Natural Hybridization between *Ctenosaura bakeri* and *Ctenosaura similis* on Utila, Honduras*

Gunther Köhler and Elke Blinn

Two species of spiny-tailed iguanas, *Ctenosaura bakeri* Stejneger, 1901 and *C. similis* (Gray, 1831) are native to the Caribbean island of Utila, which is situated off the coast of Honduras. These two species utilize different habitats and generally do not come into contact with one another. *Ctenosaura similis* occurs in open rocky areas and *C. bakeri,* which is endemic to the island, is largely restricted to mangrove swamps. Due to the limited distribution and the acute threat to the *C. bakeri* population from over-hunting by locals, the "Schutz- und Forschungsprojekt Utila-Leguan" (Conservation and Research Project Utila Iguana) was established in 1994. This project is sponsored jointly by the Zoologischen Gesellschaft Frankfurt (Frankfurt Zoological Society) and the Senckenbergischen Naturforschenden Gesellschaft (Senckenberg Biological Research Society) (Köhler 1998a). A captive breeding program for *C. bakeri* was established on Utila in April 1998 at the Iguana Research and Breeding Station.

On 11 May 1998, a freshly killed female *Ctenosaura bakeri* was brought to the Station by local people. The identity of the animal, which is presently part of the collection at the Forschungsinstitut and Naturmuseum Senckenberg (Senckenberg Research and Nature Museum) (SMF 78870), is unambiguous. Necropsy, which was performed immediately, revealed that she contained ten eggs. Eight of these were placed in moist vermiculite in a Jäger incubator at 28–32° C (temperature fluctuations due to power failure were limited). By 27 June, six eggs had spoiled, but the remaining two had increased in volume. On 12 and 14 August, two apparently healthy young animals hatched from these eggs (identity numbers 0510 and 0520). They measured 55 mm from snout to vent (SVL), 181 mm total length (TL), and weighed 4 g. Both had two claws removed for permanent identification.

When they were placed in natural sunlight in an outdoor enclosure, their coloration obviously differed from that of normal *Ctenosaura bakeri* hatchlings. The latter are a nearly patternless grey-brown (Köhler 1998b), whereas these two specimens had vivid markings with clear crossbands and ocelli and greenish coloration on the anterior dorsal half, as is typical for *C. similis* hatchlings. On 11 October, at the age of two months, the following coloration was noted using the "Naturalists Color Guide" by Smithe (1975–1981) as a color reference (code numbers of the colors in brackets):

Hatchling no. 0510 (217 mm TL; 70 mm SVL): dorsal surface of head and neck lime green (159); body sayal brown (223 C) with 5 dark (sepia 119) crossbands and light (cream color 59) ocelli; tail sayal brown (223 C) with dark (sepia 119) crossbands. Hatchling no. 0520 (199 mm TL; 65 mm SVL) varied only in the shade of green on the dorsal surface of the head and neck, which was registered as parrot green (160).

The scalation of the two hatchlings display a configuration that appears to be intermediate between those of *Ctenosaura bakeri* and *C. similis.* Hatchling no. 0510 has, without exception, two complete rows of enlarged spiked scales between the whorls (typical of *C. similis*) on the right side of the tail, whereas only one row is present in interspaces 9–12 on the left side (typical of *C. bakeri*). Consequently, the halves of the whorls do not correspond to one another along the median, a condition that does not occur in typical *C. similis* or *C. bakeri*. Hatchling no. 0520 has two complete rows of enlarged scales between the whorls; however, in interspaces 3–13, the foremost row is greatly reduced. Scales on the anterodorsal side of the upper thighs are enlarged but not spiky, therefore intermediate between *C. bakeri* (in which these scales are enlarged and spiky) and *C. similis* (in which these scales are not enlarged). Also, the number of dorsal spines, at 59 (no. 0510) and 64

(no. 1520), is intermediate between the values for *C. bakeri* (40–53, mean 44.6) and *C. similis* (61–96, mean 76.6) (data from Köhler 1995a, b).

An investigation of phylogenetic systematics based on morphological and genetic (RAPD fingerprinting) characters (Köhler 1995a) has shown that the thirteen species of the genus *Ctenosaura* can be divided into three monophyletic groups at the subgeneric level. *Ctenosaura bakeri* and *C. similis* belong to different subgroups. *Ctenosaura bakeri* is more closely related to *C. melanosterna*, *C. oedirhina*, and *C. palearis*, whereas *C. similis* forms a tight cluster with *C. acanthura*, *C. hemilopha*, and *C. pectinata*. This is the first reported hybridization between two species in the subfamily Iguaninae. Although we have been performing field studies on Utila for many years, no further instances of hybridization between *C. bakeri* and *C. similis* are known to have occurred. From this, we assume that crosses between these species are rare, due primarily to their obvious ecological separation. Both hybrids will be raised at the Station in order to determine if they are fertile.

Hybrid between *C. bakeri* and *C. similis* at two months of age.
Photograph by Gunther Köhler

Literature Cited

Köhler, G. 1995a. Zur Systematik und Ökologie der Schwarzleguan (Gattung *Ctenosaura*). Diss., Univ. Frankfurt, Frankfurt a/M.

Köhler, G. 1995b. Freilanduntersuchungen zur Morphologie und Ökologie von *Ctenosaura bakeri* und *C. oedirhina* auf den Islas de la Bahia, Honduras, mit Bemerkungen zur Schutzproblematik. *Salamandra* 31:93–106.

Köhler, G. 1998a. Das Schutz- und Forschungsprojekt Utila Schwarzleguan. *Natur und Museum* 128:44-49.

Köhler, G. 1998b. Schutz- und Forschungsproject Utila Schwarzleguan: Die Nachzucht von *Ctenosaura bakeri* Stejneger, 1901 im ex-situ-Zuchtprogram. *Salamandra* 34:227–238.

Smithe, F.B. 1975–1981. *Naturalist's Color Guide. Part 1. Color Guide.* 182 Color Swatches. Amer. Mus. Nat. Hist., New York.

* Reprinted with permission from *Salamandra* 36, 2000. Original title: Natürliche Bastardierung zwischen *Ctenosaura bakeri* und *Ctenosaura similis* auf Utila, Honduras. Translation by AJ Gutman.