

Urgent Conservation Action Needed To Save The Lesser Antillean Iguana

By Thijs van den Burg

The Lesser Antillean Iguana is an endangered endemic reptile found in the Lesser Antilles whose population is rapidly decreasing. Although once also found on St. Maarten, St. Eustatius is currently the last stronghold in the Dutch Kingdom of this tree-dwelling iguana. Recent events could change its fate.

Early 2014 RAVON and STENAPA launched efforts to study and conserve the remaining population of the Lesser Antillean Iguana (*Iguana delicatissima*) on St. Eustatius. Data on nearly 300 iguanas were collected during several studies, and the majority of these iguanas were uniquely tagged to allow the collection of valuable data over time. A primary goal was to assess whether the population is genetically pure with respect to the wide-spread hybridization between non-native Green Iguanas (*Iguana iguana*) and native Lesser Antillean Iguanas that occur throughout the Lesser Antilles. Since the identification of hybrids can be made based on morphological (Breuil, 2013) and genetic differences (Stephen et al., 2013; Vuillaume et al., 2015; van den Burg et al., 2018), both methods were used. The results indicated that no hybrids or Green Iguanas were present in 2015, which suggests that they are absent on St. Eustatius (van den Burg, 2016).

The discovery of an adult female *I. iguana* in early 2016 and of the first individual with hybrid characteristics in mid-2016 is alarming. Genetic and morphological data has confirmed that this individual and several subsequently found iguanas are indeed *Iguana delicatissima* x *Iguana iguana* hybrids (Figure 1; van den Burg et al., 2018). Ongoing field-work performed by local organizations and collaborating partners (STENAPA, Ecological Professionals, and RAVON)

has led to the discovery and capture of eight hybrid individuals to date in addition to two Green Iguanas. The Green Iguanas arrived by boat from St. Maarten, which is home to large numbers of these non-native reptiles. The size variation of the hybrids indicates that a minimum of two hybrid nests have successfully hatched on St. Eustatius. It is therefore extremely likely that more hybrid iguanas are present.

Based on the identification of hybridization and remaining presence of non-native iguanas, conservation management action is crucial to ensure the genetic integrity and longer-term survival of St. Eustatius's Lesser Antillean Iguana. Fortunately, a successful grant application with the Mohamed bin Zayed Species Conservation Fund will boost conservation work by providing accommodation to two experienced researchers on St. Eustatius. These scientists will perform a systematic survey of non-native iguana distribution and abundance, which will help visualize the current extent of the non-native invasion. Distribution knowledge of non-native iguanas will allow the identification of priority areas for removal actions in an effort to remove all non-native iguanas.



Figure 1 - Iguanas on St. Eustatius. Left to right: *Iguana iguana* - hybrid - *Iguana delicatissima*. © Thijs van den Burg and Tim van Wagenveld



The progress of biological invasions and the potential for eradication can be visualized using an invasion curve (Figure 2), which is an interplay of three factors: 1) time since the invasion, 2) spread of the invasive species, and 3) costs for controlling the invasion. On St. Eustatius, the lack of hybrids in our initial large dataset and low number of discovered hybrid iguanas suggests the current invasion is of recent origin. It would seem that there is only one small infested area which indicates that eradication at this stage is still feasible. This needs to be verified by thorough survey efforts. A similar situation to several other Lesser Antillean islands, where larger numbers of non-native iguanas are present, will however arise if no dedicated/committed action is taken at this point. Besides a loss of the native Lesser Antillean Iguana population, these non-native iguana can cause extensive economic damage as is evident from other islands, e.g. Grand Cayman.

The Durrell Wildlife Conservation Trust is currently leading a Lesser Antillean Iguana breeding program in collaboration with several European Zoos, including Rotterdam Zoo. To this end, and following necessary

health screenings, two animals of each sex were transported from St. Eustatius to the Rotterdam Zoo in early May. They will be displayed at the Zoo (after a quarantine period) to increase public awareness. Their offspring will eventually be crossed with breeding lines that originate from Dominica present in collaborating Zoos.

