

EAZA – ESB

Ctenosaura bakeri

HUSBANDRY GUIDELINES AND BIBLIOGRAPHY

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Utila spiny-tailed iguana

Ctenosaura bakeri STEJNEGER 1901

Common English name:

Utila spiny-tailed iguana, Utila black iguana

Common German name

Utila-Schwarzleguan

Common local name

Wishi-Willy, Swamper

Conservation Status***IUCN 2004 red list:***

Critically Endangered, CR (B1ab + 2ab)

CITES:

not listed.

Conservation Measures Taken***Conservation Project Utila Iguana***

by Tristan Scholz and Olivia Rendon

Since 1994, the Frankfurt Zoological Society and the Senckenberg Nature Research Society have worked jointly to preserve the endangered lizard *Ctenosaura bakeri*, the Utila Spiny-tailed iguana. Several other organizations including Honduran NGOs, have provided support for the project. More than 200 volunteers have also assisted with work in the field. In addition to the preservation of the Utila iguana and its critical mangrove habitat, other core goals of the project include sustainable development of the island of Utila (a popular destination for divers), as well as the creation of environmental awareness among the local inhabitants by providing information and environmental education. The Utila iguana has become emblematic for the conservation of the important mangrove habitat, the ecological significance and endangered status of which are often underestimated compared to rainforests and coral reefs. Since 1998, the Iguana Station, built by the Frankfurt Zoological Society, has provided a home base for environmental education efforts, iguana breeding and head starting and ecological research. Most of the work has been done with the help of international volunteers, who spend from 4 to 12 weeks on the research and breeding station. The increasing tourism on Utila is in conflict with nature conservation, especially because the breeding areas of the Utila iguana, the comparatively few sandy beaches, are endangered and the survival of the species depends on the protection of

those beaches that are not used for tourism. The Utila iguana is a protected species by Honduran law since 1994. However, the inadequate equipment of the responsible authorities prevent an effective realization of the hunting ban. While the environmental awareness of most older locals slowly grows because of the projects educational campaigns, many people are migrating from the mainland to Utila in the hope tourism will provide them with work and money. But often they are disappointed, without education and because they don't speak English they have to live off the natural resources of the island destroying their habitat. A protected area, including mangroves and sandy beaches to lay the eggs is the only chance for the Utila iguana to survive. The biggest parts of the mangroves are state owned, so they could be easily protected, while the expensive beaches are privately owned and would need buying to protect them from development.

The iguana station is supported by different Honduran and international cooperation-partners.

Responsible organizations and partners

Senckenberg Nature Research Society and the Frankfurt Zoological Society from 1858 e.V. Iguana working group of the Deutschen Gesellschaft für Herpetologie und Terrarienkunde (DGHT), International Reptile Conservation Foundation, Chicago Herpetological Society, International Utila Iguana Rescue Committees, Frankfurt/Main Zoo, Halle Zoo, Durrell Wildlife Conservation Trust, Jersey, Proyecto Manejo Ambiental de las Islas de la Bahía (PMAIB), Utila local government, Bay Islands Conservation Association (BICA) Patuca e.v., National Autonomous University of Honduras (Tegucigalpa-UNAH), Regional University Center of the Atlantic Coast (La Ceiba-CURLA) y Asociación Forestal del Estado-Corporación Hondureña de Desarrollo Forestal AFE-COHDEFOR).

Studbook Holder

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Biological aspects**Distribution**

Ctenosaura bakeri is endemic to the island of Utila, Islas de la Bahia, Honduras, situated some 40 km off the Caribbean coast of mainland Honduras. Measuring about 42 km², it is the smallest and most westerly of the three big Bay islands (= Islas de la Bahia).

Habitat

C. bakeri differs from all other species of the genus *Ctenosaura* by the habitat it occupies. While “Ctenosaurs” can normally be found in hot and dry scrubland, *Ctenosaura bakeri* inhabits exclusively mangrove swamps where the ground is at least constantly moist if not flooded for most of the time, depending on season and tides.

