

THE ORIGINAL DESCRIPTIONS AND FIGURES OF SRI LANKAN AGAMID LIZARDS (SQUAMATA: AGAMIDAE) OF THE 18TH AND 19TH CENTURIES

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Abstract

Eighteen species of agamid lizards are recognized from Sri Lanka, representing one subfamily: Draconinae. Thirteen of these species were described in the period 1758-1887. The early descriptions of agamid lizards were very brief and often written in languages other than English. Original descriptions and images of type specimens are provided for *Calotes calotes* (Linnaeus, 1758), *C. versicolor* (Daudin, 1802), *C. nigrilabris* Peters, 1860, *C. liocephalus* Günther, 1872, *C. liolepis* Boulenger, 1885, *C. ceylonensis* Müller, 1887, *Otocryptis wiegmanni* Wagler, 1830, *Ceratophora stoddartii* Gray, 1835, *C. tennentii* Günther, 1861, *C. aspera* Günther, 1864, *Lyriocephalus scutatus* (Linnaeus, 1758), *Cophotis ceylanica* Peters, 1861, and *Sitana ponticeriana* Cuvier, 1829. Translations to English are provided of original descriptions that were published in Latin, French, and German.

Key words: Original description, type specimen, Agamidae, Taxonomy, English translation, Sri Lanka

Introduction

Sri Lanka is a biodiversity hotspot together with the Western Ghats of Southern India and the area is rich in herpetofaunal assemblages (Bossuyt *et al.*, 2004; Meegaskumbura *et al.*, 2002; Myers *et al.*, 2000). Eighteen species of agamid lizards, family Agamidae, have been recognized from Sri Lanka and fifteen (83%) of them are endemic to the island (Bahir & Surasinghe, 2005; de Silva, 2006; Manamendra-Arachchi *et al.*, 2006), representing a single subfamily, the Draconinae (Macey *et al.*, 2000). The genus *Calotes* is represented by seven species (Bahir & Maduwage, 2005). The genera *Ceratophora*, *Lyriocephalus* and *Cophotis* are endemic to Sri Lanka (Manamendra-Arachchi *et al.*, 2006), with five species of *Ceratophora* (Pethiyagoda & Manamendra-Arachchi, 1998), two species of *Cophotis* (Manamendra-Arachchi *et al.*, 2006), and one species of *Lyriocephalus* (de Silva, 2006). The other two genera are *Sitana* with one species (de Silva, 2006), and *Otocryptis* with two species (Bahir & Silva, 2005).

Thirteen of the Sri Lankan agamid species were formally described over a period of 130 years between 1758 and 1887, starting with *Calotes calotes* (Linnaeus, 1758) from Zeylona (present day Sri Lanka), and ending with the description of *Calotes ceylonensis* Müller, 1887. Only five of those original descriptions were written in English (Boulenger, 1885; Gray, 1833-35; Günther, 1861, 1864, 1872). The others appeared in French (Daudin, 1802; Cuvier, 1829) or German (Müller, 1887; Peters, 1860, 1861) or Latin (Linnaeus, 1758; Wagler, 1830). After more than a century of the description of *Calotes ceylonensis*, two new species, *Ceratophora karu* and *Ceratophora erdeleni*, were described (Pethiyagoda & Manamendra-Arachchi, 1998), followed by *Calotes desilvai* Bahir & Maduwage, 2005; *Otocryptis nigristigma* Bahir & Silva, 2005 and *Cophotis dumbarae* Manamendra-Arachchi *et al.*, 2006. Most of the early descriptions were very brief compared to the recent descriptions. Several were also written in languages, familiar to scientists of those days but now much less familiar to the taxonomists. Original descriptions of these agamids were published in books and periodicals that today are difficult to obtain other than possibly from major libraries. In this paper we retyped those complete original descriptions with the English translations, in the hope that they will be useful for taxonomists interested in the Agamid lizards of Sri Lanka.

