First Assessment of the *Iguana delicatissima* Population of La Désirade Island (Guadeloupe Archipelago, French West Indies)

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In terms of the conservation of *Iguana delicatissima*, La Désirade Island plays a key role. It is one of the last places of the Guadeloupian Archipelago where *Iguana delicatissima* remains. The population is healthy, self-sustaining, and iguanas are numerous, which makes it one of the priority population to focus on. Unfortunately, La Désirade is inhabited and shuttles between the mainland, sheltering the invasive Green Iguana (*Iguana iguana*), and La Désirade happen daily and there is no control of what comes in or out the island. Also, numerous herds of goats graze freely on the island, damaging the habitat.

We spent six days (May 27 to June 1, 2012) attempting to partially survey La Désirade, helped by a team of professional field technicians and volunteers. The objective was to locate the populations, check if the population is healthy, estimate the size, and verify the absence of Green Iguana and hybrids. We found out that on lower elevations of the island, iguanas seemed mostly concentrated on the eastern and western ends of the island.

We chose to estimate and survey the population of a 16 ha zone that appeared highly promising on our first day (Pointe Colibris, western end), using a traditional mark-recapture method. In the meantime, other members of the team assessed iguana use in the newly created Natural Reserve of La Désirade, situated on the eastern end, where the other big population was located.
On Pointe Colibris we captured 269 individuals. One day was excluded from the abundance analysis for the 16 ha zone due to a heavy rainfall and therefore only partially worked. We estimated the population using the data collected on the four other days. Adult female population abundance was estimated to be 298 (SE=20.3; 95% confidence interval = 263-342) and adult male population abundance was 108 (SE=20.3; 95% confidence interval = 91-141) in this single 16 ha zone. The density of breeding adults is therefore 25.4 iguanas/ha. 16% of the captured individuals were juveniles; 30 of them were considered big enough to be PIT-tagged. From this data set (collected during nesting period) the calculated sex ratio was 2.88:1 (F:M), which seems normal after the breeding period and while females are laying eggs.

Mean body mass and snout-vent length (SVL) for females were 1097 ± 329 gm and 28.5 ± 2.9 cm respectively. At least 65 females were pregnant out of 148 females with a SVL > 22 cm. The smallest female found pregnant had a SVL=23 cm. Mean body mass and SVL for males were 1206 ± 331 gm and 30.0 ± 3.3 cm respectively.

99% (n=266 out of 269) of captured individuals were considered as being in a good health state and 1% (n=3) showed a moderate health condition, according to usual criteria used by clinical veterinarians. External parasite load was low.

No evidence of hybridization with its congener *Iguana iguana* was found nor individual Green Iguana discovered, either in the Pointe Colibris population or in the eastern population. However, two witnesses from La Désirade assured us they had seen an inhabitant entering with a pet Green Iguana, highlighting how urgent it is to raise public awareness on the threat the presence of the Green Iguana poses to *Iguana delicatissima* conservation.
The Natural Reserve has poor tree cover and most iguanas inside the reserve were observed using the south-western part that contains the highest concentration of trees that are part of their normal diet. In the rest of the reserve, vegetation is harvested by the many uncontrolled herds of goats. Few iguanas have been observed basking on the sharp rocks covering the coast. Another group has been spotted in the northern part of the Natural Reserve.

These observations suggest the reserve may be important for the eastern population, to conduct some of their normal behaviors and as a source of food. Rehabilitating the tree cover of the reserve’s adjacent zones by restricting access from grazing goats might improve the eastern population, and enhance the biological value of the Natural Reserve.

We identified four potential threats to the conservation of this population (in order of significance):

1) Invasion by Green Iguana - many boats transporting food, other merchandise, and people travel between mainland Guadeloupe and La Désirade on a daily basis.

2) Road Casualties - the coastal road was found to be an obstacle for iguanas: three females were found dead in five days near the Natural Reserve and Pointe Colibris, and two iguanas were observed dangerously basking on these same roads.

3) Grazing Goats - numerous goats are left by owners close to or in the Natural Reserve zone, leading to overgrazing. Goats compete with iguanas for foraging and induce a change in the vegetation. Resultant changes to the soil cover also leads to a reduction in the attractiveness of available nesting spots.

4) Human Conflict - iguanas feeding in residential gardens are considered pests by some island inhabitants. The nets used to protect crops have been observed catching iguanas, and once trapped they cannot free themselves leading to subsequent death, either by dehydration, prolonged exposure to heat, or strangulation.
Our conclusion is that at least two main populations exist on La Désirade Island, with a very high density on the western side. Considering the estimate in the single 16 ha zone and our observation on the eastern side, we think that La Désirade and its satellite islet Petite Terre, plays a key role in the survival of the remaining global population. Along with the Dominica population, this population must be considered as a priority for conservation efforts. The population is healthy and numerous, and currently seems viable without human intervention.

However, without controls on the merchandise and people entering La Désirade, the probability is high for invasion by Green Iguana and the subsequent loss of the _delicatissima_ population. We also noticed that people are mostly unaware that two species exist and the difference between them. Other threats seem to be much less significant at this time.

We therefore recommend:

1) To implement a systematic control program of merchandise and people entering La Désirade. Trained officers should be hired or municipal officers trained and dedicated to this program.
2) To start a wide-ranging education program for the inhabitants of La Désirade as well as mainland Guadeloupe, as many exchanges happen between these areas.
3) To post signs in the port describing the threat posed by the Green Iguana to the conservation of the Lesser Antillean Iguana. The signs should explain how to recognize species differences and emphasize that it is forbidden to transport Green Iguanas in Guadeloupe.
4) To stress the key role of La Désirade in the overall conservation of _I. delicatissima_, and develop the identity of this iguana as a flagship species with high local value.
5) To identify the owners of goat herds grazing in the Natural Reserve territory and work with them for a solution that prevents goats feeding in this area.
6) To create a buffer area along the Natural Reserve that restricts access to domesticated herds in order to allow recovery of the tree cover.