

# Ecology of a Green Iguana Invasion and Eradication Efforts on a Bahamian Islet

Joe Wasilewski  
NATURAL SELECTIONS  
of South Florida

Thanks to  
John Iverson & Bill Hayes





# Green Iguana

- Green iguana, *Iguana iguana* are native to Mexico, Central and South America
- They are primarily herbivorous
- In their native lands, their numbers are held in check, becoming rare in some instances
- They are farmed for their meat and eggs
- They are farmed for the pet trade
- 300,000 hatchlings are shipped worldwide every year



# Recent news stories

- Over 700,000 greens now culled
- Cayman News | 17/06/2019 | 33 Comments
- (CNS): The nationwide culling programme to control the explosion in the invasive green iguana population is back on target after 100,000 corpses were taken to the dump in May, and at the half-way mark this month another 53,000 had been culled. Between the beginning of the cull last October and the end of last week, the numbers have topped 800,000.....

## News

### Green iguana worry

**Scientists trying to prevent Jamaica from experiencing similar crisis to Grand Cayman**

BY VERNON DAVIDSON

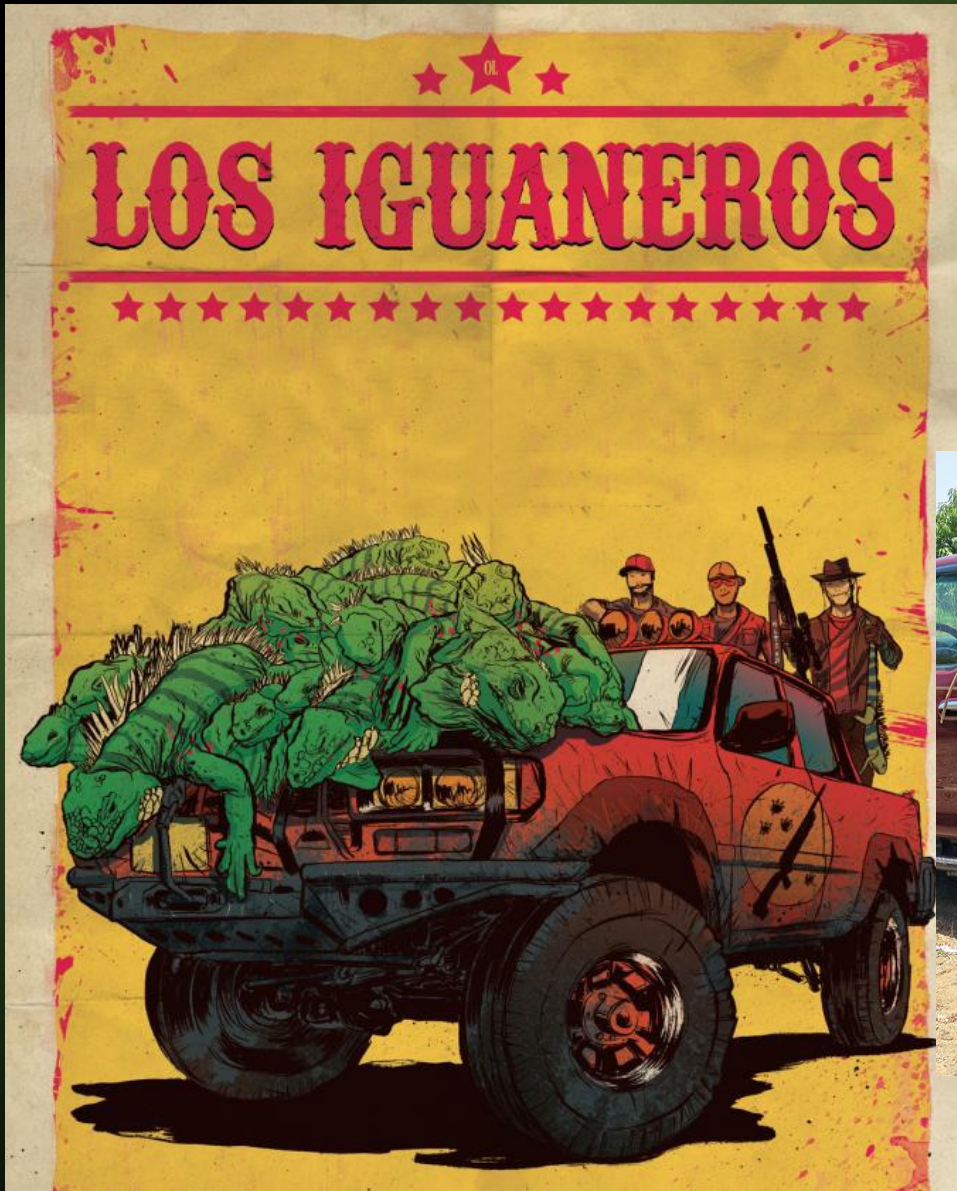
Executive editor – publications

davidsonv@jamaicaobserver.com

Sunday, September 17, 2017 [56 Comments](#)



