

## OTOCRYPTIS NIGRISTIGMA, A NEW SPECIES OF AGAMID LIZARD FROM SRI LANKA

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**ABSTRACT.** – The genus *Otocryptis* Wagler has hitherto been considered to be represented in Sri Lanka by a single widely distributed species, *O. wiegmanni* Wagler. A survey of 41 sites throughout the range of the genus in Sri Lanka shows that at least two species are present. *Otocryptis wiegmanni* is restricted to the island's south-western 'wet zone' (rainfall > 2,000 mm yr<sup>-1</sup>), while *O. nigristigma* new species is restricted to forests of the 'dry zone' (rainfall < 2,000 mm yr<sup>-1</sup>). *Otocryptis nigristigma* is distinguished from *O. wiegmanni* by having a black patch on the male dewlap in life; medial side of inner lobe and lateral side of outer lobe of hemipenis each with 12 flounces, the distal 7 flounces enlarged; and a shorter fifth toe (14.3–16.0% of head length in males, 14.6–18.5 in females), vs. a maroon patch on male dewlap in life; medial side of inner lobe and lateral side of outer lobe of hemipenis each with 10 flounces, the distal 3 flounces enlarged; and fifth toe longer (19.2–22.2% of head length in males, 20.1–24.5 in females) in *O. wiegmanni*. The status of *O. bivittata* Wiegmann is discussed.

**KEY WORDS.** – Agamidae, *Otocryptis*, new species, distribution, Sri Lanka.

### INTRODUCTION

The genus *Otocryptis* Wagler, 1830 is presently known from two species: *O. wiegmanni* Wagler, 1830, widely distributed throughout Sri Lanka, and *O. beddomii* Boulenger, 1885, restricted to southern India (Daniels, 1991; Erdelen, 1998; Inger et al., 1984). These lizards are easily distinguished from other South Asian agamids by the presence of a prominent gular sac, having the tympanum subdermal and having the nuchal crest vestigial or rudimentary. The Sri Lankan population has been widely reported on previously (e.g. Deraniyagala, 1953; Smith, 1935; Manamendra-Arachchi & Liyanage, 1994), though it was Taylor (1953) who first noted differences between a specimen obtained from Peradeniya in Sri Lanka's wet zone (rainfall more than 2,000 mm yr<sup>-1</sup>) and those from Trincomalee in the dry zone (rainfall less than 2,000 mm yr<sup>-1</sup>), and mooted the existence of a second species in the island.

Here we show, based on fresh sampling across much of the range of the genus in Sri Lanka, that the insular population in fact represents two species: *O. wiegmanni*, restricted to the

(formerly) rain-forested south-western wet zone quarter of the island; and *O. nigristigma*, new species, widely distributed across Sri Lanka's dry zone. We believe the latter species has been long overlooked because, except for Taylor (1953), most previous workers examined mainly wet-zone populations (e.g. Peters, 1860; Haly, 1886; Smith, 1935; Deraniyagala, 1931, 1953; Manamendra-Arachchi & Liyanage, 1994). In addition to describing the new species, we redescribe *O. wiegmanni*.

### MATERIALS AND METHODS

This study is based on new materials collected in the course of an island-wide survey of Sri Lanka's Sauria that commenced in 1998 as a project sponsored by the Department of Wildlife Conservation's biodiversity assessment programme funded by the Global Environment Facility.

Scale counts, and observations of external characters and hemipenial morphology, were made on the left side of the specimens using a Motic K400 dissecting microscope. Sex

was determined by the presence of hemipeneal bulges and enlarged dewlaps. Coloration is based on that of freshly-preserved specimens. Except for Fig. 6, colour photographs are of living specimens. Altitudes are given in metres above mean sea level (asl); geographic co-ordinates were taken using the inch-to-the-mile topographical map series of the Sri Lanka Survey Department. In material examined, “others” refers to specimens identified for purposes of distribution but not measured for purposes of analysis.

Principal components analysis was done using SAS/STAT® Version 6.12 (SAS Institute, Inc., USA) and hierarchical cluster analysis was done using Minitab® Version 11 (Minitab Inc., USA). Male and female specimens were analysed separately because of obvious sexual dimorphism, using the following five measurements normalised to head length: lengths of fingers 1, 3 and 4; and lengths of toes 1 and 5. We chose these techniques primarily because we wished to investigate the degree and levels of relationships between the species, for which multivariate and hierarchical cluster analyses are appropriate.

**External measurements.** – Measurements were taken with KWB dial vernier callipers (to the nearest 0.1 mm), abbreviated as follows. AG, distance between axilla and groin; DHW, dorsal head width (width of head at mid-orbit); DL, dewlap length (length of base of male dewlap, measured only in mature males of SVL > 59.7 mm for *O. nigristigma*, SVL > 63.3 mm for *O. wiegmanni*); DW, dewlap width (distance from axilla to the greatest depth of male dewlap, measured only in mature males); ED, horizontal diameter of orbit; FEL, femur length (distance between groin and knee); FL, finger length (distance between tip of claw and nearest fork); HL, head length (distance between posterior edge of mandible and tip of snout); HW, maximum head width; LAL, lower arm length (distance from elbow to wrist with both upper arm and palms flexed); SVL, snout-vent length (distance from tip of snout to the anterior margin of cloaca); SA, snout to axilla length (distance between tip of snout and axilla); SL, snout length (distance between anterior-most point of orbit and tip of rostral scale); TAL, tail length (measured from tip of tail to the anterior margin of cloaca); TBL, tibia length (distance between knee and heel with both tibia and tarsus flexed); TL, toe length (distance between tip of claw and nearest fork); and UAL, upper arm length (distance between axilla and elbow).

**Scale counts.** – Canthus rostralis: counted from rostral scale, along scale row passing over nostril to posterior extremity of superciliary ridge. Supralabials: counted from anterior-most scale to that at angle of gape, not including median scale (when present). Infralabials: counted from first scale posterior to mental, to angle of gape. Mid-ventrals: counted from first scale posterior to mental, to last scale anterior to cloaca. Scales around midbody: counted from middorsal scale row (between axilla and groin), forwards and downwards to mid-venter and upwards and backwards to middorsal row. Supraorbital scale rows: counted from canthus rostralis to row of enlarged, keeled scales bordering inner edge of mid-orbit. Scales on ventral

surface of digits: counted from nearest fork to base of claw. Middorsal head scales: counted from rostral to anterior-most nuchal spine.

Terminology for hemipenial morphology follows Dowling & Savage (1960).

The material referred to in this study is deposited in the Wildlife Heritage Trust of Sri Lanka, Agrapatana (WHT); National Museum of Sri Lanka, Colombo (NMSL); United States National Museum, Washington, D.C. (USNM); Zoologisches Museum der Humboldt-Universität zu Berlin (ZMB).

## TAXONOMY

### *Otocryptis nigristigma*, new species

(Figs. 1A,C, 2, 3, Table 1)

*Otocryptis wiegmanni* Taylor, 1953: 1556 (not Wagler, 1830)

**Material examined.** – Holotype, male, 65.8 mm SVL, WHT 6176, Ritigala, 08°07'N, 80°40'E, alt. 200 m.

Paratypes - male, 59.3 mm SVL, WHT 724; 3 females, 52.3 mm, 48.9 mm and 50.0 mm SVL, WHT 6173–75 respectively; 1 female, 50.8 mm, NMSL (formerly WHT 6208); all from type locality.

Others - male, 60.3 mm SVL, WHT 1629, Wasgomuwa, 07°43'N, 80°59'E, alt. 60 m. 2 males and 2 females, 57.8 mm, 55.1 mm, 54.3 mm and 44.9 mm SVL, respectively, WHT 1423A–D; female, 49.1 mm SVL, WHT 1816: 1 male and 1 female, 60.0 mm and 41.8 mm SVL, WHT 6180 and WHT 1814, respectively; and 2 males and 1 female, 60.3 mm, 59.3 mm and 54.9 mm SVL, WHT 6168–69 and WHT 6170, respectively, Puwakpitiya, Knuckles, 07°34'N, 80°45'E, alt. 450 m. 2 males and 1 female, 53.2 mm, 62.4 mm and 55.7 mm SVL, respectively, WHT 551A–C, Palatupana, 06°16'N, 81°24'E, alt. 5 m. 1 male, 63.2 mm SVL, WHT 543, Konketiya between Kataragama and Buttala, 06°43'N, 81°16'E, alt. 185 m. 1 female, 51.3 mm SVL, WHT 725, Lahugala, near Potuvil, 06°53'N, 81°42'E, alt. 30 m. 1 female, 51.6 mm SVL, WHT 1421, Ratugala near Bibile, 07°17'N, 81°24'E, alt. 100 m. 1 female, 55.7 mm SVL, WHT 1442, Giritale near Polonnaruwa, 07°59'N, 80°55'E, alt. 33 m. 2 females, 50.5 mm and 42.5 mm SVL, respectively WHT 1429A, B, Hasalaka, 07°21'N, 80°57'E, alt. 150 m. 2 females, 55.2 mm and 48.7 mm SVL, respectively WHT 532A, B, near Anuradhapura, 08°21'N, 80°30'E, alt. 150 m.