Materials and Methods

This work is mainly based on original descriptions and type specimens. It contains copies of the original descriptions of all the agamid lizards of Sri Lanka published in the 18th and 19th centuries. We attempted to retain all pertinent text and figures, but format changes were necessary. Some illustrations have been reduced and pagination has changed; therefore, some text references will not necessarily refer to specific pages in this document. All the figures of the original descriptions and the photographs of each type specimen are shown in each plate accompanied with the referred species name (Plates 1-4). The English translation of each species description is presented below the original description when it written in another language.

The material examined are from the BMNH, Natural History Museum, London, UK; MNHN, Muséum national d'Histoire naturelle, Paris, France; NMB, Naturhistorisches Museum, Basel, Switzerland; NMW, Naturhistorisches Museum Wien, Vienna, Austria; NRM, Swedish Museum of Natural History, Stockholm, Sweden; UUZM, Museum of Evolution, Uppsala, Sweden; and ZMB, Zoologisches Museum der Humboldt-Universität zu Berlin, Germany.

All the photographs of type specimen are displayed with the photographers' initials; Franz Tiedemann (FT), Colin McCarthy (CM), Ivan Ineich (II), Mark-Oliver Rödel (MO), Edi Stöckli (ES), Bodil Kajrup (BK) and Rainer Günther (RG).

Additional Information

Lacerta calotes was described by Linnaeus (1758: 207) based on three literature references, viz. **(1)** the description of "Lacerta cauda longa, pedibus pentadactylis, dorso antice dentato, capite pone denticulato" in Linnaeus (1749: 289), which also includes references to "Lacerta ceilonica caerulea" in Seba (1734: 150, pl. 34, fig. 4), "Lacerta ceylonicus amphibius" in Seba (1734: 149, pl. 95, fig. 3), and "Lacerta ceilonica lemniscata ..." in Seba (1734: 146, pl. 93, fig. 2); **(2)** the listing of *Lacerta Calotes* in Linnaeus (1754: 44), with references to "Lacerta cauda tereti longa ..." in Linnaeus (1749), "Systema Naturae 36 n. 13" (Linnaeus, 1748: 36), plus the Seba references in Linnaeus (1749), except that the figure given for "Lacerta ceilonica caerulea" is here pl. 34, fig. 4; and **(3)** Seba (1734: pl. 95, figs 3-4, pl. 93, fig. 2). Plate 93, fig. 2, and plate 95, figs. 3-4 in Seba (1734; 2006), indeed show an agamid lizard with

bluish or blue-green vertical bars. There is no figure of *Lacerta Calotes* in Linnaeus (1754), in which work lizards are not illustrated. *Lacerta Calotes* is also one of several species of lizards in Linnaeus (1754) which is not described, but only listed with references. The specimen described in Linnaeus (1749) is currently catalogued as UUZM Reptilia 33 (Wallin, 2001), and that described by Linnaeus (1754) as NRM 106. Lönnberg (1896) listed the UUZM syntype and Andersson (1900) listed the NRM syntype as present in the respective collections. These two are thus the only surviving syntypes of *Lacerta calotes* Linnaeus, 1758, to our knowledge. The syntype series is made up of the two specimens in Sweden and the three illustrated by Seba.

It is possible that NRM 106 and UUZM 33 represent specimens obtained from Seba's collection, but it is not possible to correlate the specimens using the data or figures in Seba (1734), as there are no obvious shared individual peculiarities available which would support specimen identification. Linnaeus (1749) description is based on a specimen contained in a donation from Prince Adolf Fredrik in 1745 to the Academy in Uppsala. The 1754 listing is based on a specimen in the collection of Adolf Fredrik, now King. There are no collection data preserved with the specimens, so all information regarding the origin of the specimens is that which can be deduced from Linnaeus's publications. This brings into question the type locality. Linnaeus (1749) did not provide locality data. Linnaeus (1754) gave the distribution as India. Linnaeus (1758) gave Zeylona [=present day Sri Lanka] for distribution. It may very well be that the distribution was derived from the information in Seba (1734), rather than associated with the specimen.