# Puerto Rico hunting expeditions



The green iguana population in Puerto Rico estimated at over 1,000,000



# New businesses all over South Florida

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TUESDAY, OCTOBER 9 AT AMC AVENTURA AT 7:00PM

At this meeting, the Board reports, or other documents, Procedure and other app. All interested parties may Miami-Dade County provide of disability in its program other accommodations, 2 two days in advance of the

WELCOME you to our Family Program in Kendall. We have a Health & Safety News Letter One Room



Crocodiles, both wild and in captivity are learning about their new prey item.



Cuban crocodile at Zoo Miami, below



American crocodile, to the left

# Cat Cay

- 8 miles south of Bimini
- 3.2 km long by several hundred meters wide
- 20 ha golf course bordered by natural hammocks
- 80 ha useable habitat
- No native iguanas present
- 50 residences





# Green Iguana Introduction

- Prior to 2004+/- green iguanas did not occur on Cat Cay.
- An individual released a pair of iguanas at around that time.
- People did not mind sighting an occasional iguana.
- Over time the numbers began to grow, making the iguanas more noticeable
- In September 2014 I was asked to visit the island to assess the green iguana population.



## Eradication Effort

- 22 trips consisting of 3 days per trip
- 3 trained biologists per trip
- Iguanas collected both day and night
- Iguanas collected by trap, hand, nooses and snares.
- Humanely euthanized
- Biometric data collected for all iguanas.
- To date, 15,201 iguanas removed from the cay.

## Culls 2014 – 2019 (n=22)

CULL	N	DENSITY (N/km <sup>2</sup> )	BIOMASS (kg)	PER EFFORT (kg/hr)	PER AREA (kg/km <sup>2</sup> )
Dec 2014	462	420	102	1.21	93
Feb 2015	703	639	248	2.06	225
Apr 2015	430	391	153	1.42	139
Jun 2015	1,053	957	110	0.91	100
Aug 2015	1,352	1229	87	0.72	79
Nov 2015	765	695	169	1.72	154
Jan 2016	485	441	141	1.53	128
Apr 2016	464	422	160	1.73	145
Jul 2016	727	661	68	0.76	62
Aug 2016	1,214	1104	70	0.78	64
Oct 2016	684	622	144	1.60	131
Dec 2016	424	385	87	1.08	79
Mar 2017	424	385	86	1.08	78
Jun 2017	510	464	63	0.78	57
Aug 2017	1,239	1135	43	0.55	39
Nov 2017	516	475	103	0.77	56
Jan 2018	458	421	152	1.68	77
Apr 2018	370	340	74	1.01	79
Aug 2018	1,379	1,269	46	0.58	38
Sep 2018	839	772	70	0.76	67
Jan 2019	397	375	83	0.75	71
Apr 2019	278	256	45	0.62	63
<b>Facts</b>	<b>15,201</b>	<b>MAX 1269</b>	<b>2,302</b>	<b>AVG 1.10</b>	<b>MAX 225</b>



## Capture success rate

- 22 trips
- 3 days/trip = 66 days
- 3 people/trip
- 6 hrs/day for captures x 3 people = 18hrs/day
- 66 days x 18 hrs/day = 1,188 hours for captures
- 15,201 iguanas  $\div$  1,188 hours = 12.8 iguanas/hour



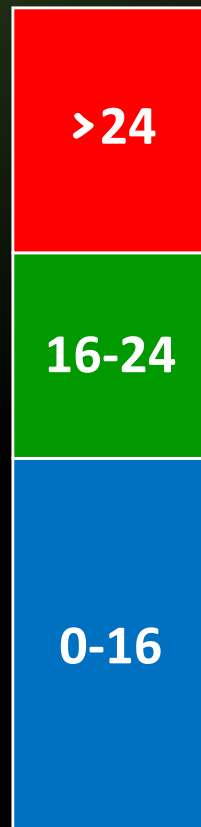
# Age Classes

- Prior literature: snout-vent length (cm)