**Diagnosis.** – *Otocryptis nigristigma*, new species, is distinguished from *O. wiegmanni* as follows: a distinctly black patch present laterally on dewlaps of males; medial side of inner lobe and lateral side of outer lobe of hemipenis with 12 flounces in each lobe, the distal 7 flounces enlarged; fifth toe short (Fig. 1A), 14.3–16.0% of HL in males, 14.6–18.5% of HL in females, vs. a distinctly maroon patch present laterally on dewlaps of males; medial side of inner lobe and lateral side of outer lobe of hemipenis each with 10 flounces, distal 3 flounces enlarged; fifth toe long (Fig. 1B), 19.2–22.2% of HL in males, 20.1–24.5% HL in females. In addition, males of *O. nigristigma* have first finger and first toe 15.7–17.8 and 14.6–17.2% of HL (vs. 18.5–22.7 and 19.5–21.6 respectively, in *O. wiegmanni*); females have third and fourth fingers 33.9–39.5% of HL and 32.5–40.5%

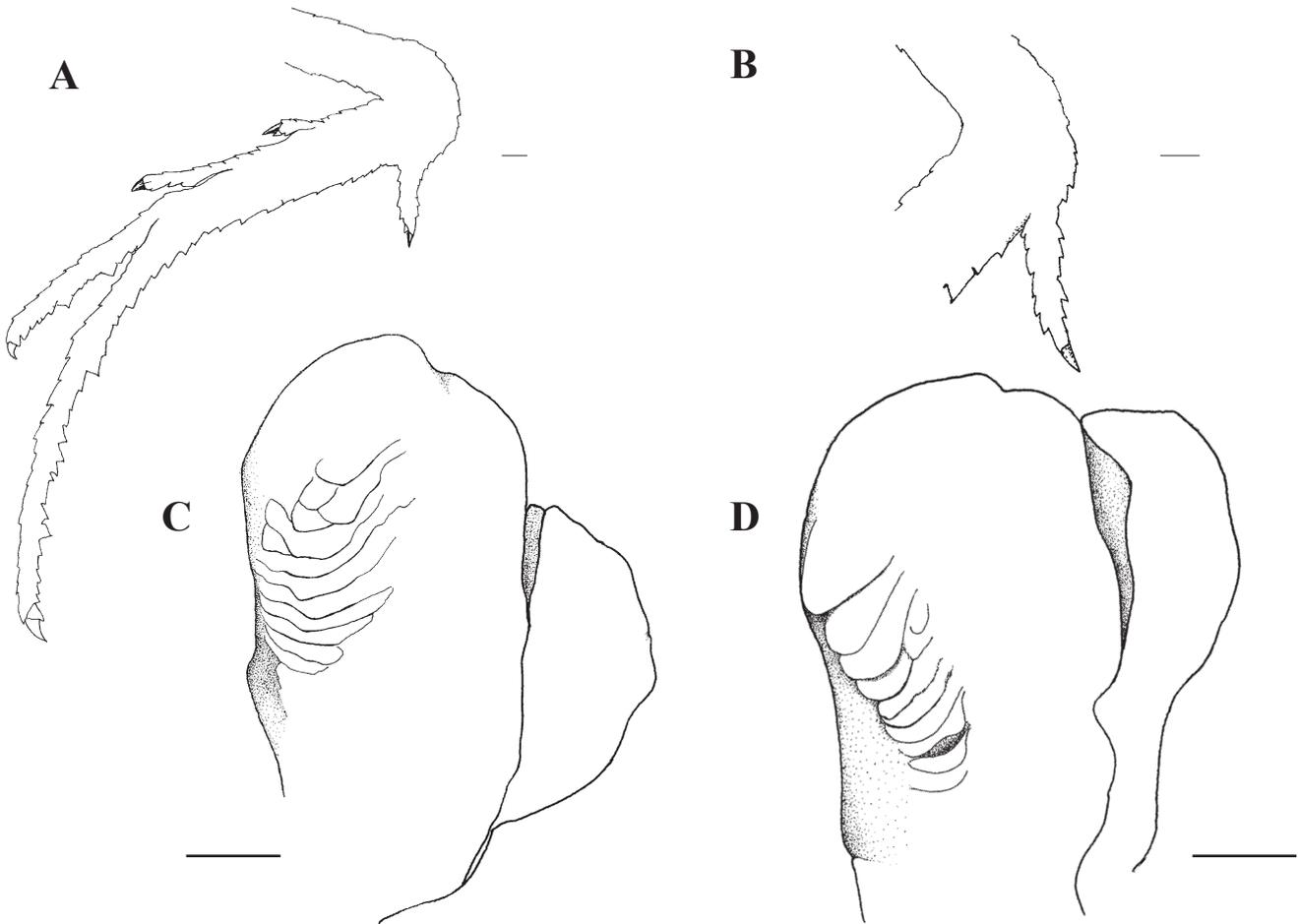


Fig. 1. A, left foot; C, left hemipenis of *Otocryptis nigristigma*, holotype male, 65.8 mm SVL, WHT 6176; B, left fifth toe of *O. wiegmanni*, male, 67.2 mm SVL, WHT 109B; D, left hemipenis of *O. wiegmanni*, 66.0 mm SVL, WHT 6200.

of HL respectively (vs. 39.4–48.6% of HL and 42.5–50% of HL respectively, in *O. wiegmanni*).

Both Sri Lankan species of *Otocryptis* are diagnosed from their South Indian congener *O. beddomii* as follows: mature males of *O. wiegmanni* and *O. nigristigma* have a distinct, large dewlap (vs. dewlap absent in *O. beddomii*); both sexes lack a clavicular pit anterior to shoulder (vs. clavicular pit present in *O. beddomii*) [see Smith, 1935: 146, 148].

**Description.** – (Scalation based on holotype male 65.8 mm SVL, WHT 6176; data for 4 males and 4 females—WHT 1423, WHT 724, WHT 1629, WHT 1442 and WHT 1429—are given in square brackets; see also Table 1 for measurements of material examined). Head longer than broad, 163.1% [156.0–186.5% in males, 146.1–158.6% in females]; dorsal aspect of head triangular; interorbital area concave; area between snout-tip and interorbital area flat. Orbital rim prominent. Supraorbital region with 6 [6–8] rows of large, carinate scales, the inner row extending forward to form a Y-shaped ridge on snout. Temporal region with 5 [4–6] enlarged, conical scales. Area between upper temporal fossae slightly concave. Rostral surrounded by first supralabials and five smaller scales. Cephalic scales irregular, some smaller than middorsal scales, smooth,

feebly carinate or conical. Canthus rostralis with 11 [10–12] strongly carinate scales; a single scale between nasal and rostral; nasal undivided. Nostril oval, laterally orientated. Nasal scales large, horizontally oval, above and in contact with first and second supralabials [in contact with first supralabial but separated from second supralabial by a row of scales]; nasal scales separated from each other by 6 scales including two scales of canthus rostralis. Superciliary scales carinate. Second row of scales from inner margins of both upper and lower eyelid large, feebly carinate. Supralabials, 10 [10–12]; infralabials, 12 [9–12]. Some cephalic scales, some supralabials, some infralabials, rostral scale, dorsals and ventrals each with 1–11 [1–12] pores, some pores with a sensory seta. Tympanum subdermal. A rudimentary sheath-like nuchal crest present in males only, comprising 7 [6–7] triangular scales. Mental scale pentagonal [sub-triangular, sub-pentagonal or sub-hexagonal], longer than wide, longer than length of rostral scale. One pair of post-mentals, smaller than mental, in contact with first infralabial. Dewlap well developed, its width 1.53 times head length [dewlap absent in females; well developed, its width 1.13–1.57 times head length in males]; dewlap long, its length 1.86 times head length [1.70–2.23 times head length in males]. Gular scales strongly carinate, larger than ventrals, rhombic, set in regular series

