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## WHO KILLED THE IGUANAS?

By: John M. Woram

Popular wisdom has it that no iguanas remain on Isla Baltra because American troops used them up for target practice during World War II. It's a believable legend: imagine being barely 20 years old, newly drafted, and sent to a place that could very well be the next Pearl Harbor. You have nothing to do but stand around and wait for something terrible to happen. But of course, nothing terrible does happen. In fact, nothing happens, period. It will take about 20 more years until the Charles Darwin Research Station is born and the world wakes up to the nonmilitary significance of this godforsaken place. But in the meantime, your home so far away from home is just "The Rock," a term of endearment formerly reserved for Alcatraz, another prison watched over by gun-toting guards. But on this rock, the guards are also the prisoners, for there is no ferry service back to more congenial surroundings at the end of each boring day. So you pass the idle moment by taking a few shots at some stupid lizards. So the story goes.

But eventually the war does end and everybody gets to go home. Some years later scientists arrive and note the absence of land iguanas. They recall the Island was occupied by American troops during the big one and set down the following observations: iguanas were here before the war; Americans were here during the war; iguanas are missing after the war. This leads to the obvious conclusion: the Americans killed all the iguanas. In due time, hypothesis becomes theorem, and today there's hardly a wildlife study or discussion of the Island that does not include the obligatory "senseless slaughter" reference. De-

spite the absence of a single firsthand account, the hypothesis is so believable that it passes unchallenged. It is almost as though we *expect* young men to do such things. And so the American troops are judged—in absentia and without trial—guilty.

Perhaps the judgment should be appealed, if not on the basis of newly found evidence, then at least on re-examination of the old, specifically, World War II records now preserved on microfilm at the United States Air Force Historical Research Center at Maxwell Air Force Base, Alabama, supplemented by information from the archives of the Smithsonian Institution and the Franklin Delano Roosevelt Library at Hyde Park, New York. By studying these documents it is possible to reconstruct—at least partially—an account of what did, and what did not, happen to the iguanas during the war.

The earliest reported use of Baltra by American forces was as a seaplane base, starting on 6 January 1942, with construction of a runway beginning in February (Panama Canal Department 1946). Before the first plane could land, wildlife warnings had already been heard in Washington. Dr. Waldo LaSalle Schmitt, curator of the Smithsonian Institution's Division of Marine Invertebrates, took advantage of his acquaintance with President Franklin Delano Roosevelt to sound the alarm. In 1938, Schmitt was part of the presidential cruise to Galápagos aboard the U.S.S. *Houston*. And now, knowing of the President's continuing personal interest in the Islands, Schmitt wrote him on 4 March 1942 to warn of a "great danger that the iguanas, both land and marine,

which are no longer very plentiful, may be made the objects of target practice." He continued with the suggestion that the hunting of goats and other feral animals be encouraged (Roosevelt 1942). A month later, the first plane landed, followed by the arrival of an Army contingent on 9 May (Panama Canal Department 1947). Within the next 2 weeks, the commanding officer of the brand new Army Air Base, Colonel William Gravely, distributed a memorandum to draw attention to the status of the Islands as a game preserve. The 20 May memorandum stated that the "The killing of all animals and birds is prohibited" (Johnson 1942).

A few weeks later, the Smithsonian's Assistant Secretary, Dr. Alexander Wetmore, directed Dr. Schmitt to proceed to Galápagos to investigate the possibility of establishing a small laboratory adjacent to the Navy facilities (Wetmore 1942a, 1942b). This time, his cruise would be somewhat less than presidential; after a 5-day voyage out of Panamá, the tuna clipper *Liberty* dropped Schmitt on Baltra—now code-named Base Beta—on Thursday morning, 25 June. He returned to the mainland by plane on Saturday, 27 June 1942. In his 7 July report to Dr. Wetmore, Schmitt noted that:

Some sections much favored by [the iguanas] have been completely denuded of all vegetation in the course of land leveling operations. The goats and remaining iguanas have been driven into, or concentrated in, perhaps half the range that they formerly occupied. Thus, the animals come into closer competition for food (Wetmore 1942b).

Schmitt also reported that:

Due to the indiscriminate use of pistols during the early phases of the military occupation, so many iguanas were killed that a severe epidemic of carrion flies resulted. [But] this, of itself, brought about some degree of protection, in order to eliminate the pest of flies (Wetmore 1942b).