**MALES**



**FEMALES**



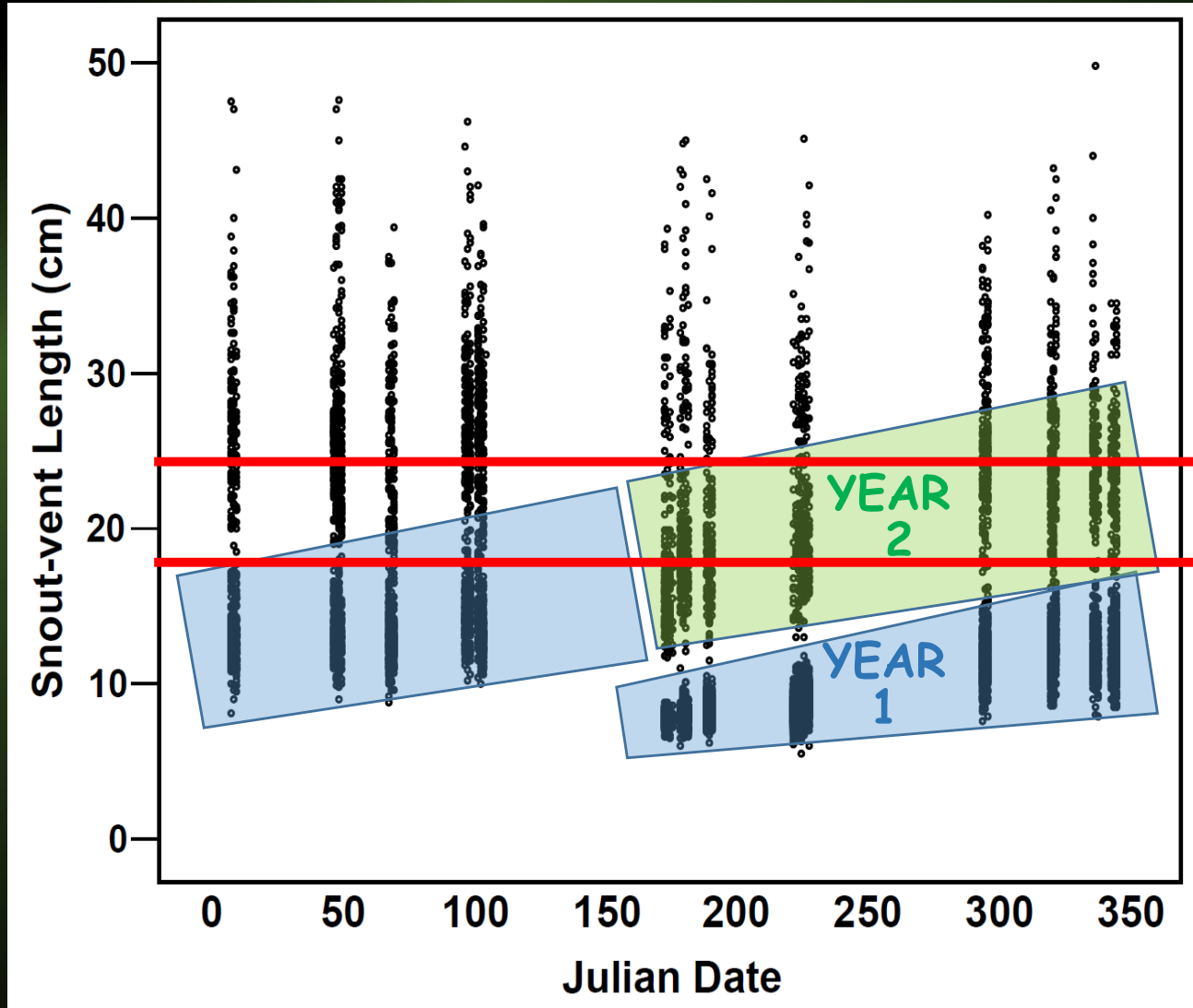
**Adults**

**Subadults**

**Juveniles**



