

Post-hurricane Population Assessment of the Bridled Quail-Dove

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Bridled Quail-Dove (*Geotrygon mystacea*)



Population Status

- Least Concern (IUCN)
- Occurs in the Lesser Antilles, except for Anguilla, Barbados, St Vincent, the Grenadines and Grenada
- Rare on Puerto Rico and US Virgin Islands
- Abundance estimates are lacking
- Possibly declining in the Eastern Caribbean

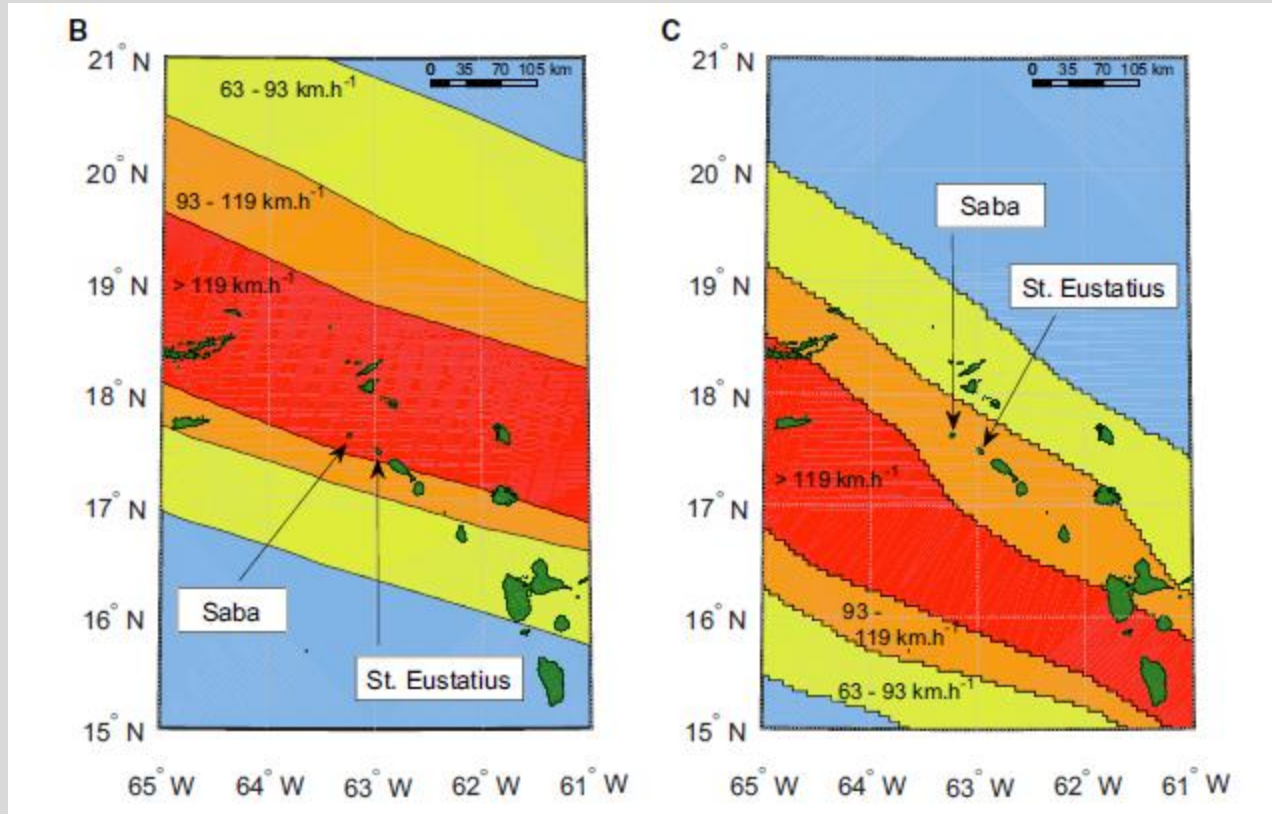
Quill National Park



Quill National Park

- Protected Area = 340 ha
- Elevation = 250–600 m
- Limestone soils with thorny woodlands, dry evergreen, semi-evergreen, deciduous seasonal and evergreen seasonal forests
- Bridled Quail-Dove only occurs in the Quill (above ~150 m)

Hurricanes Irma and Maria (Sep 2017)



B: Hurricane Irma

C: Hurricane Maria

Hurricane impacts

- First cat.5 hurricanes to hit Windward Islands
- 93% stems defoliated
- 83% lost primary/secondary branches
- 36% substantial structural stem damage
- 18% tree mortality