The animals are territorial, occupying the same home-tree with the very essential refuge (a tree hole or hollow tree stump) for many years. Whereas hatchlings and juveniles can often be found near the ground and in between the mangrove roots, adult iguanas are strictly arboreal.

Only during the reproductive season, females leave their home trees, heading to the few sandy beaches Utila has. There they lay their eggs into self-dug tunnels on open sandy spots above the high-tide line, which must not be covered by plants before returning back to the mangroves. It is not known how these females are able to navigate up to one kilometre back to “their” tree after the eggs are laid.

Climate and Seasonality

Utila has relatively constant temperatures throughout the year with a mean annual temperature of 26.3°C. The cooler months are in the rainy season from end of August until February with an absolute minimal temperature of 20°C at night and about 29°C during the day. Come March, temperatures rise slightly and vary between 25 and 35°C throughout the dry season, the hottest month is August. More than half of the yearly precipitation falls in the months of October and November. The dry season starts in early March and lasts until July, March and April being driest. Even during the dry season, the air humidity in the mangroves is quite high with around 70-80% during the day and 95-100% at night.

Biology

The breeding season starts with the end of the rainy season around mid of January and beginning of March, the females leave the Mangroves to deposit their clutches. The egg chamber has an air cavity and usually lies about 30-50 cm under ground

where temperatures are nearly constant. Measurements showed temperatures between 31 and 34°C in a depth of 25 cm and a constant 31.4°C in a depth of 50cm. The five to 19 juveniles per clutch hatch after about three months, specimens reach maturity (at least in captivity) after about three or four years.

This arboreal species feeds mostly on leaves, buds and flowers of mangrove trees but they will hunt down any bigger insect or crab they might get hold of as well.

Standing freshwater is usually not available although rain drops are licked up occasionally. Whether this species has adapted to a high salt concentration is not known. However, as all iguanas are capable of excreting large amounts of excessive salts (taken up by their herbivorous diet), it seems possible that *C. bakeri* might be able to sustain periods where only brackish water is available.

Captive Management**I.D System Employed**

All captive individuals should be permanently identifiable by PIT-Tags (Passive integrated transmitters) inserted usually in either the left thigh or the dorsal lumbar region, subcutaneously just in front of the tail base.

Housing

Caging should be as for arboreal iguanas, minimum enclosure size around 200 x 150 x 200 cm for a pair. Essentials are thick branches in various positions, basking spots (ideally one for each occupant) and at least one hiding place per each animal, e.g. a hollow cork bark tied to a branch. The type of floor substrate is not too important; obviously, it should be easy to clean and ideally hold humidity well. If plants are used, care has to be taken not to use toxic species.

For egg-laying, a suitable nesting site can consist of a wooden box on the floor, filled with humid sand or sandy soil. A spot light on top of the box or a heat pad is heating the substrate within to around 28°-30°C. Take care not to heat the box from underneath as the females will keep digging downwards if temperatures are too high... Such a box needs to be either long enough for the females to dig a tunnel or a plastic/cardboard/bamboo tube about 60-80 cm long can be fitted in front of the box. If gravid females are not able to dig long enough before constructing their egg chamber, they might refuse to lay. A space-saving method is to divide a box (about 60 x 40 x 20 cm) with a partition leaving a gap at the opposite end. At the front, the box is open on one side of the partition and hence the animals can dig in a U-shape, laying the

eggs at the end of the tunnel which will be next to the entrance hole.

Climate

Ambient day-time temperatures should range between 30°-35°C. If a minimum of 30°C can not be maintained at least in the upper levels of the enclosure, the animals will start to refuse food. At night, the temperature can drop to about 24°-28°C. Lighting should be as bright as possible with basking spots reaching temperatures around 45°C. Provision of adequate UV-B radiation is essential.

