



AN ABERRANT SPECIMEN OF *Calotes grandisquamis* GÜNTHER, 1875 (REPTILIA: AGAMIDAE) WITH COMMENTS ON ITS ALTITUDINAL DISTRIBUTION

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Abstract

An adult female *Calotes grandisquamis* with unusual colouration was recorded from a low elevation plantation site near the foothills of the Ponmudi Hills, Western Ghats, which proves to be the lowest altitude from which this species has ever been recorded.

Keywords: Abnormal coloration, Ponmudi Hills, Western Ghats

Introduction

Abnormal coloration in Indian reptiles has been reported earlier in several taxa (Kuch, 1991; Wall, 1908; Whitaker, 1968). *Calotes grandisquamis* Günther, 1875 is an agamid lizard endemic to Western Ghats (Das, 2002; Murthy, 1985; Smith, 1935), which was originally described by Günther from the foot of the Canoot Ghat (= near Mananantoddy, Bramagherry Hills, fide Smith, 1935) i.e., now Mananthavady (11° 48' N, 76° 00' E; 740 m asl.) in the Brahmagiri Hills of Wynaad District, Kerala State, and is known to be distributed in the Brahmagiri, Anamalais, Ponmudi and Tirunelveli hills (Ishwar *et al.*, 2003; Murthy, 1985; 1990; Smith, 1935). This report of

an aberrant individual is based on a live adult female recorded from the foothills of the Ponmudi hill range, Thiruvananthapuram district, Kerala State, India.

Observation

A live adult female was sighted on 26th March 2009 at 09.11 hrs on a rubber tree at a height of about 1.85 m from the ground in a private plantation bordering a road in Vithura town, Thiruvananthapuram District (8° 40' 13" N, 77° 05' 32" E; 107 m asl.), a locality amidst human habitations. Dorsum bright green, with three distinct, white transverse bars on body, each

occupying one or two scale rows; the first bar irregular and diverging towards the lateral region. Twelve such bars on the tail, each being 3–4 scales wide. A broad, black streak passing through the orbit, less prominent in the preocular region, gradually faded during observation (see the back cover image).

A few scales of the dorsal crest tipped with blue and yellow; labial and gular regions unpatterned yellow. Venter pale green, lighter than the dorsum. Head large, snout pointed, canthus rostralis sharply defined, body bilaterally compressed, antehumeral pit prominent, dorsal crest well developed and composed of a series of backward directed scales. Scales below the tympanum large, smooth and blunt edged posteriorly. Dorsal scales smooth; distinctly larger than the keeled ventrals. Canthus rostralis: 15, Supralabials (L, R): 10, 10, Infralabials (L, R): 10, 11, Mid ventrals: 63, Scales around midbody: 33, Mid dorsal head scales: 21, Subdigital scales under 4th toe of pes: 24 (fig. 1A-D).

Metric values have been represented in millimeters. Head length: 33.3, dorsal head width: 16.0, Head depth: 15.9, Horizontal diameter of the orbit: 11.9, Horizontal diameter of tympanum: 3.3, Nostril to anterior eye margin: 8.0, Axilla–groin distance: 69.0, Femoral length: 30.9, Tibial length: 22.6, Humeral length: 26.9, Radial length: 20.9, Longest nuchal spine: 10.3 (8th), Longest anterior supratympanic spine: 2.3, Longest posterior supratympanic spine: 4.0, Snout length: 13.3, Inter orbital distance: 16.0, Inter narial distance: 7.6, Snout to vent length: 124.0, Tail length: 311.0, Dorsal scale length: 4.0, Dorsal scale width: 4.6, Ventral scale length: 2.0, Ventral scale width: 2.0, ratio of dorsal: ventral scale length: 2:1; width: 2.3:1.

Comparisons: The specimen examined is herewith compared with four syntopic congeners having a green dorsum, i.e., *C. calotes*, *C. grandisquamis*, *C. nemoricola* and *C. aurantolabium*. This specimen had 33 scale rows around midbody (27 – 35 in *C. grandisquamis*; 30 – 35 in *C. calotes*; 36 – 43 in *C. nemoricola*; 63 in *C. aurantolabium*) (Krishnan, 2008; Smith, 1935). Although the present specimen resembles *C. calotes* in midbody scale rows and colouration, it differs from it in having smooth and considerably larger dorsal scales (2 times longer and 2.3 times broader) than ventral scales vs. feebly keeled or sometimes smooth dorsal scales that are either as large as or smaller than ventrals in *C. calotes* (Smith, 1935).

