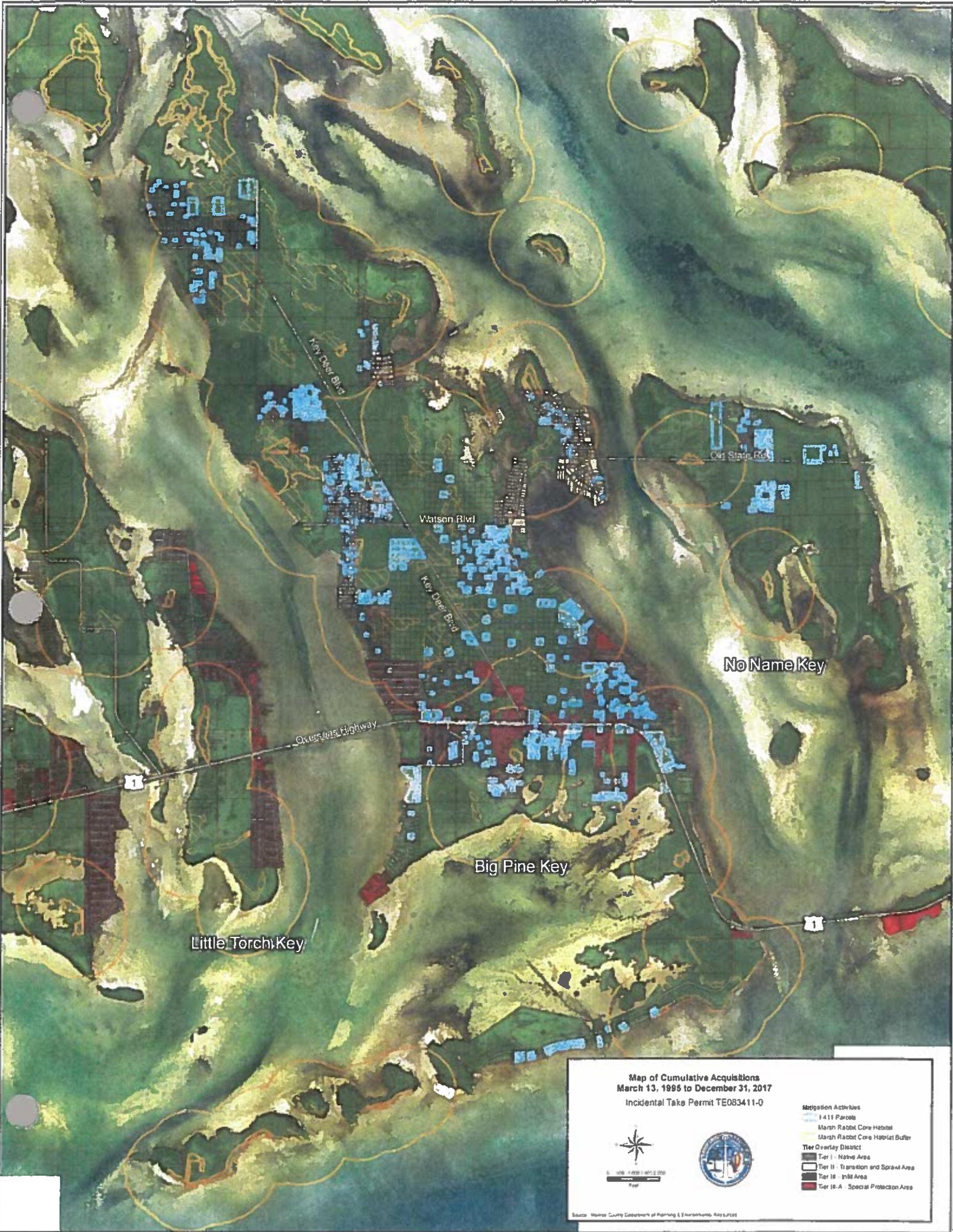
Map and List of Development Activities
 January 1, 2017 to December 31, 2017
 Incidental Take Permit TE083411-0

Development Activities Permits	
	Commercial 1
	Fence 18
	SFR 10
	SFR-Pool 1
	Marsh Rabbit Core Habitat
	Marsh Rabbit Buffer Habitat
Tier Overlay District	
	Tier I - Wetland Area
	Tier II - Transition and Sprawl Area
	Tier III - Infill Area
	Tier III - A - Special Protection Area



Exhibit 3

Map of Acquired Mitigation Parcels – Cumulative



Map of Cumulative Acquisitions
March 13, 1995 to December 31, 2017
Incidental Take Permit TE083411-0