Sadly, similar declines in Lesser Antillean Iguana populations are taking place throughout the species' entire range (Anguilla to Martinique) as a result of hybridization, habitat destruction and poaching (Knapp et al., 2014). Besides St. Eustatius recent invasions of Green Iguanas on La Désirade and Dominica have also been reported. In fact, this species' distribution is predicted to have decreased by 87% by 2050 and only inhabit Dominica if the current rate of decline continues (van den Burg et al., accepted). As a result, the IUCN Red List status of the Lesser Antillean Iguana will change from "Endangered" to "Critically Endangered" (van den Burg et al., accepted). Conservation action along with increased biosecurity is urgently needed throughout the iguana's range to ensure that all remaining populations are

preserved and that future invasions by Green Iguanas onto these last strongholds are prevented.

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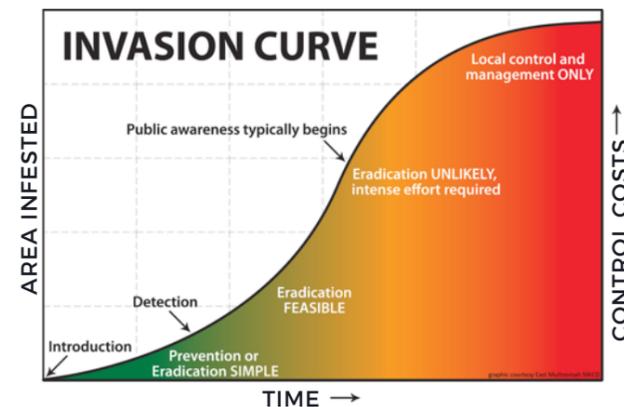


Figure 2 - Invasion curve, © Protect Lake George; Davis (2009).