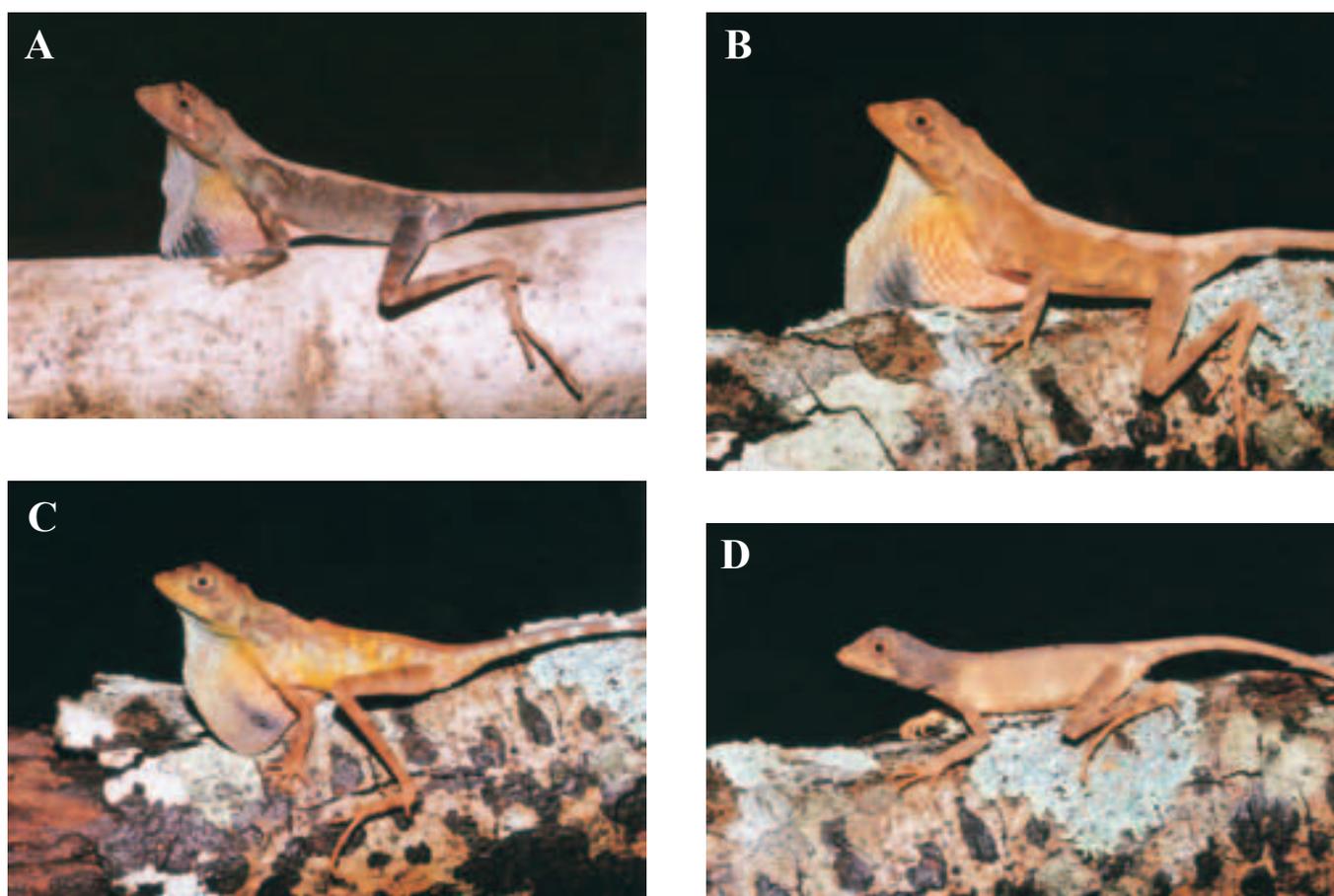


Fig. 2. Coloration in life of *Otocryptis nigristigma* (note black patch on dewlap of males): A, holotype male, 65.8 mm SVL, WHT 6176; B, male, 59.3 mm SVL, WHT 6169; C, male, 60.0 mm SVL, WHT 6180; D, paratype female, 52.3 mm SVL WHT 6173.

in males [gular scales strongly carinate, smaller than ventrals, rhombic, set in regular series in females].

Body sub-triangular in section in males [body sub-triangular or sub-oval in section in females]. Dorsal scales smaller than larger lateral scales, feebly to strongly carinate, unequal, irregular, imbricate. Some larger dorsal scales in pelvic area form short, feebly-defined transverse rows with scale angles pointing backwards. Larger lateral scales irregularly interspersed among smaller scales, strongly to feebly carinate, imbricate; scales on dorsal surface point backwards; scales in mid-dorsolateral region point upwards and backwards; lower lateral scales point backwards and downwards. Ventral scales uniform, strongly carinate, larger than lateral scales but smaller than larger gular scales in males [ventral scales uniform, strongly carinate, larger than lateral and gular scales in females].

Caudals subequal to ventrals, feebly carinate at base of tail, otherwise strongly carinate. Subcaudals strongly carinate, larger than ventrals. Scales on forelimbs (upper and lower arm) strongly carinate, subequal to ventrals; subdigitals bicarinate. Distal end of keels on palm and foot elevated, acuminate. Digits covered dorsally and laterally with elongate, carinate scales. Subdigital squamation as follows: first finger with 7 [6–9], second finger with 11 [10–12], third finger with 14 [13–17], fourth finger with 17 [15–18] and fifth finger with

9 [8–10] scales. Scales on hind limbs (thigh and tibia) strongly carinate, larger than ventrals. Subdigitals of hind limbs bicarinate; subdigital squamation as follows: first toe with 6 [6–9], second toe with 8 [8–10], third toe with 14 [13–16], fourth toe with 27 [23–27] and fifth toe with 7 [5–7] scales. Some dorsal, lateral, caudal, subcaudal and limb scales, and all ventral scales each with a sensory pore at its posterior end, some pores with a sensory seta. Digits and claws laterally compressed. Claws curved, pointed, each between two scales, one above, one below. Scales between mental and cloaca 90 [86–107 in males, 74–89 in females]. Scales around midbody 86 [68–86]. Tail rounded in cross-section.

Digital formula: finger lengths,  $F1 < F5 < F2 < F3 < F4$  (males);  $F1 < F5 < F2 < F3 < F4$  or  $F1 < F5 < F2 < F4 < F3$  (females). Toe lengths,  $T5 < T1 < T2 < T3 < T4$  [ $T1 < T5 < T2 < T3 < T4$  (males),  $T1 < T5 < T2 < T3 < T4$  (females)].

Everted hemipenis of holotype bilobed; sulcus spermaticus bifurcate, terminating at tip of apex; lips of sulcus spermaticus smooth. Base naked. Caliculate ornamentation on each lobe except medial side of inner lobe and lateral side of outer lobe. Medial side of inner lobe and lateral side of outer lobe each with 12 flocs, distal 7 flocs anteriorly enlarged and pointed (Fig. 1C).

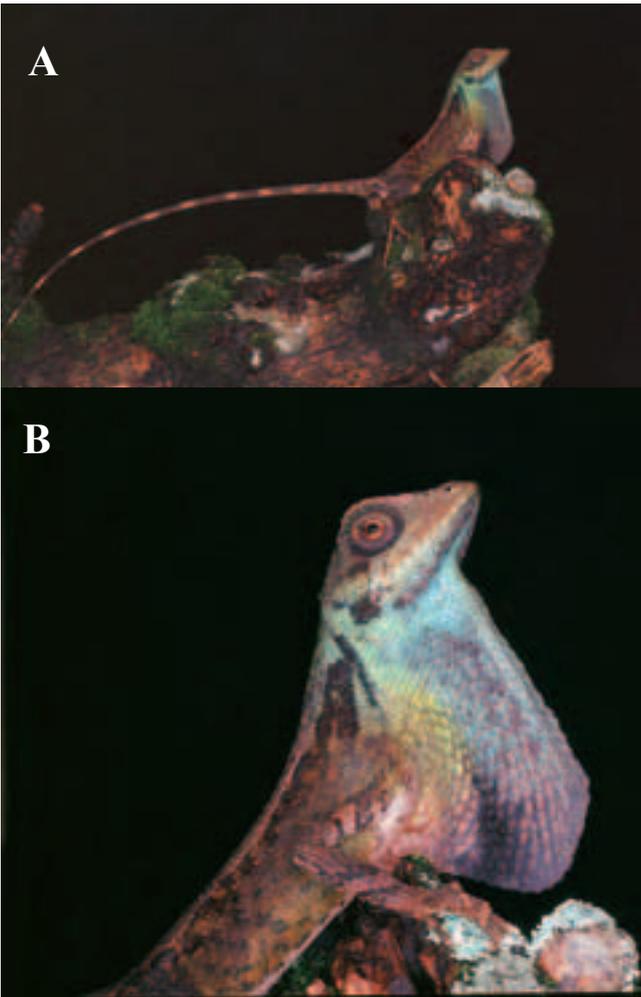


Fig. 3. Colour in life of *Otocryptis nigristigma* (note black patch on dewlap): A, B, paratype male, 59.3 mm SVL, WHT 724.

Measurements of holotype (in mm): AG, 31.0 ; DHW, 9.0; DL, 30.6; DW, 37.0; ED, 5.1; FL1, 3.3; FL2, 5.2; FL3, 7.3; FL4, 7.8; FL5, 4.9; FEL, 25.5; HL, 19.9; HW, 12.2; LAL, 12.5; SVL, 65.8; SA, 33.8; SL, 8.2; TL1, 3.3; TL2, 4.2; TL3, 8.2; TL4, 19.5; TL5, 3.1; TAL, 166; TBL, 29.3; UAL, 10.3.

