

Scientific note

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Further records of a poorly-known insular endemic skink *Lipinia macrotympanum* (Stoliczka, 1873) (Squamata: Scincidae)

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Abstract. The little-known, insular endemic skink *Lipinia macrotympanum* (Stoliczka, 1873) was recorded recently from two new localities in Great Nicobar Biosphere Reserve (GNBR) further south of the previously known localities. Based on these observations, new data on morphology, natural history and distribution are presented and it is suggested to be considered as an endangered species based on the IUCN assessment criteria.

Key words. *Lipinia macrotympanum*, new locality records, distribution map, Nicobar archipelago.

The skink genus *Lipinia* Gray, 1845 is represented by 32 species which are distributed from the Nicobar Islands in the West to Papua New Guinea in the east (Uetz et al. 2019). Of these, the westernmost representative of the genus, *Lipinia macrotympanum* was described originally by Stoliczka (1873) as *Mocoa macrotympanum* from “South Andaman, on a sandy beach in Macpherson’s Straits”. Later, Biswas & Sanyal (1977) reported a specimen of this species erroneously identified as “*Lygosoma quadrivittatum*” (now *Lipinia quadrivittata*) from Campbell Bay, Great Nicobar. Subsequently, Das (1997) reported the rediscovery of *Lipinia macrotympanum* based on his new collection of a specimen from Pulo Ulon, Little Nicobar and the specimen reported by Biswas & Sanyal (1977). Ever since this report, *Lipinia macrotympanum* was never recorded from the Andaman and Nicobar Islands. Herein, we report on two specimens of *Lipinia macrotympanum* based on our field observations and collected specimens. One of the individuals reported here (ZSI/ANRC/T/3709) was illustrated by Rangasamy et al. (2019) in their list of herpetofauna of the Andaman and Nicobar Islands.

Faunal surveys spanning 10–15 days were conducted on islands of the Nicobar archipelago intermittently between 2015 and 2018. Two of three specimens of *L. macrotympanum* recorded during these surveys were collected, preserved and deposited in the holdings of the Zoological Survey of India, Andaman and Nicobar Regional Centre (ZSI ANRC). The collected specimens were measured with a vernier caliper and a Leica stereomicroscope to the nearest 0.1 mm. The following characters were recorded: Snout tip to vent (SVL), trunk length from axilla to groin (AG), tail length from vent to tail tip (TL), head length (HL), head width at jaw angle (HW), head depth (HD), eye diameter (ED), tympanum diameter (TYD), eye-nostril distance (EN), eye-snout distance (ES), eye-tympanum distance (ETY), forelimb length (FLL), hindlimb length (HLL), inclusive of femur length (from groin to knee) (FEL) and tibia length (from knee to heel) (TBL), finger lengths (F1–F5), toe lengths (T1–T5), midbody scale-rows (MSR), nuchals (NU), supralabials (SL), infralabials (IL), ventrals (V), supraoculars (SO), prefrontals (PRF), subdigital lamellae under toe IV. Sex of the specimens was determined by examining the cloacal region for the presence of hemipenes. Geographic coordinates of the areas of its occurrence were recorded with a GPS and mapped with ARC MAP 10. Terminologies for color descriptions follow Poyarkov et al. (2019).

***Lipinia macrotympanum* (Stoliczka, 1873)**

(Figs 1–2)

Mocoa macrotympanum Stoliczka, 1873*Lygosoma macrotympanum* – Boulenger (1890)*Leiopisma macrotympanum* – Smith (1935)*Lygosoma quadrivittatum* (non Peters, 1867) – Biswas & Sanyal (1977)*Lipinia macrotympanum* – Greer (1974); Das (1997); Das & Austin (2007)*Lipinia macrotympana* – Das (1999) sic.

INDIA – 1 adult male (ZSI/ANRC/T/3709); Shastri Nagar; 6.810° N, 93.892° E; 37 m a.s.l.; G. Gokulakrishnan leg. 11 Oct. 2015. 1 adult male (ZSI/ANRC/T/4330); Galathea; 6.8216° N, 93.8673° E; 37 m a.s.l.; G. Gokulakrishnan leg. 20 Nov. 2016.

