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Description of a new species of *Eutropis* (Sauria: Scincidae) from the Central Hills of Sri Lanka with the resurrection of *Eutropis lankae* (Deraniyagala)

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Abstract

We reviewed the species referred to *Eutropis carinata* complex from Sri Lanka. We provided the data on the lectotype of *Eutropis carinata* along with a discussion on its synonyms. Examination of the lectotype of *Sincus carinatus* Schneider, 1801 (= *Eutropis carinata*), shows this taxon is not conspecific with *Mabuya carinata lankae* Deraniyagala, 1953 (= *Eutropis carinata lankae*). Therefore, we resurrected *Eutropis lankae* (Deraniyagala) as a valid species from Sri Lanka. Based on the available data, we here tentatively recognize *Tiliqua rubriventris* Hardwicke and Gray, 1829 (= *Eutropis rubriventris*) as a valid species. Also, a new species of the genus *Eutropis* Fitzinger is described from Sri Lanka. The new species was previously confused with *E. carinata* (Schneider) and may be the source of earlier records of *E. beddomei* (Jerdon) from the Central Hills of Sri Lanka. The new species, *Eutropis resetarii* sp. nov. differs from the lectotype of *E. carinata* by the following characters: widely (vs. narrowly) separated supranasal scales, first supraocular not in contact (vs. in contact) with frontal, third pair of chin shields separated slightly or not touching the second pair of chin shields (vs. in contact broadly with the second pair) and 30 (vs. 32) scale rows across the midbody. *Eutropis resetarii* sp. nov. is distinguished from *E. lankae* by the following characters: first loreal does not reach the dorsal surface of snout (vs. reaches in *E. lankae*); lower preocular larger (vs. smaller) than the anterior loreal scale; lateral border of postmental in complete contact with the first and the second (vs. first and partially the second) infralabials; third pair of chin shields not in contact or in narrow (vs. broad) contact with second pair of chin shields; palm and sole scales rounded, more or less juxtaposed (vs. tubercle-like imbricate scales); and having greater external ear opening size, 40–46% (vs. 23–38%) of eye diameter. *Eutropis resetarii* sp. nov. can be distinguished from all other congeners by a combination of the following characters: in having widely separated supranasals and prefrontals, lacking postnasals, prefrontals reaching lateral sides of snout, only the first supraocular in contact with frontal, six or seven supraciliaries, lower preocular as large as first loreal, two primary temporals, upper pretemporal smaller than lower and both touching parietals, parietals completely separated by interparietal; two post-supralabials, first and second pairs of chin shields separated by a single scale, third pair of chin shields not in contact or in narrow contact with second pair of chin shields; juxtaposed rounded palm and sole scales, comparatively robust digits, having greater external ear opening size (40–46% of eye diameter) and presence of 14–15 subdigital lamellae under 4th digit of pes. The new species has been recorded from the highest elevations (from ~1000 m to ~1600 m), while *E. lankae* has a wider distribution from coast to ~900 m. The distributional ranges of these two species are therefore allopatric.

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Introduction

Scincid lizards of Sri Lanka are represented by 31 species, including 27 endemic to the island (Somaweera and Somaweera, 2009; Batuwita, 2016; 2019; Batuwita and Edirisinghe, 2017; Kanishka et al., 2020; Wickramasinghe et al. 2020). The most speciose genus (in the region), *Eutropis*, has a wide distributional range in all physiographic zones in the country, including the Lowland Wet Zone, Knuckles Range, Central Hills, Dry Zone and Arid Zone (Taylor, 1950; Deraniyagala, 1953; Somaweera and Somaweera, 2009; Batuwita, 2016). Presently, eight species of *Eutropis* are known from Sri Lanka: *E. austini* Batuwita, *E. beddomei* (Jerdon), *E. bibronii* (Gray), *E. carinata* (Schneider), *E. floweri* (Taylor), *E. greeri* Batuwita, *E. madaraszi* (Méhely) and *E. tammanna* Das, de Silva and Austin (Batuwita, 2016). Of which, *Eutropis carinata* was first described by Schneider (1801) as *Scincus carinatus* from a syntype series collected from "ex India orientali", restricted by Bauer (1998) by lectotype designation to "probably from Tranquebar" (= Tarangambadi, 11º01'N; 79º53'E, Mayavaram Taluk, Tanjore District, Tamil Nadu State, south-eastern India), however, on the lectotype label the locality was given as "Ostindien" (East Indies). Hardwicke and Gray (1827) reported *Eutropis carinata* from Dumdum (now in West Bengal State, eastern India). In the mid-19th century to early 20th centuries, it was reported from Sri Lanka (e.g., Kelaart, 1852 and Günther, 1864 as *Euprepes rufescens*; Boulenger, 1887; 1890; Smith, 1935 as *Mabuya carinata*), and was considered a widely distributed species in the Subcontinent (Boulenger, 1887; 1890; Deraniyagala, 1931; Smith, 1935; Taylor, 1950). Smith (1935) concluded that it occurs all over Sri Lanka (as Ceylon) and the Indian Peninsula except in the north-west of India. Deraniyagala (1953) described a subspecies, *Mabuya carinata lankae* from Hambegamuwa (type locality, 06º32'N, 80º57'E, ~100 m a.s.l.) in the Dry Zone of Sri Lanka. This subspecies is currently considered as a synonym of *Eutropis carinata* (Das et al., 2008).

Based on molecular and morphological approaches, the taxonomy of *Eutropis* species of Sri Lanka was re-evaluated recently (Das et al., 2008; Amarasinghe et al., 2016a, b; Batuwita, 2016). Although *Eutropis carinata* is known as a widely distributed and very common species in Sri Lanka and India (Günther, 1864; Boulenger, 1887; Smith, 1935; Deraniyagala, 1953; Taylor, 1950; Batuwita, 2016), its taxonomic status and synonyms have not been reassessed recently. Hence, we initiated a study to investigate its taxonomic status and the assessment of Sri Lankan populations with its Indian populations. While investigating the Sri Lankan materials referred to *Eutropis carinata*, we uncovered a hitherto undescribed species from the Central Hills. Thus, the aim of the present paper is to describe this new species, which has probably been collected before, and has long been confused with *Eutropis carinata* and also to evaluate the synonyms of *E. carinata* including *Eutropis carinata lankae* (Deraniyagala, 1953).

Material and Methods

For scalation definitions, mensural and meristic data, we followed those of Batuwita (2019) except for the head length (measured from snout tip to the anterior edge of ear opening). Measurements were taken with the aid of a dial vernier caliper to the nearest 0.1 mm except the snout-vent length, which was measured using a steel ruler (to the nearest 0.5 mm). We determined the gender of specimens by the presence of hemipenes in males and ovaries in females. Comparative material (99 specimens) examined in this study are housed in the collections of the Carnegie Museum of Natural History, Pittsburgh (CM), the Field Museum of Natural History, Chicago (FMNH), the Museum of Comparative Zoology, Cambridge (MCZ), the Museum für Naturkunde, Berlin (ZMB), the National Museum of Sri Lanka, Colombo (NMSL), and the Wildlife Heritage Trust of Sri Lanka (WHT), now in NMSL. Institutional abbreviations follow Sabaj Pérez (2010). Additional sources of data for other species of *Eutropis* (not represented in the comparative material section) were obtained from Smith (1935), Taylor (1950), Inger et al. (1984), Amarasinghe et al. (2016a, b; 2017, 2018), and Batuwita (2016). For the classification of the major natural vegetation types, we followed Ashton et al. (1997). Geographic coordinates were determined from topographic maps (1 inch series of the Survey Department, Colombo, Sri Lanka).

We used principal-components–based factor analysis of the character correlation matrix to reduce dimensionality of the continuous morphological variables, following measurements used for the analysis: SVL (snout-vent length), trunk length, head length, eye diameter, forelimb length, hind-limb length, and ear diameter (ear opening size). We tested various axis rotations and selected one for optimal interpretability of variations among the characters. Principal-component–based factor analysis with Varimax rotation had the optimum interpretability. The first two principal components explained more than 95% of the variance. The multivariate morphological analysis of 19 specimens was conducted using Minitab 92 (Version 16.0 for Windows).

Results

Principal-components analysis with varimax rotated axes on the correlation matrix of continuous characters from the new species, *Eutropis carinata* (lectotype, ZMB 1253) and *E. lankae* showed clear separation of the new species on two axes (Fig. 1). Two factor solutions were selected based on the screen plot and the number of factors with an eigenvalue > 1. Factor 1 was represented by the first six variables and Factor 2 by ear opening size (Appendix).

Significant variance was explained by snout-vent length (SVL), hind-limb length and ear opening size. Out of total variance, 62.7% was explained by Factor 1.

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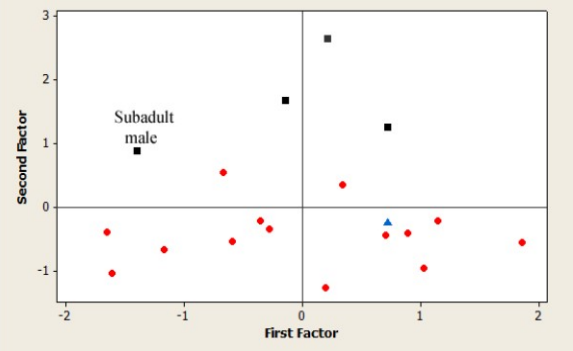

Figure 1: Factor 1 versus Factor 2 of the Principal Components Analysis (PCA) of the new species (black squares), *Eutropis carinata* (lectotype, ZMB 1253; blue triangle) and *E. lankae* (red circles).

The new species separated well from *Eutropis carinata* (lectoype) and *E. lankae* on the second axis (Factor 2) and the lectotype of *Eutropis carinata* (*n*= 1) was completely overlapped with *E. lankae* on the same axis.