# Growth and Maturation (Based on 11,000 iguanas)



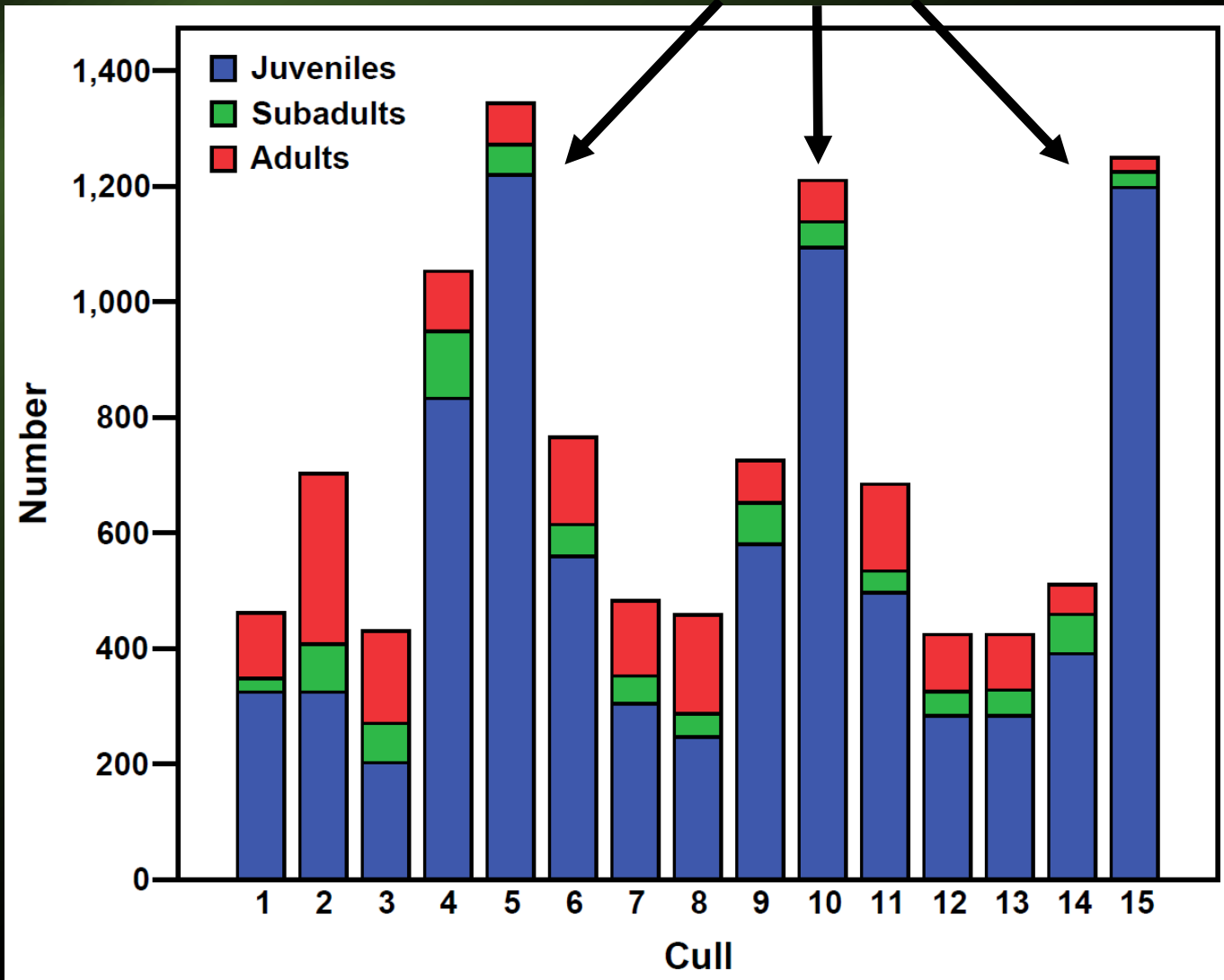
**FEMALE (YR 2) 24 