Ground Lizards of Guana

Ground Lizards in the genus *Ameiva* are widely distributed in the West Indies. About 20 species occur in the Bahamas and in the Antilles from Cuba to Grenada. The species on Guana, *Ameiva exsul*, is found in Puerto Rican lowlands and the Virgin Islands. This is a large species; adult male head-body lengths may exceed 20 cm, although such large individuals have not been observed on Guana.

Ground Lizards are active foragers. Except for short, intermittent periods during which they bask in patches of sunlight, these lizards appear to be constantly on the move. They scratch in the leaf litter or root under surface debris looking for food. They may consume fruit, flowers, or even garbage, but their diets include mostly insects, spiders, other small invertebrates, and smaller lizards. Because Dwarf Geckos, *Sphaerodactylus macrolepis*, are so phenomenally abundant on Guana (densities of up to 67,000 per hectare have been recorded), some Ground Lizards appear to "specialize" in finding and eating these little geckos.

Ground Lizards are most active when conditions are very warm and may be active when surface temperatures hover around 40°C. Conversely, they are quite intolerant of cool conditions and may retreat to self-excavated burrows when temperatures drop or clouds cover the sun. On cool days, they may not emerge at all. Consequently, they frequently exhibit relatively short activity periods, emerging by mid-morning and retreating again by mid-afternoon, sometimes to reappear for short periods early in the evening.

Because Ground Lizards are widespread and often quite abundant in the West Indies, they are important components of island food webs. Not only do they consume a variety of prey, they in turn are eaten by a number of predatory birds and many snakes. As a matter of fact, a large percentage of snakes in the region feed largely or exclusively on lizards.

Despite their near ubiquity in the West Indies, little is known about most species and assumptions about their physiology and ecological relationships are based on relatively few studies of only a few species. Because fundamental biological attributes may vary even among populations of the same species occupying slightly different habitats only a short distance apart, additional investigations into the activity, reproduction, and ecology of these important animals are necessary to better understand West Indian ecosystems.

In October 2003, we initiated a study of Guana's Ground Lizards. Using trails or borders of beachside vegetation as transects through different habitats, we recorded times and frequencies of encounters with individual lizards in an effort to establish rough estimates of population sizes and densities, relative proportions of different size classes (large adult males, smaller adults, juveniles, and hatchlings), associations with specific habitats, and periods of activity.

To date, we have determined that Ground Lizards are found in nearly all habitats on Guana. They are absent only in the cleared flats and the area immediately around the salt pond. Unlike most other West Indian populations, Guana's lizards are not concentrated in patches of "ideal habitat," but are rather sparsely distributed across all acceptable habitats — although encounter rates appeared to be slightly higher in somewhat more open situations where penetration of sunlight through the canopy was more abundant. The highest calculated densities ranged from 33.8 lizards/ha in forested areas to 52.2/ha along White Bay Beach. Using estimates of the relative extent of suitable habitats and extrapolating to the entire island, these data result in an estimated population size of over 8100 animals on Guana. Because all of the individuals in a given area are not active at the same times, these estimates are all undoubtedly very conservative.

Adult:juvenile ratio was 1.24:1, with the large number of young individuals reflecting the recruitment of hatchlings during the current reproductive season. Because mortality of juveniles is probably much higher than that of adults, sampling during different times of the year probably would result in other ratios and different density and population size estimates.

We encountered by far the most Ground Lizards from 0930–1400 h, although one lizard was active at 0708 h on an east-facing slope and a few were foraging as late as 1630 h. Because we did not mark each animal and only a few were sufficiently distinctive to allow recognition, we could not determine the activity periods of individuals.

Now that we have a feel for where Guana's Ground Lizards live and what they do, we anticipate that the next stages in our investigation will involve individual mark and resighting data and examinations of activity and numbers during different times of the year. The latter also would allow us to evaluate seasonal reproductive activity and possible dietary shifts as lizards respond to the varying abundance of prey species or of fruits and flowers.

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