The types of *Calotes versicolor* (Daudin, 1802) have been considered to be present in the MNHN collections on several occasions (e.g., Kuhl, 1820; Zug *et al.*, 2006) but several studies indicated that the types of *Calotes versicolor* were no more present in the MNHN collections (e.g., Brygoo, 1988; Wermuth, 1967). Duméril & Bibron (1837) stated that Daudin (1802) had only one juvenile specimen for his description. However Daudin clearly stated that he had two specimens. However Duméril & Bibron (1837) did not compare their specimens with the specimen of Daudin, thus probably the types were not in MNHN at that time. According to Duméril & Duméril (1851), there were two specimens of juveniles from East Indies

(Indes orientales) from the Seba's collection, and they also mentioned that these could be the types of Daudin (but they are without collector's name). According to the original description of Daudin (1802) both specimens examined might have been adults considering their body sizes, however Daudin only give the size for one specimen and did not mentioned the second. Thus the two specimens of Seba can not be the types of Daudin.

In the original description the author stated that he recognized that species on Seba's plate illustrating a lizard from Brazil and did not give their origin (Daudin, 1802). Pondicherry was sometimes considered as the type locality and Leschenault the type's collector (e.g., Kuhl, 1820; Zug *et al.*, 2006). However now the MNHN collection only includes one specimen (MNHN 2548) from Pondicherry given by Leschenault. This is a syntype of *Agama tiedemanni* Kuhl, 1820. Leschenault participated as botanist on the Terres Australes expedition of Captain Baudin which left from Le Havre (France) on 19 October 1800. He stopped at Timor when going back in 1803 due to illness. He explored Java and arrived back in France in 1807 only. He was not able to send material from Pondicherry to Daudin (description of *Calotes versicolor* in 1802) during this time. In May 1816 he embarked for India and only returned to France in 1822 (Bauchot *et al.*, 1990; Lescure & Marty, 2000). However the type specimens of *C. versicolor* are no longer present in the MNHN collection, the illustration of Seba is not a type and it is a Brazilian animal. It could be the Amazonian iguanid *Plica umbra*. We consider that the only still available part of that type material is the specimen depicted on plate 44 of Daudin (1802) (see pl. 01, fig. 05) with the present evidence that the types have to be considered as missing from MNHN collections or lost shortly after their description; however the most realistic picture is that these types never were in MNHN collections.

One specimen of *Calotes ceylonensis* (NMB 3340), from "Kumbukan-aar (S.-O.-Ceylon)" is labelled as holotype in the NMB collections. The other specimen (NMB 3341), is from "N.-O. Provinz" and labeled as paratype. Kumbukan-aar probably refers to a river in the extreme southeast of Sri Lanka called Kumbukkan Oya on current maps (Karunaratna *et al.*, 2009).

The name *Otocryptis* becomes available from Wagler (1830), who indicated Wiegmann as the author (see Wagler, 1830). Wiegmann's publication

of the name however, although dated May 1830, was issued only in 1831 (Wiegmann, 1831). 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 (Bahir & Silva, 2005). The species name *O. wiegmanni* also becomes available from Wagler (1830), and has priority over *O. bivittata* Wiegmann, 1831. No type material was designated by Wagler for *O.*

wiegmanni, because Wagler (1830) made no reference to any material before him and attributed the genus name to Wiegmann (see Wagler, 1830). Although Wiegmann (1831) correctly 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 (Bahir & Silva, 2005). The label of the jar of the holotype of *O. bivittata*, ZMB 708, clearly states that the specimen is from Ceylon and mentions Bloch, presumably M. E. Bloch, for information on provenance see Bahir & Silva (2005).

Original descriptions of Sri Lankan Agamids, with English translations

***Calotes calotes* (Linnaeus, 1758) (Plate: 1)**

Linnaeus, C., *Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio decima, reformata, 1758: 207.*

Material examined: One of two syntypes [note: the Seba specimens are also syntypes]
Male (112.0 mm SVL); *Cat. no.* NRM 106; *Loc.* Zeylona: Asia (= Sri Lanka: Asia); *Coll.* Unknown; *Date.* Unknown (Fig. 1, 2).

Original description:

Calotes. 29. L. [=Lacerta] cauda tereti longa, dorfo antice capiteque postice dentato.

