

On further specimens of the poorly-known Pruthi's skink *Lygosoma pruthi* (Sharma, 1977) with an expanded description

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ABSTRACT

We report on further specimens of the rare and elusive Pruthi's skink *Lygosoma pruthi* based on both preserved and live specimens. We review and summarise its taxonomic and nomenclatural history. Detailed description of a voucher specimen from Pachaimalai is provided and the species is illustrated in life depicting both adult and juvenile morphology, based on live skinks sighted in Teerthamalai. Nuptial colouration of breeding males and life colouration in general are provided herein for the first time. We review its past records and allocate previous partly- or un-allocated sightings to this nominate species based on congruent morphology and distribution. We expand its geographic range and present additional localities such as Pachaimalai, Bilgiri, Melagiri, Jawadi, Gingee, Shevaroys, Kolli and Sirumalai, apart from its type locality – Chitteri.

Key words: Eastern Ghats, morphology, scalation, skink, Pachaimalai, Teerthamalai

INTRODUCTION

The Pruthi's skink *Lygosoma pruthi* (Sharma, 1977) is a little known species of skink in India (Sharma, 1977, 2004; Venugopal 2010). Originally this species was described as *Riopa pruthi* based on holotype (ZSIR 22393) and two paratypes (lost, see Das *et al.*, 1998). It was so named after its collector Dr. Hem Singh Pruthi (1897-1969) an eminent entomologist from the erstwhile 'Punjab' (Lal, 1954; Beolens *et al.*, 2011). Its taxonomy was revised, with a generic transfer by Das (1994) based on the revised generic synopsis by Greer (1977). *Lygosoma pruthi* has ever since remained obscured to science. Treatises either repeated the text from the original description with little additions (Sharma, 2004) or did not deal with this species at all (Murthy, 1985; Daniel, 2002; Das, 2002). Nevertheless regional herpetofaunal checklists (see Venugopal, 2010; Aengals *et al.*, 2018) continue to list this species with little new information, making this one of the most unknown Indian skinks. Subsequent works on the lizard fauna of ranges abutting its type locality did not record this species. Its type locality Chitteri (= Sitteri) is a hill range located near Dharmapuri, in Southern Eastern Ghats, a poorly explored ecoregion (Ganesh & Arumugam, 2016). Murthy & Chandrasekar (1988) surveyed in Darmapuri district and reports its lizard fauna, but this species did not feature in. Subsequently, Kumar (1999) surveyed lizards in Darmapuri but did not report this species.

Lygosoma species in the Indian peninsula are being studied recently (Datta-Roy *et al.*, 2014; Ganesh *et al.*, 2017; Javed *et al.*, 2010; Seetharamaraju *et al.*, 2009). Though the taxonomy and distribution of some Indian congeneric species such as *Lygosoma lineatum*

(Gray, 1839), *L. vosmaerii* (Gray, 1839), *L. albopunctatum* (Gray, 1846), *L. guentheri* (Peters, 1879) have been studied (Ganesh *et al.*, 2017; Javed *et al.*, 2010; Seetharamaraju *et al.*, 2009; Vyas *et al.*, 2009) such aspects of *L. pruthi* still remain unknown. Subsequent to its original description (Sharma 1977), few works have attempted to throw light on this species. Though in 2014, *L. pruthi* has been subjected to a phylogenetic study (Datta-Roy *et al.*, 2014), much still remains to be understood about even more fundamental information about this species such as morphology, natural history, distribution and habitat associations. This species was classified as data deficient in the latest IUCN threat status assessment (Srinivasulu & Srinivasulu, 2013). In this work, we aim to fill this void by describing a new, recently-collected voucher specimen and adding field observation data based on live uncollected conspecifics encountered *in situ*.