Hurricane impacts



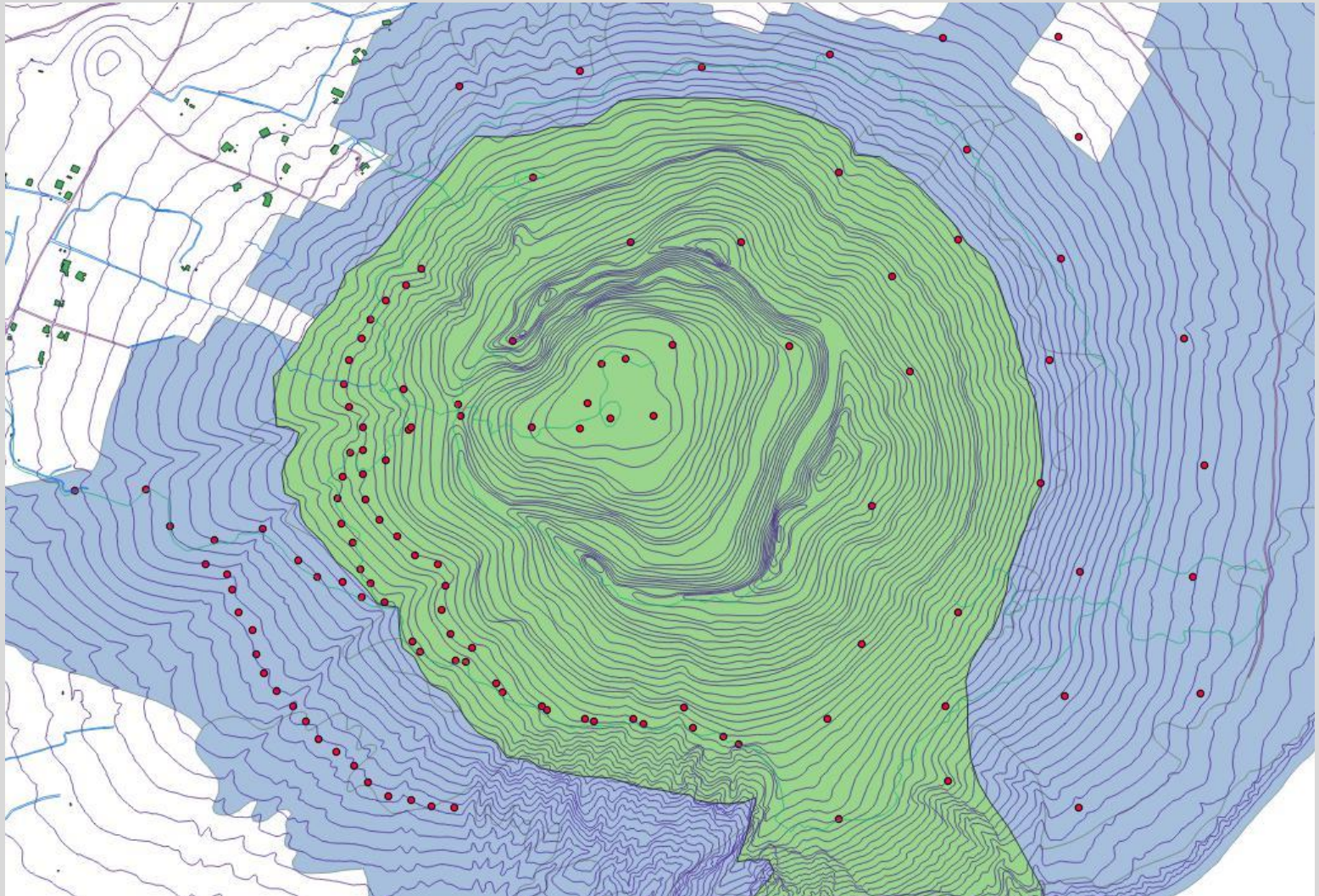
Forest Understory Before Hurricane



Forest Understory After Hurricane



Survey Region (440 ha)



Objectives

- Estimate detection probability (Pd , Pa , Pda)
- Estimate density (D) per hectare
- Estimate population size (N)
- Estimate before-after hurricane population rate of change ($R = N2/N1$)

Parameters

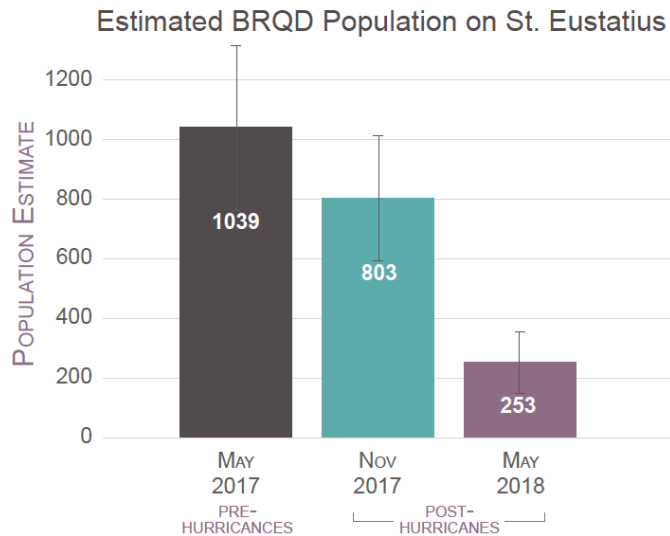
- P_a = quail-dove availability
- P_d = detection, given availability
- $P_{ad} = P_a \times P_d$
- D = individuals/ha
- N = individuals in 440 ha
- $R = N_2/N_1$

Abundance

Date	Abundance	Mean	SE
05/17	<i>D</i>	2.362	0.626
05/17	<i>N</i>	1,039	275
11/17	<i>D</i>	1.825	0.473
11/18	<i>N</i>	803	208
05/18	<i>D</i>	0.576	0.238
05/18	<i>N</i>	253	105

D = Individuals/ha; *N* = number of individuals

Population Decline



Date	<i>N</i>	SE
05/17	1,039	275
05/18	253	105
<i>R</i>	0.244	0.120
$(R - 1) \times 100$	-76%	
Z score	2.667	
<i>P</i> value	0.008	

Discussion and recommendations

- BQDO population continued declining in May 2018 (-76% compared with May 2017)
- Current population is very small ($N = 253$, $SE = 105$, 95% CI = 83-486) and could be at risk of extirpation
- Columbids: early maturity, short lifespan (nest survival 30-40%)
- Recommend 1) rodent control; 2) reduce disturbances (e.g. domestic animals, deforestation); 3) assess land crab population

Acknowledgements

- STENAPA for granting permission to conduct surveys in the park
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