Diversity of *Alsophis sibonius* Color Patterns

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Abstract:

Alsophis sibonius comes in many and shapes and sizes, and this report catalogues the morphologies found on the island of Dominica. I used my own data over a three week period, as well as the findings of students from previous years. I measured the length of each individual, recorded the elevation and location of the sightings and thoroughly documented each color pattern with pictures. I found that there are many observed color morphologies for this species, and it appears that there is no one factor that appears to affect the patterns we observed.

Introduction:

The island of Dominica is home to four species of snakes; the most common being *Alsophis sibonius*. The Lesser Antillean Racer, locally known as the kouwès nwé, is a terrestrial species that feeds primarily on lizards and frogs (Henderson, 2004) and has been measured up to three feet (MacNames et al., 2013).This member of Colubridae can be found in dry woodlands across the island (Quick, 2001).

A. sibonius is said to be black with white or yellow splotches along the back, but there is a rarer brown morphology, with lighter brown or white splotches that may alternate to form a zig-zag pattern ("Antilles…", 2015). There are variations in the darkness of the main overall color and the intensity of the distinctive pattern found on this species. Previous Dominican projects have found that there are three distinct color patterns on the island: black with a partial pattern, black with a very distinct pattern, and the brown morphology.

Most of the subjects observed were found in mature secondary dry forest at Cabrits National Park or secondary rainforest near the Springfield Research Center, however, some data from previous years was also used to document the various color patterns found in this species.

Materials/Methods:

Thick work gloves were used when initially handling the snakes, but once they calmed down, gloves were no longer necessary. I measured every snake with a tape measure, from vent to the tip of the rostrum. I then took pictures of the dorsal side, focusing on color and pattern intensity. On most subjects, a ventral picture was taken as well. I noted the habitat where each snake was found, along with elevation.

After I finished collecting individuals, I took photos and descriptions used from previous projects to compile a thorough account of the patterning found across Dominica.

Results:

I collected four different individuals in seventeen days. Most were found in the dry forests of Cabrits National Park, but one was found in the secondary rainforest near Springfield Research Center. Table 1 lists every individual used to document the variety of color patterns that can be observed in *Alsophis sibonius*.

I found that there are many more than just three main patterns of *A. sibonius*. I did observe each of the three original morphologies (Figure 1), black with a partial pattern (left), black with a distinct pattern (middle), and the brown morphology (right), but I also discovered that there are far more differences in the pattering of this species that can't be considered simple variability.

Figure 1: Three color patterns of *Alsophis sibonius*

Table 1: Patterns of each individual

	Date/Year	Location	Elevation	Length	Color pattern
Individual 1	5/30/2015	Secondary rainforest, near Spingfield	325m	91cm	Black, distinct pattern
Individual 2	6/2/2015	Ft. Shirley, Cabrits National Park	73m	60.5cm	Brown, partial (chevron)
Individual 3	6/8/2015	Dry forest, Cabrits National Park	68m	55cm	Black, partial (chevron)
Individual 4	6/15/2015	Dry forest, Cabrits National Park	64m	56cm	Very dark brown, partial (no chevron)
Individual 5*	2010	Dry forest, Cabrits National Park	n/a	n/a	Black, partial (chevron), white ventrum
Individual 6*	2011	Dry forest, Cabrits National Park	n/a	n/a	Black, partial (light color overall)
Individual 7*	2011	Dry forest, Cabrits National Park	n/a	n/a	Black, partial
Individual 8*	2013	Dry forest, Cabrits National Park	n/a	n/a	Black, partial (no chevron)
Individual 9*	2013	Dry forest, Cabrits National Park	n/a	n/a	Black, distinct (striped)
Individual 10*	2013	Dry forest, Cabrits National Park	n/a	n/a	Black, partial
Individual 11*	2013	Dry forest, Cabrits National Park	n/a	n/a	Brown, partial

Table 1: Shows data for each individual including date, location found, elevation, length, and color pattern.
*this individual comes from pervious projects and/or years. Some may not have had all data applicable.

Discussion:

I intended initially to fit each individual into one of the three main categories of morphology, black with a partial pattern, black with a very distinct pattern, and the brown morphology, but I was unable to do so because I found that the variances observed in *Alsophis sibonius* are much too great to classify into such broad groups. I also wanted to find some factor related to the observed differences, but I found that four snakes in three weeks was not enough data to achieve such a goal. However, I do think that there is some combination of age and location that affects the morphology of an individual. Although four specimens were a great find for such a small amount of time, I am unable to make any definitive statements regarding the diversity in color patterns of *A. sibonius*.

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