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Agriculture & the Environment, Commonwealth of Dominica, was instrumental in issuing permits to conduct research in Dominica and facilitated our efforts in myriad ways. Fieldwork was funded by a grant from the National Science Foundation (USA) to Robert Powell (DBI-0242589).

Literature Cited

- Henderson, R.W. and R. Powell. 2009. *Natural History of West Indian Amphibians and Reptiles*. University Press of Florida, Gainesville.
- Perry, G. and R.N. Fisher. 2006. Night lights and reptiles: Observed and potential effects, pp. 169–191. In: C. Rich and T. Longcore (eds.), *Ecological Consequences of Artificial Night Lighting*. Island Press, Washington, D.C.
- Perry, G. and J. Lazell. 2000. *Liophis portoricensis anegadae* (NCN). Night-light hunting. *Herpetological Review* 31:247.

A Dominican Racer (*Alsophis antillensis sibonius*) in a foraging position at the base of a light such as that illustrated on the facing page. This foraging posture, with the anterior portion of the body elevated at the base of the light, is essentially similar to that observed in snakes at the bases of tree trunks in more “natural” habitats (L.A. White and P.J. Muelleman, pers. comm.).

Juvenile Pattern and Ontogenetic Pattern Changes in Dominican Racers

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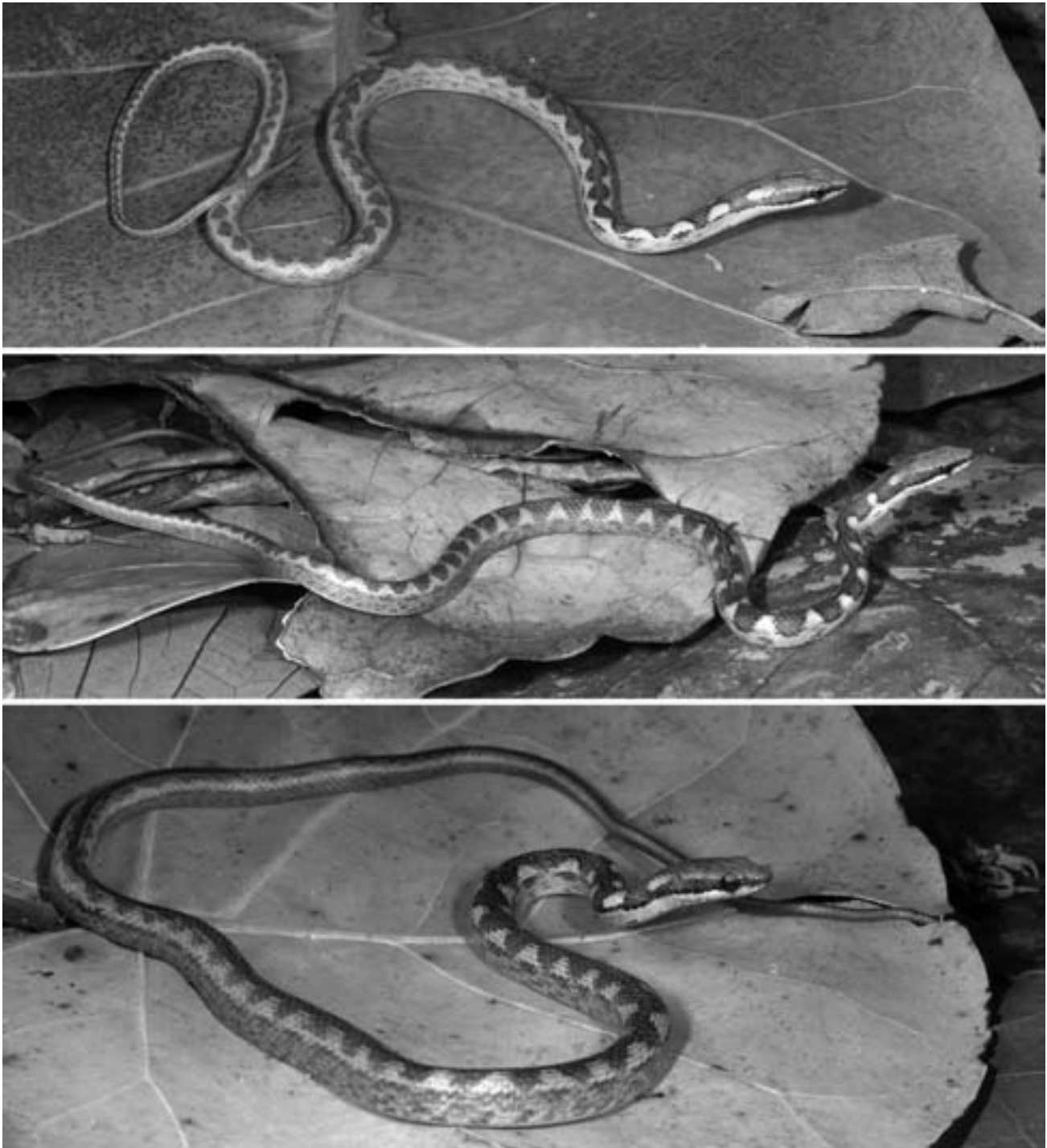
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Alsophis antillensis sibonius is endemic to Dominica, Lesser Antilles. Although Schwartz and Henderson (1991) described adults, thorough descriptions of juveniles have not been published. During a June 2008 study conducted primarily at Cabrits National Park, we made >160 observations of an undetermined number of snakes. Included in the observations were five juveniles, for four of which we collected and recorded pattern data. The only previous description of the juvenile pattern was by Parker (1933): “... an undulating dark vertebral stripe, a narrow lateral line, and dark spots on the flanks and hinder parts of the belly.”