Amœn. Acad. I. p. 289.

Muf. Ad. Fr. I. p. 44.

Seb. muf. I. t. 95. f. 3, 4. (Fig. 3, 4)

t. 93. f. 2.

Habitat in Asia: *Zeylona*

Corpus cœruleum squamis acutis, subtus striatum. Spinæ dorfi lamellatæ.

English translation:

Calotes. 29. L. [=Lacerta] with long narrow tail, back anteriorly crested, posteriorly toothed.

Amoenitates Academiae. I. p. 289.

Museum Adolphi Friderici. I. p. 44.

Seba's Museum. I. pl. 95. fig. 3, 4.

pl. 93. fig. 2.

Habitat in Asia: *Ceylon*

Body bluish, spiny scales, striated above. lamellate dorsal crest.

***Calotes versicolor* (Daudin, 1802) (Plate: 1)**

Daudin, F. M., *Histoire Naturelle des Reptiles, III, 1802: 395-397, pl. XLIV. (Fig. 5)*

Material examined: Type lost. The specimen MNHN 2548, collected from Pondicherry by Leschenault, cannot be a syntype of *C. versicolor* Daudin 1802, because Leschenault visited Pondicherry only after 1816. According to Daudin's original description (1802) one of his two syntypes measured 81 mm SVL, 202.5 mm tail length and 283.5 mm total length.

Original description:

L'AGAME ARLEQUINÉ, A DEUX RAIES ⁽¹⁾. *Voyez la planche XLIV de ce volume.*

Ce reptile est très-semblable aux agames ondulé et hexagone, par la forme de ses diverses parties, et par celle de ses écailles; mais il est beaucoup plus remarquable que la plupart des animaux qui composent ce

genre, soit à cause de sa taille svelte et de l'extrême longueur de sa queue, soit à cause des couleurs brillantes et rembrunies, dont le dessus de son corps est agréablement varié. Sa tête et son corps ont trois pouces de longueur, et sa queue à jusqu'à sept pouces et demi, ce qui fait une longueur totale de dix pouces six lignes.

La tête est arrondie, presque quadrangulaire, un peu courte, munie derrière l'occiput d'écaillés redressées en pointes, avec une très-petite crête épineuse, formée de petites écailles pointues, prenant sa naissance sur la nuque, et disparaissant ensuite peu à peu, à mesure qu'elle s'approche vers la base de la queue. La tête est blanchâtre uniforme en dessus, avec six traits bruns rayonnés autour des yeux, quatre traits bruns en travers sur le crâne, et un point brun sur l'occiput. Deux lignes longitudinales, blanches et droites, prennent leur origine derrière les yeux, et se prolongent ensuite sur chaque côté du dos jusques dessus la base de la queue.

Dessus le corps on voit huit ou neuf bandes transversales, d'un brun plus foncé en devant, plus pâle en arrière, séparées par d'autres bandes d'un beau bleu clair et nacré. Ces bandes ne sont pas tranchées net sur les bords, mais elles paroissent au contraire s'y fondre entre elles et s'y mêler: elles sont en outre séparées en trois portions, par les deux lignes longitudinales blanches qui sont sur les côtés du dos. La queue est deux fois et demie environ aussi longue que le reste de l'animal; et elle est très-amincie, sur-tout à son extrémité.

J'ai trouvé deux individus de ce joli et brillant saurien dans la collection du muséum d'histoire naturelle de Paris: comme il paroît avoir parfaitement conservé ses couleurs dans l'esprit de vin où il est enfermé, je crois que la description que je viens d'en donner ne pourra manquer de satisfaire les naturalistes. Cet animal est assez bien gravé et fort mal enluminé dans l'ouvrage de Seba (tom. I, pl. XCII, fig. 1), sous le nom de *lézard téjuguacu du Brésil*: voyez ce que j'en ai dit précédemment à l'article de l'*agame ombre*.

