Black Iguanas: Name and Systematics[1]

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Although few iguanas in the genus *Ctenosaura* are actually black (this occurs only in some individual *C. acanthura* and *C. pectinata*), one of the common names by which they are collectively known is "Black Iguanas." This name is actually misleading when referring to some of the smaller, more colorful species (e.g., *C. alfredschmidti*, *C. defensor*, and *C. flavidorsalis)*. Another common name used in English for species in this genus is "Spiny-tailed Iguanas."

In Central America, Black Iguanas are called "Garrobos" or "Iguanas Negras." Local inhabitants of the Islas de la Bahia (Utila, Roatan, and Guanaja), located off the northern coast of Honduras, call the species that occur there, "Wishiwillies," and, on the Isla de la Providencia, they are known as "Ishillies."

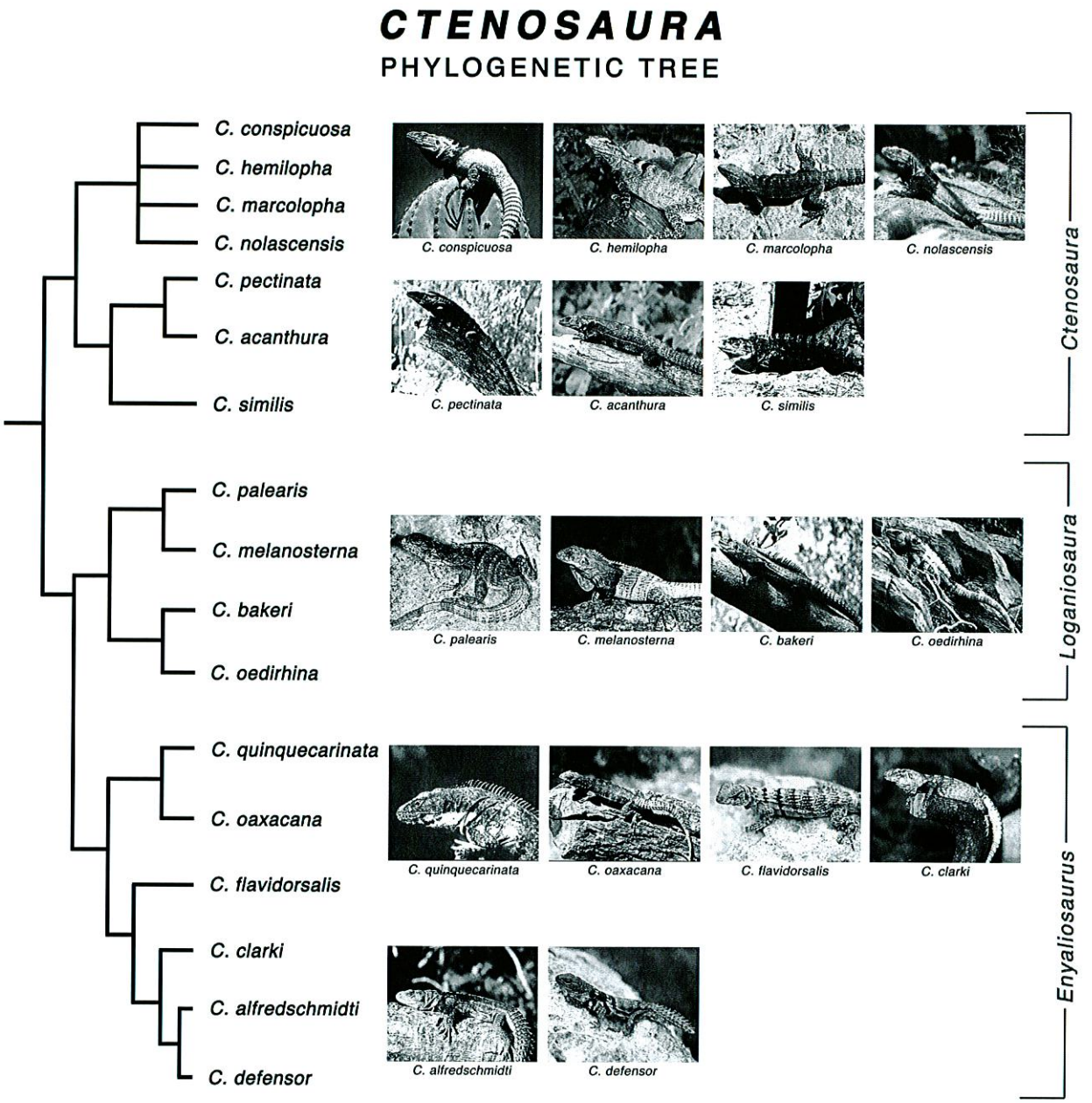
The phylogenetic relationships and taxonomy of iguanas have provoked considerable controversy in recent years. In 1988, eight monophyletic[2] groups were shown to exist within what had been considered the Family Iguanidae. Shortly thereafter, these were elevated to eight distinct families, largely because no evidence could be found for the monophyly of the entire family. This new classification was heavily criticized and eventually reversed on the basis of molecular genetic studies. However, after a very recent revision of the original study, which, among other things, now showed eleven monophyletic groups of iguanian lizards, the controversy continues. Some experts believe that all pleurodont iguanian lizards should be included in a single family (Iguanidae *sensu lato*) and that the monophyletic subgroupings should be treated as subfamilies (e.g., the subfamily Iguaninae). In contrast, other experts think that real relationships are better portrayed by recognizing eleven separate families, one of which includes the "true" iguanas (Iguanidae *sensu stricto*).