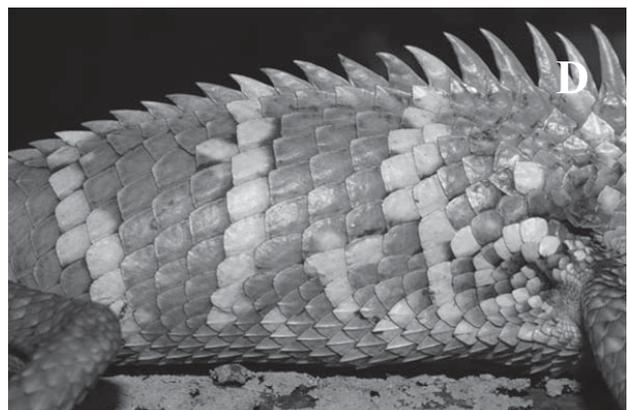
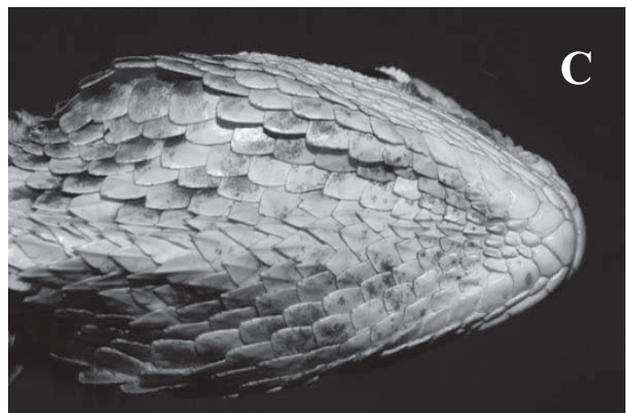
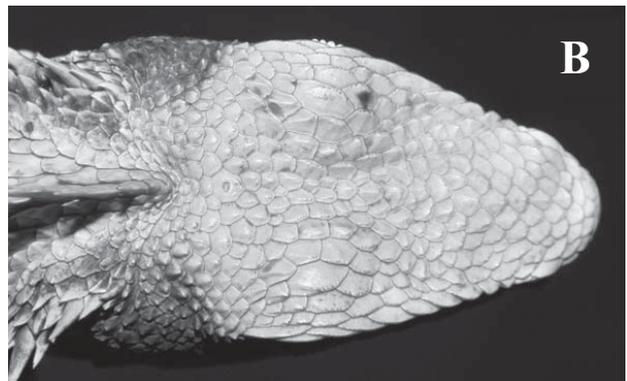


Fig. 01: (A) lateral, (B) dorsal and (C) ventral views of head and (D) dorso-lateral body of *Calotes grandisquamis* examined

Also, the specimen under investigation differs from *C. calotes* in having a black orbital streak (red in *C. calotes*) and smooth, rounded and blunt-edged scales below the tympanum (vs. keeled, sharp edged, posteriorly pointed scales, in *C. calotes*). Considering the place where this specimen was sighted, (107 m a.s.l., amongst human habitation) which is typical of *C. calotes* (pers. obs.), a possibility that this specimen may be a hybrid of *C. grandisquamis* and *C. calotes*, cannot be ruled out. However, no lepidotic difference between this specimen and *Calotes grandisquamis* sensu Günther (1875) was observed.

This specimen can be readily distinguished from *C. aurantolabium* by its larger, posterodorsally oriented dorsal scales, and more evident crest in the adult female. This specimen matches with *C. nemoricola* and *C. grandisquamis* in having larger dorsal body scale, with respect to corresponding ventral scale. But it deviates from *C. nemoricola* by having much lower scale rows around midbody (i.e., 33 vs. >36). The midbody scale row count of this specimen coincides with that of *C. grandisquamis* (33 vs. 27-35). Head length of this specimen was greater than two times its breadth (vs. 1.5 times in *C. calotes*, *C. nemoricola* and *C. aurantolabium*) (Krishnan, 2008; Smith, 1935). Thus, coinciding values for all these three, taxonomically important characters, (i.e., midbody scale rows, ratio of dorsal: ventral body scale dimensions, and head length: head width ratio) closely match *C. grandisquamis* and rule out the possibility of this specimen being a *C. calotes*, *C. nemoricola* or a *C. aurantolabium*. But *Calotes grandisquamis* is normally green above, unpatterned or with broad black, transverse bars; an orange spot in the centre of each black scale is frequently present; belly pale green (Das, 2002; Günther, 1875; Murthy, 1985; 1990; Smith, 1935). This specimen had distinct white bars, which has not been reported previously in *C. grandisquamis*. *C. grandisquamis* changes its colouration when handled (pers. obs.) but in the present case, the lizard had white crossbars when located, retained the pattern upon handling (i.e., measuring and scale counting) and only the black ocular streak faded gradually.

Distributional remarks: Literature records of altitudinal distribution of *C. grandisquamis* were mostly from higher hills i.e., >700 m a.s.l (Ishwar *et al.*, 2003; Kumar *et al.*, 2001; Murthy, 1990); 900–1200 m a.s.l (Kannan, 2005); 400–1210 m a.s.l (Molur & Walker, 1998); the least being 301–1200

m a.s.l (Bhupathy & Kannan, 1997). The present sighting locality (Vithura, 107 m a.s.l.) is evidently lower than the lowest altitude of any *C. grandisquamis* sighting locality ever reported. The major study from the Ponmudi hills by Inger *et al.* (1984) did not report this species, but Smith (1935) includes Ponmudi in its distribution, without any mention of altitudinal range. Characters discussed above reveal that this specimen is *Calotes grandisquamis* but, the altitude and its body colouration deviate very much from those reported for this species in literature. This aberrant pattern may reflect the expression of an ancestral or primitive trait in the genus that is normally not seen, as banding, either bold or diffuse, is characteristic of many *Calotes* species (Aaron Bauer pers. comm.). As abnormal coloration in reptiles is not an unusual phenomenon, this specimen is hereby regarded as *C. grandisquamis* despite the variations in colouration owing to fully coinciding meristic and metric characters. Thus, the altitudinal distribution range of *Calotes grandisquamis* is extended further low by about 194 m (Fig. 2).



Fig. 02: Sighting locality of *Calotes grandisquamis*

Also, it has been hitherto considered stenotopic (Ishwar *et al.*, 2003). But, the present report from a low elevation rubber plantation located near the foothills and surrounding human settlements in an area that is highly degraded, an anthropogenic habitat lacking any complex vegetation, indicates the possibility of an incipient development of plasticity in this species so as to adjust to increasing habitat pressures.

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