MATERIALS AND METHODS

This communication is based on research on a voucher specimen as well as live uncollected individuals sighted *in situ*. Live individuals were sighted by chance in a temple precinct and no standard field sampling methods were used for this. We scored detailed morphological data from a formalin-preserved voucher specimen. Lepidosis and mensural terminologies and definitions follow Smith (1935). Measurements were taken from preserved specimens using standard vernier slide calipers (L.C. 0.5 mm). Scalation characters were scored from preserved specimens using a magnifying hand lens (5 X zoom). Live skinks sighted in the field were examined long enough to determine species identification but

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Figure 1. *Lygosoma pruthi*, ZSI/SRS/VRL 470, preserved specimen from Pachaimalai (top left to bottom right; showing head profiles in lateral, dorsal and ventral views and entire body profiles in ventral, dorsal and lateral views). Photos: S.R.Ganesh

a proper detailed morphological examination on them were not possible and hence not done. Photographs were taken using Canon A620 and Canon SXIS model digital cameras. Such voucher photographs were zoomed in on a computer screen for doing certain scale counts. Mid-body scalerows of live lizards were directly counted in situ. Geo-coordinates (in decimal degrees upto 2 digitals) and elevation (in meters above mean sea level) were taken using Google Earth software. We followed Rodgers & Pawar (1990) for ecoregional classification and Champion & Seth (1968) for habitat type classification.

TAXONOMY

Lygosoma pruthi (Sharma, 1977)

Riopa pruthi Sharma, 1977

Lygosoma pruthi – Das, 1994

Lygosoma sp. – Chandramouli & Baskaran, 2011

Lygosoma cf. *pruthi* – Ganesh & Arumugam, 2016

Material examined: ZSI/SRS/VRL/470, 1 ex. Coll. K. Ilango and party on 9/10/2010, lot no. 1 from Top Chenkaattupatty (11.30°N 78.60°E; 1260 m asl), Pachaimalai hills, [Tiruchirappalli district, Tamil Nadu state], Southern Eastern Ghats, peninsular India (Figure 1).

Description: A small and short-bodied skink, with tiny pentadactyle limbs, short and supple trunk and a fairly robust tail. Head slightly wider than neck, neck not evident; trunk short thick and wide; anteriorly adpressed forelimb reaches tympanum; adpressed ipsilateral limbs bent inwards along trunk fail to contact each other by



Figure 2. *Lygosoma pruthi*, live uncollected individuals from Teerthamalai, (top) adult male in nuptial colouration, (middle) juvenile, (bottom) habitat and landscape. Photos: S.R.Ganesh.

slightly more than one head length; regenerated tail shorter than rest of body.

Measurements in mm: Snout-vent length 50, tail length 33 (regenerated), axilla-groin distance 36.2, head length 8.3, head width 6.6, head depth 4.5, humeral length 3.5, radius ulna length 2.7, femoral length 3.2, tibial length 4.5, eye diameter (horizontal) 1.3, inter-orbital distance 3.2, inter-narial distance 1.8, eye-tympanum distance 3.0, tympanum diameter (vertical) 0.7, eye-snout tip distance 2.5.

Scalation: Scales macroscopically smooth; disposed of in cycloid and imbricate rows both in dorsum and venter; rostral wide and flattened; nasal scales slightly larger than rostral scale, split into anterior and posterior nasals, by the nostril; supranasals present, in contact with each other; frontonasal fairly wide, narrower than combined width of both the nasals; frontal elongate, bell-shaped; frontoparietals paired, protruding farther beyond the last supraocular; supraoculars series composed of 4-5 scales, 2nd the largest; lower eyelid scaly with a large ovoid ocular disc; circumorbitals small, smaller than suboculars; frontoparietals subequal to parietals; interparietal smaller than a frontoparietal; parietal larger than frontoparietal or interparietal, but smaller than supraocular series or frontal; parietals in contact with each other behind interparietal; nuchals: 2 on each side, not very elongate; temporals large, subequal to latter supralabials; body scales small and overlapping, subequal to tympanum;

tympanum vertically elongate, with 5 auricular lobules; mid body scale rows: 32; mid-dorsals / vertebrals: 65; ventrals similar to dorsal trunk scales; mid-ventrals: 68; preanal scales larger; 4th toe subdigitals: 16, keeled; supralabials: 7/8 (5th touching eye); infralabials: 6.

