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SHORT NOTE:

OPTIMAL TEMPERATURE FOR INNER-EAR PERFORMANCE AGREES WITH FIELD BODY TEMPERATURE IN *PHELSUMA* (REPTILIA: GEKKONINAE)

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The performance of the vertebrate inner ear is often assessed by the electrical AC output of the hair cells: the alternating potentials of the cochlear duct, commonly nicknamed "cochlear microphonics", or CM. The shape of the audiogram (displaying sound intensity required for a standard CM response, against a scale of sound frequencies) is affected by temperature. In reptiles, at least, one can define for each species an optimal temperature which yields an optimal audiogram (Werner, 1972, 1976).

In a recent review I showed good overall correlation among lizards between these specific optimal temperatures for cochlear performance, and variously defined ecological, whole body, optimal or preferred body temperatures (Werner, 1983). This is part of the well-known phenomenon that many physiological processes of reptiles tend to have their temperature optima at or near the ecologically preferred body temperature (Huey, 1982).

For *Phelsuma madagascariensis* my limited data (Werner, 1976, 1983) had suggested a cochlear optimum around 30°C, and an overall preference in captivity of 26-29°C (Fig. 1). Unfortunately, at the time I overlooked the paper by Crawford and Thorpe (1979) who found that in the field (on Praslin, Seychelles, in August) *Phelsuma madagascariensis*

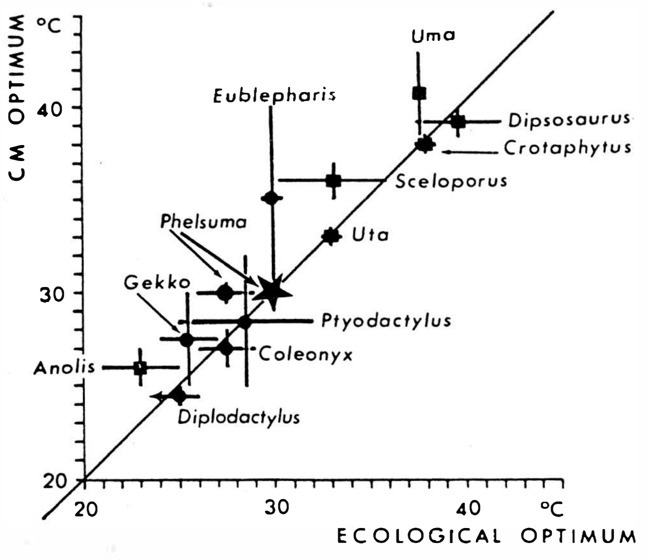

Fig. 1. The relation of the temperature optimum for the CM audiogram, to the ecological temperature optimum of the same species. Symbols (squares, iguanids; circles, gekkonids) are in the middle of respective ranges (bars); all these data from Werner (1983). Star, present correction for *Phelsuma madagascariensis.*

averages (≃ prefers) a body temperature of 29.9°C. Although admittedly both pieces of evidence are not too compelling, it does seem at present that the agreement between the two kinds of optimal temperature is even better in this case than previously thought (Fig. 1, star).

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SHORT NOTE:

THE CALCIUM CYCLE OF FEMALE DAY-GECKOS *(PHELSUMA)*

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INTRODUCTION

Day-geckos of the genus *Phelsuma* Gray 1825 are widely distributed on the islands of the western Indian Ocean. Most species are diurnal, arboreal and coloured green or blue with red markings. In the granitic Seychelles, two species occur at high densities on most islands: *P. astriata* and *P. sundbergi* (Thorpe and Crawford, 1979; Gardner, 1984). During a study on *Phelsuma* evolutionary ecology in the Seychelles, several hundred specimens of both these species were examined, both during 15 months field work and subsequently in the laboratory after preservation in 70 per cent alcohol. It became apparent in the field that individual, reproductively active females pass through a calcium cycle involving the storage of calcium in the endolymphatic sacs (which are visible as whitish swellings on either side of the neck) and its subsequent deposition as egg-shell. Slightly gravid females (i.e. those with small, but externally visible oviducal eggs) almost always had large, well calcified endolymphatic sacs. Very heavily gravid females, with almost full