The top of the head in juveniles is uniformly brown, darkening laterally, with very dark brown to black lines extending

from the snout and through the eyes before blending into the darker elements of the body pattern. Supralabials are white, sometimes with faint specks of light brown or gray. Faint to moderately distinct stippling occurs on infralabials, chin, and throat.

Juveniles have distinct brown middorsal “saddles” faintly outlined in black on a white to pale gray or tan ground color. Most saddles on any one individual are in contact, forming a continuous middorsal line with paired lateral extensions. These saddles may be obliquely situated or offset, forming a wavy (“zigzag”) line along at least portions of the dorsum. At least a few saddles on each animal are isolated by pale ground color extending across the middorsal line. On all juveniles examined,



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Juvenile Dominican Racers (*Akopbis antillensis sibonius*) (186 mm SVL, ~230 mm SVL, and 290 mm SVL, respectively) with the distinct pattern characteristic of small snakes.

the dorsal saddles are most distinct anteriorly, where they alternate laterally with patches of light ground color. Saddles become progressively less sharply outlined posteriorly and onto the tail, where the lateral patches of light ground color fuse to form vague lateral stripes that disappear completely on the tail. Faint ventrolateral brown or gray blotches alternate with the dorsal saddles anteriorly and fade into vague stippling posteriorly. The venter is white with faint tan to gray stippling increasing in density and becoming darker toward the vent.

As snakes grow, the dark elements of the pattern expand and fuse (= abundism), to the extent that the light ground color is increasingly obscured, in many instances leaving as remnants only light lateral patches. The smallest juvenile examined (186 mm SVL) had 65 pairs of distinct dorsolateral light patches between saddles. These were more obvious, even posteriorly on the body and on the tail, than in larger snakes. Two juveniles of intermediate length (240 mm SVL and a slightly smaller individual that was released before measurement, although the pat-



JEFFREY W. ACKLEY

Lesser Antillean Iguana (*Iguana delicatissima*) are almost exclusively herbivorous (the yellow color on the iguana's face is from eating mangos) and largely arboreal, descending to the ground to forage or defend territories for only short periods each day. Dominican Ground Lizards (*Ameiva fuscata*) are almost entirely terrestrial and are opportunistic foragers that feed mostly on small invertebrates, but will eat fruits when available. These two individuals came into close proximity to bask in a small patch of sunlight. See article on p. 130.