***Eutropis resetarii* sp. nov.**

Eutropis beddomii Smith, 1935 (in part)
Eutropis beddomii Deraniyagala, 1953 (in part)
Eutropis carinata Batuwita, 2016 (in part)
(Figs. 2A, 3A, C, E; 5A; Table 1)

Holotype

WHT 6759, adult male, SVL 121.0 mm, Agra Arboretum, near Torrington Estate, Agarapatana, Sri Lanka, 06º51'N, 80º41'E, elevation 1550 m a.s.l., 26 December 2003, collected by Sudesh Batuwita and Kalana Prasad Maduwage.

Paratypes

Three paratypes: WHT 6771, adult male, SVL 119.0 mm, same location data as holotype, 24 December 2003, collected by Mohomed Mujthaba Bahir, Anjana Silva and Sudesh Batuwita; WHT 6772, adult female, SVL 112.0 mm, same location data as holotype, 12 May 2004; WHT 6773, subadult male, SVL 74.0 mm, same location data as holotype, 28 December 2003, collected by Mohomed Mujthaba Bahir and Sudesh Batuwita.

Diagnosis

Distinguished from all other species of *Eutropis* by the combination of the following characters: supranasals narrowly separated (not touching); prefrontals widely separated; frontal twice as long as wide; only the second supraocular in contact with frontal; frontoparietals paired, as wide as long, in contact with second, third and fourth supraoculars; the medial border of the fourth supraocular completely in contact with frontoparietal; parietals completely separated by interparietal; one pair of nuchals; 6 or 7 supraciliaries; first three pairs of supraciliaries in contact with the first supraocular; two pretemporals, both in contact with parietal; two primary temporals; two secondary temporals, separated; seven supralabials; two post-supralabials; postmental completely in contact with the first and the second infralabials; three pairs of enlarged chin shields, first pair separated by a median scale, second pair separated by a single scale and the third pair separated by three scales; third pair of chin shields not contacting/narrowly contacting second pair of chin shields; third pair also separated from the infralabial row by sublabial scale row; 40–45 paravertebrals; 55–57 ventrals; 30 transverse scale rows across midbody; subdigital lamellae under 4th digit of manus, 11–12 and pes, 14–15; dark brown dorsal coloration; and having five dark longitudinal stripes on dorsum (excluding the line confluent with dorsolateral stripe on each side).

Eutropis resetarii sp. nov. can be distinguished from *Eutropis carinata* by the following suite of characters (Figs. 2–5): first loreal does not reach the dorsal surface of snout (vs. reaches in *E. carinata*); lower preocular larger (vs. smaller) than the anterior loreal scale; first three (vs. first two and partially the third) supraciliaries completely touching the first supraocular; third pair of chin shields not in contact or in narrow (vs. broad) contact with second pair of chin shields; 30 (vs. 32) transverse scale rows across midbody; digits comparatively robust (vs. slender); olive brown (vs. dark copper brown) dorsal coloration; having granular (vs. pointed) ear lobules; and having a greater external ear opening size.

Eutropis resetarii sp. nov. differs from *Eutropis lankae* in that the first loreal does not reach the dorsal surface of snout (vs. reaches in *E. lankae*); lower preocular larger (vs. smaller) than the anterior loreal scale; first three (vs. first two and partially the third) supraciliaries completely touching the first supraocular; lateral border of postmental completely in contact with the first and the second (vs. first and partially the second) infralabials; third pair of chin shields not in contact or in narrow (vs. broad) contact with second pair of chin shields (Figs. 3A vs. 3B; 3C vs. 3D; 3E vs. 3F); palm and sole scales rounded, more or less juxtaposed (vs. tubercle-like imbricate scales); digits comparatively robust (vs. slender); olive brown (vs. dark copper brown) dorsal coloration; having granular (vs. pointed) ear lobules; and having a greater external ear opening size, 40–46% (vs. 23–38%) of eye diameter.

Description (based on the types series)

Head relatively short (head length 19–23% of SVL) (Figs. 2A, 3A, C, E; Table 1).

Snout obtuse in dorsal aspect and truncate in lateral aspect; rostral visible dorsally; supranasals present, narrowly separated (not touching); frontonasal as wide as long; prefrontals widely separated, not in contact with each other (*n*= 4); frontonasal in contact with frontal; frontal twice as long as wide; four supraoculars, second supraocular in contact with

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frontal; frontoparietals paired, as wide as long; in contact with second, third and fourth supraoculars; medial border of the fourth supraocular completely in contact with frontoparietal; interparietal present, as wide as long; parietal eye present in interparietal; parietals completely separated by interparietal; one pair of nuchals.

Nasal larger than nostrils; postnasals absent; two loreals; posterior one larger than the anterior one, not reaching to dorsal surface of snout. Two preoculars, the upper very small; lower preocular as large as the posterior loreal; six (*n*= 2) or seven (*n*= 2) supraciliaries, in a continuous row, the first one in contact with prefrontal, posterior loreal and first supraocular; eye relatively large (eye diameter 22–28% of head length); two pretemporals, upper smaller than lower, both in contact with parietal; the upper pretemporal half the size of the lower; one pre-subocular; two post-suboculars; lower eyelid moveable, scaly; two primary temporals (*n*= 4); two secondary temporals, separated, upper small, in contact with the lower pretemporal anteriorly and in contact with parietal dorsally; three tertiary temporals; seven supralabials, 5th the largest, in the subocular position; two post-supralabials. External ear opening 40–46% of eye diameter, circular with granular lobules.

Table 1: Meristic and mensural data (in mm) of type series of *Eutropis resetarii* sp. nov., comparative material of *E. lankae* and the lectotype of *E. carinata*.

Character	*Eutropis resetarii* sp. nov. (*n*= 4)			*Eutropis lankae* (*n*= 14)			*Eutropis carinata* Lectotype (ZMB 1253)
	Range	Mean	S.D.	Range	Mean	S.D.	
Midbody	30	30.0	0.0	28–32	29.7	1.1	32
Ventrals	55–57	56.0	0.8	51–56	53.4	1.4	53
Paravertebrals	40–45	42.8	2.1	39–46	42.1	1.7	43
Lamellae manus, digit I	5–6	5.3	0.5	6–7	6.7	0.5	7, 7 (left and right)
Lamellae manus, digit II	9–10	9.3	0.5	10–11	10.4	0.5	10, 11
Lamellae manus, digit III	10–12	11.3	1.0	12–13	12.2	0.4	12, 13
Lamellae manus, digit IV	11–12	11.8	0.5	11–13	12.1	0.5	13, 14
Lamellae manus, digit V	8–9	8.5	0.6	8–10	8.7	0.7	9, 9
Lamellae pes, digit I	6–7	6.3	0.5	6–9	7.6	0.8	7, 8 (left and right)
Lamellae pes, digit II	9–10	9.8	0.5	10–12	11.4	0.6	12, 12
Lamellae pes, digit III	11–14	12.8	1.5	13–15	13.3	0.6	13, 13
Lamellae pes, digit IV	14–15	14.8	0.5	16–17	16.2	0.4	16, 16
Lamellae pes, digit V	10–12	10.8	1.0	11–14	12.1	0.7	12, 12
Snout-vent length	74.0–121.0	106.5	22.0	43.5–122.0	88.0	23.5	108.5
Tail length	136.0–246.0	191.0	77.8	113.0–184.0	156.3	38.0	160.0
Trunk length	42.0–72.0	63.5	14.5	23.0–62.0	49.4	13.2	60.8
Head length	16.0–27.6	22.8	5.3	9.9–26.9	18.1	4.7	24.0
Eye diameter	4.5–7.0	5.7	1.0	3.0–7.0	4.8	1.1	4.3
Forelimb length	21.5–35.0	30.5	6.3	12.5–34.5	24.9	6.4	30.5
Hind-limb length	30.5–51.0	43.6	9.7	22.5–52.0	36.6	8.2	42.2
Ear opening size	1.8–3.0	2.5	0.5	0.9–2.5	1.5	0.4	1.9

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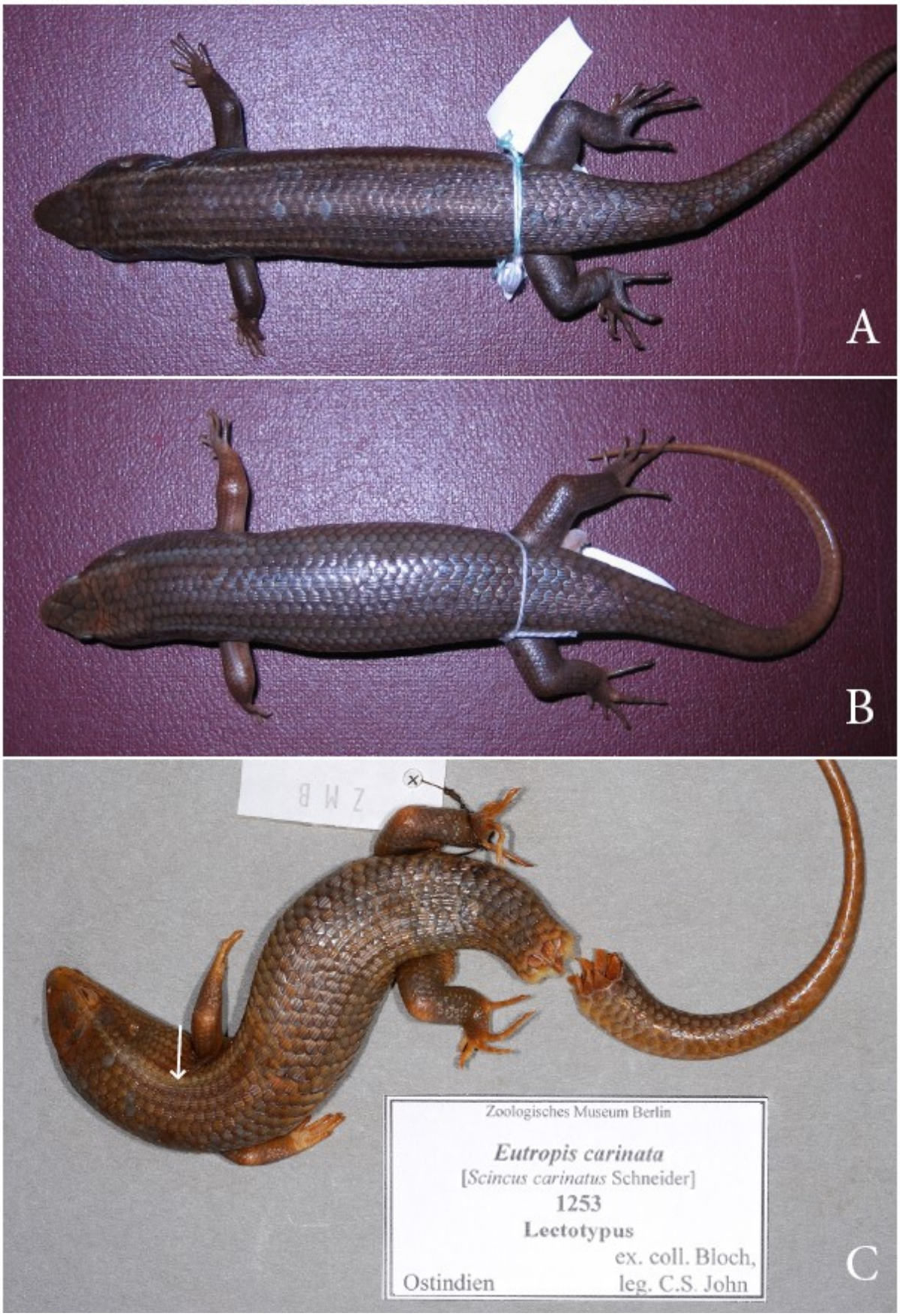