Unfortunately, Schmitt's report does not elaborate on this, but we do know the remark about the pistols was not based on personal observation. For in his diary, Schmitt (1942) wrote, "Army killed iguanas with pistols, & let carcasses die . . . I guess [this] made a bad flie [sic] pest." However, this entry was made on 15 June—10 days *before* he arrived in Galápagos. By the time he actually got there he was able to jot down a cheerier note: "Killing of animals [is] out," perhaps as a result of Colonel Gravely's

order (26 June entry, but misdated 25 June). But in any case, the Smithsonian did not want to take any chances on the future. The following excerpt is taken from a 20 November memorandum to the State Department, signed by Dr. Wetmore.

It is recognized that disturbances through construction and actual occupancy are unavoidable, but it is important and necessary that all hunting for game or sport, and all other unnecessary molestation of the wild life [sic] be controlled and prohibited by the military authorities . . . Should any [animals] be destroyed needlessly, much resentment inevitably will arise (Wetmore 1942c).

On 9 December 1942, Wetmore's memorandum was forwarded to the Commanding General, Caribbean Defense Command, along with a directive, by order of the Secretary of War, that:

. . . you take appropriate action to prevent any unnecessary molestation of the wild life [sic] in the Galapagos Archipelago and to prohibit the introduction of domestic animals that may prey on the native fauna (Daily 1942).

Action was also needed on another front: during a brief visit to Washington, Commander J.J. Gest told Dr. Schmitt of "native laborers killing iguanas for their skins, but he put a stop to it so far as he was able" (Wetmore 1942d). Again the Smithsonian alerted the State Department:

We have report of native laborers engaged in various work on the islands killing iguanas for their skins. This was stopped by one of the officers but may begin again at any time (Wetmore 1942e).

Both the State Department and the Smithsonian were aware that interested foreign agencies were monitoring the situation and could be expected to take action if the United States permitted the Galápagos habitat to deteriorate needlessly (Wetmore 1942e, 1942f). To say nothing of monitoring by the President himself, who throughout the war always found a little time to urge the preservation of the Galápagos as an international park. In a memorandum to the Secretary of State, Roosevelt wrote "I have been at this for six or seven years and I would die happy if the State Department could accomplish something [to persuade every country from Canada to the Straits of Magellan to get behind the idea]" (Roosevelt 1944).

In short, the protection of the flora and fauna was taken very seriously, even to the point of interceding in the actions of the civilian labor force.

But could the servicemen themselves be expected to take their orders as seriously as did their President

and the Smithsonian? In retrospect, perhaps they took them a little bit *too* seriously. For example, the orders made no distinction between endemic and feral animals—an unfortunate loophole that the Island's goats used to their advantage. A two-column headline in a 1945 edition of the base newspaper ominously reported that:

**GOATS MAY BE BANNED FROM  
PX BEER GARDEN**

It seems that some (human) newcomers had complained to the PX officer about the presence of the beasts, much to the disgust of the old-timers, who regarded the goats as fixtures. No action was taken, pending further study of the matter (Anonymous 1945). And so, along with their PX privileges, the animals prospered under a well-intentioned but misguided Uncle Sam. Alas, Schmitt's early recommendation to encourage goat hunting had apparently not reached the Island. And as a result, a 1946 inspection report from Major-General Harmon to the Chief of Staff noted that:

The large number of native goats, protected by Executive Order, make a continuous practice of upsetting garbage and trash cans. They are a great annoyance and a menace to sanitation. Initiate request . . . for authority to round them up and transport them either to Little Seymour [i.e., Seymour Norte] or to Santa Cruz Island (Harmon 1946).

When not raiding the trash cans or drinking with their army buddies down at the PX, the goats had the unsettling habit of wandering (staggering?) across the runway at the most inconvenient moments, and at least a few landings had to be aborted on their account. But such close calls notwithstanding, it would seem that troops and herds lived in more-or-less peaceful coexistence, with the prohibitions against harming the wildlife still in effect.

But what of the iguanas, which is after all the subject of this inquiry? Is it likely that the troops would cheerfully spare the goats yet systematically risk official displeasure by taking the iguanas? The evidence, such as it is, suggests not. For whatever else the airmen did to pass their leisure time, they took pictures, some of which came to light recently as the result of the following chain of events.