L. macrotympanum is a small species of *Lipinia* from the Nicobar Islands, that can be diagnosed and characterized by: the presence of a large and exposed tympanic membrane; 7 supralabials; 6 infralabials; presence of a large, transparent disc on the lower eyelid; a single broad prefrontal with a median constriction or two separated prefrontals (*fide* Das, 1997); two, nearly equal sized loreals; a single, undivided frontoparietal; 4 supraoculars; a pair of enlarged preanal scales; 21–23 midbody scale rows; 51–53 paravertebrals; 60–62 ventrals; 16–17 subdigital lamellae under toe IV; SVL 36.5–45 mm; tail 43.9–50 mm; dorsal coloration of black with three yellow longitudinal stripes from snout to vent; tail red or reddish brown (based on the collected specimens and Das, 1997).

The newly collected material, two adult males, measure 38.5–39.6 mm SVL; overall habitus slender and elongated. Head short (HL:SVL 0.12); slightly longer than broad (HL:HW 1.02) with a pointed snout tip in both dorsal and lateral views. Nostrils located laterally, closer to the snout tip than to the eyes (EN:ES 0.7). Rostral visible from above; frontonasal broader than long; prefrontal single in ZSI/ANRC/T/3709; ‘8’ shaped, with a median constriction; two small rhomboidal prefrontals, in contact with each other in ZSI/ANRC/T/4330; frontal wedge shaped; frontoparietal single; interparietal fairly elongated; parietals large; in contact with each other; three pairs of broad nuchals present. Paravertebrals slightly broader than the adjacent body scales. Supraoculars four; third largest; lower eyelid with a transparent disc. Loreals two, trapezoidal in shape and nearly of equal size. Temporals large and smooth. Supralabials 7, 6th largest; infralabials 6. Tympanic opening large (TYD:ED 0.66) with a visible eardrum, lacking auricular lobules. Mental semicircular; a single large postmental. Anterior chin-shields in contact with each other; posterior chin-shields separated by a single scale. Midbody scale rows 21–23; smooth. Limbs fairly well developed. Relative length of fingers IV>III>II>V>I. Thigh short (FEL:SVL 0.12); tibia as

Table 1. Measurements of the examined *Lipinia macrotympanum* specimens compared with literature.

	ZSI/ANRC/ T/ 4330	ZSI/ANRC/ T/ 3709	Das (1997)
Total Length	92.5	89.8	80.4–91.7
SVL	38.7	37.6	36.5–38.1
TL	53.8	52.2	43.9–53.6
AG	24	23.8	20.2–21.3
HL	4.8	4.7	5.8
HW	4.7	4.6	3.7–3.9
ES	2.9	2.7	2.7–2.9
EN	2	1.9	1.5–1.6
NS	1.3	1.1	–
ED	1.8	1.7	1.3–1.8
TYD	1.2	1.1	1.0–1.1
IN	1.5	1.4	1.3–1.7
IO	4	3.8	1.3–1.7
FLL	10.11	9.8	8.4
FEL	4.6	4.5	–
TBL	4.6	4.5	–
Paravertebrals	51	53	–
Ventrals	60	62	62
MSR	23	21	21–23
T4 lamellae	15	16	15–17
NU	6	6	6

long as thighs (FEL:TBL 1.0); foot slightly longer. Toe IV longest; relative length of toes IV > III > V > II > I; toe IV with 15 smooth subdigital lamellae; claws long and protruding. Measurements of the material studied are presented in table 1.

Dorsal coloration black to dark brown anteriorly; fading posteriorly to light brown with a reddish brown tail in ZSI/ANRC/T/3709. Dorsum with three yellow stripes; the mid dorsal light stripe (MDLS) originating from the snout and broadening as it proceeds posteriorly towards the sacrum. The other specimen, ZSI/ANRC/T/4330 was golden brown overall, with just the head and neck bearing the dark coloration. Two paravertebral dark stripes (PVDS) commencing from post ocular region, continuing till the sacrum, beyond which it merges with the uniformly reddish brown coloured tail; stripes not discernible posteriorly. Lateral body and limbs orange colored. Lateral dark stripe (LDS) and ventrolateral dark stripes (VLDS) absent. Dark temporal marking (DTM) present in all the samples. Venter uniform creamy white. Under-side of tail reddish. The coloration of ZSI/ANRC/T/4330



Fig. 1. *Lipinia macrotympanum* in life. **A–B.** ZSI/ANRC/T/4330 from Galathea. **C.** ZSI/ANRC/T/3709 from Shastri Nagar.

reported herein has not been known until now. Illustration of this species published by Das (2002) conforms to the coloration of ZSI/ANRC/T/3709.