Figure 2: Holotype of *Eutropis resetarii* sp. nov. (WHT 6759), SVL 121.0 mm (A); non-type material of *Eutropis lankae* (WHT 7006), SVL 101.0 mm, from Hiyare Forest Reserve (B); and lectotype of *Eutropis carinata* (ZMB 1253), SVL 108.5 mm (C) (arrow points the dorsolateral stripe).

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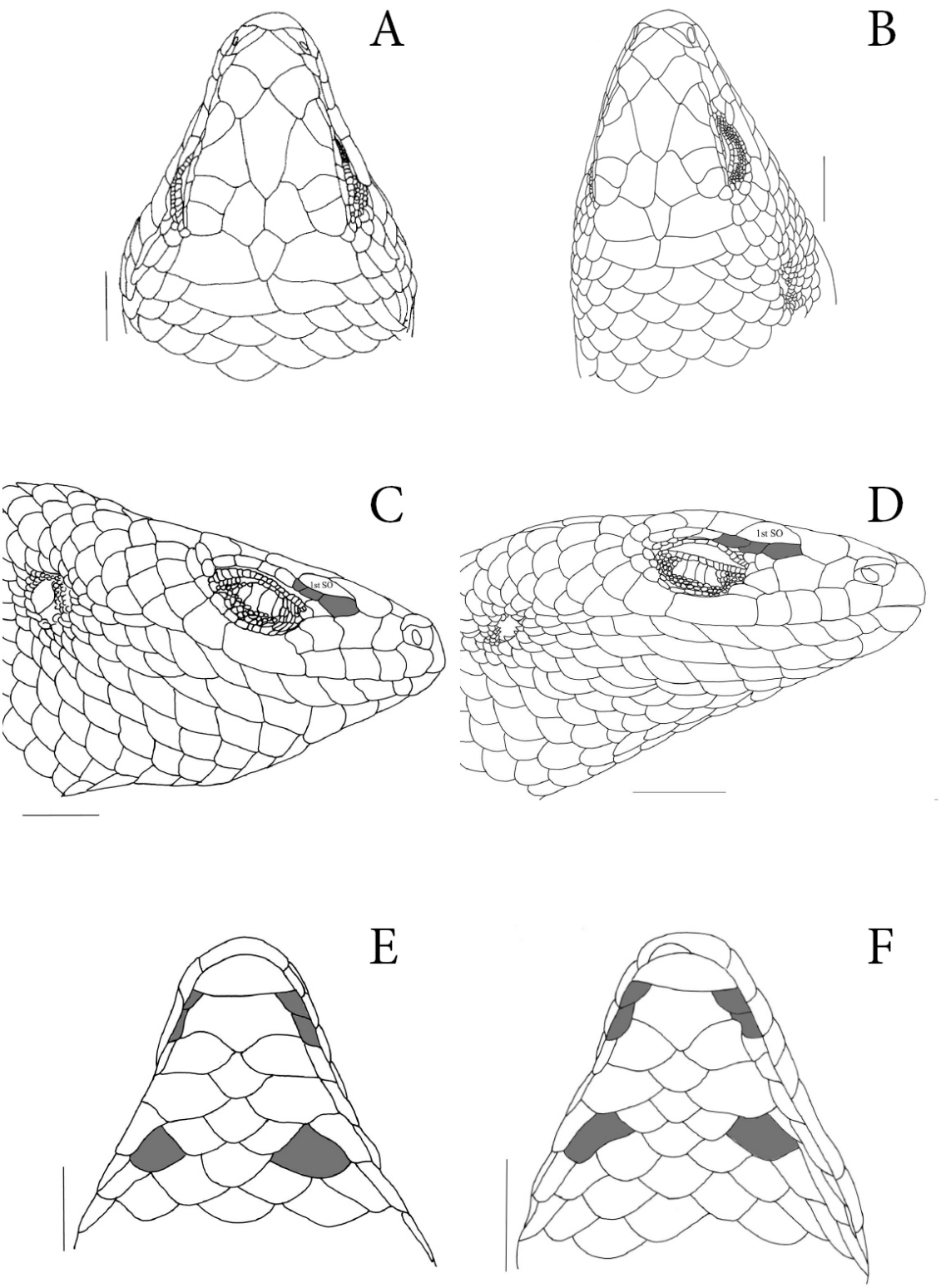

Figure 3: Dorsal view of head (A, B), lateral view of head (C, D) (SO: supraocular), and ventral view of head (E, F) in the holotype of *Eutropis resetarii* sp. nov. (WHT 6759, SVL 121.0 mm) and holotype of *Eutropis lankae* (NMSL RSK 6A, SVL 111.0 mm), respectively. Scale bars= 5 mm.

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Mental wider than long; postmental wider than long, in contact completely with the first and the second infralabials; posteriolateral border of postmental markedly concave; seven (*n*= 3) or eight (*n*= 1) infralabials; three pairs of enlarged chin shields; the first and the second pairs separated by a single scale; third pair separated medially by three scales; third pair of chin shields not contacting or slightly contacting the second pair of chin shields; third pair also separated from infralabial row by sublabial scale row.

Body relatively long (trunk length 57–64% of SVL). Scales cycloid, 30 transverse scale rows across mid body; 40–45 paravertebrals; 7 keels on dorsal and lateral scales; striae on ventral scales; 55–57 ventrals; outer precloacals overlap inner ones; two inner precloacals larger than outer ones. SVL 74.0–121.0 mm; SVL 4.4–5.3 times head length; original tail length 136.0–246.0 mm (in two specimens); original tail length 1.8–2.1 times SVL (in two specimens); subcaudal scales with enlarged distinct median hexagonal series after anterior 20–22 scales.

Limbs well-developed, pentadactyl; forelimb length 28–29% of SVL, and hind-limb length 38–43%; palm and sole scales rounded, more or less juxtaposed; subdigital lamellae surface smooth but with weakly developed median keel; digits comparatively robust; 11–12 subdigital lamellae under the fourth digit of manus; and 14–15 subdigital lamellae under the fourth digit of pes (Table 1).

Color in life

Sexes alike during non-breeding period. Olive brown dorsum with longitudinally arranged black spots forming an uninterrupted series of five longitudinal lines, another two lines on each side begin just before the forelimb origin; half a scale-width to one scale-width distinct yellowish-brown dorsolateral stripe begins from supraciliaries to body and on to tail-base; lateral sides of body (from behind ear opening) more or less bicolored, upper half dark brown with scattered light brown spots; lower half light brown and each scale with dark anterior marking; ventral side of breeding males bright yellow; females with dusky white belly; limbs brown. Juvenile color copper brown with yellowish-brown lateral stripe; lateral sides dark brown; and limbs dark (Fig. 5A).

Color in preservative

Body generally dark brown; five longitudinal lines on dorsum and another two lines on dorsum on each side begin just before the forelimb origin; distinct light brown dorsolateral stripe on each side; ventrolateral areas light brown; ventral side (head, body and tail) dusky white; lateral sides from head to tail base with dark brown upper half and dusky white lower half; and limbs dark brown (Fig. 2A).

Details of holotype

The holotype (WHT 6759) has the following conditions: male, 121.0 mm in SVL; 6 (left) and 7 (right) supraciliaries; 30 transverse scales across midbody; 43 paravertebral scales; 56 ventral scales; regenerated tail length, 170.0 mm; forelimb length 29% of SVL, hind-limb length 42% of SVL; 12 subdigital lamellae under fourth digit of manus and 15 subdigital lamellae under fourth digit of pes.

Etymology

The species name is a patronym in the Latin genitive singular, in honour of Alan Resetar (Collections Manager of the Division of Amphibians and Reptiles at the Field Museum of Natural History, Chicago, USA), for his contributions to the conservation of herpetofauna.

Habitat

Even though the habitat of the new species is in a secondary forest at Agarapatana, it is located near to the Agra-Bopaththalawa Forest Reserve (Fig. 6), which comprises montane forests. On sunny days, *Eutropis resetarii* sp. nov. can be seen on rocky outcrops. During the cold periods it shelters in rock crevices or in anthropogenic habitats (Fig. 5A) at Agarapatana.

