

The Stout Iguana of the British Virgin Islands

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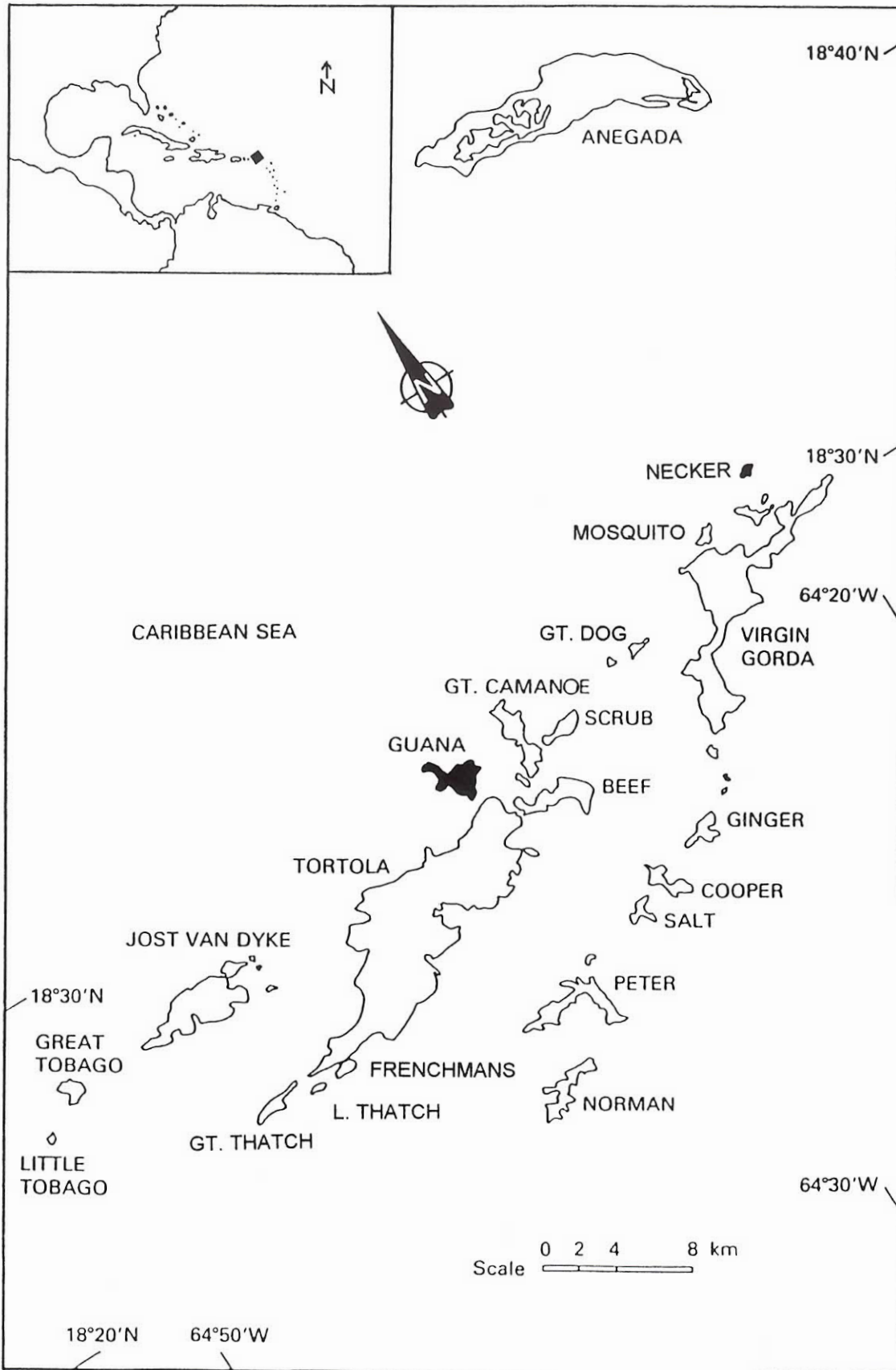
Which is the largest, the most anatomically distinctive, the rarest and most critically endangered of all West Indian iguanas? Perhaps none of those questions has a clear, unequivocal answer—there is always the possibility of dissent—but my vote has to go to the stout or “Anegada” iguana, “*Cyclura pinguis*,” today confined to only three islands. These are ponderous beasts, said to attain weights of more than 60 pounds and lengths over six feet. Its species name *pinguis* means stout.

