

St. Eustatius: Bridled Quail-Dove Population Continues Declining

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In the December 2017 edition of BioNews, we provided an overview of the results of two population assessments of the Bridled Quail-dove (*Geotrygon mystacea*) that had been conducted that year. This article provides the results of a third assessment that was conducted eight months after two major hurricanes impacted St. Eustatius.

The Bridled Quail-dove can grow to a length of around 12 inches (30 cm) and weigh around 230 grams. Perched on a branch, the dove emits a mournful 'who-whoooo' call that echoes through the forest. Nevertheless, this is a shy and secretive species that usually walks or flies away when humans approach.

While it is usually seen alone or in pairs, aggregations of over a dozen may occur, especially in the non-breeding season. Local names include "wood dove" and "wood hen", indicating its preference for forest and woodland habitat.

Despite being classified as Least Concern by the International Union for the Conservation of Nature, with such a limited geographic range (listed as 'uncommon to rare in the Lesser Antilles and extremely rare in Puerto Rico') and the fact that it is losing habitat, populations of the Bridled Quail-dove are decreasing across the region and its status could be upgraded to Vulnerable. It is said to be absent from Anguilla, Barbados, St. Vincent, Grenada and the Grenadines.

The Bridled Quail-dove is a regionally endemic species in the family Columbidae that, on Statia, is only found in upper elevations of the Quill (above ~150m) and inside the crater. It is easily distinguished from other dove species by the torquoise patch on its neck and white stripe (bridle) under the eye. With its habit of wandering the forest floor during daylight hours in search of food (seeds, fruits and the occasional gecko or snail), observant hikers are likely to spot this bird. Activity and breeding are very much dependent on rainfall, and the dove is sensitive to hurricanes and extended periods of drought. Similar to other Columbids, the Bridled Quail-dove lays clutches of two eggs in a flimsy nest made of twigs up to six meters above the forest floor. Bridled Quail-doves do not fare well in areas of human activity and numbers have declined across the species' range, presumably due to habitat loss, but also due to hunting and predation by invasive mammals such as the Black Rat (*Rattus rattus*).

Irma and Maria were the first recorded category five hurricanes to hit the Windward Islands, and while Statia was spared extensive infrastructural damage in urban areas, its forest ecosystems did not fare so well. According to a recent publication by Eppinga and Pucko (2018), an average of 93% of tree stems on Statia and Saba were defoliated; 83% lost primary/secondary branches, 36% suffered substantial structural stem damage, and average tree mortality was 18% (with mortality being almost twice as high on Statia than Saba).



Quill before after Irma. Photo by: © Hannah Madden



Bridled Quail-dove. Photo by: © Hannah Madden

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Our pre-hurricane assessment in May 2017 was initially encouraging, with an estimated 1,030 (standard error [SE] = 275, 95% confidence interval [CI] = 561-1,621) quail-doves across its local habitat of 440 hectares, possibly the highest known density in the region. Post-hurricanes, in November, we repeated the surveys and recorded decrease of around 22% in the population to 803 (SE = 208, 95% CI = 451-1,229). Nevertheless, we feared that the population would continue to decline as a result of hurricane-induced habitat degradation and the negative impacts of severe vegetation damage, loss of vegetation cover, food limitation, and increased predation.

We repeated surveys in May 2018, hoping to coincide with the quail-dove's peak breeding season. However instead of the usual ~70 transects, we had to walk a total of 255 transects in order to detect sufficient doves for analysis. No doves were heard calling, most likely as a result of delayed breeding, and only 32 were detected during 2018 surveys compared with ~92 in previous years. As expected, the quail-dove population continued declining in May 2018 (-76% compared with May 2017) and is currently very small at around 253 individuals (SE = 105, 95% CI = 83-486). With such a small population there is a very real risk that Bridled Quail-doves could become extirpated on St. Eustatius.

Reduced survival and reproduction, and thus abundance fluctuations at low numbers, could lead to local extirpation. Because of the life-history characteristics shared by members of the family Columbidae (e.g., early maturity and short lifespan), conservation efforts are now urgently required. Although survival and reproduction rates of the Bridled Quail-dove on Statia are poorly understood, Black Rats are present in all vegetation types within the terrestrial protected areas. Management of these invasive mammalian predators within the dove's range is needed as a first step towards increasing reproduction and survival, and therefore population recovery to pre-hurricane levels, of this highly vulnerable species.

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