cm**

**MALE (YR 1) 18 cm**



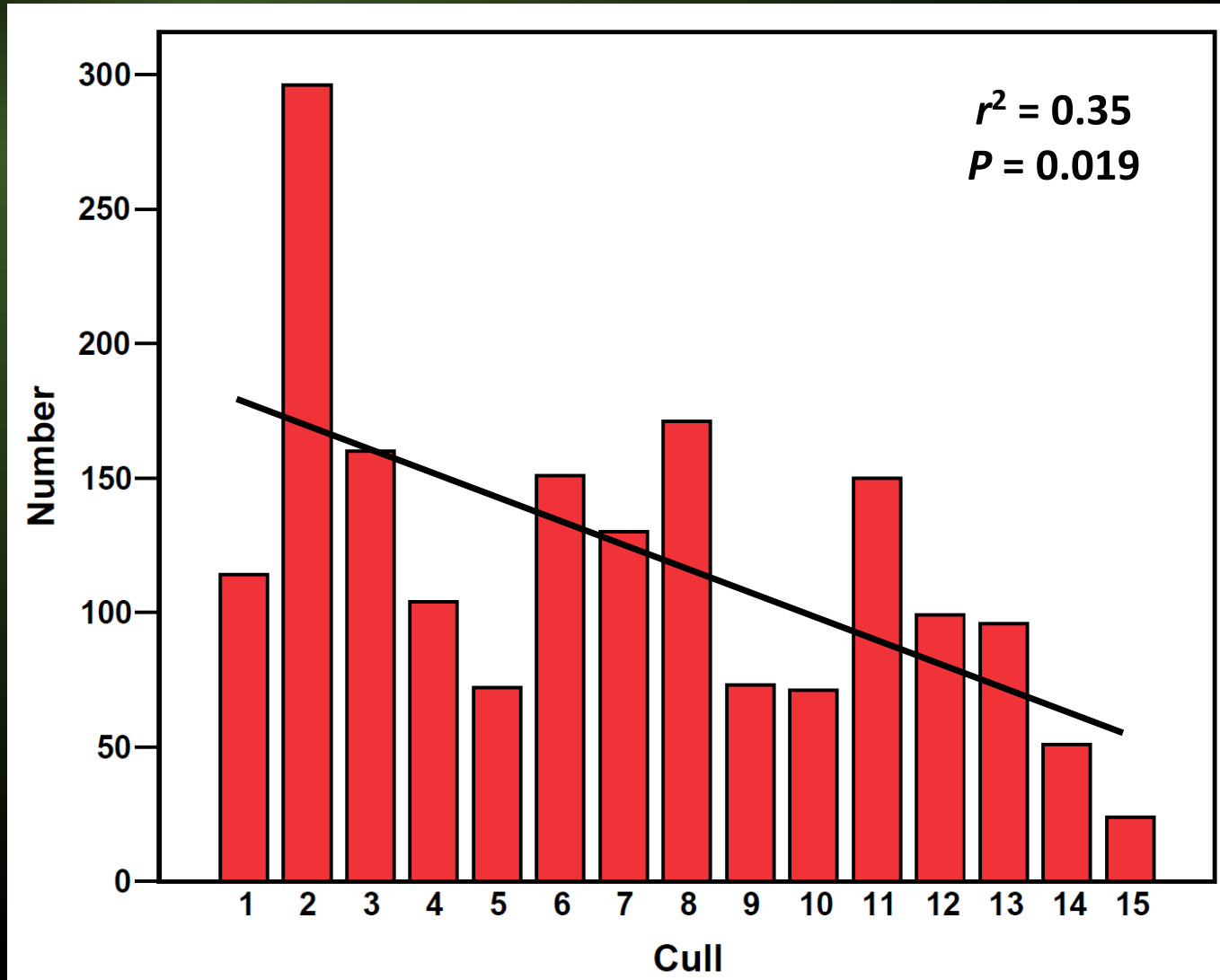
# Numbers Per Cull (based on 15 trips)