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Martinique Frogs (*Eleutherodactylus martinicensis*) are ubiquitous on Dominica. This individual has an unusually distinct middorsal “racing” stripe, a pattern element sometimes seen in the Dominican Frog (*E. amplinympha*), which is restricted to higher elevations on the island. See article on p. 130.



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Male Lesser Antillean Iguanas (*Iguana delicatissima*) avidly defend territories. On the grounds of the Sunset Bay Club on Dominica's leeward (western) coast, the population density is very high, resulting in frequent contact between males with neighboring territories. The beads are permanent markers allowing for individual recognition in a long-term study of Dominican iguanas (see *IGUANA* 14(4), p. 222). See article on p. 130 and travelogue on p. 162.



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OLIVER BORN

The Katerniaghat Wildlife Sanctuary is a secure refuge and the best hope for protecting Gharials (*Gavialis gangeticus*) from extinction. In April of this year, 26 females laid eggs in a soft and secure sand bar on an island in the Girwa River where nesting had been facilitated by clearing grasses and softening sand by digging. About 1000 Gharials hatched this year at one location along the river, but many were swept away by monsoon floods, for which protective measures will have to be developed in the future. See article on p. 150.



SURESH CHAUDHARI

In sharp contrast to the successful reproduction in the Katerniaghat Wildlife Sanctuary, more than 100 Gharials (*Gavialis gangeticus*) died in the Chambal River Wildlife Sanctuary this year. An unidentified toxin is suspected of causing kidney damage and failure. See article on p. 150.



JOHN S. PARMERLEE, JR.

An adult Dominican Racer with an abundant pattern in which the dark pattern elements have expanded, with only a few light patches remaining of the juvenile ground color.

tern was recorded in photographs) had 33 and 52 distinct dorsolateral light patches, with darker pattern elements blending posteriorly. The largest of the three juveniles (290 mm SVL) had 50 distinct pale dorsolateral light patches and the darker dorsal saddles were discontinuous near midbody, where 3–4 pale blotches extended middorsally through the saddle pattern. Posteriorly, the darker elements condensed into a middorsal stripe, and virtually all indications of the anterior pattern of saddles and patches were lost.

When juveniles are compared with larger adults and subadults, the head pattern may be retained essentially unchanged in some individuals or the tops of heads may become increasingly dark to the extent that the distinct juvenile ocular lines are subsumed into the uniformly dark dorsal and lateral head coloration. The light labial line is variously invaded by darker pigment. In larger snakes that retain some vague semblance of the juvenile pattern, the line may extend posteriorly onto the body. The darker elements of the body pattern expand, often become darker, and outlines become increasingly indistinct, resulting in what appears to be a dark ground color with a series of variously defined white, cream, or yellowish lateral patches that vary in number and in how far posteriorly they extend onto the body. Parker (1933) described the adult pattern as "... posterior part of the body is almost entirely black, but anteriorly the dorsal stripe is broken up into a series of large oval spots narrowly separated from one another; the light interspaces

may be fused on the sides of the neck to form a fairly distinct light stripe." Schwartz and Henderson (1991) described it as "anteriorly large white to tan blotches on brown to black ground, sometimes alternating to form lateral zigzag, posterior solid black." We observed adult "ground colors" ranging from dark taupe through milk chocolate to very dark brown, dark slate gray, and jet black. "Blotches" of adults ranged from a few lateral light spots restricted to the anteriormost portion of the body to series of patches extending to midbody and, in a few individuals, the full extent of the body. The chin, throat, and anterior portion of the venter remain light, but variously stippled. Stippling becomes increasingly prominent posteriorly. The posterior ventrals and subcaudals are uniformly dark brown or slate gray. The transition from stippling to uniform dark color may occur as early as one-fourth the length of the body to well beyond midbody. The apparently ontogenetic changes in pattern are suggestive of progressive but variable abundism (= pseudomelanism).

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Literature Cited

- Parker, H.W. 1933. Some amphibians and reptiles from the Lesser Antilles. *Annals and Magazine of Natural History* 10:151–158.
- Schwartz, A. and R.W. Henderson. 1991. *Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History*. University of Florida Press, Gainesville.



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An adult Dominican Racer showing the white labial line extending onto the body.