Colouration in formalin: Dorsum ashy brown, with a series of grey-black dotted lines formed by dots on each scale along the trunk from nuchal region across groin; lateral region darker; sides of head and neck with a thick dark brown band; supralabials distinctly whitish; eye white; venter uniform ivory white; labial and gular regions with fine black striations; tail white below, ashy grey near the tip.

Colouration in life (based on live uncollected conspecifics): Dorsum sandy brown, with fine black dotted stripes along the trunk from nuchal to caudal region; pattern denser and bolder in juveniles; scales distinctly outlined with black lining; particularly caudal scales; top of head with a few black markings; lateral region of torso between axilla till tail covered by a thick wide band of blackish brown sparsely scattered with white spots and flecks; dark lateral band outlined above and below by a thin white stripe, commencing from temporal region, continuing till tail tip; supralabial with a distinct white stripe; labia (both upper and lower) whitish yellow with brownish black dots; iris yellowish with a dark brown circular pupil; venter ivory white uniform and unpatterned, except anteriorly near head and neck where they present with distinct black striations; limbs of a darker shade, as dark as the lateral region; nuptial males with a distinct golden yellow wash along lateral forebody; tail blackish due to bold scale outlines, sometimes same colour as the trunk in adults, underside steely grey, mildly bluish in young ones especially near tail tip.

Field observations: The voucher specimen was collected by the second author in early October 2010, from Top Chenkattupatty in Pachamalai. The lizard was observed under rocks within a patch of moist deciduous belt. Pachamalai is a tall (ca. 1400 m asl) and wet-forested hill range peaking at Top Chenkattupatty. Situated eastwards adjacent to Kollimalai and just south of Kalrayan hills, this large massif is one of the prominent ones in the Southern Eastern Ghats.

Live individuals reported here were sighted by the first author in Teerthamalai temple (12.09°N 78.60°E; 680 m asl) in July 2016 (Figure 2). Two juveniles and one adult were sighted during daytime between 10:00-13:00 hrs. First a juvenile was sighted quickly crossing the cemented pilgrim step foot path leading to the temple. It was chased by bonnet macaques (*Macaca radiata*) that abound in the temple. Later, tuned watch out for this species for some hours led to sightings of an adult and another juvenile higher up the hill temple.

The adult, presumed a nuptial male due to distinct yellow forebody was sighted resting on a tree trunk near the sides of the steps foot path. The second juvenile was sighted on leaf-litter near some shops along the steps foot path. The Teerthagiriswarar temple, situated in Teerthamalai hills are a popular pilgrimage centre. Despite some human movements due to pilgrimage, wildlife, especially the lesser forms are still to be found in this temple. The forests surrounding this temple precincts

fall under reserved forests of Teerthamalai Range.

Our live skinks sighted in the temple precincts showed the following combination of characters: dorsum golden brown with a wide dark coffee brown wash along lateral parts; supralabials with a distinct series of white dots; infralabial and gular regions with a series of ragged blackish stripes; midbody scale rows 32 in both the lizards; mid-dorsal scales down the middle of the back 58, 61; midventrals 66, 64. Based on the aforesaid features these skinks are herein allocated to *L. pruthi*.