August hatch



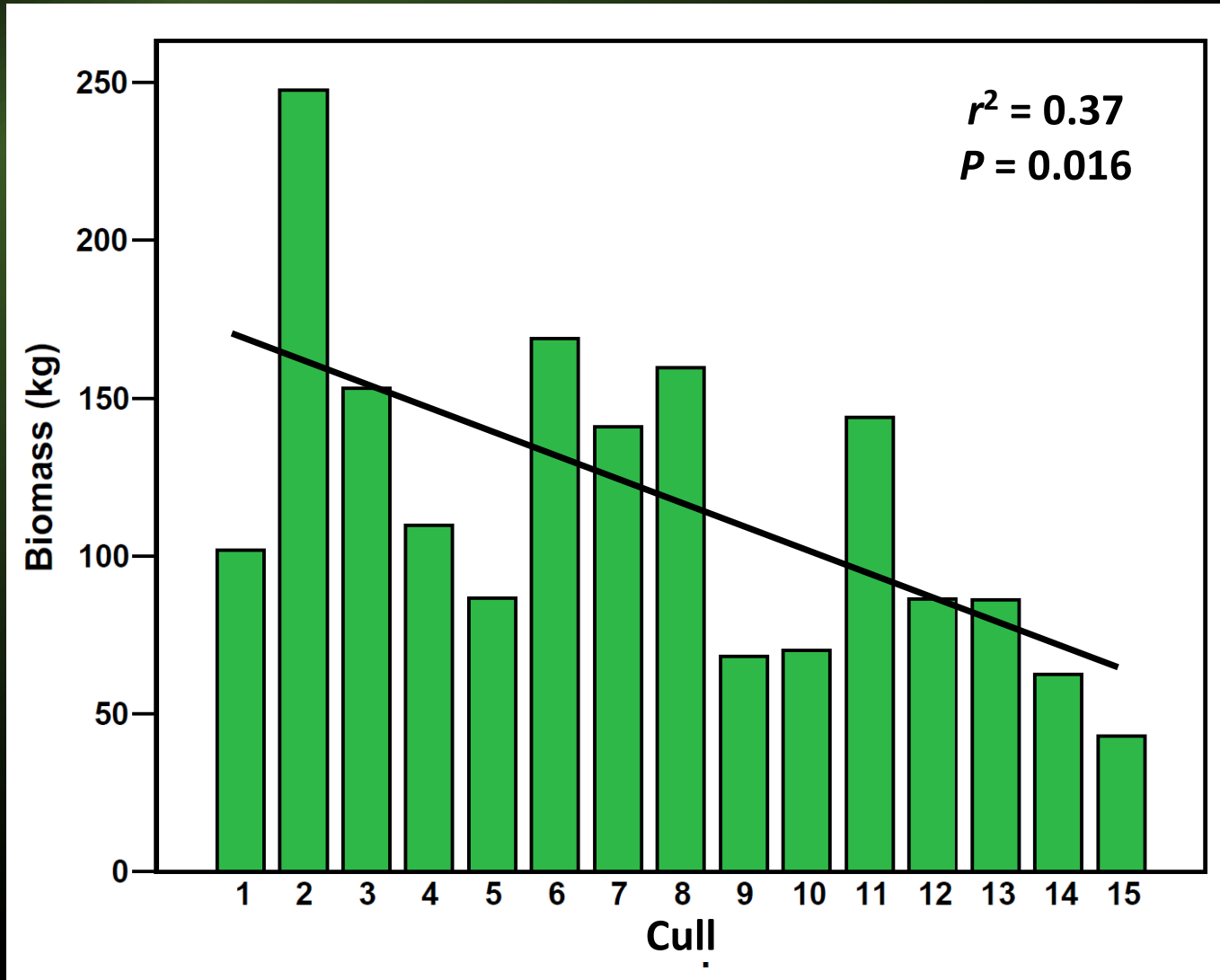


# Adults Removed (Based on 15 trips)



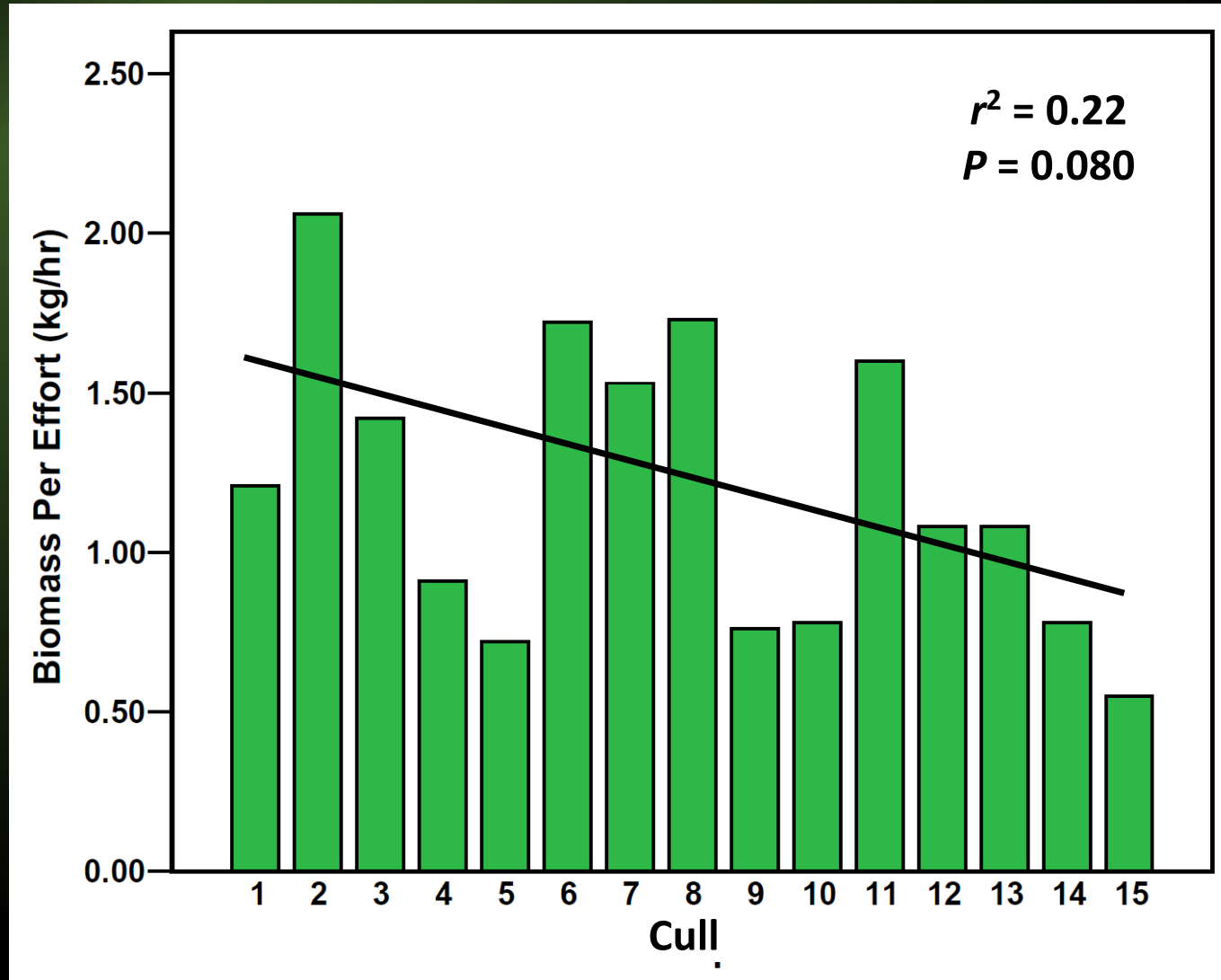


# Biomass Removed (Based on 15 trips)





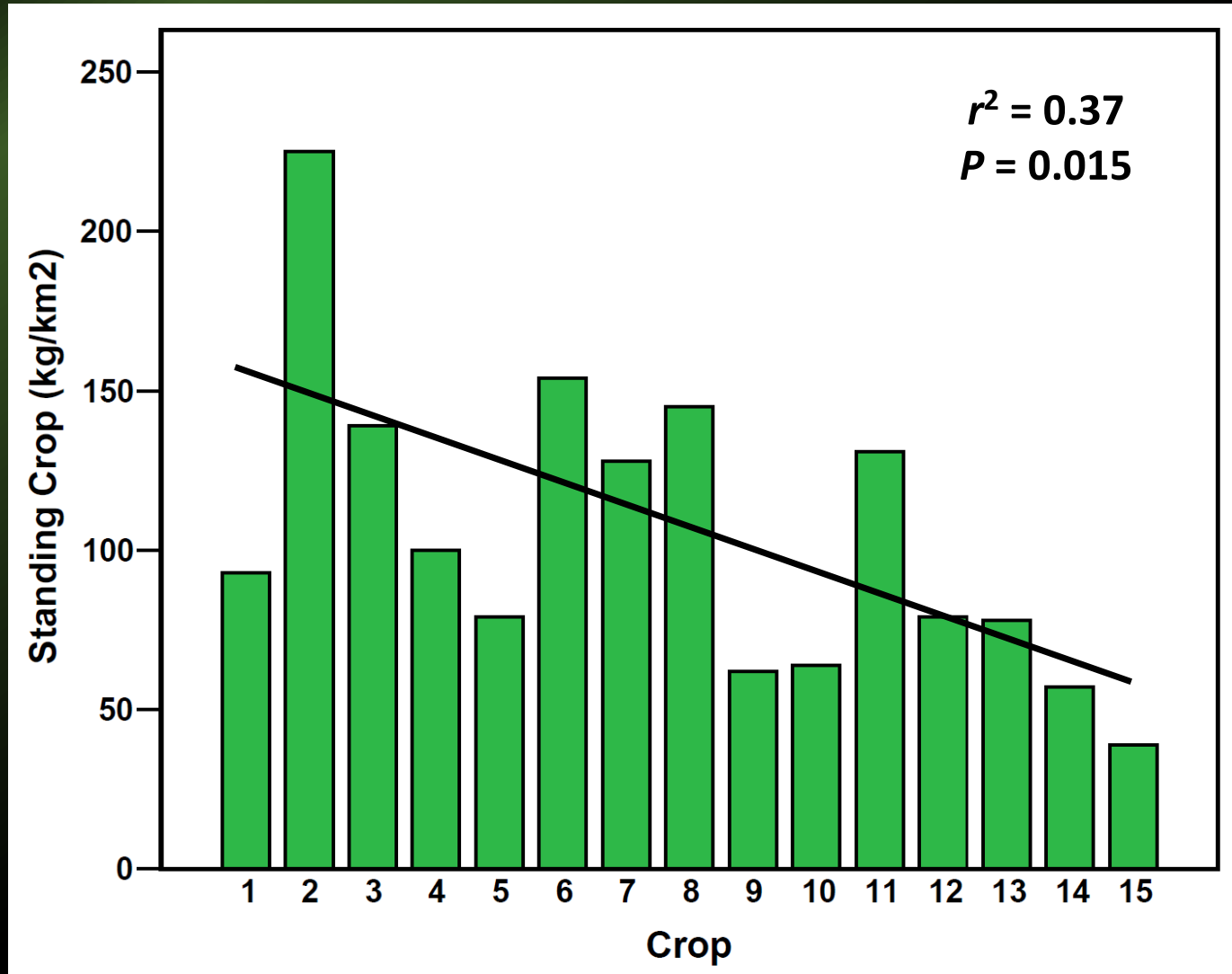
# Biomass Removed Per Effort (Based on 15 trips)





# Minimum Standing Crop

BIOMASS/AREA  
(Based on 15 trips)





## Conclusions

- Numbers suggest that we are making progress in eradicating the green iguana population from Cat Cay.
- However, with the number on palm trees on the island (approximately 50,000-60,000) we will never be able to completely eradicate them.
- The population needs to be managed and maintained with several trips per year during nesting/hatching seasons.

# Iguanas are undermining the runway



# The runway has been repaired



# Beautiful landscaping



# Landscaping after iguanas



# Catching iguanas