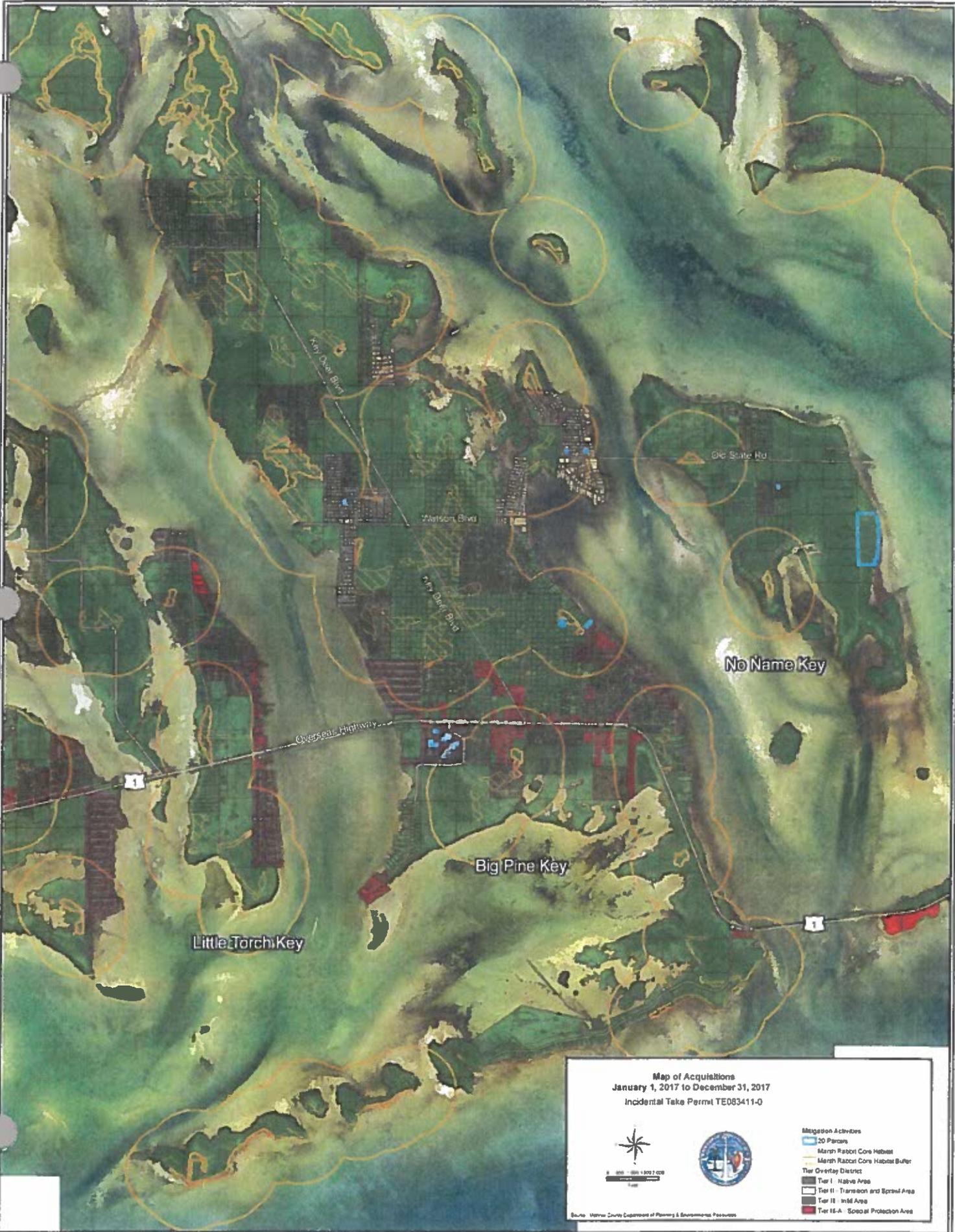


- Abrogation Activities**
- 1411 Parcels
- Marsh Rabbit Core Habitat
- Marsh Rabbit Core Habitat Buffer
- Tier Overlay District**
- Tier I - Native Area
- Tier II - Transition and Spread Area
- Tier III - Infill Area
- Tier III-A - Special Protection Area

Source: Monroe County Department of Planning & Environmental Resources

Exhibit 4

Map of Acquired Mitigation Parcels - 2017



Map of Acquisitions
January 1, 2017 to December 31, 2017
Incidental Take Permit TE083411-0