The first individual recorded from Shastri Nagar (ZSI/ANRC/T/3709) was found near an old building, and was

seen actively moving and approaching the observers after dusk at ca. 19:43 h. The immediate vicinity of this spot is bordered by evergreen forests and a stream to the west and a sandy beach to the south. The second and third individuals from Galathea were observed on the ground;



Fig. 2. Head of *Lipinia macrotympenum* ZSI/ANRC/T/3709. **A.** Dorsal view. **B.** Lateral view. **C.** Ventral view.

the specimen collected (ZSI/ANRC/T/4330) was found resting under a dry palm leaf post noon at ca. 15:18 h. The third, uncollected individual was found foraging on the ground, at the camp site near the tent in Feb 2016. This region (Galathea) is surrounded by *Casuarina* groves bordering a stretch of a sandy beach near the Galathea River delta. The habitat of this region is generally characterized by reduced canopy cover, low leaf-litter and sandy soil situated close to the sea coast with strand vegetation.

From congeners, *Lipinia macrotympenum* can be distinguished as follows (data for comparison modified from Das & Austin 2007 and Poyarkov et al. 2019): presence of an externally visible tympanic membrane (vs. hidden in *L. sekayuensis*; *L. inexpectata* and *L. surda*); dorsum with a pattern of longitudinal stripes (vs. absent in *L. sur-*

da and faint stripes in *L. sekayuensis*); 16–17 subdigital lamellae under toe IV (vs. 19–23 in *L. albodorsalis*; 18–25 in *L. infralineolata*; 7–10 in *L. leptosoma*; 19 in *L. longiceps*; 21 in *L. miangensis*; 20–21 in *L. occidentalis*; 24–31 in *L. pulchella*; 22 in *L. pulchra*; 18–21 in *L. rabori*; 18 in *L. relictia*; 22–26 in *L. rouxii*; 19–21 in *L. semperi*; 18–22 in *L. septentrionalis*; 19–21 in *L. venemai*; 25 in *L. vittigera*). Three pairs of nuchals present in *L. macrotympenum* (vs. five pairs in *L. cheesmanae*; 2 pairs in *L. inexpectata*); 21–23 midbody scalerows in *L. macrotympenum* (vs. 22–25 in *L. albodorsalis*, *L. auriculata*, 28 in *L. cheesmanae*, 22–26 in *L. leptosoma*, 24 in *L. longiceps* and *L. miangensis*; 24–28 in *L. noctua*; 24–25 in *L. notolineata*; 24–26 in *L. occidentalis*; 22–26 in *L. pulchella*; 24 in *L. pulchra*; 22–28 in *L. rouxi*; 24–26 in *L. septentrionalis*; 24–26 in *L. venemai*; 28 in *L. vittigera* and *L. vassilievi*; 32 in *L. vulcania*; 24 in *L. zamboangensis*; 28–32 in *L. microcercus* and *L. trivittata*).

Lipinia macrotympenum has been one of the most poorly known skink species in the Andaman and Nicobar archipelago, which has been recorded only three times since its description in 1873 (Biswas & Sanyal 1977; Das 1997; Rangasamy et al., 2014). Other herpetofaunal surveys (e.g., Vijayakumar 2005, Harikriahnan et al. 2008, 2014) did not record *L. macrotympenum*. The present observations of *L. macrotympenum* reported here are from the southern extremity of Great Nicobar and are at least 35–40 km south of the closest previously known locality from Great Nicobar (i.e., Campbell Bay *vide* Biswas & Sanyal, 1977) thereby extending its distribution range further south. Das (1997) stated that the individual recorded by him was also seen on the sand, moving with great agility. *L. macrotympenum* being active after dusk reported here is novel information as earlier authors have all recorded it during the day time. The individuals reported here were also seen on the ground as reported by Das (1997). The type locality of this species, Macpherson's Strait lies between the southern tip of South Andaman and Rutland Island. There have been no reports of this species from any of the islands in the Andaman archipelago since its original description. All of the subsequent reports (Biswas & Sanyal 1977, Das 1997, this work) have been from the southern group of islands in the Nicobar archipelago, i.e., Little and Great Nicobar Islands, situated to the south of the Sombbrero Channel. The Andaman Islands, situated in the north of the ten-degree channel are biogeographically different from those of the Nicobar Islands and their fauna show a more Indo-Chinese faunal affinity (Das 1999). It is speculated that the type locality of *L. macrotympenum* mentioned by Stoliczka (1873) could be inaccurate and the species may not actually occur in the Andaman Islands. The possible absence of *Lipinia* in the Andaman Islands is further supported by the fact that it has never been recorded from islands of the Andaman archipelago after the report by Stoliczka (1873) although several herpetofaunal surveys