at night





# Catching iguanas during the day in the winter months



# Catching iguanas by hand



# Trapping iguanas



# Setting snares at iguana burrows



# Snared iguanas



# Flying Iguanas





# Euthanasia

## To kill or not to kill??

- According to the IUCN Iguana Specialist Group Position Statement the proper humane euthanasia technique is outlined as follows:
- <https://www.avma.org/KB/Policies/Euthanasia-Guidelines.aspx>



# WARNING

- GRAPHIC IMAGES WILL BE SHOWN THROUGHOUT THE REMAINDER OF THE PRESENTATION.



# Results from one day of iguana removal



# Several iguanas from the evening's work



We could keep going.....



# All iguanas are sexed weighed and measured





# Male and female



# Females are checked as to their reproductive state





Female iguanas in the fall  
high in fat bodies



# February egg development



# April egg development



What happens to the iguana  
carcasses?



# Incinerator



If the trend of green iguana population increases throughout Caribbean, Bahamian and South Pacific islands as it has been the past ten years, there could be a massive problem, irreversible.

AS IN-----





## What could be next?

- Bahamas proximity to Florida.
- Three species and seven taxa of *Cyclura* occur in the Bahamas.
- Florida is a melting pot of invasive herpetofauna species.
- There are daily flights/boats/containers bring goods from the USA---Florida.

Why is all of this important?  
June, 2016 on Little Cayman, this  
happened.....





# Acknowledgements

- BEST
- Cat Cay management
- Mario Aldecoa
- Nick Wasilewski
- Ed Metzger
- Mike Vallee
- Tim Brust
- Hanoch Schmalbach
- Mike Vallee
- Stephenie Wasilewski
- Jeff Beauchamps and many more.....

# Questions?