⁽¹⁾ *Agama versicolor; lineâ longitudinali albâ in utroque latere dorsî, tæniis transversis fuscis et lætè cæruleis, caudâ duplò longiore.*

Lacerta brasiliensis, tejuguacu. Seba, Thes. tom. I, pag. 144, pl. XCII, fig. I. (see pl. 1, Fig. 6).

English translation:

Harlequin agama, with two bands ⁽¹⁾. *See the plate XLIV in this volume*

This reptile is very similar to the undulate [*Agama undulata, Lacerta undulata* Bosc – USA, Carolina] and hexagonal [*Agama angulata, Lacerta angulata* Rolander – Guyana] agamas by the shape of its different parts, and by that of its scales; but it is more remarkable than most of the animals making up this genus, for reason of its more slender size and the extreme length of its tail, or because of its bright and dull colours with which its back is nicely adorned. Its head and body are three [French] inches [=81 mm] in length, and its tail up to seven and a half inches [202.5 mm], making a total length of ten inches and six [French] lines [1 French line = 2.25 mm; 10 French inches + 6 French lines = 283.5 mm].

The head is rounded, nearly quadrangular, a little short, bearing scales modified into spines at the back of the occiput, with a very short spiny crest, formed of small spiny scales, beginning on the neck, and disappearing progressively when approaching the base of the tail.

The head is uniform whitish above, with six brown stripes around the eyes, four brown stripes across the top of the head, and a brown spot on the occiput. Two longitudinal lines, white and straight, have their origin behind the eyes and continue extended on each side or the back to above the base of the tail.

Above the body, one sees eight or nine transverse bands, of a darker brown in front, paler behind, separated by other bands made of a beautiful light pearly light blue. These bands are not clearly delimited at their edges, but they rather seem to diffuse between them and mix together: they are moreover separated into three divisions, by the two longitudinal white lines that run on the sides of the back. The tail is about two and a half times as long as the rest of the animal; and it is very narrowed, above all at its distal part.

I found two specimens of this beautiful and brilliant saurian in the collection of the Paris natural history museum: as it seems to have conserved its colours perfectly in the spirits-of-wine in which it is preserved, I believe the description that I gave here will not fail to satisfy the naturalists. That animal is relatively well engraved and very badly illuminated in the work of Seba (tom. 1, pl. xcii, fig. 1), under the name of *lizard téjuguacu of Brazil*: see what I said previously about it in the part of the *agame ombre*.

⁽¹⁾ *Agama versicolor; longitudinal white lines on each side of the back, tawny brown and beautiful blue transversal bands, tail two times as long [as body]*

Lacerta brasiliensis, tejuguacu. Seba, Thes. vol. I, pag. 144, pl. xcii, fig. 1.

***Calotes nigrilabris* Peters, 1860** (Plate: 1)

Peters, W. C. H., Monatsberichte der Königlich Akademie der Wissenschaften zu Berlin, 1860: 183.

Material examined: Holotype

Male (99.8 mm SVL); *Cat. no.* NMW 23355 (see Tiedemann *et al.*, 1994); *Loc.* Newera Ellia: Ceylon (= Nuwara Eliya: Sri Lanka); *Coll.* Unknown; *Date.* Unknown (Fig. 7, 8).

Original description:

Calotes (Bronchocele) nigrilabris n. sp.; oben olivenfarbig, unten hellgrün; die Schuppen des Kinnes und der Kehle an der Basis, die Lippenränder und die ganze Schläfengegend zwischen Augen und Trommelfell braunschwarz; die Gegend zwischen den Ohren und die Oberseite des Halses grünlichgelb. Ein Schuppenkamm von ähnlicher Gestalt wie bei *Calotes ophiomachus* erstreckt sich von dem Nacken bis zu der Basis des Schwanzes; ein Kamm von sieben verlängerten Schuppen jederseits über und hinter der Ohröffnung; eine sehr große mit kleinen Schuppen ausgekleidete Grube vor jeder Schulter. Sämtliche Körper und Schwanzschuppen gekielt. Seitliche, mit ihren Kielen nach hinten und abwärts gerichtete Körperschuppen ungefähr halb so groß wie die mittleren Bauchschuppen. Schwanz- und Kehlschuppen etwa doppelt so groß wie die Bauchschuppen. Vierte Hinterzehe nur wenig länger als die dritte; der Nagel der dritten erreicht die Basis des Nagelgliedes der vierten Zehe. Schuppen in der Körpermitte in 47 Längsreihen. Schwanzschuppen in etwa 13 Längsreihen.