Apart from mass, the stout iguana has several remarkable anatomical features. First and most obviously, it lacks caudal verticils—rings of enlarged scales set off from the ordinary scales on the tail. The name *Cyclura* means ring tail. These caudal

verticils are the only anatomical character provided in keys or field guides for recognizing the genus *Cyclura*, said to occupy the entire Greater Antilles, of which the British Virgin Islands (BVI) are the extreme eastern extension. The species *Iguana iguana* and *I. delicatissima*, native to the Lesser Antilles, similarly lack caudal verticils. As is well known, herpetologists are wonderfully imaginative people. Still it is surprising to read in Schwartz and Henderson (1991) of scale counts to the “first caudal verticil,” or “in the fifth caudal verticil.” As in all iguanas, there is variation in tail scale size, but if one can discern verticils of distinctive scales on the tail of *pinguis*, one can surely perceive them equally well on *Iguana iguana* and *I. delicatissima*. Apart from the fact that *pinguis* has, overall, larger scales



Adult male stout iguana basking in a loblolly tree (*Pisonia subcordata*) on Guana Island. Stout iguanas are moderately arboreal at all stages of life. Photograph: Gareth Rockliffe



The British Virgin Islands, showing islands mentioned in the text. Guana and Necker Islands are shaded.

than other iguanas, the three eastern species are similar in caudal squamation.

Schwartz and Henderson's (1991) account also leaves out the fact that adult male stout iguanas typically develop very dark—even sooty blackish—heads and necks. Schwartz and Henderson also said “juveniles presumably like adults,” but this is not at all the case. Hatchling stout iguanas are very pale in ground color but have bold dark transverse bands. The ground color varies from gray with greenish tints (“lichenate” is a good descriptor) to green. The greens vary from olive to bright blue-green or aquamarine, and are richest posteriorly and middorsally. While baby stout iguanas are never the brilliant “arsenic” green of most *Iguana iguana* and *I. delicatissima* babies, they are typically much greener than the western species.

There are two other striking similarities among these three species that set them off from their western relatives. Their lateral teeth are complexly cusped, with many more points (cusps) than are seen on the simpler, fleur-de-lis teeth of normal *Cyclura*. And the floor of the braincase, in all species a bone called the parabasisphenoid, is very

broad in *iguana*, *delicatissima*, and *pinguis*, but very narrow in western *Cyclura*. The stout iguana, however, is unique in having the largest body scales and the lowest, least developed crest scales of any West Indian iguana.

Although I began biogeographic and evolutionary studies of West Indian iguanas more than 40 years ago, I did not meet a stout iguana until 1980. At that time I was commissioned to do a study of wildlife for the government of the BVI. There were already plans to develop a national park on Anegada: the low, flat, easternmost island in the group. Apart from bones and stories, stout iguanas were then known from nowhere else. Back then, stout iguanas were still common on Anegada. I saw enormous individuals, far larger than any other iguanas I have ever seen elsewhere. However, the situation was bleak.

Beginning about 1960, major development schemes—eliminating or amalgamating entire islands—were promulgated in the BVI. The most ambitious scheme was for Anegada, but it progressed only as far as the obliteration, by bulldozer, of Anegada's livestock paddocks. Traditionally, Anegadians relied heavily on careful animal hus-



A juvenile stout iguana. The white marking is latex paint, used for marking in our population studies on Guana Island.
Photograph: Gareth Rockliffe

bandry on their dry island. Livestock—goats, sheep, cattle, swine, and burros—were kept within a vast system of stone fences. They were moved around, and even let out in small, well-tended herds, to browse and forage. The destruction of the stone walls freed the livestock, and was simply too great a catastrophe for the people to overcome and repair. Feral livestock, especially goats and burros, were in turn too much for the iguanas. Insidiously, the population dwindled.

Once the stout iguana enjoyed a vast range. It was the native species of Puerto Rico and all the U.S. Virgin Islands except St. Croix. Stout iguana bones are a common and nearly ubiquitous component of the middens, refuse heaps, left by Native Americans who began populating these islands at least three thousand years ago. Early European settlers, especially from Spain and France, also consumed these big, relatively slow lizards. By the twentieth century, Anegada may have harbored the sole survivors. Major Chapman Grant, however, visited Guana Island (also in the BVI) in 1930 and said there were iguanas there. If so, they did not survive long.

By 1984 it was clear to me that the situation on Anegada was desperate. Although hatches of baby iguanas occurred annually, there were many fewer iguanas than even four years earlier in 1980. Most of the survivors were old males. Adult females were scarce and getting scarcer. I believe they virtually commit physiological suicide in the process (no doubt involuntary) of trying to get enough food energy to yolk up egg clutches. Males, of course, do not expend much energy on reproduction. Also, males are much larger and hold vastly larger territories. Females, and youngsters past their hatchling carnivorous stage, simply cannot compete with goats. Although the great national park plans still existed, and many Anegadians wanted the park to become a reality, land title issues seemed impossible to resolve. I decided to attempt bringing stout iguanas back to Guana.

