Field Conservation and Captive Breeding of the Giant Gomeran Lizard

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The Canary Island archipelago is situated close to the coast of Morocco. Although poor in herpetofauna, is rich in endemic species. Of the 17 species of reptiles and amphibians in the Canary Islands, 14 are endemic; the other three being introduced species. In the last 25 years three new species have been rediscovered, two of those in the last 5 years including *Gallotia gomerana* from the island of Gomera. *G. gomerana* was first described in 1985 by a German mammalogist (Hutterer). Although ancient documents from the 16th century mention a large lizard on Gomera. A team of biologist rediscovered a relict population of these lizards in 1999 on the cliffs of La Merica in the municipality of Valle Gran Rey. A total of six lizards, three males and three females, were captured over a period of six months. The lizards were to be the founder group for a captive breeding program run by the Department of the Environment of the Canarian Government. Captive breeding may be the only salvation for these extremely rare lizards. A provisional census has shown a wild population of only five lizards, and it is calculated that a maximum population of only twenty may exist. This makes *G. gomerana* among the most endangered vertebrates in the world.

Introduction

In June of 1999 a large lizard was rediscovered on the Island of Gomera, one of the Canary Island group. The lizard was first described from fossil remains in 1985 by R. Hutterer as *Gallotia gomerana*, although the taxonomical situation still needs to be resolved. The lizards were temporarily named *Gallotia simonyi gomerana*, this enabled the lizards to be automatically protected in Spain and also listed as CITES Appendix I, due to the existing listing of *Gallotia simonyi* from the neighbouring Island of El Hierro, another large lizard rediscovered in 1976. Another lizard was also found in 1996; *Gallotia intermedia* from the Island of Tenerife.

The Canary Islands are a group of seven small islands and several more smaller Islets. Volcanic in nature, they are between 1 million and 20 million years old, situated close to the west coast of Africa at 28.05N, 17.06W, 3750 miles east of the USA. The Island of Gomera is one of the smallest with 370 sq. kilometres; it is approximately 13 million years old. The last volcanic eruptions were several million years ago, which led to much erosion and the formation of deep valleys. The climate is sub tropical, weather patterns are affected by the trade winds from the Northwest. The north of the islands tend to be more humid, and the south, more arid.

The lizards were discovered in the south west of the island in the municipality of Valle Gran Rey. Working from a tip from locals, a team of biologists searched an area of cliffs known as "La Merica". Large pieces of excrement were found and, after placing traps baited with fruit, a young female lizard was caught. It was noted straight away that this was a species not seen in recent times. Further

trapping produced another 5 lizards in six months. The six were thought to be 2.4 (2 males, 4 females), although 2 smaller lizards were incorrectly sexed as females, later found to be juvenile males. Two adult males were caught. These were distinguished from the females, and other species of Canarian *Gallotia*, by a pure white throat and underarms. The largest animal measured 50cm and was dark-grey-to-black on the dorsum with blue spots along the flanks, with a light belly. Males have larger heads and white throats.

Although the original project was just to look for new and lost species of lizards, no plans had been made for keeping the animals in captivity. The biologist involved thought these lizards were on the brink of extinction and convinced the Canarian government to bring them into captivity. The lizards were sent to Tenerife where they were set up in a small room in separate glass terrariums measuring 6 ft X 2 ft X 1-1/2 ft. The substrate was peat moss with cork hiding places, UV fluorescent tubes, and a heat lamp was placed on the top. The lizards were fed local plant matter and baby food. They were also monitored by CCV cameras. After six months, a political row erupted over the lizards because certain people thought not enough was being done to help the lizards.

It was decided to send the lizards back to Gomera, where a temporary facility had been set up comprised of three outdoor terrariums plus offices. The terrariums are 14 ft X 14 ft X 4 ft high with a natural dirt floor and planted with native shrubs. They are covered with wire netting to protect them from predators. This happened in the end of March 2000. Attempts to breed the lizards that year were unsuccessful due to various factors. The lizards did not adapt well to their new home. Also the altitude of the new terrarium was higher than the natural habitat.