In 1988, a veteran of the 29th Bombardment Squadron revisited the site of his wartime service. Former U.S. Army Air Force navigator Allan Beucher arrived aboard a Boeing 727, a far cry in time and

technology from his earlier flights here in a Consolidated B-24 *Liberator*. His squadron had operated from Baltra during the period from May 1943 to April 1944 and again from May 1945 through the end of hostilities. During the inevitable wait for the bus to dock, Beucher reminisced out loud about his tour of duty and was overheard by a local guide who said for all to hear, "Oh, you're one of those Americans who murdered our iguanas" (A. Beucher, pers. comm.).

Beucher, who had no idea what the guide was talking about, recalled the unpleasant incident a few days later while visiting the Darwin Research Station. While there, Ms. Gayle Davis explained the cause of the guide's hostility, and Beucher protested vehemently. A month or so later, I arrived looking for help with the human history of Galápagos. Gayle recalled her recent meeting and gave me Allan's address. When we met, I found him *still* angry about his encounter. By happy circumstance the 29th was planning a reunion (their third) for June 1989, and a member mailing list was available. We quickly collaborated on a questionnaire in which the squadron members were challenged to dust off their memories and try to answer a few questions: Do you have any recollection of the iguana population when you arrived? When you left? While you were there, did the population increase/decrease/remain stable? Did you see any young iguanas? Do you have any first- or secondhand accounts of hunting iguanas, or of eating them?

Within a few weeks we received 24 responses to the 98 questionnaires we mailed out. The respondents were unanimous: although some recalled taking shots at sharks and rays in Canal de Itabaca, as for the iguanas, all denied anything more sinister than occasionally picking one up by the tail, trying to stage iguana races (unsuccessful) and iguana fights (ditto). At this late date, most respondents were uncertain about population fluctuations though none recalled seeing any young iguanas. Many said that the only hunting they did was with their cameras. Some had tasted green iguana (*Iguana iguana*) at Río Hato in Panamá, but none had done so in Galápagos. However, one respondent did recall seeing a single iguana that had been shot. He reported that this was an isolated case and definitely not the norm.

Our little survey is certainly not the last word in

scientific inquiry, and perhaps some will discount it for its obvious flaws. But, given the maturity that comes with the passage of almost a half a century, we would have expected a few remarks such as “Well of course we took a few shots at the damned animals. What would you expect from a bunch of kids?” Instead, we received a unanimous rejection of the very concept, followed by no shortage of angry comments at the subsequent reunion in June when the squadron members learned the full extent of the legend that has become part of Galápagos folklore.

At that reunion, many squadron members brought along their scrap books full of pictures of their buddies, of the planes they flew in, and of course, of the ubiquitous iguanas. The pictures, some of which are printed here, have one thing in common; the iguanas are reasonably plentiful, and all are quite large. Al-



Not exactly a tiger by the tail, but . . . (photograph courtesy of Dr. Edwin Rowe). *No precisamente teniendo la cabra cogida por los cuernos . . .*



Dr. Edwin Rowe and a young patient (photograph courtesy of Dr. Edwin Rowe). *Dr. Edwin Rowe y un paciente juvenil.*

though there's no shortage of baby goat pictures, there is not one juvenile iguana to be seen. The same general situation was also noted by others stationed on Baltra. Dr. William Kennon was attached to the base hospital from August 1943 to March 1944. In a recorded interview he recalled that:

There were plenty of land iguanas. I never recall seeing or hearing of anybody deliberately killing one. Someone who acted as though he spoke with authority said, “You know, you only see large iguanas here on The Rock. You never see any small ones.” After that I specifically noticed the size of the iguanas that we had, and all of them were fairly large (Kennon 1981).

Now, who (or what) do *you* think was killing off all the young iguanas while sparing their elders? It could hardly be the work of bored humans, who if so inclined would surely find the larger ones—to say nothing of the goats—far more attractive targets. And whatever the cause of the missing young, its effects had been observed long before World War II. William Beebe noted it in 1923 (Beebe 1924). Some 10 years later, the members of the Hancock Expedition observed that the iguanas were not thriving on Baltra and transported some of them to Seymour Norte (Banning 1933). Still later, Dr. Loren P. Woods visited Baltra with the Leon Mandel Galápagos Expedition, and it was remembered that “when he

visited Seymour in 1940, prior to the establishment of the military base, he found only a very few Land Iguanas—*all of them large adults*” (emphasis in original; Dowling 1964). And even as Dr. Schmitt prepared for his 1942 trip, he noted to himself that “Young land iguanas seem never to have been taken [on Baltra]” (Schmitt 1942).