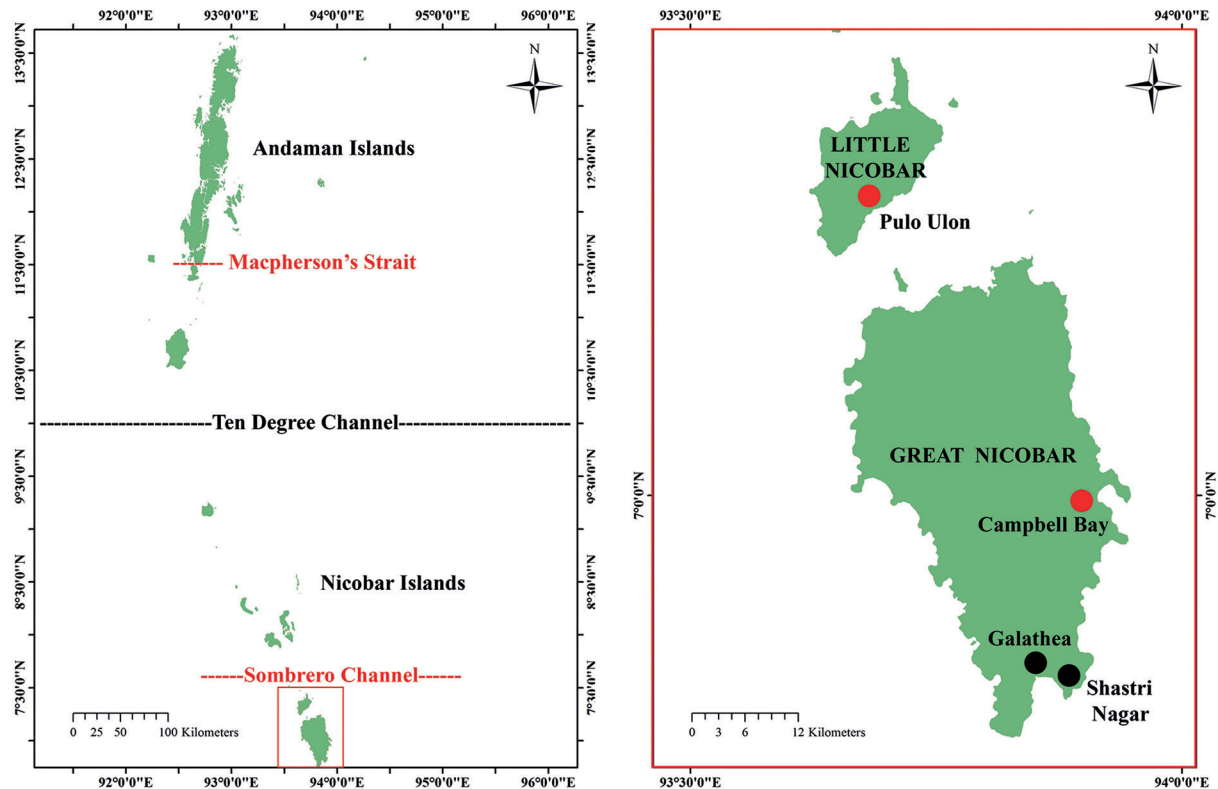


Fig. 3. Type locality (Macpherson's Strait) of *Lipinia macrotympenum*: Literature records (red dots) and new locality records (black dots) in Great and Little Nicobar Islands.

have been and are still being carried out in the Andaman archipelago (e.g., Das, 1999; Harikrishnan et al., 2014; Rangasamy et al., 2014; pers. obs.). Similarly, there have been some intriguing records of certain species which were mentioned in older literature from certain regions, but have never been recorded from such localities subsequently. Examples include *Lycodon tiwarii* from Mayabunder, North Andaman, *Oligodon woodmasoni* from Andamans for both of which, confirmed current records are only from the Nicobar Islands (Vijayakumar & David 2006) and *Hemidactylus platyurus* which was once reported from Great Nicobar (Tiwari & Biswas 1973) but is presently known from the Andaman Islands, and not Nicobars.

Based on the observations reported until now, we recommend to regard *L. macrotympenum* as an endangered species based on the criteria B1 (Extent of occurrence less than 5000 km²) and B2 (Area of occupancy less than 500 km²) of IUCN. Further studies are required to better understand the ecology of this poorly known, narrowly endemic species.

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