In July, one of the adult males died from a bacterial infection in the spine. In August another male was captured accidentally in a cat trap. Later in the year, a herpetologist was appointed to run the project and a work-plan was drawn up for captive breeding and conservation in the wild. It became clear that this lizard was seriously endangered. It was calculated that a maximum population of only 15 to 20 lizards survived on the cliffs of La Merica. Captive breeding was probably the only hope for this reptile. Also of high priority was the control of predators. Feral cats, rats, and goats were all present in the area. It has long been known that Feral cats are among the largest killers of reptiles, especially on islands where the reptiles have not evolved a natural defence. Cat and rat traps are set everyday, and this has helped to reduce the numbers. A total of 40 cats were eliminated in the first 9 months. Rats have been virtually wiped out and goat herders have been asked not to let their animals graze in the area. A census has been started to gain a more exact census of lizards in the wild. To date there have only been four sightings of wild lizards; one small juvenile was captured, marked, and released. At least one other pair has been identified. Trapping has not been very successful. The lizards are very wary and reluctant to enter the traps, which consist of 6-inch plastic water pipes baited with different fruit. The other species which live in the area, *Gallotia caesaris*, are captured regularly. Over 900 were caught in a 9 month period.

Work is also ongoing to discover new populations. Due to the difficult terrain, two mountain climbers have been contracted to help in the search. This enables us to reach high inaccessible ledges, which may harbour other colonies of lizards. Searching the island has also turned up more fossil evidence. From these findings we can see that the lizards once lived all over the Island. In fact, a German naturist, K.Von Fritsch, who visited the Island in 1863, mentioned in detail the giant lizards. He also found a large jawbone in Agulo in the north of the island. Recently, another German discovered a 14-cm piece of jaw; this would have belonged to a lizard over 3 ft long.

Captive Breeding

One of the first things needed were some adaptations to the outdoor terrariums. Large rocks were placed in the terrarium and heat lamps were installed for basking on cooler days. CCTV is also installed so the lizards can be observed at all times without too much disturbance. After six months, the lizards have adapted to the new installation and have begun feeding normally and gaining weight. Although there was some courtship behaviour in the first year, it seemed the females were not ready to breed. During the winter, the lizards started to lose weight rapidly and there was some concern. I believe this is a natural effect from living in a harsh environment. During late summer and winter there is a limited food supply. Lizards in the wild seem to be almost totally herbivorous and seem to be associated with one plant, the Balo (*Plocama pendula*), which bears small fruits in the early summer. Another plant, Tedera (*Psoralea bituminosa*), is also preferred. Both of these are offered to the lizards in captivity. In the spring, the lizards soon start to recover weight, and at the time of writing (5 June 2001), the lizards are at their maximum weight, and are starting courtship.

On the 29th of June the young female Ramona (Gg1) laid 5 eggs. This was unexpected as it was thought she was too young to breed. Records show she had increased in weight fairly rapidly over the last month. At the time of egg laying she weighed 134 gms, but after oviposition, she weighed 89 gms. She quickly regained 13 gms in the first week after laying. The eggs ranched in size from 26 mm X 12 mm and weighed on average 4 gms each. They have been placed in an incubator at 30°c. The eggs were laid in the late afternoon after several days of digging. All the eggs look fertile and it is hoped they will all hatch in approximately 60 days.

Fortunately, sufficient funds have been allocated by the government to this project. A new specially designed purpose-built breeding facility is soon to be constructed very close to the lizard's natural habitat. This will consist of four large 25 ft x 25 ft natural outdoor terrariums plus smaller ones for juveniles and babies. An office, laboratory, quarantine and incubation room, and a house for the director, is also to be built. This should be finished before the next breeding season in 2002.

Investigation

Although it has been decided to put most forms of investigation on hold until more lizards are found or bred, some work is already in progress. A six- month

study on the behaviour of the lizards was carried out. Also blood has been taken from the lizards to check their health and document normal blood levels. DNA samples have also been taken for taxonomic studies against other species of *Gallotia*, and also to see the phylogenetic relation between individual. ECG levels have also been measured in the lizards to determine normal levels for future use as a diagnostic tool. Data loggers supplies by the Onsett Computer Company have been placed on the cliffs and in the terrariums to give us an idea of the temperature and humidity in the wild and in captivity.

In conclusion *Gallotia simonyi ssp*. is probably one of the most endangered vertebrates in the world, with only 4.2 lizards in captivity, with only one adult reproductive female. We owe it to the lizards to make every effort to try and reproduce them and start a reintroduction project.

I hope that by the time this paper is published, eggs will be incubating, and by the end of 2001 the first offspring will be hatched.

(Editorial note: Three babies were hatched at the Lagartario de la Gomera in August 2001; after the submission of this manuscript.)

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Photo 1. Hatching *Gallotia s. gomerana*.

Photo 2. A young *Gallotia s. gomerana* female.

Photo 3. Terrarium at Lagartario de la Gomera.

Photo 4. Lagar 16. An Adult female in the wild.

Photo 5. Veta de Fuente, the only known habitat of the lizard, smaller than a football pitch.