Base Beta was formally turned over to the Ecuadorian authorities on 1 July 1946, by which time the American forces had been withdrawn, save for a small contingent which remained at the request of Ecuador. Apparently, a contingent of goats remained as well, for *Time* magazine reported that during the transfer ceremony, “Galápagos goats idled nearby” (Anonymous 1946).

With all of this offered for consideration, it would seem grossly unfair to continue blaming the American troops for a phenomenon that had been at work long before their arrival. To be sure, the heavy construction work, with subsequent air and road traffic, took a heavy toll on the surviving adults. But even this did not totally finish them off. For in January 1954, Dr. Irenäus Eibl-Eibesfeldt (1960) reported finding an iguana carcass on Baltra. He writes “The sun had shriveled up the creature’s body but still I could make out from the bullet holes that the lizard had been shot.” After noting that the Island had made life miserable for so many bored troops, he generously adds that “. . . we really cannot blame them for what they did.”

But we have anyway, even though they didn’t do it. For if American troops had indeed exterminated the last iguana prior to 1 July 1946, where did the one discovered in 1954 come from? How long had this unfortunate creature baked in the sun before Dr. Eibl-Eibesfeldt discovered it? One year? Two years at best? At risk of stating the obvious, it would seem that the very existence of an iguana carcass in 1954 is sufficient evidence that the American troops have been the victims of an ungenerous press.

As for the last iguana, whether it died in competition with a goat, in the jaws of a feral dog now also gone, or because of reproductive failure is not yet known. But since a few descendants of the original population do live on at Seymour Norte and in the CDRS breeding program, there is now the possibility of reintroducing land iguanas to Baltra. But first,

knowing that their recent disappearance was not entirely due to bored American soldiers provides a stimulus for carefully examining all other possibilities, in search of the real truth. The eventual discovery of the cause of their demise may help us (and them) to prevent history from repeating itself.

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## A 25-YEAR MANAGEMENT PROGRAM PAYS OFF: REPATRIATED TORTOISES ON ESPAÑOLA REPRODUCE

By: Cruz Márquez, German Morillo, and Linda J. Cayot

The first indisputable evidence of successful reproduction by repatriated Galápagos tortoises (*Geochelone spp.*) was recorded on Isla Española on 30 November 1990. Two hatchlings were found approximately 90 m north of El Caco (one of the two release sites). Both were approximately 1 month old and had been eaten by hawks. Female No. 57 was observed completing a nest (0930), and female No. 61 showed evidence of recent nesting activity (dried mud covering her posterior region). The females were also located within 80-100 m of El Caco.

A total of four nests were found and were estimated at 1, 2, 5, and 8-10 days old. All were located within 100 m to the northwest of El Caco. Attempts at nesting (scrapes or holes in the soil) were found in the area surrounding El Caco, encompassing approximately 800 m to the north, 500 m to both the east and west, and 200 m to the south. Nest attempts were also seen in the region above Las Tunas (alternate release site). C. Márquez and T. Fritts had not-

ed similar scrapes resembling nesting attempts on Española in December 1985 but now the evidence that the repatriated tortoises were reproducing is irrefutable.

Española tortoises (*G. hoodensis*) are the only race bred in captivity at the Charles Darwin Research Station (CDRS) as part of the breeding and rearing program run jointly by the CDRS and the Galápagos National Park Service (GNPS; MacFarland et al. 1974a, Márquez et al. 1990). Tortoises from other Islands are reared in the program, but using young extracted from natural nests. By the mid-1960s, the native population was too low for successful reproduction (MacFarland et al. 1974b). Beginning in August 1963, all tortoises found on Española were transferred to the breeding center at the CDRS. A third male, returned to the CDRS from the San Diego Zoo in July 1977, augmented the breeding population of 12 females and 2 males (Bacon 1978, Fritts 1978).

The first successful reproduction by Española tor-