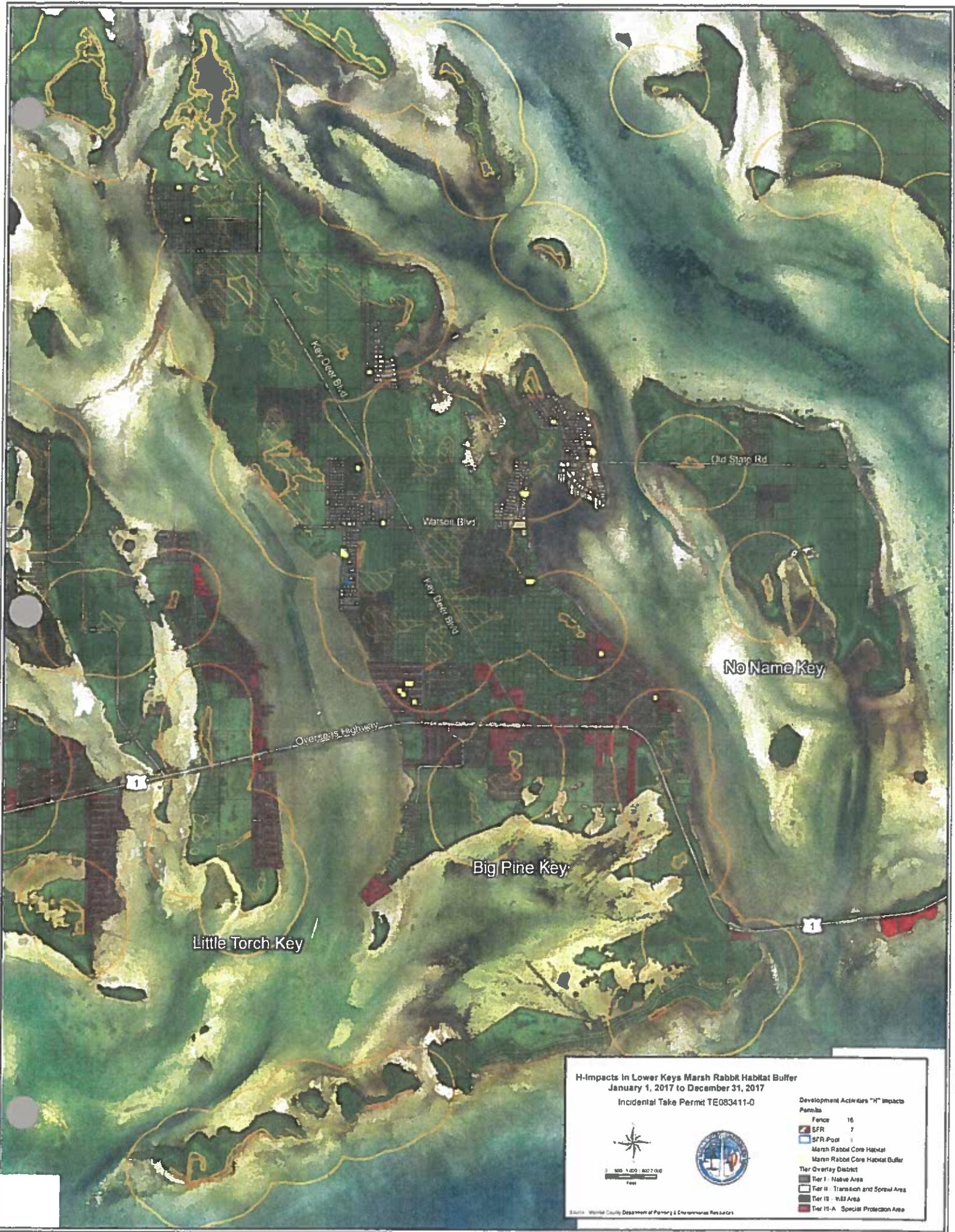


- Mitigation Activities**
- 20 Parcels
 - Marsh Rabbit Core Habitat
 - Marsh Rabbit Core Habitat Buffer
- Tier II Overlay District**
- Tier II - Habitat Area
 - Tier II - Transition and Sprawl Area
 - Tier II - Infill Area
 - Tier II-A - Scope of Protection Area

Scale: Varney County Department of Planning & Economic Services

Exhibit 5

Map of H-Impact in Lower Keys Marsh Rabbit Habitat - 2017



H-Impacts in Lower Keys Marsh Rabbit Habitat Buffer
 January 1, 2017 to December 31, 2017
 Incidental Take Permit TE083411-0



Development Activities "H" Impacts

Fence	16
SFR	7
SFR Pool	1
Marsh Rabbit Core Habitat	
Marsh Rabbit Core Habitat Buffer	
Tier Overlay District	
Tier I - Native Area	
Tier II - Transition and Spread Area	
Tier III - V&S Area	
Tier III-A - Special Protection Area	