Distribution and natural history notes

This species may be endemic to Sri Lanka where it is distributed in the Nuwara Eliya District. The record from Punduloya and its environs needs to be verified. The type series was collected from Agarapatana, near Torrington Estate (Fig. 7). It is sympatric with *Lankascincus sripadensis* Wickramasinghe, Rodrigo, Dayawansa and Jayantha, *L. taprobanensis* (Kelaart) (Scincidae), *Hypnale nepa* (Laurenti) (Viperidae), *Aspidura trachyprocta* Cope and *Ptyas mucosa* (Linneaus) (Colubridae) at Agarapatana. The latter species may be a potential predator of *Eutropis resetarii* sp. nov. Several lobules of fat tissues were observed in the abdominal cavity of dissected individuals. These structures may help it to withstand the cold climatic conditions in its habitats (mean annual temperature ~16 °C). The new species appears to be restricted to high elevations (~1000 m to up to ~1600 m) in the Central Hills of Sri Lanka.

Remarks

Deraniyagala's (1953) record of *Eutropis beddomei* from Pundulu Oya (07°01'19''N, 80°39''59''E, ~1000 m) in the Central Hills of Sri Lanka may represent the new species. However, no voucher material exists in the NMSL to confirm the record.

***Eutropis lankae* (Deraniyagala, 1953)**

Mabuya carinata lankae Deraniyagala, 1953: 65
(Figs. 2B, 3B, D, F, 4C, 5B, C; Table 1)

Holotype

NMSL RSK 6A, adult male, SVL 111.0 mm, Hambegamuwa, Sri Lanka, 06º33'N, 80º57'E, elevation 100 m a.s.l., April 1952, collected by "D/ N MC" ?.

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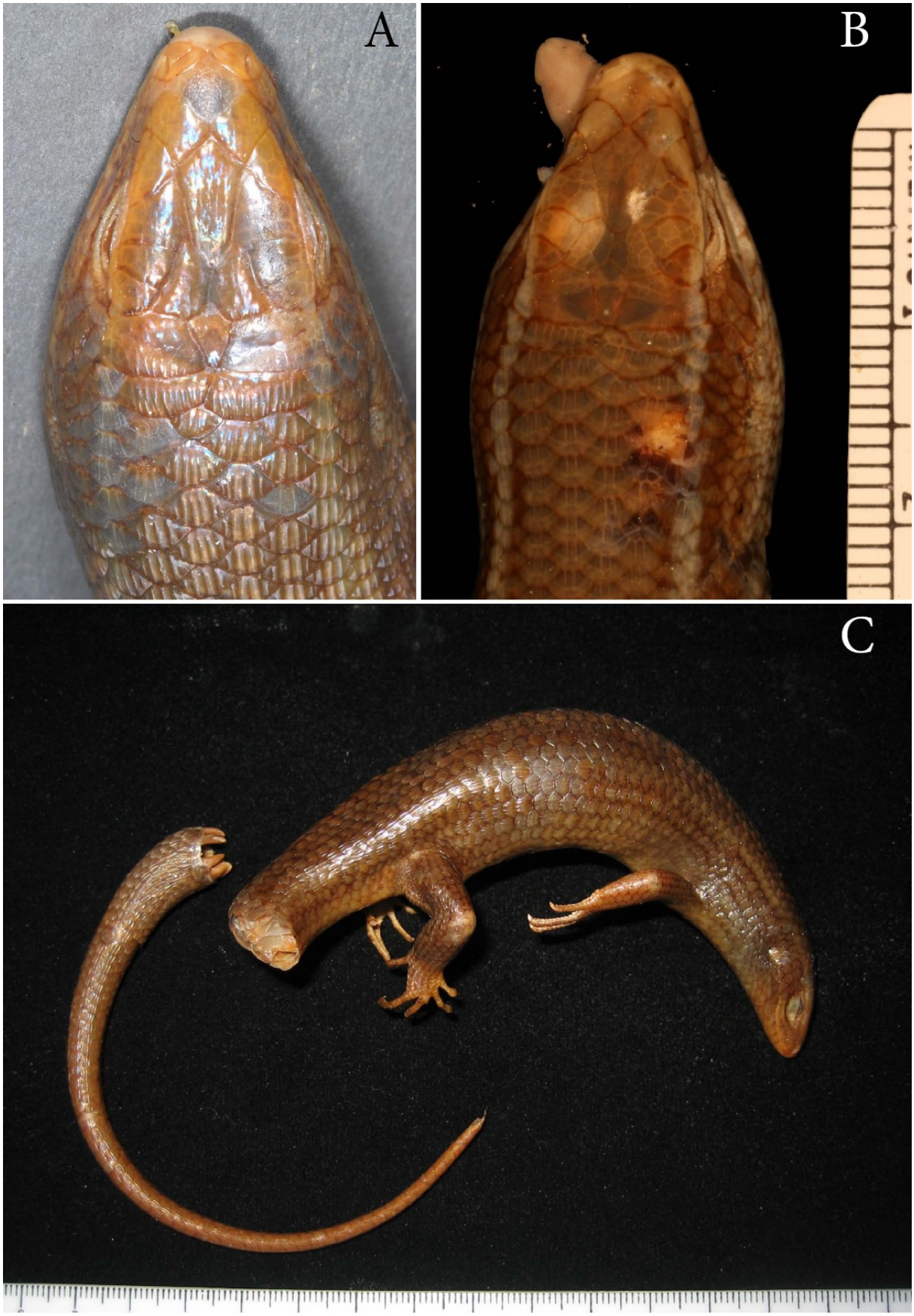

Figure 4: Dorsal view of head in the lectotype of *Eutropis carinata* (ZMB 1253) (A), and *Eutropis carinata sensu lato* (MCZ R 193526) from Assam, India (B); and holotype of *Eutropis lankae* (NMSL RSK 6A) (C), respectively.

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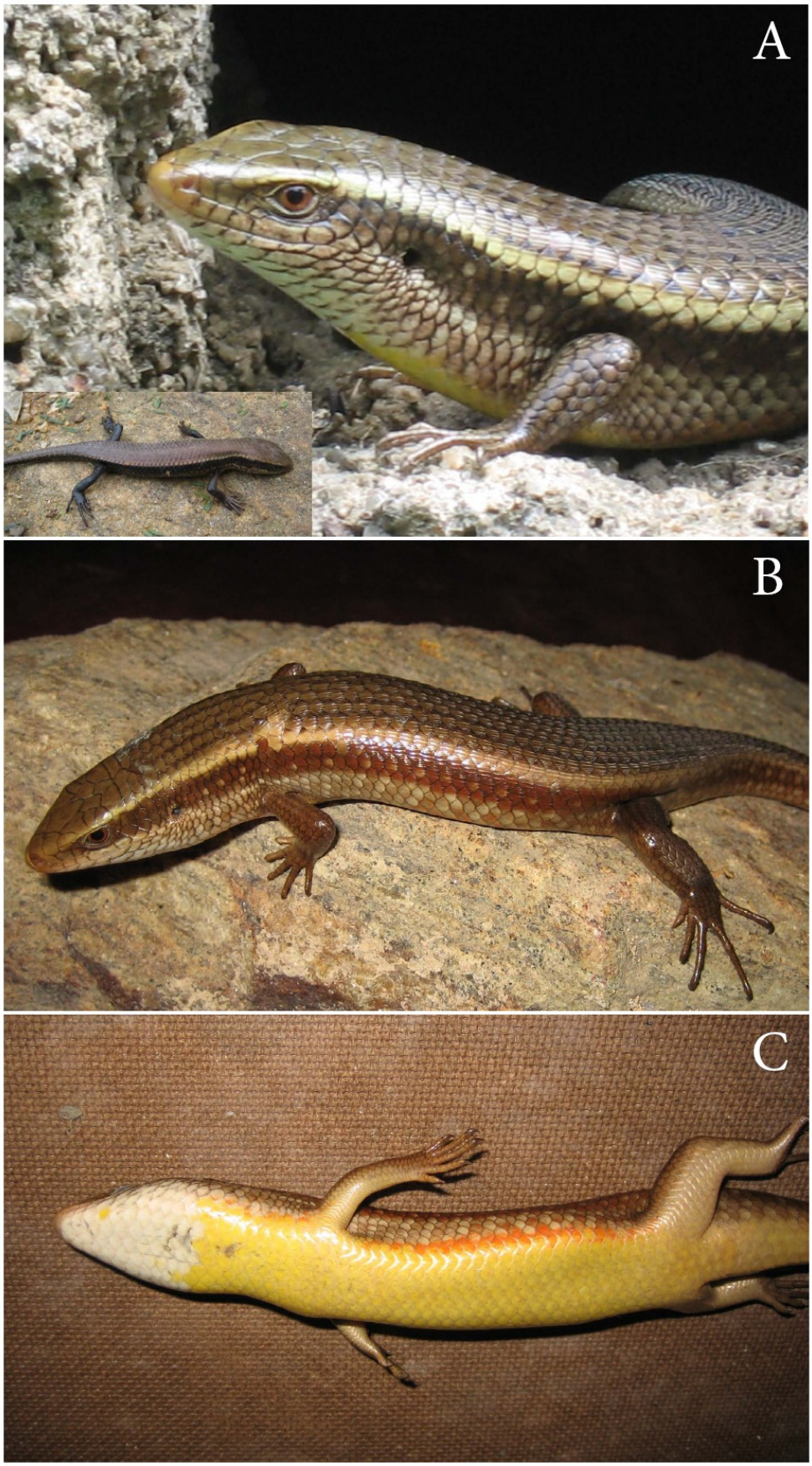

Figure 5: Living color of *Eutropis resetarii* sp. nov., from Agarapatana, Sri Lanka (inserted photo: juvenile specimen) (A), and living color (dorsolateral and ventrolateral aspects respectively) of *E. lankae* (WHT 7005, SVL 122.0 mm) from Warakawehera, near Kurunegala, Sri Lanka (B, C).

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Figure 6: Habitat of *Eutropis resetarii* sp. nov., at Agarapatana, Sri Lanka (from Agra-Bopaththalawa forest boundary).