Air humidity should be maintained high, especially during the simulated wet season when the enclosure should be sprayed heavily at least once per day. During the dryer period of the year, spraying can be reduced to every few days if e.g. the substrate is providing some ambient humidity.

Maximum Life Span

Unknown. The oldest animals in the studbook are about 12 years old. One would estimate a maximum lifespan of about 20 years if longevities of similar sized *Ctenosaura* species are referred to.

Nutrition

Natural Diet

Mainly Mangrove leaves and flowers. Adults also take mangrove crabs whereas juveniles hunt for smaller insects.

Nutrition

C. bakeri can be fed on the usual iguana diets (including the standard Vitamin/Minerals/Calcium supplements) consisting of various greens, and occasionally fruit, flowers or vegetables. Commercial iguana food pellets are not preferred but might be eaten. Most *C. bakeri* clearly favour crispy, thick-leafed greens and some might refuse limp or very thin leaves. Although some animal protein is vital and *C. bakeri* might be adapted to a diet higher in animal protein than most other iguanas, feeding of insects, pinky mice, shellfish or the like should be restricted to a maximum of once per week.

There is no indication of a lack of salts in captivity as *C. bakeri* keeps excreting excessive salts taken up from their “normal” diet not enhanced with sea salt or salt-lick stones. Drinking water needs to be provided.

Males must not be housed or mixed in the same enclosure. Ideally, males should not be able to see each other as well.

Reproduction

Sexing Techniques

Sexing of adults is very easy. The males are generally bigger, have a much more prominent crest, bigger dewlap, larger/wider head, bigger femoral pores and thicker tail bases with visible hemipenal pockets. Juveniles can be sexed through the same criteria after about a year, dependant on growth rate. Especially if several juveniles of similar size/age are available, comparison of growth of the crest and femoral pores can give relatively early clues.

Breeding Seasonality

The seasonality by simulation of the rainy season and dry season (see above) can be important for the proper synchronisation of the sexes, although in captivity this *C. bakeri* does not necessarily stick to its breeding season. Especially separately housed pairs might reproduce whenever the sexes are mixed.

Breeding recommendation

If a pair is housed together, it seems a good idea to let the iguanas go through their natural reproductive cycle and let them mate and lay eggs even when no offspring is desired. In such a case, destroying the freshly laid eggs should pose less of an ethical problem than a female potentially becoming stuck in follicular stasis or going through the fights of mixing after separation.

Incubation

If to be incubated, the eggs can be placed on a range of substrates such as Vermiculite™, Perlite™, or a mix of sand and soil. The humidity of the substrate should not be too great if a constant high air humidity of 90-100% can be provided. A good substrate humidity can be achieved by mixing Vermiculite and water in a weight ratio of 1:1.

The eggs can be buried half or completely into the substrate but must not be turned throughout the incubation period which usually lasts about three months. Incubation temperature must be constant as for most iguana species and should be fixed somewhere between 28°C and 31°C. Research into whether *C. bakeri* exhibits TSD (temperature dependant sex determination), and if so in which ranges and time frames, is still ongoing.

Rearing of juveniles

Juveniles can be initially housed together in not too large groups if enough hiding and especially basking and feeding spots are available. Otherwise *C. bakeri* juveniles tend to be rather incompatible compared to some other iguana offspring. Setup and temperatures as for the adults. First food taken is often insects but the usual greens with flowers,

carrot or fruit need to be offered daily. Very important when rearing *C. bakeri* is a regular supplement of Calcium in combination with UV lighting and/or Vitamin supplements to prevent Osteodystrophy/MBD. As the requirements towards animal protein are higher in juveniles, insects dusted with Mineral/Vitamin supplements should initially be offered two to three times per week. This can be faded out to max. once per week after the animals are about one or two years of age.

A constant eye needs to be kept on the juveniles if kept in a group and suppressed individuals need to be separated immediately to prevent losses. They can then be housed separately or with other juveniles the same size.

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