Source: Monroe County Department of Planning & Environmental Regulation

Appendices

Appendix I

Mitigation Lands
Invasive Exotic Vegetation Status Report

**Monroe County
Mitigation Lands
Invasive Exotic Vegetation Status Report**

February 2018

As required by
Incidental Take Permit # TE083411-0

Prepared by
Beth Bergh
Monroe County Land Steward

This report has been prepared in accordance with Requirement # 19, Block 11: K of Incidental Take Permit (ITP) # TE083411-0 which requires Monroe County to submit “*A monitoring report documenting compliance with the exotic / nuisance plant control program on county conservation lands, demonstrating no more than 20 percent aerial coverage of nuisance and 10 percent aerial coverage of invasive species identified by Florida Exotic Pest Plant Council.*”

There are a total of 1,411 parcels that comprise the mitigation lands under Monroe County’s Habitat Conservation Plan (HCP). These lands are managed by the Monroe County Land Steward and, in some instances, the US Fish and Wildlife Service Key Deer Refuge staff. A total of 143 parcels are located on No Name Key and the remaining 1,268 parcels are on Big Pine Key. The following table shows the breakdown of the mitigation parcels by subdivision:

Key	Subdivision	Number of Parcels
No Name	Bahia Shores	9
No Name	Ocean Heights	31
No Name	Tuxedo Park	58
No Name	Other	45
Big Pine	Cahill Pines & Palms	32
Big Pine	Doctor’s Arm	44
Big Pine	Eden Pines	146
Big Pine	Kinercha	83
Big Pine	Koehns	9
Big Pine	Long Beach Estates	20
Big Pine	Palm Villa	199
Big Pine	Pine Crest	38
Big Pine	Pine Grove	26
Big Pine	Pine Heights	127
Big Pine	Pine Key Acres	43
Big Pine	Port Pine Heights	60
Big Pine	Sands	152
Big Pine	Sea View Estates	30
Big Pine	Silas Knowles	49
Big Pine	Tropical Park	60
Big Pine	Wickfield Acres	19
Big Pine	Other	131
	TOTAL	1,411

As illustrated in the table above, a large majority of the mitigation parcels are located in residential developments with the greatest number of properties situated in Palm Villa, Sands, and Eden Pines Subdivisions, respectively. The typical subdivision lot measures approximately 50 ft x 100 ft. The size and the location of these lots create unique land management challenges, such as increased edge effect and potential for encroachment from neighboring residences.

Site visits were conducted and aerial photo interpretation was used to determine the level of infestation of invasive exotic vegetation. For the purposes of this report, an “invasive exotic plant” is one that is listed on the Florida Exotic Pest Plant Council’s list as either a Category I or a Category II species. The percent cover of invasive exotics was classified as follows:

Level of Infestation	% Cover of Invasive Exotics
0	Not present
1	Less than 10 %
2	10-20%
3	20-50%
4	50-75%
5	75-100%

The complete parcel-by-parcel results of the survey may be found in the attached spreadsheet titled “Monroe County Mitigation Lands”. The results are summarized as follows:

Level of Infestation	Number of Parcels
0	1,156
1	204
2	24
3	13
4	5
5	8

A total of 50 parcels were found to have invasive exotic infestation level greater than 10 percent. These parcels comprise approximately 3.5 percent of the total number of parcels (1,411). Recently acquired parcels are highlighted in yellow on the attached spreadsheet.

The greatest concentration of invasive exotics occurring on Monroe County Mitigation Lands was found in Sands Subdivision. However, Monroe County continues to make progress on the eradication of exotics in Sands. Within the past year, the County hired contractors to conduct invasive exotic removals on several lots within this subdivision. The invasive exotic removals were followed by site cleanup and native vegetation planting as needed. Additional invasive exotic removal projects are planned for the coming years, subject to available funding.

Many of the County’s mitigation parcels were severely impacted by Hurricane Irma in September 2017. A storm surge of approximately 4 – 6 feet covered most of the east and south sides of Big Pine and No Name Keys and all areas experienced hurricane force winds. As a result, much of the vegetation on these parcels was either damaged or destroyed. Additionally, large amounts of debris (natural and manmade) were deposited in the areas inundated by the storm surge. Since the storm, the Monroe County Land Steward, with the assistance of Monroe County Public Works and hired contractors, has begun the process of cleaning up the County’s conservation lands. It is anticipated that this cleanup effort could take up to a year or more. The cleanup process and restoration effort will also require careful monitoring by the County for potential invasive exotic plant species infestations which will likely attempt to colonize these now disturbed areas.

The Monroe County Land Steward and the contracted team of Invasive Exotic Plant Technicians continue to monitor and treat invasive exotic plant species on Monroe County Mitigation Lands. Due to the disturbance to the habitat created by Hurricane Irma, the County will be carefully monitoring the Mitigation Lands over the next year to control any exotic plant infestations attempting to colonize the disturbed areas.

Appendix II

HCP Development Permit Master List Through 2017 (12th Annual Reporting Period)