Recent materials

WHT 1837, subadult male, SVL 56.0 mm, Kanneliya Forest Reserve, near Udugama, 06º15'N, 80º20'E, elevation 150 m a.s.l., 09 January 1996, collected by Dinesh Gabadage and Mohomed Mujthaba Bahir; WHT 6761, adult male, SVL 86.0 mm, Puwakpitiya Knuckles Range, 07º34'N, 80º 45'E, elevation 450 m a.s.l., 10 November 1997, collected by Mohomed Mujthaba Bahir, Dinesh Gabadage and Sudath Nanayakkara; WHT 7008, adult male, SVL 84.0 mm, Wakwella, near Galle, 06º06'N, 80º11'E, elevation 30 m a.s.l., 28 June 1998, collected by Sudesh Batuwita; WHT 6989, subadult male, SVL 63.0 mm, Kandewatta, Galle, 06º03'N, 80º12'E, elevation 2 m a.s.l., 13 April 2000, collected by Sudesh Batuwita; WHT 6975, subadult male, SVL 43.5 mm, same location data as above, 07 October 2001, collected by Sudesh Batuwita and Mohomed Mujthaba Bahir; WHT 6994, adult female, SVL 85.0 mm, same location data as above, 13 July 2002, collected by Sudesh Batuwita; WHT 6996, adult male, SVL 114.0 mm, Nawinna, near Galle, 06º04'N, 80º12'E, elevation 5 m a.s.l., 08 April 2003, collected by Sudesh Batuwita; WHT 7006, adult male, SVL 101.0 mm, Hiyare Forest Reserve, Galle, 06º04'N, 80º15'E, elevation 60 m a.s.l., 08 April 2003, collected by Sudesh Batuwita; WHT 7005, adult male, SVL 122.0 mm, Warakawehera near Kurunegala, 07º30'N, 80º29'E, elevation 100 m a.s.l., 20 February 2006, collected by Sudesh Batuwita and Sisitha Ranasinghe; NMSL RSK 8, adult female, SVL 106.0 mm, Ollarakulam (coordinates not found), 25 January 1938, no collector; NMSL RSK 8, adult female, SVL 107.0 mm, Welimada, 06º54'N, 80º55'E, elevation ~800 m a.s.l., no date and no collector data; NMSL RSK 6, subadult female, SVL 73.0 mm, Tunukai, 09º09'N, 80º16'E, elevation ~10 m a.s.l., no date and no collector data; NMSL RSK uncatalogued, adult male, SVL 80.0 mm, Medirigiriya, 08º09'N, 80º58'E, elevation 60 m a.s.l., no date and no collector data.

Diagnosis

Eutropis lankae is distinguished from all other species of the genus *Eutropis* by the combination of the following characters: maximum SVL 122.0 mm; supranasals widely separated; first loreal reaches the dorsal surface of snout; frontonasal as wide as long; prefrontals widely separated; frontonasal in narrow contact with frontal; frontal as twice long as wide; supraoculars four, only second in contact with frontal; frontoparietals paired, as wide as long; medial border of the fourth supraocular not completely in contact with frontoparietal; interparietal present, longer than wide; parietals completely separated by interparietal; one or two pairs of nuchals; 6 or 7 supraciliaries; two

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pretemporals, both in contact with parietal, upper smaller than lower; two primary temporals (in contact); two secondary temporals, separated, subequal in size; seven supralabials, 5th in suboccular position; two post-supralabials; postmental wider than long, in contact with first and partially second infralabials; 7 or 8 infralabials; three pairs of enlarged chin shields; first pair separated by a median scale; second pair separated by a single scale and third pair separated by three scales; third pair separated from infralabial row by sublabial row; 39–46 paravertebrals 51–56 ventrals; 28–32 transverse scale rows across mid-body; 16–17 subdigital lamellae on 4th digit of pes.

Eutropis lankae is distinguished from the lectotype of *E. carinata* by the following characters: presence of widely separated (vs. in contact) prefrontals, widely (vs. narrowly) separated supranasal scales, first supraocular not in contact (vs. in contact) with frontal, medial border of fourth supraoculars not completely (vs. completely) touching frontoparietals, one or two pairs (vs. one pair) of nuchals, postmental scale in contact with first and partially the second (vs. first and second) infralabials, 28–32 (*Mode*= 30) (vs. 32) transverse scale rows at midbody, 5–7 (vs. 3) body keels; body scales without (vs. with three distinct) mucros, and palm and sole scales tubercle-like imbricate scales (vs. rounded, more or less juxtaposed).

Redescription (based on the holotype and recent material)

Head relatively short (head length 18–23% of SVL). Snout pointed in lateral aspect and obtuse in dorsal aspect; rostral with a slight posteriomedial projection onto dorsum; supranasals present, widely separated; frontonasal as wide as long; prefrontals widely separated (*n*= 11) or narrowly separated (*n*=3) (but not in contact); frontonasal with narrow medial contact with frontal; frontal longer than wide; supraoculars four, only second in contact with frontal; frontoparietals paired, longer than wide, in contact with second, third supraoculars and partially the fourth supraocular; interparietal present, longer than wide; parietal eye present in interparietal; parietals completely separated by interparietal; one or two pairs of nuchals.

Nasal larger than nostril; postnasals absent; two loreals, posterior loreal larger than the anterior one. Two preoculars, the upper about half the size of the lower; supraciliaries, 5 (*n*= 1) or 6 (*n*= 12) or 7 (*n*= 1), in a continuous row, the first in broad contact with prefrontal, second loreal, upper preocular and first supraocular; eye relatively large (eye diameter 22–30% of head length); one (*n*= 4, on left side only) or two pretemporals (*n*= 9) or 3 (*n*= 1), upper smaller than lower/s, both/all in contact with parietal; one pre-subocular; two post-suboculars, the upper in contact with the lower pretemporal; lower eyelid moveable, scaly; one (*n*= 2, on one side) or two primary temporals (both sides, *n*= 12); two secondary temporals, separated, upper narrow, in contact with the lower pretemporal anteriorly and in contact with parietal dorsally; three tertiary temporals; seven supralabials, 5th the largest, in suboccular position; two post-supralabials. External ear opening 23–38% of eye diameter, circular with short, broad, pointed ear lobules.

Mental wider than long; postmental wider than long, in contact with the first infralabial and partially with the second infralabial; 7 (*n*= 4) or 8 (*n*= 6) infralabials; three pairs of enlarged chin shields; the first and the second pairs separated by a single scale; third pair separated by three scales; third pair of chin shields separated from infralabial row by sublabial scale row.

Body relatively short (trunk length 53–60% of SVL). Scales cycloid, 28–32 transverse scale rows across mid body; 39–46 paravertebrals; 5–7 keels on dorsal and lateral scales; striae on ventral scales; 51–56 ventrals; two inner precloacals overlapped by outer precloacals; inner precloacals larger than outer ones. SVL 43.5–122.0 mm, 4.4–5.7 times head length; unregenerated tail length 113.0–184.0 mm (in three specimens); unregenerated tail length 2.0–2.3 times SVL (in three specimens); subcaudal scales with enlarged distinct median hexagonal series after anterior 25–26 scales.

Limbs well-developed, pentadactyl; fore-limb 26–30% of SVL, and hind-limb 37–66%; palm and sole scales tubercle-like, imbricate; subdigital lamellae surface smooth but with weakly developed median keel; digits comparatively slender; 11–13 subdigital lamellae beneath fourth digit of manus and 16–17 subdigital lamellae beneath fourth digit of pes (Table 1).

Color in life (Fig. 5B, C)

Light brown to copper brown overall dorsal color with yellowish-brown lateral stripe; dorsum with five dark brown longitudinal stripes extending from occiput to tail-base; lateral sides of body more or less bicolored, upper half dark brown with a series of greyish-white spots (from behind ear to origin of hind-limb) and lower half greyish-white; limbs dark brown; ventral side of females white; breeding males with ivory color gular region, bright yellow throat and belly and with a distinct orange ventrolateral stripe (Fig. 5C).

Color in preservative

Overall dorsal body color dark brown; dorsal stripes indistinct or invisible; occipital region reddish brown; greyish-white dorsolateral line present; lateral sides more or less bicolored, upper half dark brown (no visible spots) and lower half greyish-white; limbs light brown to dark brown; ventral side dusky white (Fig. 2B).

Details of holotype

The holotype (NMSL RSK 6A) has the following conditions: adult male, SVL 111.0 mm; six supraciliaries; 30 transverse scales across midbody; 42 paravertebral scales; 53 ventral scales; tail broken,

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170.0 mm in length; forelimb length 27% of SVL, hind-limb length 37% of SVL; 12 subdigital lamellae under the fourth digit of manus and 16 subdigital lamellae under the fourth digit of pes.

Habitat (Fig. 8)

Eutropis lankae is usually seen on rock surfaces, under decaying logs and in grasslands. It also can be seen hiding in rock crevices during the night. During the day, it usually forages for insects on the forest (buffer zone) floor.

Distribution and natural history notes

This species has a wide distribution in Sri Lanka (Fig. 7). It has been recorded from Lowland Wet Zone, Dry Zone, Knuckles Range and Central Hills (up to ~500 m a.s.l.): Puwakpitiya, Knuckles Range (Central Province), Wakwella, Kandewatta, Nawinna, Hiyare Forest Reserve, Kombala-Kottawa Forest Reserve, Hambegamuwa, Kanneliya Forest Reserve (Southern Province), Warakawehera near Kurunegala (North Western Province), Medirigiriya (North Central Province), Welimada (Uva Province), Tunukai, Ollarakulam (Northern Province). *Eutropis lankae* is found in sympatry, with *E. greeri* and *Lankascincus fallax* (Peters) (at Kanneliya, Kottawa-Kombala and Hiyare Forest Reserves) in the Lowland Wet Zone; with *Eutropis madaraszi* (at Alauwwa, Polonnaruwa, Tissamaharama) in the Dry Zone) and with *E. tammanna* (at Polonnaruwa and Tissamaharama) in the Dry Zone. It is a very active skink, which when alarmed, escapes swiftly.