**Colour in life.** – (Based on holotype male, unless otherwise stated). Base colour coffee brown, marked by a lighter longitudinal middorsal stripe extending from neck to base of tail, the stripe vaguely interrupted by three dark patches. A white stripe present under eye. A narrow black line extends from eye to tympanic region. Interorbital area black. Supralabials reddish brown. Anterior one-third of dewlap bluish green; scales near neck yellow, scales near chest white, with seven regular reddish-brown interspaces. A distinctly black gular patch towards distal border of dewlap. Upper and lower arm with two, thigh and tibia with four dark-brown crossbars dorsally. Tail lighter, with 13 whitish transverse bands (Fig. 2A)

Male, 59.3 mm SVL, WHT 6169: base colour yellowish brown, marked by a lighter longitudinal middorsal stripe extending from neck to base of tail; the stripe vaguely interrupted by three dark patches. Upper eyelid lighter than lower; two white



Fig. 4. Type locality of *Otocryptis nigristigma*, environs of Ritigala Strict Natural Reserve.



Fig. 5. Colour in life of *Otocryptis wiegmanni* (note maroon patch on male dewlap): A, male, 67.2 mm SVL, WHT 109B; B, female, 54.2 mm SVL, WHT 109A.

blotches present under eye; a narrow black line between eye and tympanic region. A black inter-orbital band present. Supralabials reddish brown. Anterior one-third of dewlap yellowish green; scales nearer neck yellow, those nearer to chest whitish yellow, with seven regular, reddish-brown interspaces. A distinctly black gular patch towards distal border of dewlap. Upper and lower arm as well as thigh and tibia each with two dark-brown crossbars dorsally. Tail yellowish brown with 13 whitish-yellow bands. Male, 60.0 mm SVL, WHT 6180 similar to WHT 6169 in base colour and other colour markings but lateral body mostly bright yellow and tail with white bands. Colours of males variable, except for the black gular patch (see Figs. 2B, 2C, 3).

Table 1. Measurements (as a percentage of head length, except for heel length itself, which is given as a percentage of SVL), of holotype male, 1 paratype male, 4 paratype females, and 9 male and 12 female examples of *Otocryptis migristigma*; and 14 male and 11 female examples of *O. wiegmanni* (see measured material for specimen data).

	male <i>O. wiegmanni</i>			male <i>O. migristigma</i>			female <i>O. wiegmanni</i>			female <i>O. migristigma</i>		
	mean	range	s.d.	mean	range	s.d.	mean	range	s.d.	mean	range	s.d.
Snout-vent length	323.8	315.0 – 334.3	5.9	324.1	305.7 – 338.9	11.6	328.9	315.5 – 355.1	11.3	331.4	319.1 – 343.8	7.9
Head length (% SVL)	30.9	29.9 – 31.7	0.6	30.9	29.5 – 32.7	1.1	30.4	28.2 – 31.7	1.0	30.2	29.1 – 31.3	0.7
Head width	60.2	58.5 – 62.2	1.3	60.7	53.6 – 64.1	3.0	64.4	60.0 – 68.8	2.9	65.8	63.1 – 68.5	1.5
Dorsal dead width	50.5	47.1 – 54.1	2.2	50.2	45.2 – 53.5	2.3	52.7	50.3 – 56.9	2.0	52.8	48.0 – 56.3	2.6
Snout length	42.8	40.5 – 46.0	1.7	42.5	40.3 – 45.9	1.8	45.6	41.4 – 48.4	2.5	44.3	41.4 – 46.7	1.7
Upper-arm length	57.8	52.7 – 64.6	3.4	51.1	46.9 – 55.4	2.4	60.6	55.0 – 66.9	4.3	52.7	47.8 – 56.3	3.2
Lower-arm length	64.2	59.2 – 69.0	2.6	60.2	53.6 – 64.8	3.2	68.8	61.5 – 73.2	3.7	63.5	61.1 – 65.8	1.8
Finger 1 length	19.8	18.5 – 22.7	1.1	16.7	15.7 – 17.8	0.6	22.3	20.6 – 23.7	1.0	20.2	16.2 – 22.9	1.7
Finger 2 length	27.5	25.1 – 30.3	1.7	26.2	24.1 – 29.3	1.6	30.4	27.8 – 33.8	1.4	27.9	25.5 – 31.6	1.5
Finger 3 length	40.7	36.9 – 44.3	2.4	37.6	34.3 – 39.3	2.9	43.5	39.4 – 48.6	2.6	36.7	33.9 – 39.5	2.0
Finger 4 length	43.6	40.5 – 47.6	2.6	40.3	37.3 – 47.8	2.9	45.6	42.5 – 50.0	2.4	38.3	32.5 – 40.5	2.4
Finger 5 length	24.3	22.7 – 27.6	1.3	25.7	23.0 – 28.8	1.8	25.4	22.4 – 28.3	2.0	25.7	23.0 – 28.8	1.6
Femur length	127.9	120.9 – 138.6	5.1	119.0	113.8 – 123.1	3.3	132.8	121.1 – 143.8	7.6	126.6	117.6 – 134.6	4.7
Tibia length	140.7	134.2 – 147.1	4.6	135.9	122.1 – 147.2	6.9	147.0	129.2 – 164.5	11.6	139.2	131.1 – 149.3	6.1
Toe 1 length	20.5	19.5 – 21.6	0.6	15.8	14.6 – 17.2	0.8	17.9	16.6 – 19.4	0.8	16.4	14.6 – 18.9	1.3
Toe 2 length	27.1	24.4 – 32.4	2.0	23.0	21.5 – 26.1	1.6	28.0	25.1 – 30.9	1.9	24.8	21.6 – 27.7	2.1
Toe 3 length	41.7	36.9 – 48.6	3.1	39.1	35.2 – 42	2.3	41.3	38.6 – 44.6	2.1	42.9	38.2 – 44.7	2.7
Toe 4 length	88.3	83.9 – 95.1	3.2	90.9	83.0 – 101.9	5.7	93.7	78.1 – 102.9	6.2	91.3	78.8 – 101.4	5.4
Toe 5 length	21.6	19.2 – 22.2	1.6	15.3	14.3 – 16.0	0.6	22.0	20.11 – 24.5	1.4	15.9	14.6 – 18.5	1.5
Axilla-groin distance	152.6	143.3 – 165.1	6.7	157.4	139.7 – 171.3	10.2	165.6	152.1 – 182.5	11.0	173.3	163.4 – 185.5	8.9
Snout-axilla length	163.8	154.0 – 176.6	6.3	163.7	148.9 – 169.2	9.1	158.4	144.4 – 166.7	6.3	154.6	139.7 – 164.9	5.5
Tail length	841.2	817.7 – 873.0	19.3	841.7	819.6 – 879.0	25.7	885.6	859.9 – 934.8	23.5	820.1	746.9 – 875.0	46.1



Fig. 6. Holotype *O. bivittata*: male 60 mm, ZMB 708: A, original mounted specimen; B, right side of the body; C, left foot.

Colour of female (based on paratype female, 52.3 mm SVL, WHT 6173). Base colour brown, marked by a darker longitudinal middorsal stripe extending from neck to base of tail; the stripe vaguely interrupted by three dark patches. Upper eyelid lighter than lower. Two white spots present under eye. A narrow dark-brown bar on interorbital. Infralabials and supralabials cream white. Posterior half of head, temporal and nuchal regions black. Upper and lower arm as well as thigh and tibia with two dark-brown crossbars dorsally; posterior margins of thigh lighter. Tail yellowish brown with about 22 dark bands (see Fig. 2D)

**Colour in alcohol.** – (Based on holotype, 32 days after sacrifice: 7 days fixation in formalin, then preserved in alcohol). Base colour dark brown, marked by a lighter longitudinal middorsal stripe extending from between shoulders to base of tail, vaguely interrupted by a dark patch above pelvis. Upper eyelid darker than lower eyelid. A black inter-orbital band present. Supralabials and infralabials lighter. Anterior one-third of dewlap, scales near neck and some scales on neck itself bluish; scales near chest light brown, with seven

regular light-brown interspaces. A distinct black gular patch present near distal edge of dewlap. Crossbars on upper and lower arm as well as those on thigh and tibia indistinct. Tail brown, with 13 lighter bands.

Colour of female (based on paratype female, 52.3 mm SVL, WHT 6173: 32 days after sacrifice, 7 days fixation in formalin, then preserved in alcohol). Base colour light brown marked by a slightly darker longitudinal middorsal stripe extending from neck to base of tail, the stripe vaguely interrupted by four darker patches. Eyelids lighter. A white spot present under eye. A narrow dark inter-orbital bar present. Infralabials and supralabials lighter than base colour. Lateral and ventral sides of neck and gular area black. Upper and lower arm with two darker bands; thigh and tibia with two black crossbars dorsally; posterior margins of thigh lighter. Tail yellowish brown with about 22 brown markings.

**Etymology.** – The species epithet alludes to the black patch on the dewlap of adult males: Latin, nigra = black, stigma = mark, spot; applied here as a noun in apposition.

