

THE STATUS AND DISTRIBUTION OF *CYCLURA R. RILEYI* (Reptilia: Iguanidae) A BAHAMIAN ROCK IGUANA

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ABSTRACT: Research on the status and distribution of the rock iguanas (*Cyclura*) is now being conducted. As part of this investigation, a preliminary population assessment of *C. r. rileyi* on San Salvador, Bahamas was completed. Small viable colonies of this sub-species were located on four keys off San Salvador's coast. These populations are, however, in danger of extinction unless protective measures are undertaken.

SEVERAL studies of the West Indian rock iguanas (*Cyclura*) are currently being conducted under the direction of Dr. Walter Auffenberg, and financed through the New York Zoological Society.

One of the major objectives of the study is to determine the current status and distribution of *Cyclura* populations. In connection with these studies, a 15-day preliminary investigation of *Cyclura r. rileyi* was undertaken in December 1974 on the Bahamian island of San Salvador.

Cyclura r. rileyi was first described in 1903 by Lenard Stejneger, from a specimen collected on San Salvador, Bahamas. The exact type locality on the island remains ambiguous, but it is believed to be a small island within San Salvador's landlocked saline lakes. Barbour (1904, 1914) mentioned *rileyi's* presence from San Salvador using the data from Stejneger's 1903 specimens. In 1930, 1935, and 1937 Barbour mentioned the presence of *rileyi* on Green Key of San Salvador's northern coast as well as on scattered islands within the mainland saline lakes. He also incorrectly mentioned that *Cyclura cristata* (Schmidt) occurred on White Key north of San Salvador. Schmidt (1936) however, corrected the error and placed the type

locality of *cristata* on White Key at the southern end of the Exuma chain. In 1957 Rabb and Hyden reported collecting a series of iguanas from Green Key (Fig. 1). D.R. Paulsen (1966) and W. Prince (pers. comm.) located iguanas on small islands within San Salvador saline lakes. Honegger (1968) listed *rileyi* presence as occurring on San Salvador, including Green Key and White Key (Fig. 1) He also quotes King, who stated that the iguana population is "several thousand." Wing 1969 reports fossil remains dated at 770 to 1070 A.D. from an Indian camp site near Polaris Point on San Salvador's northeastern coast. Schwartz (1975) reports, *rileyi* on San Salvador, including Man Head Key and Green Key.

The vegetation of San Salvador and its satellite islets is a typically maritime complex, composed chiefly of *Coccolobia uvifera*, *Strumphia maritima* and *Casasia clusiaefolia*. On the four satellite keys off San Salvador where I found *C. r. rileyi*, *Coccolobia uvifera* was the dominant species. *Strumphia*, *Casasia*, *Cactos*, *Fimbristylis*, *Ambrosia* and *Uniolas* were also common. The island's substrate consists mainly of dense coralline rock, with small cavities, which serve as shelter for the iguanas. Essentially without relief, three of the islands attain a maximum elevation of 4.5 meters, while one island (May Head)

attains 15.5 meters. Green Key (Fig. 1) covers an area of 4.8 hectare; Man Head 3.0 hectare, Low Key 12.0 hectare, and High Key 15.0 hectare. Fresh water was present on all the keys in small pools within the cavities of coralline rock after rain storms, but these usually evaporated after a short exposure to sunlight.

Interviews were the principle method used to determine the number of iguanas inhabiting the mainland. A transect technique was utilized to determine maximum population densities of *C. r. rileyi* on three of the keys. Transects were biased to areas where walking was admissible. Transect widths were approximately 3 meters. Transects were walked in all weather conditions, at 1 to 2 hour intervals from 8:00 am to 4:00 pm. Total field time was approximately 40 hours.

Average daily temperatures were 85 F during the daylight hours, dropping to 75 F in the evenings. The daily precipitation pattern usually included two showers: one in the late morning, followed by another in the midafternoon. Showers lasted 15-30 minutes. The wind was generally out of the east-northeast, at 5-15 knots.