Comparisons: Here *L. pruthi* is compared with peninsular Indian congeners: *L. punctatum*, *L. albopunctatum* (whole of the region), *L. guentheri* (Western Ghats, Eastern Ghats), *L. lineatum* (Western Ghats, Coromandel Coast?), *L. vosmaeri* (Eastern Ghats, Deccan plateau). *Lygosoma pruthi* can be diagnosed by its higher midbody scale row counts 32-34 (vs. < 28 in all other regional congeners); lower eyelid with a transparent disc (vs. scaly in *L. albopunctatum*); both manus and pes with 5 digits (vs. 4 digits in manus and / or pes in *L. lineatum*, *L. vosmaeri*); proportionally shorter axilla-groin distance 1.2-1.3 times snout-shoulder distance (vs. longer in all other regional congeners); frontal scale subequal to combined lengths of frontoparietal and interparietal (vs. frontal distinctly longer in *L. punctatum*); frontoparietals divided (vs. single in *L. vosmaeri*, *L. lineatum*); dorsum with feeble linear series of black dots (vs. a pair of dorso-lateral yellow stripes and bold black spots in *L. punctatum*; pair of obscure dorsolateral yellow stripes in *L. guentheri*; a distinct series of dorsal stripes in *L. lineatum*); lateral body with a dark brownish wash (vs. lateral body without such a colouration in *L. punctatum*, *L. lineatum*; with dense patches of white spots in *L. albopunctatum*); tail colour in subadults dull slaty blue (vs. orange red in *L. punctatum*, *L. vosmaeri*, *L. guentheri*; brown in *L. albopunctatum*, *L. vosmaeri*).

DISCUSSION

Though formally named and described in 1977, this species was collected half a century before then. In its original description, Sharma writes thus “while studying a collection of reptiles made by Dr. H. S. Pruthi during 1929 in Tamil Nadu, I came across this new species of skink”. This clearly attests to the paucity of herpetological surveys / reports from this region. In fact, the previous herpetological publications from this region that we are aware of, were only those by Richard Henry Beddome (1830-1911). In 1860s and 1870s Beddome surveyed Salem, Erode and South Arcot hills that are near about the type locality of this species (Beddome, 1870). It was more than a century later, in only 1977, that this species *Lygosoma pruthi* was named and described. During Sharma's days, *Lygosoma pruthi* was perhaps the only species of reptile endemic to Southern Eastern Ghats (e.g. Das 1994), though later works revealed greater endemism in this region (see Aengals *et al.*, 2018 and references therein).

Southern Eastern Ghats, where this species occurs is not that fully explored for herpetofauna (Ganesh & Arumugam, 2016). Herpetological surveys (Murthy & Chandrasekar, 1988; Kumar, 1999) in and around Dharmapuri region failed to record this species. However, an

undetermined skink represented as *Lygosoma* sp. was reported from Hosur hills by Chandramouli & Baskaran (2011). Against the backdrop of recent field sightings (Ganesh & Arumugam, 2016; this work) the Hosur sighting (Chandramouli & Baskaran, 2011) is also allocated to *Lygosoma pruthi*, based on congruent morphology and locality. Its type locality is Chitteri (= Sitteri) hills (11.89N 78.52E), located near Harur town, in Southern Eastern Ghats. Our voucher specimen is from Pachaimalai hills (11.32N 78.59E) located near Thuraiyur town further south. Our live sightings reported here are from Teerthamalai, located within Chitteri hills and are thus almost toponotypical records. Piecing together these information, both published and un-published it is credible that the range of *L. pruthi* spans most of Southern Eastern Ghats, from Hosur in the northwest to up to Pachaimalai in the southeast, extending over 200 airline km across.

The current data expands the characterisation of this species which is so far known only on the basis of the type series, all from a single locality. Our observations and collections from other hill ranges shed light on its geographic range encompassing the series of massifs in Southern Eastern Ghats. Ganesh & Arumugam (2016) furnished morphological and geographical notes on this species, pending any collection-based studies, conservatively representing as *Lygosoma* cf. *pruthi*. Equipped with the current data at hand, it is clear that populations in Jawadi, Shevaroy, Kolli and Sirumalai hills represent *L. pruthi* (also see Chandramouli & Baskaran, 2011). We note that another congener from the Central / Northern Western Ghats *Lygosoma goensis* (Sharma, 1976) though morphologically similar to *L. pruthi*, is quite distinct and unrelated in genetic makeup (Datta-Roy *et al.*, 2014). We opine that this work on *L. pruthi* will streamline a better taxonomic study based on a comprehensive series of collection, sampling many populations / hills, as reported herein.

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