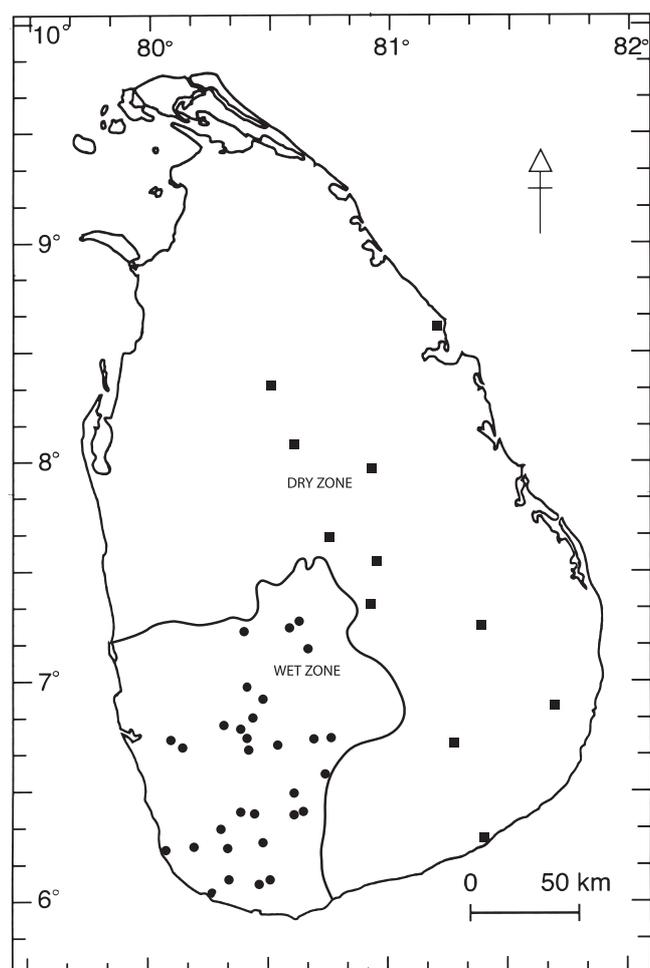


Fig. 7. Distribution of *Otocryptis* in Sri Lanka: squares, *O. nigristigma*; circles, *O. wiegmanni*.

**Distribution.** – *Otocryptis nigristigma* is widely distributed throughout the dry zone of Sri Lanka (Figs. 4, 7), from sea level to 450 m asl, which range includes many areas that are protected as Forest Reserves or protected areas declared under the Fauna and Flora Protection Ordinance.

**Natural history notes.** – We observed egg-bearing females of *O. nigristigma* in September 2004 at Ritigala and near Puwakpitiya. A female (WHT 6170) collected from Puwakpitiya had 4 immature yellow eggs measuring 4.5×4.3 mm, 4.4×4.2 mm, 5.1×4.4 mm and 5.0×4.8 mm, respectively. Another female (WHT 532A) also had 4 immature yellow eggs, 5.2×4.4 mm, 5.1×4.9 mm, 4.4×3.9 mm and 4.2×4.0 mm while a third female (WHT 551) had 4 mature cream-white soft-shelled eggs measuring 10.2×6.2 mm, 10.8×6.1 mm, 10.1×5.1 mm and 11.6×6.1 mm, together with three spherical eggs 1.1–1.2 mm in diameter.

*Otocryptis nigristigma* is sympatric with *Calotes calotes* (Linnaeus, 1758), *Calotes versicolor* (Daudin, 1802) and *Calotes liolepis* Boulenger, 1885 in its type locality, Ritigala. At Puwakpitiya it is sympatric with *C. liolepis*. At Hasalaka, Potuvil, Lahugala, Mihintale, Konketiya and Giritale it is sympatric with *C. calotes* and *C. versicolor* and at Palatupana and Wasgomuwa with *C. calotes*, *C. versicolor* and *Calotes ceylonensis* (Müller, 1887).

The conservation status of the Sri Lankan *Otocryptis* will be discussed in Bahir & Surasinghe (2005).

***Otocryptis wiegmanni* Wagler, 1830**  
(Figs. 1B, D, 5, 6, Table 1)

*Otocryptis wiegmanni* Wagler, 1830: 150  
*Otocryptis bivittata* Wiegmann, 1831: 293  
*Otocryptis* sp. Taylor, 1953: 1556

**Material examined.** – Measured material - male and female, 67.2 mm SVL, 54.2 mm SVL respectively, WHT 109B & 109B, Induruwa near Ratnapura, 06°45'N, 80°26'E, alt. 150 m; 2 males and female 65.4 mm SVL, 61.0 mm SVL, 41.5 mm SVL respectively, WHT 611A–C, Batadombalena near Kuruwita, 06°47'N, 80°23'E, alt. 460 m; 2 males and 2 females 59.8 mm SVL, 65.5 mm SVL, 53.3 mm SVL, 50.8 mm SVL respectively, WHT 537A–D: male 65.5 mm SVL, WHT 535: male and female 62.1 mm SVL, 45.3 mm SVL respectively WHT 531A, B, Kottawa proposed forest reserve, near Galle, 06°06'N, 80°20'E, alt. 60 m; male and female 65.6 mm SVL, 55.8 mm SVL respectively, WHT 172B, A: male 65.2 mm SVL, WHT 1818, Koskulana near Panapola, 06°25'N, 80°27'E, alt. 460 m; female, 54.7 mm SVL, WHT 1796, Kosmulla near Nelluwa, 06°24'N, 80°23'E, alt. 450 m; male, 58.1 mm SVL, WHT 541: female, 49.0 mm SVL, WHT 1497, Rumassala near Galle, 06°01'N, 80°14'E, alt. 5 m; female, 54.7 mm SVL, WHT 168, Beraliya proposed forest reserve near Elpitiya, 06°15'N, 80°11'E, alt. 60 m; male, 60.9 mm SVL, WHT 171, Silverkanda near Deniyaya, 06°23'N, 80°37'E, alt. 760 m; male, 64.2 mm SVL, WHT 663, Weralugahamulla near Rakwana, 06°30'N, 80°36'E, alt. 305 m; male, 65.2 mm SVL, WHT 622, Dombagaskanda near Ingiriya, 06°43'N, 80°09'E, alt. 60 m; male and 2 females, 63.8 mm SVL, 55.7 mm SVL, 53.5 mm SVL respectively WHT 530, WHT 530A, B, Parawalatenna near Kitulgala, 06°59'N, 80°24'E, alt. 150 m; male, 62.8 mm SVL, WHT 239, Peradeniya University Garden near Kandy, 07°15'N, 80°35'E, alt. 457 m; female, 57.3 mm SVL, WHT 529, Udawattakelle near Kandy, 07°18'N, 80°35'E, alt. 465 m.

Others - Female, 47.4 mm SVL, WHT 538: Morningside near Sinharaja, 06°24'N, 80°38'E, alt. 1060 m; female, 62.3 mm SVL, WHT 1490, Landuyaya near Balangoda, 06°45'N, 80°44'E, alt. 1230 m; female, 41.0 mm SVL, WHT 1491: Mahawalatenna near Balangoda, 06°35'N, 80°45'E, alt. 515 m; male, 54.5 mm SVL, Nahitiya, 06°42'N, 80°32'E, alt. 335 m; male, 48.9 mm SVL, WHT 1496: Haycock near Hiniduma, 06°20'N, 80°18'E, alt. 500 m; female, 52.6 mm SVL, WHT 1425: Ratnapura, 06°41'N, 80°24'E, alt. 45 m; male, 63.4 mm SVL, WHT 797: Kanneliya near Udugama, 06°15'N, 80°20'E, alt. 150 m; male, 65.4 mm SVL, WHT 6164: Millawa near Morawaka, 06°17'N, 80°28'E, alt. 400 m; male, 67.5 mm SVL, WHT 1444: Wilpita near Akuressa, 06°06'N, 80°31'E, alt. 400 m; male, 54.5 mm SVL, WHT 6227: Ambalangoda 06°14'N, 80°03'E, alt. 5 m; male 52 mm SVL, WHT 6228: Loolkandura Estate near Deltota, 07°09'N, 80°41'E, alt. 1342 m; male, 62.0 mm SVL, WHT 809: Maratenna near Balangoda, 06°45'N, 80°42'E, alt. 1281 m; male USNM 120328, Nandana Estate, Peradeniya (not examined).

Male, 60.0 mm SVL, ZMB 708, Ceylon, ex collection M. E. Bloch, holotype also of *O. bivittata* Wiegmann, 1831.