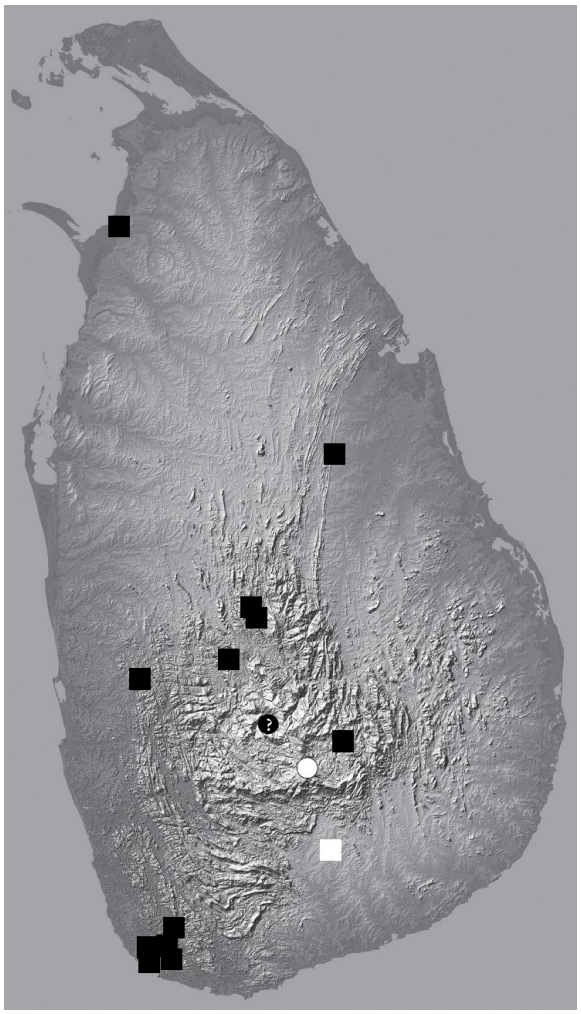

Figure 7: Distribution records of *Eutropis resetarii* sp. nov. (circles ['?', Punduloya]) and *E. lankae* (squares). Holotype localities are in white and other localities are in black.

Discussion

The type locality of Schneider's (1801) *Sincus carinatus* (*Eutropis carinata*) was from "*Ostindien*" (= East indies – then potentially meaning anywhere from India to Indonesia), however, this locality was written after the fact based on the published type locality (ex India *orientali*) and the specimen was known to have been collected by John (Schneider, 1801), who lived and worked in Tranquebar (Aaron M. Bauer, pers. comm., 2020). *Eutropis carinata* is a rather widely distributed species in India (e.g., Bengal, Coramendal, Gujarat, Karnataka, Tamil Nadu, Orissa) (Hardwicke and Gray, 1829; Dumeŕil and Bibron, 1839; Smith, 1935; Das et al., 2008; Datta-Roy et al., 2012).

The lectotype (ZMB 1253) of *Eutropis carinata* has the prefrontals contiguous with one another (Fig. 4A). Smith (1935) also noted that prefrontals usually in contact with one another for *Eutropis carinata.* Deraniyagala (1953) distinguished *Eutropis carinata lankae* (= *Mabuya carinata lankae*) from the *forma typica* by two major characters, the presence of widely separated (vs. in contact) prefrontals and 30 (vs. 34 [32]) transverse scale rows at midbody. The number of transverse scale rows across midbody varies from 28 to 32 (*n*= 14; *Mode*, 30) in the Sri Lankan population.

Also, the condition of prefrontal separation varies but is not contiguous in the specimens of *Eutropis carinata lankae* examined by us from Sri Lanka. In addition, the lectotype of *Eutropis carinata* and *E. carinata lankae* differ from one another by the following characters as well: narrowly (vs. widely) separated supranasal scales, first supraocular in contact (vs. not in contact) with frontal, medial border of fourth supraoculars completely (vs. not completely) touching frontoparietals, postmental scale in contact with first and second (vs. first and partially second) infralabials and presence of 3 (5–7) distinct body keels. Therefore, it can be concluded that the ZMB 1253 lectotype of *Eutropis carinata* is different from the species presently known as *E. carinata* (= *Eutropis carinata lankae*) from Sri Lanka and probably the two other specimens examined from Assam (Fig. 4B). It is due to the lectotype's prefrontal scale arrangement (Fig. 4A), which together with the first supraocular scale arrangement (with the frontal) is reminiscent of a species of the *Eutropis multifasciata* complex.

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Figure 8: Habitat of *Eutropis lankae* at Dambulla, Sri Lanka (a rocky outcrop).

However, Blanford (1870) has reported that prefrontals are either in contact or widely separated ("prefrontal [frontonasal] touches the vertical [frontal]") for *Eutropis carinata*. Blanford (1870) further stated that nominotypical *Eutropis carinata* has presumably three body keels and also mentioned about another closely related species with 5–7 keels. Moreover, the existence of the rather different lectotype of *Eutropis carinata* is not remarkable because a recent molecular study has shown that *E. carinata* is a species complex (Datta-Roy et al., 2012). Datta-Roy et al. (2012) have demonstrated that four different species (all from India) are represented by *Eutropis carinata sensu stricto* (Datta-Roy et al., 2012; fig. 2) and, interestingly, all of them have sequence divergences somewhat similar to those of among *E. beddomei*, *E. nagarjunensis* (Sharma, 1969) and *E. trivittata* (Hardwicke and Gray, 1827). Therefore, it is mandatory to evaluate the systematics of *Eutropis carinata* complex in India and uncover a living population (which accords with the lectotype) of *Eutropis carinata* to establish its conservation status.

Because the widespread Sri Lankan subspecies *Eutropis carinata lankae* (type locality Hambegamuwa in Sri Lanka) is different from the lectotype of *E. carinata*, we assessed other junior synonyms of *Eutropis carinata*. Smith (1935) mentioned two junior synonyms for *Eutropis carinata*: *Tiliqua rubriventris* Hardwicke and Gray, 1829 (type locality Dumdum in India) and *Gongylus* (*Euprepes*) *sebae* Dumeŕil and Bibron, 1839 (type locality Pondicherry in India).

Tiliqua rubriventris (= *Eutropis rubriventris*) is quite different from the species referred as *Eutropis carinata lankae* and the former superficially resembles *Eutropis macularia* (Blyth, 1853) (see below). It is remarkable that Smith (1935) did not clarify the reason for the synonymy of *Eutropis rubriventris* under *E. carinata*. Hardwicke and Gray (1829) did not mention Dumdum as a type locality for *E. rubriventris*. Smith (1935: 266) might have mentioned the type locality of *Eutropis rubriventris* as Dumdum because of General Thomas Hardwicke who served and lived in Bengal from 1793 to 1820 (Anonymous, 1835). Also, Hardwicke and Gray (1827) recorded *Eutropis carinata* from Dumdum (Bengal). Thereby, Smith (1935) might have concluded that *Eutropis rubriventris* is a synonym of *E. carinata* because of both species sharing the same locality (Dumdum).

Even though it is now allocated to *Eutropis multifasciata* (Kuhl), *Gongylus* (*Euprepes*) *sebae* Dumeŕil and Bibron, 1839 was yet another name that might have been used for *Eutropis carinata* because some syntype specimens of this species (*Gongylus* (*Euprepes*) *sebae= E. sebae*) had been collected from Bengal and the Coromandel (Dumeŕil and Bibron, 1839; Smith, 1935; Amarasinghe et al., 2018). Moreover, Smith (1935) mentioned that five specimens of *Eutropis carinata* were included in the syntype series of *Eutropis sebae*. However, due to

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the designation of a lectotype for *Eutropis sebae* from Batavia by Smith (1935), presently this name is a synonym of *E. multifasciata.* Therefore, we are confident that the Deraniyagala's subspecies is a valid name and here resurrected *Eutropis lankae* from Sri Lanka.

We tentatively allocate the two specimens from Goalpara District, Assam State to *Eutropis carinata sensu lato*. *Eutropis carinata* was found from Dumdum (Hardwicke and Gray, 1829), Bengal and Coramandel (Dumeŕil and Bibron, 1839; Smith, 1935), Southeast of Berar, Chanda, Bhandara, Raipur and Bilaspur (Blanford, 1870). Therefore, future studies on the taxonomy of the *Eutropis carinata* complex may reveal the existence of additional species from India.

It is evident that Hardwicke and Gray's (1829) iconotype (Fig. 9A) of *Tiliqua rubriventris* (= *Eutropis rubriventris*) has a combination of the following characters: no lateral stripe, slender appearance, spotted limbs, reddish breeding belly coloration and comparatively shorter limbs (probably slightly touching digits when adpressed). However, *Eutropis carinata*, *E. multifasciata*, and *E. macularia* have a distinct lateral stripe, robust body (except *E. multifasciata*), and the adpressed limbs overlap (fide Schneider, 1801; Kuhl, 1820; Blyth, 1853; Jerdon, 1853). Therefore, it is obvious that *Eutropis rubriventris* is a different species from these three species.

Gray (1846) recorded, and further described, *Eutropis rubriventris* from Madras. He stated that *Eutropis rubriventris* from Madras had three dorsal keels and a yellowish-white belly. This ventral coloration is rather different from the iconotype of Hardwicke and Gray (1829). We speculate that Gray (1846) might have reported a *Eutropis rubriventris* specimen with non-breeding colors from Madras. Especially given that non-breeding colors differ from breeding colors in several species of skinks: *Eutropis lankae*, *E. tammanna*, *Lankasincus fallax* (Peters, 1860), *L. dorsicatenatus* (Deraniyagala, 1953; pers. obs.; see also Jerdon, 1853). Because Blyth's (1853) *Eutropis macularia* had pale ventral coloration, Boulenger (1887; 1890) may have thought that Gray's (1846) description was not based on *Eutropis rubriventris sensu stricto* (Fig. 9A) and placed this species (which had been collected from Madras) in the synonymy of *E. macularia* by stating "not of Gray" (= not of Hardwicke and Gray, 1829).

Although *Eutropis rubriventris* is unique, it has been subsequently synonymized by the following authors, under *E. multifasciata* (Boulenger, 1890), *E. carinata* (Smith, 1935) and *E. macularia* (Smith, 1935; in part). We speculate that Boulenger (1890) might have allocated *Eutropis rubriventris* to *E. multifasciata* due to its slender body (see Kuhl, 1820).