Accordingly, lizards in the genus *Ctenosaura* are placed either in the subfamily Iguaninae (in the Family Iguanidae *sensu lato*) or in the Family Iguanidae (*sensu stricto*). Regardless of taxonomic rank, this group also includes the Marine Iguanas (*Amblyrhynchus*), Rock Iguanas (*Cyclura*), Fiji Iguanas (*Brachylophus*), Galapagos Land Iguanas (*Conolophus*), Desert Iguanas (*Dipsosaurus*), Green Iguanas (*Iguana*), and Chuckwallas (*Sauromalus*). The genus *Ctenosaura* is differentiated from the other genera within the family (or subfamily) by the presence of an extremely long subocular scale and whorls of enlarged, spiky scales on the tail. Ctenosaurs are most closely related to lizards in the genera *Iguana* and *Cyclura*.

In recent years, tremendous advances have been made in the systematics of *Ctenosaura*. Seventeen species are currently recognized: *C. acanthura*, *C. alfredschmidti*, *C. bakeri*, *C. clarki*, *C. conspicuosa*, *C. defensor*, *C. flavidorsalis*, *C. hemilopha*, *C. macrolopha*, *C. melanosterna*, *C. nolascensis*, *C. oaxacana*, *C. oedirhina*, *C. palearis*, *C. pectinata*, *C. quinquecarinata*, and *C. similis*. As recently as 1928, 13 species were recognized, but subsequent workers determined that the species *C. brachylopha*, *C. brevirostris*, and *C. parkeri* were actually *C. pectinata*; and, more recently, *C. erythromelas* was subsumed within *C. defensor*, reducing the number to only nine. More recently described species (the most recent in 2001) have elevated the number to the current 17.

[1] Adapted from Köhler, G. 2002. *Schwarzleguane. Lebensweise, Pflege, Zucht*. Herpeton Verlag Elke Köhler, Offenbach, Germany. Translated from German by AJ Gutman with additional commentary by Robert Powell.

[2] A "monophyletic" group includes an ancestor and all of its descendants.



In the past, some species (*C. bakeri*, *C. palearis*, *C. quinquecarinata*, *C. clarki*, and *C. defensor*) were split off from *Ctenosaura* and placed in a separate genus, *Enyaliosaurus*, but this division is no longer widely recognized. More recent studies, based on genetic and morphological data, have presented an hypothesis of relationships within the genus *Ctenosaura* that recognizes three monophyletic species groups designated as subgenera (*Ctenosaura*, *Enyaliosaurus*, and *Loganiosaura*).

The subgenus *Ctenosaura* includes the larger species, *C. acanthura*, *C. conspicuosa*, *C. hemilopha*, *C. macrolopha*, *C. nolascensis*, *C, pectinata*, and *C. similis*, all of which lack the enlarged, heavily keeled to spiky scales on the dorsal surface of the upper thigh (along with some other characters). The males in these species attain total lengths of over 1 meter. The morphological criteria contained in the initial descriptions of three of these larger species, *C. acanthura*, *C. pectinata*, and *C. similis*, were apparently quite variable and resulted in no definitive morphological characters by which these three taxa could be distinguished from one another. As recently as ten years ago, some authorities suggested that further study of

the status of the *C. similis-acanthura-pectinata* group would reveal that only a single species occurred from southern Sinaloa (Mexico) all the way to Panama. This assumption proved to be incorrect. Morphological and genetic studies have shown that these three species are all valid and can be distinguished by scalation and coloration. Field studies also have provided a more detailed picture of the geographic distribution of the three species in the Isthmus of Tehuantepec, where their ranges approach each other.

The subgenus *Loganiosaura* includes the medium-sized species, C. *bakeri*, *C. melanosterna*, *C. oedirhina*, and *C. palearis*, which attain maximum total lengths of 80 cm. Of these species, *C. bakeri*, *C. melanosterna*, and *C. palearis* possess a well-developed pendulous dewlap, whereas *C. oedirhina* has a transverse gular fold. The species in this subgenus also differ from other ctenosaurs in several skull characters, which reinforces the view that this group is monophyletic.