**Diagnosis.** – See diagnosis of *O. nigristigma*.

**Description.** – (scalation based on male 65.5 mm SVL, WHT 537B and information relating to 3 males WHT 531A, WHT 537A, 541; 4 females WHT 531B, WHT 537C, D, WHT 1497

are presented in square brackets; see Table 1 for measurements). Head longer than broad 162.7% (160.8–171.1% in males and 155.0–166.7% in females); dorsal aspect of head triangular; interorbital area concave; area between snout tip and interorbital flat. Orbital rim prominent. Supraorbital region with 7 [5–7] rows of large, carinate scales, inner row extending forward to form a Y-shaped ridge on snout. Temporal region with 5 [4–6] enlarged, conical scales. Area between upper temporal fossae slightly concave. Rostral surrounded by first supralabials and five other small scales [rostral surrounded by first supralabials and 4–6 other small scales]. Cephalic scales irregular, some smaller than middorsal scales, smooth, feebly carinate or conical. Canthus rostralis with 11 [10–11] strongly carinate scales; nasal undivided; a single scale between nasal and rostral. Nostril oval, laterally orientated. Nasal scale large, horizontally oval, above and in contact with first and second supralabials [nasal over first and second supralabials]; nasal scale in contact with first supralabial, separated from second supralabials by a row of scales [nasal in contact with or not with first supralabial, separated from second supralabials by a row of scales]; nasal scales separated from each other by 5 scales including two scales of canthus rostralis. Superciliary scales carinate. Second row of scales from inner margins of both upper and lower eyelid large, feebly carinate. Supralabials, 12 [10–12]; infralabials, 10 [8–11]. Some cephalic scales, some supralabials, some infralabials, rostral scale, dorsals and ventrals each with 1–11 [1–13] pores, some pores with a sensory seta. Tympanum subdermal. A rudimentary sheath-like nuchal crest present in males, comprising 6 [5–6] triangular scales. Mental scale pentagonal [pentagonal or hexagonal], longer than wide, longer than rostral scale. One pair of postmentals, smaller than mental, in contact with first infralabial [in contact with first or second infralabial]. Dewlap well developed, its width ~1.2 times head length [dewlap absent in females; well developed, its maximum width ~0.9–1.5 times head length in males]; dewlap long, its length ~1.7 times of head length [dewlap long, its length ~1.6–2.0 times head length]. Gular scales strongly carinate, larger than ventrals, rhombic, set in regular series in males [gular scales strongly carinate, smaller than ventrals, rhombic, set in regular series in females].

Male body subtriangular in section [female body subtriangular or suboval in section]. Dorsal scales smaller than larger lateral scales, feebly to strongly carinate, unequal, irregular imbricate. Some larger dorsal scales in pelvic area form short, feebly defined transverse rows with scale angles pointing backwards. Larger lateral scales irregularly interspaced among smaller scales, strongly to feebly carinate, imbricate; scales on dorsal surface point backwards; dorsolateral scales (in mid-dorsolateral region) point upwards and backwards; lower lateral scales point backwards and downwards. Ventral scales uniform, strongly carinate, larger than lateral scales but smaller than larger gular scales in males [ventral scales uniform, strongly carinate, larger than lateral and gular scales in females].

Caudals subequal to ventrals, feebly carinate at base of tail, otherwise strongly carinate. Subcaudals strongly carinate, larger than ventrals. Scales on forelimbs (upper and lower

arm) strongly carinate, subequal to ventrals; subdigitals bicarinate. Distal end of keels on palm and foot elevated, acuminate. Digits covered dorsally and laterally with carinate, elongate scales. Subdigital squamation as follows: first finger with 8 [6–8], second finger with 10 [9–13], third finger with 16 [13–16], fourth finger with 17 [15–19] and fifth finger with 13 [8–13] scales; scales on hind limbs (thigh and tibia) strongly carinate, larger than ventrals; subdigitals of hind limbs bicarinate. Subdigital squamation as follows: first toe with 6 [5–8], second toe with 10 [7–10], third toe with 13 [12–15], fourth toe with 24 [23–26] and fifth toe with 7 [6–7] scales. Some dorsal, lateral, caudal, subcaudal and limb scales and all ventral scales each with a sensory pore at their posterior end, some pores with a sensory seta. Digits and claws laterally compressed. Claws curved, pointed, each between two scales, one above and one below. Scales between mental and cloaca 89 [~89–109 in males; ~73–82 in females]; scales around midbody 84 [~70–85]. Tail rounded in cross section.

Digital formula: fingers, of males  $F1 < F5 < F2 < F3 < F4$ ; of females  $F1 < F5 < F2 < F3 < F4$ ; toes of holotype  $T1 < T5 < T2 < T3 < T4$  [males  $T1 = T5 < T2 < T3 < T4$ ; females  $T1 < T5 < T2 < T3 < T4$ ].

Everted hemipenis of male (66.0 mm SVL, WHT 6200) bilobed; sulcus spermaticus bifurcate, terminates at tip of apex; sulcus spermaticus lips smooth. Base naked. Caliculate ornamentation present on each lobe except medial side of inner lobe and lateral side of outer lobe. Medial side of inner lobe and lateral side of outer lobe with 10 flounces in each lobe, distal 3 flounces enlarged, pointed anteriorly (Fig. 1D).

Measurements of male, WHT 537B in millimetres: AG, 29.6; DHW, 10.0; DL, 35.1; DW, 24.0; ED, 5.9; FL1, 3.9; FL2, 5.6; FL3, 8.3; FL4, 79.2; FL5, 4.9; FEL, 26.1; HL, 20.5; HW, 12.6; LAL, 13.4; SVL, 65.5; SA, 33.0; SL, 8.5; TL1, 4.0; TL2, 5.0; TL3, 8.4; TL4, 19.1; TL5, 4.2; TAL, 173; TBL, 29.9; UAL, 11.6.

**Colour in life.** – (Based on male, 67.2 mm SVL, WHT 109B). Base colour reddish brown marked with a slender, lighter middorsal stripe extending from neck to base of tail, the stripe vaguely interrupted by six brown patches. Upper eyelid lighter than lower eyelid. A white stripe extends from under eye to angle of gape. A black inter orbital bar present. Supralabials reddish brown, infralabials lighter than base colour. Anterior one-third of dewlap lighter; scales proximal to neck orange, scales proximal to chest whitish orange with eight regular maroon interspaces; a distinct maroon gular patch present towards distal border of dewlap. Upper and lower arm with three, thigh and tibia with four dark-brown cross-bars dorsally. Tail reddish brown with 18 whitish transverse bands in male, 66.0 mm SVL, WHT 6200. Colours of males highly variable except for diagnostic maroon gular patch (Fig. 5A).

Colour of female (based on WHT 109A, 52.3 mm SVL). Base colour more reddish than male WHT 109B, marked by a darker slender middorsal stripe extending from neck to base of tail, the stripe vaguely interrupted by five black patches. Upper eyelid lighter than lower. A white stripe extends from under eye to angle of gape. A black interorbital bar present.

Table 2. Euclidean distance, average linkage and amalgamation steps in hierarchical cluster analysis of five metric characters (see Materials and Methods) normalised to head length, 11 male *Otocryptis nigristigma* and 14 male *O. wiegmanni* (see Fig. 8).

step	number of clusters	similarity level	distance level	clusters joined	new cluster	number of observations in new cluster
20	5	76.35	0.033	15 16	5	11
21	4	66.32	0.046	1 2	1	5
22	3	63.28	0.050	1 3	1	6
23	2	47.78	0.072	1 5	1	14
24	1	0.00	0.137	1 15	1	25

Table 3. Euclidean distance, average linkage and amalgamation steps in hierarchical cluster analysis of five metric characters (see Materials and Methods) normalised to head length, of 16 female *Otocryptis nigristigma* and 11 female *O. wiegmanni* (see Fig. 9).

step	number of clusters	similarity level	distance level	clusters joined	new cluster	number of observations in new cluster
22	5	68.60	0.074	1 5	1	8
23	4	63.36	0.087	13 21	13	9
24	3	50.22	0.118	1 2	1	11
25	2	45.81	0.128	12 13	12	16
26	1	0.00	0.237	1 12	1	27

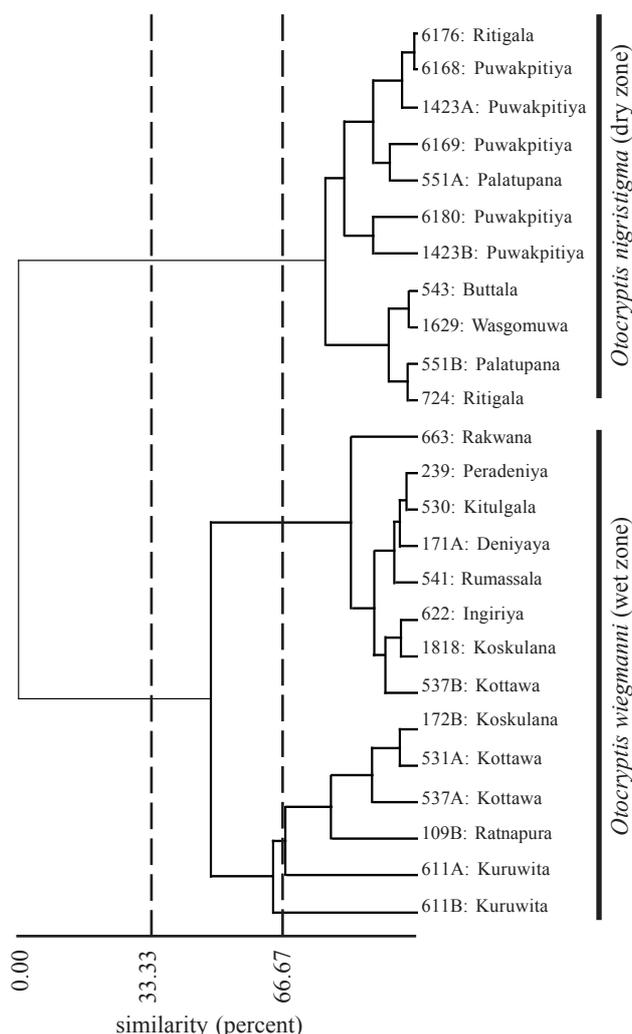


Fig. 8. Hierarchical cluster analysis using 5 measurements of 11 male *Otocryptis nigristigma* and 14 male *O. wiegmanni*.