Results: I found viable colonies of *C. r. rileyi* on Green Key, Man Head Key, Low Key, and High Key (Fig. 1). White Key was visited, but no *Cyclura* were present, probably due to the meager vegetation coverage. Islands mentioned by Paulsen and Prince within San Salvador's interior were not accessible on this trip, but none of the people I interviewed indicated that iguanas still occurred there.

I began by spending several days exploring the mainland on San Salvador, interviewing the local inhabitants as to the presence of *C. r. rileyi* (locally known as "guanans"). My interviews were held with all age brackets, from young children to elderly men and women who had spent their entire lives on the island. I was especially careful not to provide leading questions. After interviewing persons from all corners of the main island, it was clear that iguanas had not been seen there for many years. Residents as old as 85 years were certain that "guanans" had never been common on the mainland during their lives, but confirmed their presence on the keys sur-

rounding the mainland. Goulding Key and Little Green Key (Fig. 1) were also reported to have iguanas, but I personally saw none on Little Green Key and did not have sufficient time to visit Goulding Key.

Adult iguanas restricted their activity to what appeared to be rather small territories within the vegetation. Both crevices in the coralline rock and burrows in the sand were used as shelter. Small hermit crabs were living within the burrows of all iguanas, where they apparently feed on the iguana droppings within the burrows. *Sphaerodactylus corticola* also inhabits some of the holes. Other than man, the only likely natural predator were sea gulls (capable of consuming young) and ospreys (capable of consuming both young and adult iguanas).

Iguanas were observed feeding only on seagrape fruits (*Coccoloba uvifera*) which were abundant on the surface. No other plants were seen to be predated, though the iguanas probably feed on a variety of species.

On Green Key six transects were performed along the islands length. A total of 27 iguanas were spotted in the transects, 10 of these were juveniles. An area of approximately 4 hectares was transected for an average of six iguanas per hectare, giving this small islet a maximum population of approximately 35 iguanas.

Man Head lies to the east of Green Key 500 meters off San Salvador's northeastern coast. A viable colony of *C. r. rileyi* was also found here. Due to the islands greater relief the vegetation is more diverse, having reduced exposure to the vicissitudes of the environment. Ten transects were made along the islands northeastern coast. A total of 11 adult and 4 juvenile iguanas were counted in an area approximately 2 hectares. This gives Man Head Key and average of 7.5 iguanas per hectare, with a total maximum population of 28 iguanas.

Due south of Man Head and lying 1 kilometer off San Salvador's southeastern coast, are the islands of Low and High Key.

Transects were made along both the eastern and western coast of Low Key. A total of 10 iguanas were seen, all of them adults. Approximately 4 hectares of land were transected for an average of 2.5 iguanas per

hectare, giving the island a total population of 30 iguanas. However, if Green Key and Man Head Key are any indication of what average density levels should be per hectare, a maximum of 90 iguanas would be the population for Low Key. Transects were not made on High Key, although 7 adult iguanas were seen. Again, if the densities correlated with that of Green Key and Man Head Key 112.5 iguanas would be a maximum population density for High Key. At no time were any mammals seen on any of the keys, nor was there any indication of their presence. The mainland, however, is plagued with a large assortment of feral mammals. On the basis of literature records, iguanas must inhabit portions of the interior, but large populations have not been in evidence for many years, apparently since the introduction of feral mammals. Taking into account population densities on San Salvador's satellite keys, the mainland area (excluding inland lakes, marshes and residential areas) should have a minimum population of 1,930 iguanas and a maximum of 4,000. It is certain that the present day populations on the main island do not exceed 500 iguanas, and probably are much less.

Although the number of iguanas seen is relatively small, the populations on each key were probably near or at carrying capacity. However, this does not mean the animals should not be given protection. They have virtually disappeared from the mainland and are now at a dangerously low level. These last remaining populations on the satellite keys need and deserve added protection. They represent the only remaining members of this particular gene pool in the entire world. All further collection for research, zoo exhibition or food should be eliminated. Visits to the satellite islands should be supervised and regulated with special attention given to the prevention of introducing feral mammals. Additional investigations should be conducted on the small islands within San Salvador's saline lakes to determine the status of these populations.

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