

## THE TEN YEAR STRUGGLE TO SAVE THE ENDANGERED LAND IGUANAS

by

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The land iguana captive-rearing program at the Charles Darwin Research Station (CDRS) is celebrating its tenth anniversary. There have been many notable successes over these years, but many challenges still face us. Personal sacrifices as well as co-operative efforts between the CDRS and the Galapagos National Park Service (GNPS) have made the program what it is today.

The conservation program began in 1976, under emergency conditions. Feral dogs were attacking an estimated 500 iguanas at Conway Bay on Santa Cruz Island. Dr Dagmar Werner, a visiting scientist, and the National Park Service organized the rescue of the remaining 60 animals and initiated the captive and semi-captive rearing programs.

After news of a similar disaster in the Cartago Bay area on Isabela Island, 30 more iguanas were added to those in the already cramped quarters at the CDRS.

On North Seymour, a different problem presented itself. There were no introduced predators, but still the young iguanas were not surviving. In 1980 the Station decided to bring a pair of adults to the station and try to raise the young there.

The impetus for the captive breeding program and the reasons for continuing it are evident in the history of the islands and the problems they face today. Various isolated populations of iguanas may have diverged sufficiently during the evolutionary history of the Galapagos to form distinct subspecies, if not separate species. Thus the station is attempting to save distinct life forms from extinction.

But this is not enough. The ultimate goal of any captive rearing program is to be able to re-introduce an animal into its native habitat. To achieve this a three-pronged approach is needed: breeding in captivity; predator control; and repatriation.



Marcos Carrera assists Cruz and Cirilo as they prepare to weigh an iguana from Isabela  
*Photo by Andy Wilson*

In June of 1978, the first young land iguanas were successfully hatched in captivity. Beginning initially with the simple intention to incubate eggs, an experimental process began forming over a period of several years. As a result, hatching success increased significantly. However, in 1983 and 1984, hatching dropped to dangerously low levels, probably due to an incubator which allowed fungus to accumulate on the eggs. In 1985 Howard Snell designed a new electric incubator which maintained a constant temperature yet did not promote fungus growth. At the same time a new concept called "water potential", which is the amount of water available in the soil substrate, took on considerable importance. By using a new substrate known as *vermiculite*, and controlling the water potential, hatching success shot up to the highest level ever.



Hatchling iguana emerging from its shell.  
Parents taken from North Seymour in October 1985. Hatched March 1986 in incubator at CDRS.  
*Photo by Andy Wilson*

Once a land iguana has emerged from the shell, however, its struggles really begin. Dr Snell and his wife, Heidi, conducted considerable research on the iguanas of South Plaza Island and found that, in the wild, only about 10% of the hatchlings survive their first year (Snell 1984). In contrast, the survival of the captive-reared juveniles was 4—6 times greater than that of juveniles monitored in the wild.

The CDRS has also enjoyed success with its semi-captive breeding program on the tiny offshore islet called Venezia. When the Conway Bay iguanas were under attack by wild dogs, 38 survivors were relocated on Venezia while the other 22 were brought to the Station. Because of a lack of soil on the islet, over 90 tons of earth were transferred from the iguanas' former home to Venezia. This soil provided a nesting area 10 meters by 10 meters by 1 meter deep. By 1982, several young iguanas were counted and the 1985 census indicates that about 200 land iguanas now inhabit this tiny patch of soil and rock.

However, it is not enough to rear iguanas. The animals must be returned to their original habitat. Here the second and third prongs of the iguana program assume critical importance: feral animal control and repatriation.

With the success of the Galapagos National Park Service's dog eradication campaign on southern Isabela in 1981-82, young iguanas were introduced into their native habitat once again (Reynolds 1982). However, subsequent checks were unable to locate any of the first group of repatriates (Celleri 1982). Some remains were found in cat faeces, while some iguanas probably dispersed from the release site.

Because of severe overcrowding in the CDRS pens and the continued absence of dogs in the Cartago Bay area, a further 149 iguanas were released in December 1983 and 32 more in May 1985. All told, 220 iguanas have been released in the area. A recent census indicated the population in the area is at least 100 animals, of which 80% are repatriated animals who began their life in the CDRS incubator.

At Conway Bay the feral dog and cat problem has so far proved insoluble. Consequently, to date, none of the captive-reared Santa Cruz iguanas have been released. Since the Venezia islet is separated from Santa Cruz by only 6 meters of water, there is a constant threat of dogs crossing the narrow channel. Should that happen, we would lose the population we have worked so desperately to save.

The islands of Baltra and North Seymour present an entirely different problem. When a U.S. airbase was constructed on Baltra during World War II, the iguanas were all killed. However, by an unlikely streak of luck, a few years earlier a small population had been transferred to the nearby island of North Seymour. There the Baltra iguana held its own but after several censuses it became apparent that the hatchlings were not surviving (Snell and Snell 1979). In 1980, a pair of these iguanas were brought to the station to insure their survival. Unfortunately, the female was killed by her mate. In October of 1985, the CDRS and GNPS again went to North Seymour, this time bringing back 6 females and 2 males, and the CDRS is already incubating several clutches of eggs from these animals. However, there is a dilemma about what to do with the offspring. The animals' ancestral island, Baltra, is now an airbase and is not included in the National Park. Cats and dogs roam the area freely. On the other hand, North Seymour is safe from introduced predators but has a poor hatchling survival rate.

The CDRS and GNPS thus continue to struggle with man and nature to forge a future for the threatened iguanas. It is not enough to have the most successful iguana rearing program in the world. Nor can we merely study the iguana until it disappears from history. Working together, not only in the Galapagos, but all over the world as well, we can bring together the resources to conserve our threatened wildlife. Additional research is required and also the funds to implement recommendations arising from that research. Controlling the feral predators is critical. The Galapagos land iguana is a lifeform unique in the world. We must not let it become extinct.

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