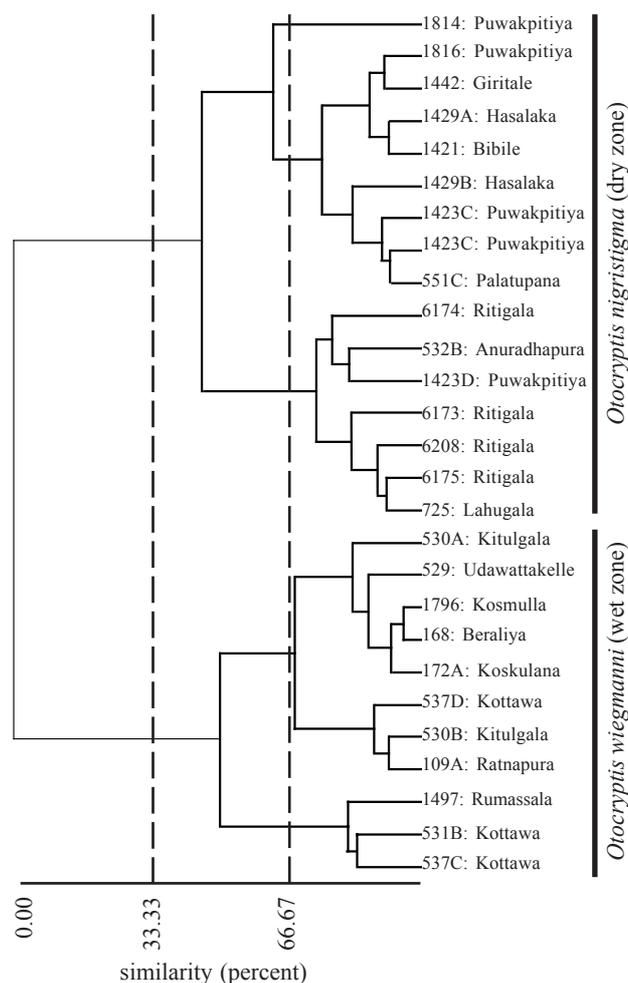


Fig. 9. Hierarchical cluster analysis using 5 measurements of 16 female *Otocryptis nigristigma* and 11 female *O. wiegmanni*.

Infralabials darker than supralabials. Cheek and lateral neck with white spots. Neck dorsally and ventrally blackish brown. Upper and lower arm as well as thigh and tibia with three dark-brown cross-bars dorsally; posterior margin of thigh lighter than anterior margin. Tail reddish brown (see Fig. 5B).

**Colour in alcohol.** – (Based on male 65.5 mm SVL, WHT 537B, about 8 years after sacrifice, 7 days in formalin, then

preserved in alcohol). Base colour olive brown. A lighter middorsal stripe present, outlined in black on either side. Eyelids lighter than base colour. A black inter orbital bar present. Supralabials and infralabials lighter than base colour. Anterior one-third of dewlap proximal to neck and some scales on neck itself bluish red; scales proximal to chest lighter; a distinct coffee-brown patch towards distal border of dewlap. Three darker cross-bars present on upper and lower arm;

Table 4. Within-cluster sum of squares and distance from centroid in the final partition of clusters using nine metric characters (see Materials and Methods) normalised to head length, in 11 male *Otocryptis nigristigma* and 14 male *O. wiegmanni* (see also Fig. 8 and Table 2).

	number of observations	within-cluster sum of squares	average distance from centroid	maximum distance from centroid
Cluster 1	14	0.006	0.017	0.046
Cluster 2	11	0.002	0.012	0.020

Table 5. Eigenvectors and eigenvalues of the correlation matrix for the principal components analysis in Fig. 10, using 5 metric variables normalised to head length, of 11 male *Otocryptis nigristigma* and 14 male *O. wiegmanni*.

variable	eigenvectors		
	PC1	PC2	PC3
Finger 1 length	-.527439	0.773179	0.352140
Toe 1 length	0.566014	0.628887	-0.533037
Toe 5 length	0.633590	0.081828	0.769330

	eigenvalue	difference	proportion	cumulative
PC 1	1.76585	1.01508	0.588616	0.58862
PC 2	0.75077	0.26739	0.250257	0.83887
PC 3	0.48338	0.0	0.161127	1.00000

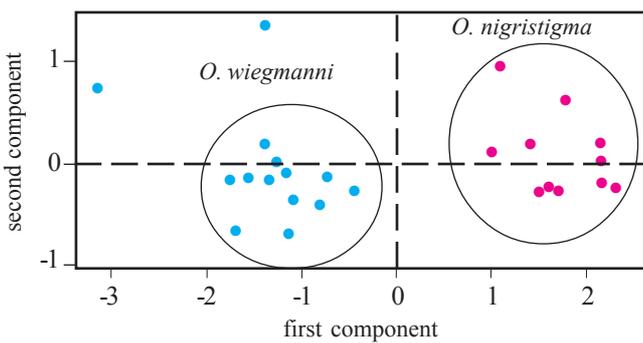


Fig. 10. Principal components analysis based on 5 normalised variables, of 11 male *Otocryptis nigristigma* and 14 male *O. wiegmanni* (ellipses indicate 95% confidence boundary).

cross-bars on hind limb almost indistinct. Tail olive brown with 13 lighter bands.

Colour of female (based on female, 51.8 mm SVL, WHT 6204, 24 days after sacrifice, 7 days fixation in formalin, then preserved in alcohol). Base colour cinnamon brown marked by a slightly darker middorsal stripe extending from neck to

Table 6. Within-cluster sum of squares and distance from centroid in the final partition of clusters using nine metric characters (see Materials and Methods) normalised to head length, of 16 female *Otocryptis nigristigma* and 11 female *O. wiegmanni* (see Fig. 9; Table 3).

	number of observations	within-cluster sum of squares	average distance from centroid	maximum distance from centroid
Cluster 1	11	0.020	0.039	0.073
Cluster 2	16	0.026	0.03	0.079

Table 7. Eigenvectors and eigenvalues of the correlation matrix for the principal components analysis in Fig. 11, using 3 metric variables normalised to head length, of 16 female *Otocryptis nigristigma* and 11 female *O. wiegmanni*.

variable	eigenvectors		
	PC1	PC2	PC3
Finger 1 length	-.527439	0.773179	0.352140
Toe 1 length	0.566014	0.628887	-0.533037
Toe 5 length	0.633590	0.081828	0.769330

	eigenvalue	difference	proportion	cumulative
PC 1	1.76585	1.01508	0.588616	0.58862
PC 2	0.75077	0.26739	0.250257	0.83887
PC 3	0.48338	0.0	0.161127	1.00000

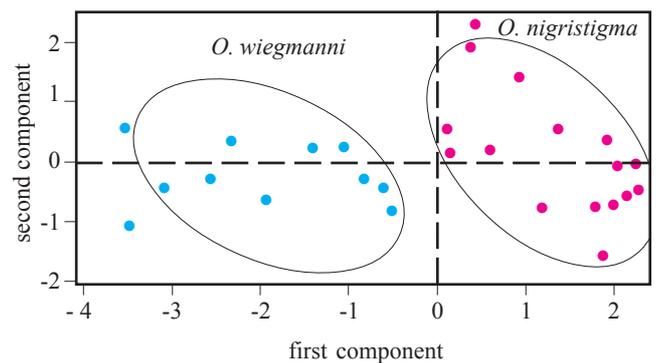


Fig. 11. Principal components analysis based on 5 normalised variables, of 16 female *Otocryptis nigristigma* and 11 female *O. wiegmanni* (ellipses indicate 95% confidence boundary).

base of tail, the stripe bordered in white or black. Upper eyelid lighter than lower, which are black. A white stripe extends from under eye, passing angle of gape to below tympanic region. Infralabials and supralabials darker than base colour. Tympanic region black, lateral neck medially black, ventral neck blackish brown. Head dorsally black. Upper and lower arm with three dark cross-bars; thigh and tibia with four dark

cross-bars dorsally; posterior margins of thigh lighter. Tail coffee brown with about 25 lighter bands.

