

# DEVELOPMENT OF BREEDING TECHNIQUES IN HERPETOCULTURE AS AN APPROACH TO LEAF-TAILED GECKOS' (GEKKONIDAE, UROPLATUS) CONSERVATION

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Today, Madagascar stands on the verge of ecological disaster due to the rapid deforestation, which leads to the disappearance of unique plant communities, the reduction and fragmentation of the endemic animals' natural habitats and, as a result, globally threatens the entire ecosystem of the island. Like many other narrow-ranged species, leaf-tailed geckos are dying out as a result of habitat loss, food resources' declining and poaching [1, 2]. Thanks to the island's isolation and unique climatic conditions that affected evolution of these reptiles, leaf-tailed geckos are endemic representatives of the world's herpetofauna showing exciting abilities to mimicry. For today the main reasons why leaf-tailed geckos have become popular in herpetoculture are as follows: availability, successful breeding experience, unusual appearance and collection-related value. 18 species of leaf-tailed geckos have been described so far. BION Terrarium Center (Kyiv, Ukraine) – a reptile breeding center – has a long lasting experience of successful breeding of these unique geckos. Breeding of reptile species in controlled environment (herpetoculture) plays important role in nature conservation. Observations and research in captivity give necessary information for establishing reserve reptile and amphibian populations' conservation. From another side, the herpetoculture as part of world zooculture and reptile trade is an important part of economics worldwide. Finally, captive breeding gives valuable data for herpetological studies and healthy animals for pet market thus reducing level of poaching and other pressures on wild populations [3].

The purpose of this work is to highlight general statements of keeping and breeding approaches for geckos of the genus *Uroplatus* (CITES II), for sustainable keeping of further breeding stocks in order to save these species in future. 10 leaf-tailed geckos' species, that have been breeding at BION Terrarium Center for the last 10 years were selected as research objects: *Uroplatus alluaudi* Mocquard, 1894, *Uroplatus ebenaui* (Boettger, 1879), *Uroplatus fimbriatus* Schneider, 1797, *Uroplatus giganteus* Glaw, Kosuch, Henkel, Sound & Böhme, 2006, *Uroplatus guentheri* Mocquard, 1908, *Uroplatus henkeli* Böhme & Ibsch, 1990, *Uroplatus phantasticus* Boulenger, 1888, *Uroplatus pietschmanni* Böhle & Schönecker, 2003, *Uroplatus sameiti* Böhme & Ibsch, 1990, *Uroplatus sikorae* Boettger, 1913 [3, 4].

Based on literary data and other informational resources and personal experience, the optimal conditions for keeping and breeding were selected: temperature and lighting regimes, humidity, optimal diet, incubation conditions. All the following statements have proved to create generally the most preferable conditions for leaf-tailed geckos' keeping and breeding. Meanwhile each species has its own narrow figures of mentioned parameters. It was found out that, depending on the species, the optimum temperature for keeping Madagascar flat-tailed geckos ranges from +23 to +25 °C during the day and from +19 - +22 °C at night. Humidity level should stay between 60-90%. Lighting period is 12 hours per day. Diet consists of crickets, cockroaches, locusts, wax moths and other variable food items that are accessible and free of parasites and are of appropriate size. For successful animals' breeding in captivity, it is necessary to simulate a brumation period yearly with a gradual decrease in temperature and humidity to +20 - +16 °C and 50-60%. Decrease in daylight to 4 hours, and a decrease in feeding intensity to 1 time per week are also obligatory. Females lay an average of 2 (1-3) eggs at a time. Eggs are incubated at a humidity of 80-90% and at a temperature of +20 - +25 °C, depending on the species. Vermiculite is used as a substrate. The incubation period lasts 120-160 days, thus juveniles may hatch earlier or later depending on temperature fluctuations. These conditions guarantee the maximum hatching of healthy individuals that later are able to give next generations. To exclude intraspecific competition, specimens of this genus (females and males) should be kept separately in individual terrariums with the interior decoration imitating their natural habitat as soon as possible. This minimizes the attacks of aggression towards their partners.

To summarize it should be mentioned that successful keeping and breeding experience of rare species according to statements of international species' protection documentation is one of the most promising ways to wild populations' conservation. Joint efforts of breeders and herpetologists shows results in *Uroplatus* spp. breeding and can be used to support wild populations therefore saving wild biodiversity.

[1] Wright P. Lemur traits and Madagascar ecology: Coping with an island environment. *American Journal of Physical Anthropology* Suppl 29(S29):31-72, (1999).

[2] Rakotomavo A. The Mangroves of the East of Madagascar: Ecological Potentials and Pressures. *Open Journal of Ecology* 08(08):447-458 (2018).

[3] Glaw F., Vences M. *Field Guide to the Amphibians and Reptiles of Madagascar*. (Vences & Glaw Verlag GbR 3rd Edition, Germany, 2007).

[4] Svatek S., van Duin S. *Leaf-tailed geckos – the Genus Uroplatus*. (Brahmer-Verlag, Germany, 2001).