The subgenus *Enyaliosaurus* includes the small species, *C. alfredschmidti*, *C. clarki*, *C. defensor*, *C. flavidorsalis*, *C. oaxacana*, and *C. quinquecarinata*. These species are characterized, among other things, by a reduction of the number of postmental scales (from four to two) and possession of a relatively short, very spiky tail, which, at its widest point, is broader than it is high. Within this subgenus, *C. alfredschmidti*, *C. clarki*, and *C. defensor* are notable for the reduction of the parietal eye, which is barely distinguishable with the naked eye (this trait is very evident in other species as the distinct spot in the middle of the parietal scale on the top of the head). These three species also have whorls of well-developed, enlarged, spiky scales all the way to the tips of their tails (approximately the distal third of the tail is without whorls in the other species).

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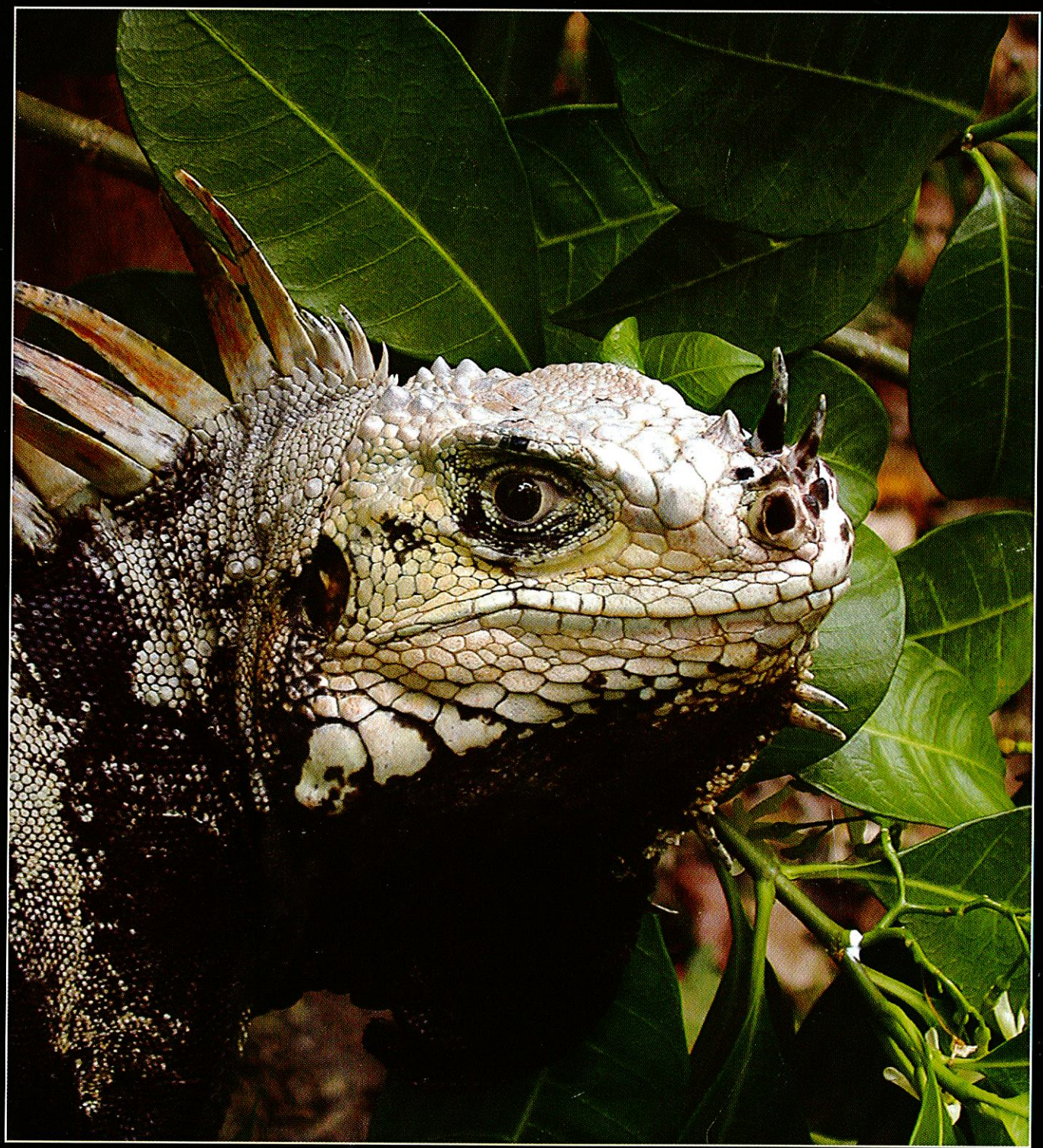

Adult male St. Lucian Iguana (*Iguana iguana*) (story on p. 71). *Photograph by Matt Morton, Durrell Wildlife Conservation Trust.*