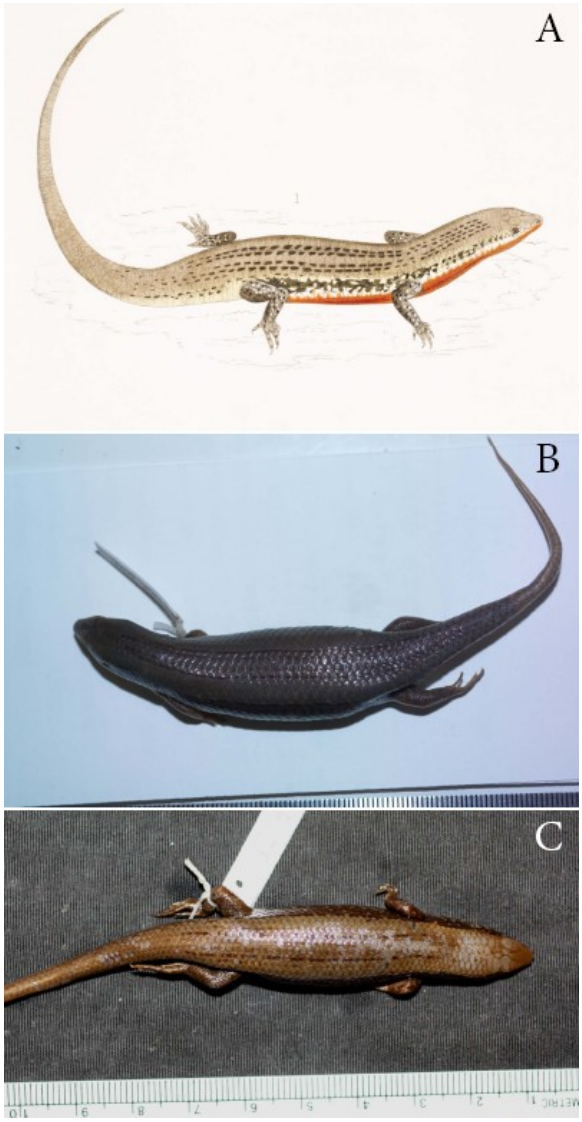

Figure 9: *Eutropis rubriventris* (Hardwicke and Gray, 1829) from Dumdum, Kolkatta, India (A) (sourced from rawpixel.com); and presumably *Eutropis rubriventris*, respectively of CM 25346, West Bengal, India and FMNH 134870, Goalpara District, Assam, India (B, C) (*cf.* paired uninterrupted dorsal stripes with the iconotype of *Eutropis rubriventris*).

Interestingly, Jerdon (1853) recognized *Eutropis rubriventris* (a species without a lateral stripe; Fig. 9A) as a distinct species and also thought that another species with a distinct lateral stripe, *Tiliqua multicarinata* (Gray, 1845; type locality Philippines) from Assam is conspecific with the *E. rubriventris*. However, Blyth (1853) explicitly stated that his *Eutropis macularia* had a distinct lateral line, whereas *E. rubriventris* is lacking this character. Unfortunately, the holotype of *Eutropis macularia* is now fragmented and faded, thus, it is impossible to examine its coloration and other important characters (vide Batuwita, 2016; Fig. 6).

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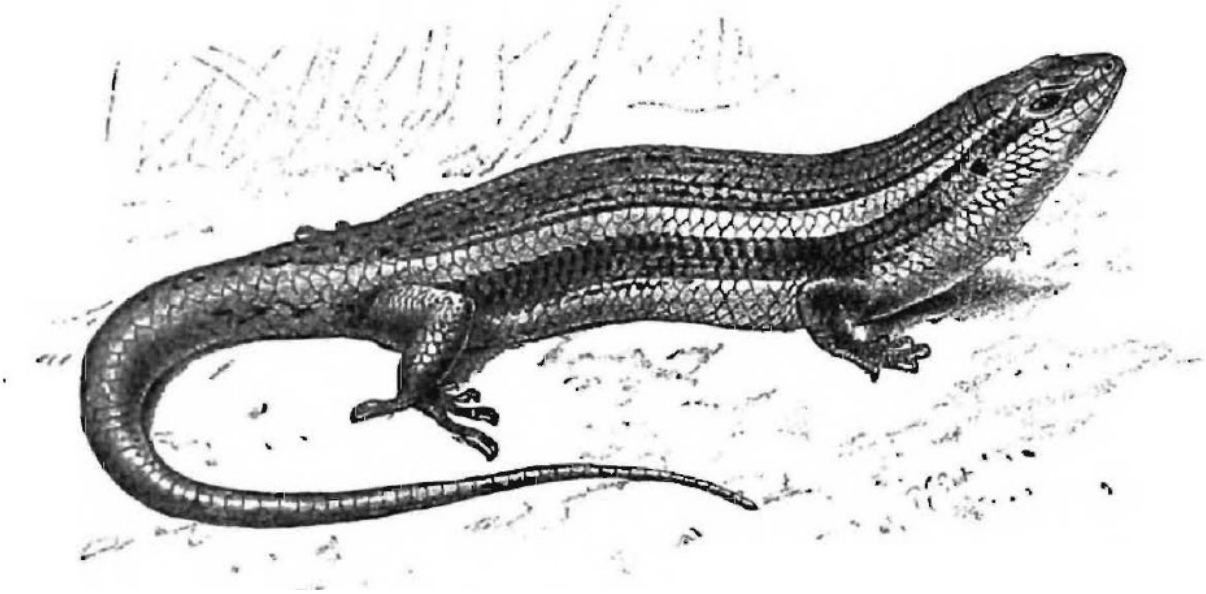

Figure 10: *Eutropis carinata* (Schneider, 1801); after Boulenger (1890).

As mentioned above, Boulenger (1887) considered that Gray's (1846) Madras specimen of *Eutropis rubriventris* was not the same species which had been illustrated in Hardwicke and Gray (1829). In fact, Jerdon's (1853) *Tiliqua multicarinata* (not of Gray) is *Eutropis macularia* and was not conspecific with *E. rubriventris* as recognized subsequently by Boulenger (1890: 189). Moreover, it can be concluded that Smith (1935) accepted Jerdon's (1853) view of merging *Eutropis rubriventris* with *Tiliqua multicarinata* (not of Gray) (Smith, 1935: 264) and this probably caused the confusion over the identity of *Eutropis rubriventris*. In addition, due to Boulenger's (1887) speculation on *Eutropis rubriventris* (Gray, 1846): the Madras specimen of *Eutropis rubriventris* was not *E. rubriventris sensu stricto*.

Moreover, Boulenger's (1890) statement on the coloration of *Eutropis carinata* might have caused him (Smith) to allocate *E. rubriventris* to the latter species: "In the breeding-season males have a scarlet band from the shoulder to the thigh." and maybe due the presence of longitudinal stripes on the dorsum of *E. rubriventris* (Fig. 9A). The former character, which usually runs along the ventrolateral margin (vs. red belly coloration in *E. rubriventris*; Fig. 9A), is also a characteristic feature of *Eutropis lankae* (Fig. 5C) and it may also be present in *Eutropis carinata sensu stricto* from India (fide Boulenger, 1890). However, by comparison to the figures of both species *Eutropis rubriventris* and *E. carinata* (Fig. 9A vs. Fig. 2C, 10), and Schneider's (1801: 184) statement on the latter species' coloration: "From the eyes from the sides back to the beginning of the tail, whitish tape [lateral stripe] runs out,…", it is evident that the well-defined lateral stripe is only present in *Eutropis carinata*.
Smith (1935) recognized five forms of *Eutropis macularia*. We suggest that the form "Number 4" is in accordance with *E. macularia sensu stricto* because of having a distinct lateral stripe and matching coloration with the original description of Blyth (1853). Moreover, as presently understood, *Eutropis macularia* is a species complex like *E. carinata* (Taylor and Elbel, 1958; Taylor, 1963; Datta-Roy et al., 2012), thus, we tentatively recognize *E. rubriventris* as a distinct species from India. Taylor and Elbel (1958) described several subspecies of *Eutropis macularia* from Thailand and Taylor (1963) questioned Smith's (1935) synonymy of several subsequent names (e.g., *Euprepes brevis* Günther, 1875, *Euprepes macularius* var. *unicolor* Blanford, 1879, and *Lygosoma dawsoni* Annandale, 1909) under *Eutropis macularia* from India and Sri Lanka while describing five different forms of *E. macularia*. Future studies on the *Eutropis macularia* complex in India will reveal the true identity of its subsequent synonyms.

The new species described here, *Eutropis resetarii* sp. nov. is distinguished from the lectotype of *E. carinata* by the following characters: first supraocular not in contact (vs. in contact) with frontal, first three (vs. two and partially the third) supraciliaries touching first supraocular; third pair of chin shield separated slightly or not touching the second pair of chin shields (vs. in contact broadly with the second pair) and 30 (vs. 32) scale rows across midbody. Therefore, *Eutropis resetarii* sp. nov. differs from the lectotype of *Eutropis carinata*, and also because there are no available names for the Sri Lankan *Eutropis lankae sensu lato* from the Central Hills, we are confident that *Eutropis resetarii* sp. nov. is, in fact, an undescribed species.

Eutropis resetarii sp. nov. described here has the prefrontal separate condition which it shares with *E.*

lankae. Thus, we further compared the new species with the two specimens of *Eutropis carinata sensu lato* available from Eastern India (Assam) and all other Sri Lankan *E. lankae* specimens. Although the new species shares the separated prefrontal condition with the holotype of *Eutropis lankae* including the two specimens from Assam (India), it differs from the holotype of *Eutropis lankae* and from two specimens from Assam by having the other diagnostic characters: the first loreal does not reach the dorsal surface of snout (vs. reaches in *E. lankae*); lower preocular larger (vs. smaller) than the anterior loreal scale; first three (vs. first two and partially the third) supraciliaries completely touching the first supraocular; lateral border of postmental completely in contact with the first and the second (vs. first and partially the second) infralabials; third pair of chin shields not in contact or in narrow (vs. broad) contact with second pair of chin shields (Figs. 3A vs. 3B; 3C vs. 3D; 3E vs. 3F); palm and sole scales rounded, more or less juxtaposed (vs. tubercle-like imbricate scales); digits comparatively robust (vs. slender); olive brown (vs. dark copper brown) dorsal coloration; having granular (vs. pointed) ear lobules; and having greater external ear opening size, 40–46% (vs. 23–38%) of eye diameter.

