

## Ex-situ maintenance and breeding of Hernandez's Helmeted Basilisk *Corytophanes hernandesii* (Weigmann, 1831)

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### Species description and captive maintenance

Hernandez's Helmeted Basilisk *Corytophanes hernandesii* (Weigmann, 1831) is a small arboreal, diurnal iguanid species occurring in tropical and subtropical, wet and dry forests in Mexico, Guatemala, Belize and Honduras, up to around 1400m elevation (Wilson *et al.*, 2010). Unfortunately, a major threat to this species, like many tropical species in the 21<sup>st</sup> Century, is deforestation (Wilson *et al.*, 2001). However, as the species is currently

considered locally common and widely distributed throughout its range, it is listed as Least Concern with a stable population trend by the IUCN Red List (Ariano-Sánchez, 2013). The pressure of wild collection is comparably low in comparison to many other reptile species (Ariano-Sánchez, 2013). *Corytophanes hernandesii* is rarely kept or reproduced in captivity, though once established, individuals are not difficult to maintain in a captive environment.

All species within the genus *Corytophanes* are laterally flattened lizards with a large



**Figure 1.** Captive adult male (left) and captive female (right) *C. hernandesii* exhibiting a normal resting colouration. Parents of the juveniles in this article.



**Figure 2.** Captive adult male (left, centre) and captive adult female (right) *C. hernandesii* showing different colour variations initiated for intraspecific signalling.

bony helmet that differs in morphology between species. Colouration is highly variable within species, even at the same locality, however general trends in colour, pattern and the differences in helmet morphology allow differentiation between species. *Corytophanes hernandesii* reaches up to 100mm snout-vent length (SVL), with a tail approximately 250% of SVL, exhibiting various shades of brown on the dorsum at rest, with pale undersides (Figure 1). In the captive environment, it was observed that both males and females can change dorsal colouration to yellow, orange, red, green-white, light blue and black; this appears to be dependent on intraspecific signalling, such as during courtship (Figure 2, pers. obs.). There is slight sexual colour dimorphism present in *C. hernandesii*, whereas this is not the case in other *Corytophanes* species; this does not appear to have been reported previously. Black gular striping is present in females and when fecund, develop a cross band on the top of the head between the eyes (Figure 3, pers. obs.). From around 5-6 months of age, it is possible to visually determine sex of individuals; males have a larger helmet than the females and have obvious hemipenal

bulges present below the vent (Figure 4, pers. obs.).



**Figure 3.** Gravid, captive female *C. hernandesii* displaying cross banding on top of the head; only present in fecund females.

Exo-terra style enclosures of 90x45x60cm have been used successfully by the author to house breeding pairs or trios of this species, ensuring one male per enclosure is maintained to avoid male-male aggression. Furnishings include multiple perch choices in the form of branches, foliage from *Ficus* sp., *Tradescantia*, *Calathea*, *Begonia* and *Anthurium*, and Expanded Insulation Corkboard (Tÿ-Mawr Lime Ltd.) lining the walls. A mix of soil, sand, perlite and Oak *Quercus* mulch is provided as a substrate with several invertebrate species used to manage waste build up. Species include

Springtails *Collembola*, Woodlice *Oniscus*, *Folsomia*, Earthworms *Dendrobaena* and Beetles *Zoophobas*. Arcadia T5 lighting produces suitable UV-B levels in the enclosure; intensity varies dependent on perch location. This is supplemented by provision of LED lighting for plant growth and general broad spectrum natural lighting. The enclosure is sprayed 1-4 times daily (dependent on season, using equal time between sprays; 2 times daily- sprays every 12 hours, 3 times daily- every 8 hours, etc. to maintain constant ambient relative humidity) with an automatic misting system and heated by a single overhead, thermostatically-controlled heat source (50w ceramic heater) situated at one end. Relative humidity levels are maintained at 60-90% and ambient temperature varies from 24-35°C throughout the year (dependent on season). These parameters are taken from data collected in the natural habitat of *C. hernandesii* by the author (El Petén, Northern Guatemala, data unpubl.).

In the wild, *Corytophanes* are a prey species and rely on camouflage on branches and the forest floor to avoid predation. The dorsal pattern has evolved to mimic dead leaves, and therefore staying motionless for long periods increases the likelihood of survival. Furthermore, *Corytophanes* have evolved a preference for surprisingly large prey items, thus reducing feeding frequency and movement, allowing them to stay motionless for extended periods (Andrews, 1979). It was observed that invertebrates similar or equal to the SVL of captive *Corytophanes* are easily overpowered and consumed, and this can provide enough nutrition to last up to a week between individual feeding events. In captive

juveniles, this behaviour is demonstrated to the extreme whereby only large prey is consumed and smaller prey items that would usually be deemed suitable for a lizard of that size are almost totally ignored (Pers. obs.).

### Breeding notes



**Figure 4.** Captive juvenile pair of *C. hernandesii* at 6 months of age. Male (left) showing larger head crest and slight pattern differences to female (right).

Breeding behaviour, both in the wild and captivity, occurs from March-June and appears aggressive, but females usually remain uninjured. Following several ‘head bobs’, colour variation and chasing, the male bites and holds the females crest to manoeuvre and copulate (Pers. obs.). This behaviour in the captive environment was repeated several times in the days following to ensure reproductive success. Eggs are laid between 10-12 weeks following successful mating. The individuals in this article laid clutches of 3-7 eggs, though anecdotal evidence suggests up to 11 eggs are possible (Villalba, pers. comm). Clutch size appears dependent on the size and age of the female. Eggs are comparatively large for a lizard of this size, measuring on average 25mm in length. The largest of clutches occupy almost the entire volume of the

torso which prevents food intake when heavily gravid (within 2-3 weeks before egg deposition) (Pers. obs.). Juveniles hatched after 90 days incubation at approximately 26°C, producing both sexes at this temperature at a 1.1 ratio. Information from future breeding efforts are valued as so far, only a small sample size is available (10 fertile eggs, 2 successful hatchlings). Eggs appear very sensitive to water content of incubation media and care should be made to ensure water content does not change during incubation. Unsuccessful eggs failed due to water content increasing in media. The two hatchlings from the following clutch appeared healthy and these were maintained in media with constant water content. Hatchlings were maintained in identical conditions to adult individuals with 100% success, and at the time of writing are 6 months of age. Finally, it is expected that this species shows temperature-dependent sex determination but more research and breeding effort is required to conclude this.

## References

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