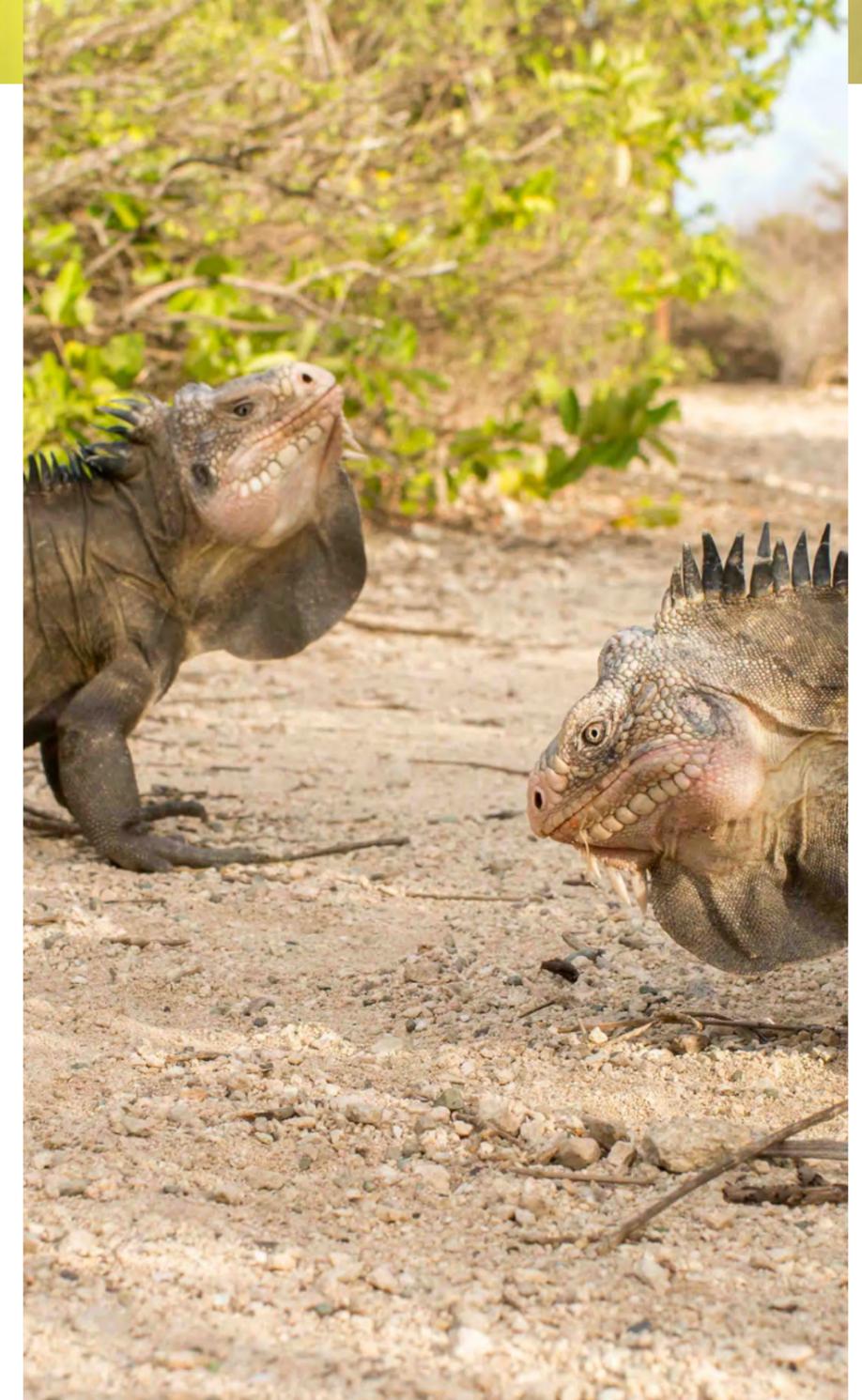


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Concerted Caribbean effort for Lesser Antillean Iguana

A team from St. Eustatius National Parks Foundation (STENAPA) laid the fundamentals for a Caribbean conservation plan for the Lesser Antillean Iguana during a workshop in Anguilla in March 2018.

Representatives of the islands with remaining Lesser Antillean Iguanas shared their ideas during the workshop about how to build a bright future for their native iguana. All islands share the main threats to their native iguana, such as habitat loss due to roaming goats, predation by wild cats and rats, car accidents, poaching and the arrival of the invasive Green Iguana. Apart from that, the present iguana population in St. Eustatius is possibly not viable given its small size and fragmented distribution, however there is no genetic structure within this population (van den Burg et al., 2018). Therefore STENAPA works on improving connectivity, putting in place checks in the harbor of incoming containers, and decreasing the roaming goats and wild cats.

In Anguilla the situation with the iguana on the main island has become so critical that the Anguilla National Trust translocated the last individuals to a small-uninhabited island nearby, Prickley Pear East. During one of the night patrols in Anguilla last week, STENAPA's National Parks Ranger Rupnor Redan found one of the last remaining native iguanas. It has been put in quarantine and will be sent to Prickely Pear East after genetic testing.

Besides Redan, the STENAPA team was represented by Director Clarisse Buma, Tim van Wagensveld (RAVON) and Sandra Bijhold (Rotterdam Zoo). Buma: "This workshop was very inspiring. We want to increase the corporation with especially Anguilla and St. Barths. We can learn from each other. Anguilla is interested to have an exchange with our ranger and do night patrols with them. And STENAPA can learn from St. Barths, where they made progress in the field of checking sea containers for invasive species. I am looking forward to bring our recovery plan a step further". The development of the recovery plan is supported by the EU Best 2.0 program for overseas territories.



Photo: STENAPA's ranger Rupnor Redan has caught an invasive Green Iguana on Anguilla and checks it with colleagues from Rotterdam Zoo, Les Fruits de Mer (Sint Maarten) and Anguilla National Trust. © STENAPA

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