In addition, the new species and *Eutropis lankae* may separate via elevation differences (allopatry). The new species has hitherto been recorded from the highest elevations (from ~1000 m to ~1600 m), whereas *E. lankae* has a wide distribution from coast to ~900 m elevations. The holotype of *Eutropis lankae* was collected from Hambegamuwa in the Dry Zone at about ~100 m elevation. Moreover, *Eutropis lankae* and *E. resetarii* sp. nov. are ecologically discrete species because the type series of the new species has been collected from a buffer zone of montane forest (cloud forest) adjoining the Agra-Bopaththalawa Forest Reserve (Fig. 6), whereas *Eutropis lankae* has been recorded from the Lowland Wet Zone and the Dry Zone of Sri Lanka (Fig. 8), where a wide variety of forest types exist: dry mixed evergreen, moist semi-evergreen, savannas (all in the Dry Zone) and rainforest buffer zones (in the Lowland Wet Zone). Therefore, it is concluded that *Eutropis resetarii* sp. nov. is a habitat specialist species.

Three groups of *Eutropis* species are recognized based on their chin shield arrangement (see Batuwita, 2016; Table 3); we here name them as: (1) The *greeri* group: the first pair of chin shields in contact medially, second pair widely separated by a median ventral scale, third pair separated by three median ventral scales; (2) The *lankae* group: the first (well-define in adults) and second pairs of chin shields widely separated by a median ventral scale, third pair separated by three median ventral scales; and (3) The *rugifera* group: the first pair of chin shields in contact medially, second and third pairs separated by single median ventral scale. In Sri Lanka, first two groups occur. The *greeri* group has a lower number (5) of supraciliaries, the longest/largest third supraciliary, and only the upper pretemporal contacts the parietal. In contrast, the *lankae* group has a higher number (6 or 7) of supraciliaries, the longest/largest first supraciliary, and both pretemporals contact the parietal. Based on their taxonomy, the latter group also has an affinity with south Indian congeners, including *Eutropis carinata*, *E. macularia* and *E. gansi* (Das). *Eutropis resetarii* sp. nov. belongs to the *lankae* group.

Except for *Eutropis floweri*, *E. lankae*, *E. madaraszi* and *E. tammanna*, two other endemic species of *Eutropis* in Sri Lanka are restricted to the Central Hills, the Knuckles Range and the Lowland Wet Zone (Batuwita, 2016), where most of the endemic lizard fauna occurs (Somaweera and Somaweera, 2009). Therefore, *Eutropis resetarii* sp. nov. may be yet another endemic species from Sri Lanka. Interestingly, a related but a quite different species of *Eutropis* in the WHT collection (represented by a single specimen, WHT 1901), has been collected from Morningside Forest Reserve (near Rakwana) and also needs further attention.

Zoogeographic patterns shown by the Sri Lankan herpetofauna, especially lineages within the family Scincidae including the genus *Eutropis* are quite remarkable because few other species share their distribution both in India and Sri Lanka (e.g., *E. beddomei* and *E. bibroni*) (Kelaart, 1852; Günther, 1864; Boulenger, 1887; Smith, 1935; Taylor, 1950; Deraniyagala, 1953; Das et al., 2008; Amarasinghe et al., 2016a; Batuwita, 2016). Thus, when considering the taxonomy of Sri Lankan fauna, especially the terrestrial species assemblages, assessment of the influence and the affinity of the mainland Indian fauna should not be overlooked. It is speculated that the widespread distribution of *Eutropis lankae* may represent yet another similar dispersal as with the above mentioned species in Peninsula India and Sri Lanka, but to confirm this needs further studies. However, as shown by previous studies, certain other vertebrates and some invertebrate groups (e.g., shrub frogs, caecilians, uropeltid snakes, freshwater crabs and freshwater shrimps) have demonstrated local endemism in Sri Lanka (Bossuyt et al., 2004). Some species of *Eutropis* and species of the genus *Riopa* Gray (Sudesh Batuwita, pers. obs.) may have similar relationships to their respective South Indian relatives; as do the above-mentioned taxa, as shown by Bossuyt et al. (2004) (see also Das et al., 2008; Batuwita, 2019).

Comparative material examined

Eutropis andamanensis (Smith): ZSI 15084 (syntype), Andaman Island.

Eutropis austini: WHT 7003 (holotype), Gannoruwa Forest Reserve, near Peradeniya; MCZ R32187, MCZ R32188, Central Province, Ceylon (Sri Lanka); FMNH 167032, FMNH 167033, FMNH 167034,

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FMNH 167029, FMNH 167030, FMNH 167031, Central Province, Ceylon (Sri Lanka); CM 67611, Sri Lanka.

Eutropis beddomei: ZSI 2356 (holotype of *Euprepes septemlineatus* Blanford), ‘‘Pem Ganga valley, S.E. Berár’’; NMSL RSK uncatalogued (three specimens), Kachchai; NMSL RSK uncatalogued (two specimens), Muhamalai near Pallai.

Eutropis bibronii: NMSL RSK 1, ‘Challani’, Sri Lanka; NMSL RSK 1, Nikaweratiya; Thabbowa, Sri Lanka.

Eutropis carinata: ZMB 1253 (lectotype), “Ostindien” = East Indies (from India to Indonesia); MCZ R7660, MCZ R193526, Goalpara District, Assam, India.

Eutropis floweri: WHT 6767, Mundel near Puttlam; WHT 6980, Trincomalee; WHT 6978, 7002, Arugam Bay near Potuvil.

Eutropis dissimilis (Hallowell): ZSI 19801 (holotype of *Mabuya hodgarti* Hora), Rawalpindi, Punjab, India.

Eutropis gansi (Das): ZSI 24826 (holotype), ZSI 24828 (paratype), Kalakkad Tiger Reserve, Tirunelveli District, Tamil Nadu State, India.

Eutropis greeri: WHT 7000 (holotype), Kombala-Kottawa Forest Reserve, Galle, Sri Lanka; CM 89450, CM 89451, Sri Lanka.

Eutropis lankae: NMSL CCA 2360, NMSL CCA 2364, Sri Lanka.

Eutropis macularia: ZSI 2344 (holotype), ‘Rungpore, Bengal?’; ZSI 16170 (holotype of *L. dawsoni*), Maddathoray, Travancore; FMNH 134870, Goalpara District, Assam, India; CM 25346, West Bengal, India; CM 25357, Bangladesh.

Eutropis madaraszi: (All from Sri Lanka) WHT 7001 (Neotype), Kalahagala near Polonnaruwa; WHT 0721, Kumaradola Group, Moneragala; WHT 6988, Kohombagapalessa near Tissamaharama; WHT 6995, Kalahagala near Polonnaruwa, close to Wasgamuwa National Park; WHT 6964, 6960, Sandagala near Tissamaharama; WHT 6985, 7004, Ridigama near Kurunegala; WHT 6974, Ihala Kalugala, Alauwa; NMSL RSK 6, Trincomalee; NMSL RSK 8, Buttala; NMSL RSK 8, Batticoloa; NMSL uncatalogued, Horowpatana; NMSL uncatalogued, Polonnaruwa; NMSL uncatalogued, Vakanepi; NMSL RSK 8, Wanathavillu; NMSL CCA 2388, NMSL CCA 2380, Sri Lanka; FMNH 142386, Uva Province, Ceylon (Sri Lanka).

Eutropis multifasciata: ZSI 2362 (syntype of *Mabuia monticola*), possibly the Eastern Himalayas or the hills of Assam (Das et al., 1998).

Eutropis nagarjunensis: ZSI 21170 (holotype), ZSI 21171(paratype), Vijaypuri South, Andra Pradesh, south central India.

Eutropis quadricarinata (Boulenger): BMNH 1946-8-18.35, 1946-8-18.36 (syntypes), Bhamo and hills to the east; ZSI 2357 (holotype of *Mabuya anakular* Annandale), Cachar, (in southern Assam State, north-eastern India).

Eutropis rudis (Boulenger): BMNH 1946-9-7-46, (paralectotype), Matang, Sarawak, Borneo.

Eutropis rugifera (Stoliczka): ZSI 2350 (holotype), Camorata, Nicobar Island.

Eutropis sp.: WHT 1901, Morningside Forest Reserve (near Rakwana), Sri Lanka.

Eutropis tammanna: (All from Sri Lanka) NMSL CCA 2365 (holotype), Buttala; NMSL CCA 2385 (paratype), Rambewa; WHT 6962, 6971, 6976, 6981, 6982, 6991, Kohombagapalessa near Tissamaharama; WHT 6963, Kalahagala near Polonnaruwa; WHT 6763, Buttala; WHT 6764, 6765, Anuradhapura; WHT 1952, Sigiriya; WHT 1940A, 1940B, Hasalaka near Mahiyanganaya; WHT 6766, Mundel near Puttlam.

Eutropis tytleri (Tytler in Theobald): ZSI 2273 (holotype), Andaman Island, Bay of Bengal, India.

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Conflict of interest

All the authors declare that there are no conflicting issues related to this research article.

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Appendix: Varimax rotation principal-component–based factor analysis. Rotated Factor Loadings and Communalities Varimax Rotation

Variable	Factor 1	Factor2	Communality
Snout-vent length	0.884	0.448	0.983
Trunk length	0.813	0.548	0.961
Head length	0.841	0.505	0.961
Eye diameter	0.725	0.590	0.875
Forelimb length	0.861	0.481	0.972
Hind-limb length	0.879	0.407	0.938
Ear opening size	0.445	0.889	0.988
Variance	4.386	2.291	6.677
% Var	0.627	0.327	0.954

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