**Etymology.** – The species name is a patronym honouring the German herpetologist Arend Friedrich August Wiegmann (1802–1841).

**Distribution.** – *Otocryptis wiegmanni* is widely distributed throughout the wet zone of Sri Lanka from sea level up to 1,340 m asl which range includes several protected areas (see Fig. 7). The species is relatively abundant wherever it occurs, these lizards being frequently seen in anthropogenic habitats such as home gardens in which there is adequate leaf litter and shade.

**Natural history notes.** – Deraniyagala (1953) recorded the peak breeding season for *O. wiegmanni* as October–January, and observed egg laying in July–October from the wet zone (Kandy, Gammaduwa, Varigama). His description of three different clutches was as follows: ‘The eggs vary in size. Four from Varigama (Sab[aragamuwa]. P[rovince].) were 10 to 11 by 7 mm., four from Gammaduwa (C[entral]. P[rovince].) were 17 by 11 mm., and four from Kandy (C[entral]. P[rovince].) taken from a killed specimen were 14×7.5 mm’. In May 2004 we observed in a shady home garden planted with coffee trees at Peradeniya an egg-bearing female on a coffee stem, ~ 60 cm above ground, vertically positioned for three days before egg laying, possibly awaiting the onset of the rains. After about an hour of continuous rain, the female began excavating its nest—an activity that lasted almost 2 hours—into which she deposited 5 white, soft-shelled eggs. During this time, a mature male (also vertically positioned on a coffee stem ~ 30 cm above the ground) continued to display its dewlap about 50 cm in front of the ovipositing female. The eggs measured 10–11×4–5 mm and hatched *in situ* 49 days later.

Females from Kottawa in October contained ova as follows: 55.9 mm SVL, WHT 6206: 3 mature cream-white soft shelled eggs measuring 11.1×5.1 mm, 11.0×5.5 mm, 10.5×4.9 mm; 54.0 mm SVL, WHT 6203: 3 immature yellow eggs measuring 5.4×5.3 mm, 5.5×4.9 mm, 5.6×5.4; female from Kottawa in December, 50.8 mm SVL, WHT 537D: 3 mature cream-white soft-shelled eggs measuring 10.2×6.2 mm, 10.1×6.1 mm, 10.5×5.9 mm and a single immature egg measuring 3.3×2.8 mm. Another female from Kandy in September: 57.3 mm SVL, WHT 529 with 3 immature yellow eggs measuring 5.0×4.2 mm, 5.2×3.9 mm, 4.9×3.7 mm.

*Otocryptis wiegmanni* is sympatric with *Calotes calotes*, *C. versicolor* and *C. liolepis* in anthropogenic habitats; in lowland rain forests except at Morningside in Eastern Sinharaja, it is sympatric with *Ceratophora aspera*, Günther, 1864, *C. liolepis* and *Lyriocephalus scutatus* (Linnaeus, 1758); in Eastern Sinharaja it is sympatric with *Ceratophora karu* Pethiyagoda & Manamendra-Arachchi, 1998, *Ceratophora erdeleni* Pethiyagoda & Manamendra-Arachchi, 1998 and *Calotes desilvai* Bahir & Maduwage, 2005: this volume).

## DISCUSSION

The name *Otocryptis* becomes available from Wagler (1830), who indicated Wiegmann as the author. Wiegmann’s publication of the name however, although dated May 1830, was issued only in 1831 (see Smith, 1935: 147; Denzer et al., 1997). Wagler (1830) nowhere explicitly stated that his account was based on Wiegmann’s data, or on a communication by him, or on his then unpublished manuscript, and it is therefore Wagler who was responsible for the conditions making the name available, and who is thus author of the name.

The species name *O. wiegmanni* too, becomes available from Wagler (1830), which has priority over *O. bivittata* Wiegmann, 1831. Günther (1864), Boulenger (1885, 1890), Haly (1886), Theobald (1876), and Deraniyagala (1931) applied the name *O. bivittata* to this taxon, until Smith (1935) pointed out the priority of *O. wiegmanni*. No type material was designated by Wagler for *O. wiegmanni*, however, and the description was only as follows: “OTOCRYPTIS Wieg., Schlussohr. Nares Ophroessae; aures latentes; vertex squamis subcarinatis; gula laevis; digiti fimbriati; cauda teres. (America.) Species *Otocryptis wiegmanni* mihi”. This description is too general to be of value in separating *O. wiegmanni* from *O. nigristigma* or the only other species presently assigned to this genus, *O. beddomii* Boulenger, 1885. While Wagler made no reference to any material before him, he attributed the genus name to Wiegmann. Although Wiegmann (1831) corrected noted the type locality of *O. bivittata* as Ceylon (= Sri Lanka), the type locality of *O. wiegmanni* specified by Wagler—America—is evidently a lapsus. The label of the holotype of *O. bivittata*, ZMB 708, clearly states that the specimen is from Ceylon and mentions Bloch, presumably M. E. Bloch, whose collections at ZMB include other material from Sri Lanka, for reasons of provenance.

The holotype of *O. bivittata*, ZMB 708 (60 mm SVL, 122 mm TL) has a fifth-toe length of 19.3% of HL, and also shows a brown gular patch, which indicate that it belongs to the wet-zone taxon here referred to *O. wiegmanni*. It appears however, that Wagler did not actually see this specimen (he misrepresented the type locality as America although it states clearly on the label of the specimen jar that it is from Ceylon: see Fig. 6) in making the description of *O. wiegmanni*, and its status as holotype is therefore doubtful. We nevertheless follow Denzer et al. (1997) in treating this specimen as holotype of *O. wiegmanni*, and regard *Otocryptis bivittata* Wiegmann, 1831 as an objective junior synonym of *Otocryptis wiegmanni* Wagler, 1830.

Taylor (1953) noted the differences between the wet- and dry-zone populations of Sri Lankan *Otocryptis* and inferred the presence of two distinct species. He compared 18 dry-zone specimens (E.H.T. – H.M.S collection nos. 30610–30627) from a locality 12 miles north of Trincomalee (see Fig. 7) with a single male specimen from Nandana Estate near Peradeniya in the wet zone (USNM 120328) and noted, “The differences,

as seen by comparing this highland specimen with the lowland series, would seem to warrant a specific separation. The most striking differences are as follows: scales on nuchal region distinctly larger, as are the scales along the dorsum: a distinct dorsal ridge along the middle of back with crest; scales on lower half of the sides directed backward and downward; gular dewlap smaller (length, 24 mm., depth, 12 mm); head and gular fold not blackish. I strongly suspect that two species are involved...". We have examined 11 mature males from the dry zone and 20 mature males from the wet zone, including specimens from Peradeniya and Kandy (WHT 239, WHT 529). Except for the dewlap colour, the characters mentioned by Taylor are variable and not significant in differentiating the two species; several other characters however, serve to separate these species. Although *O. nigristigma* can unambiguously distinguished from *O. wiegmanni* (see Diagnosis), principal components and hierarchical cluster analyses too, serve clearly to distinguish the two species (see Figs. 8–11).

There are no other nominal agamid species described from Sri Lanka that could possibly be referred to *Otocryptis*. We considered the possibility that *Sitana ponticeriana mucronata* Deraniyagala, 1957 might be referable to this genus, given that *O. wiegmanni* (e.g. WHT 1496) occurs in its type locality, Hiniduma (06°20'N, 80°18'E, alt. 500 m asl). Unfortunately, *S. p. mucronata* is known only from the holotype, which was lodged at NMSL and now appears to be lost (searches of the lizard collection of NMSL by MMB in 1999 and 2004 failed to locate it; D. Kandamby, pers. comm., states that there has been no record of this specimen for at least the past 20 years). It is clear from Deraniyagala's Plate I however, that this specimen is in fact a *Sitana* (the plate shows only 4 toes present on either pes, which serves to distinguish *Sitana* from all other Sri Lankan Agamidae) and not an *Otocryptis*. The record of a *Sitana* from Hiniduma, a rainforest reserve, is nevertheless remarkable in that *S. ponticeriana*, the only Sri Lankan species in this genus, occurs only in the dry zone, almost always in coastal sand dunes (Deraniyagala, 1953; Manamendra-Arachchi & Liyanage, 1994). Deraniyagala's *S. p. mucronata* remains the only reliable record of *Sitana* from Sri Lanka's rainforests to date, and despite frequent sampling of this protected locality during the past decade, there has been no further record of this genus from there.

Recent comparisons of species supposedly widely distributed across both the wet and the dry zones of Sri Lanka have shown that there exists considerable hitherto overlooked differentiation. For example, comparison between the wet and dry zone populations of the primate genus *Loris* has shown the two populations to represent distinct species (Groves, 2001), one of which had long been neglected. A similar treatment of the mouse-deer genus *Moschiola* has shown that the wet zone contains a new, hitherto overlooked species (Groves & Meijaard, 2005: this volume). The results of the present paper show this to be the case also for *Otocryptis*, accentuating the distinctiveness of the faunas of these two bioclimatic zones.

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