Louis Bigelow of Massachusetts bought Guana Island in 1934. The first things he did were to extirpate the goats and ban wood cutting for charcoal. He reduced the number of burros to two, and controlled their movements. He did not get rid of the sheep—the only other feral domestic



Adult female stout iguana, Guana Island, marked with white paint. *Photograph: Gareth Rockliffe*

livestock present—but he did control them. The vegetation began to recover. Bigelow also fenced a large sheep enclosure around the area where he began construction of the Guana Island Club buildings. Although sheep grazing outside the enclosure remained a problem, sheep are not as destructive as goats, and I believed conditions had improved to the point where iguanas could survive. Beginning in 1984, I brought eight stout iguanas, four males and four females, over from Anegada. The population has exploded. We now have bumper crops of hatchlings annually, with ongoing recruitment into the subadult and adult ranks. Adult females outnumber adult males by about three to one. Guana Island's snakes seem more common and seem to grow much bigger now. Each year, at hatching time, our population of red-tailed hawks seems to at least double, from the normally resident pair to four or five birds. Fecundity plus natural selection add up to iguana prosperity, and prosperity for their predators too.

In 1995 I took some youngsters over to Necker Island (also in the BVI). Necker has no feral livestock, not even rats. It will be at least 1999 before Necker iguanas reach potential breeding age, but the new residents seem to be doing very well. I am full of hope. There are at least three more privately owned islands in the BVI that may be suitable for stout iguana restocking: Great Dog, Mosquito, and Little Thatch. One BVI National Park, Fallen Jerusalem (a small island named for its wondrous stone topography) has been cleared of goats and other livestock. It no doubt needs some revegetation, but it could soon support stout iguanas.

For the foreseeable future, the best hope for the stout iguana's long term survival is to reestablish the species on as many small, predator- and competitor-free islands as possible within its former range. We must bear in mind that its former range was the entire Puerto Rico bank, certainly not just Anegada, or even the BVI. *Iguana iguana* has now been introduced to many of these islands. Private landowners typically like iguanas and want them on their properties. Land owners are little concerned with the subtleties of species differentiation, and will demonstrably import *Iguana iguana* from the U.S. Virgin islands, even to the BVI. Thus, Sandy Cay, in the BVI, is now infested with *Iguana iguana* introduced from St. John.



Adult male stout iguana basking in a loblolly tree on Guana Island. Photograph: Gareth Rockliffe


I see no hope of reestablishing stout iguanas on an island now populated by exotic green iguanas. We must act rapidly to reclaim as much stout iguana habitat as possible before potential sites are lost. Young stout iguanas from the Guana Island population are expendable, and can be excellent stock for restorations.

Of course, the fondest hope for the longterm conservation of the stout iguana is the Anegada national park. Even now, while some land title disputes remain, some have been settled and livestock enclosure areas—even if small—could be initiated. The BVI National Parks Trust and the IUCN Iguana Specialist Group have built a head-start pen on Anegada, and obtained a few of the increasingly rare local hatchlings to populate it. Meantime, Dr. Numi Goodyear Mitchell, of The Conservation Agency, has begun erecting more sheep enclosures on Guana Island. Of course, we continue to try to extirpate the last of the feral sheep.

Right now, Guana Island seems to hold the most secure population of stout iguanas. Their continued success there, however, depends on active management. For those concerned with inbreeding depression in small populations, Guana's sheep could provide a cautionary tale. Guana is steep and rugged. The big ravines—called ghuts—on the windward side were never cleared and support deep, dark forests which are perhaps the best remaining old growth in the Antillean lowlands today. The formerly cut-over areas have come back in dense second-growth jungles. We have waged war on the sheep. Repeatedly, we have hoped—or dreamed—we had finally got the last ones. Repeatedly, twinning twice a year, they have rebounded. Most West Indian sheep are blissfully stupid creatures, slow and seemingly lacking the senses to even perceive a large truck or bus at ten feet. The remaining sheep on Guana, coming through the gauntlets of many population bottlenecks, are fleet and agile. Not only have they apparently developed extrasensory perception, but they seem to have strategic planning capabilities greater than those of us who hunt them. If they exemplify inbreeding, then that is a wonderful thing.

Ironically, it would have been easier to eliminate the sheep if there were still goats. Goats eat many dense understory shrubs that sheep do not, and so clear out the woodland floor, increasing visibility. My strong advice to anyone planning iguana management and restoration is to get rid of all the feral ungulates on an island while still clearing out the goats. Once the goats are gone, any other remaining species will not only become greater competitors with iguanas, but will become much harder to control.

The stout iguanas of Guana Island are generally extremely popular with visitors. The owners of

Guana (who purchased the island in 1975 from Louis Bigleow), Dr. and Mrs. Henry Jarecki, have declared their Island a wildlife sanctuary. In addition to stout iguanas, successful restoration projects include tortoises, flamingos, and white-crowned pigeons—all species nearly or completely extirpated previously from the BVI. Island staff, especially Mr. Lynford Cooper, have taken a great interest, even developed a fondness, for the iguanas that just back in 1980 almost everyone seemed to hate and fear. Guana Island today is a destination resort for a small number of tourists. While most enjoy seeing iguanas, some are actually frightened of them. The biggest Guana individual I have weighed was a mere 23 pounds, but I have seen lots of others that were bigger than he was (and he has grown a lot since I weighed him in 1986). There is one legendary fellow known as “Monster” who, it is said, could swallow a 23-pounder like one of those swallows a grape. Maybe I will catch him next year. 

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