Totallänge 0^m, 40; Entfernung vom Schnauzenende bis zum After 0,096; Länge des Kopfes 0,035; der vordern Extremität 0,058; der hintern Extremität 0,085; der vierten Zehe 0,024; der dritten Zehe 0,020.

Fundort: Newera Ellia; ein einziges Exemplar.

English translation:

Calotes (Bronchocele) nigrilabris n. sp.; above olivaceous, below light green; the scales of the chin and the throat base, the labial margins and the whole temporal region between eyes and eardrum fuliginous; the region between the ears and the upper side of the neck greenish yellow. A scale ridge similar to the one of *Calotes ophiomachus* reaches from the nape to the tail base; a ridge composed of seven extended scales on each side above and behind the ear aperture; a very large pit lined with small scales in front of each shoulder. All the body and tail scales are carinate. Lateral scales with their ridges directed backwards and downwards about half the size of the middle abdominal scales. Tail and throat scales about twice the size of the abdominal scales. The fourth rear toe only a little longer compared to the third one; the nail of the third toe reaches up to the base of the nail bearing link of the fourth toe. Scales along the middle of the body arranged in 47 horizontal rows. Tail scales in about 13 horizontal rows.

Total length 0,40m; distance from tail end to anus 0,096; head length 0,035; the front limb 0,058; the rear limb 0,085; the fourth toe 0,024; the third toe 0,020.

Collecting locality: Newera Ellia; a single specimen.

***Calotes liocephalus* Günther, 1872** (Plate: 2)

Günther, A., Annals and Magazine of Natural History, ser. 4, IX, 1872: 86.

Material examined: Holotype

Male (90.0 mm SVL); *Cat. no.* BMNH 1946.8.11.33; *Loc.* Peradeniya Distr., Ceylon (= Sri Lanka); *Coll.* G.H.K. Thwaites; *Date.* Unknown (Fig. 9, 10).

Original description:

No spines whatever on the side of the head. Dorsal crest composed of slender spines of moderate length on the neck, a low, merely serrated crest in the middle of the trunk, but reappearing in the sacral region as a short series of three or four spines. *A very distinct fold in front of the shoulder*, covered by granular scales. Gular sac very slightly developed. About forty-five series of scales round the middle of the trunk. Scales round the part of the tail in which the penis is hidden much the largest. Green, with irregular dark cross bands on the back. Upper side of the head marbled with dark green. A narrow green band from the eye to

above the tympanum. Tail olive, with broad brown rings. Limbs with alternate lighter and darker green rings.

One adult male is 15 inches long, the tail being 11 inches.

***Calotes liolepis* Boulenger, 1885** (Plate: 2)

Boulenger, G. A., Catalogue of the Lizards in the British Museum, I, 1885: 326-327, pl. 25, fig. 2. (Fig. 11)

Material examined: One of two syntypes

Female (76.7 mm SVL); *Cat. no.* BMNH 69.7.24.2; *Loc.* Ceylon (= Sri Lanka); *Coll.* R.H. Barnes; *Date.* Unknown (Fig. 12, 13)

Original description:

Upper head-scales smooth, imbricate, strongly enlarged on supra-orbital region; two distant spines on each side of the back of the head, between the ear and the nuchal crest; diameter of the tympanum nearly half that of the orbit. Gular sac not developed (♀); gular scales strongly keeled, as large as ventrals. A short oblique fold in front of the shoulder. Nuchal crest formed of narrow separated spines, the longest of which measure about the diameter of the tympanum; dorsal crest quite indistinct. Thirty-five or thirty-nine scales round the middle of the body; dorsal scales three times as large as ventrals, squarish, smooth, pointing backwards and downwards; ventral scales strongly keeled. The adpressed hind limb reaches hardly the tympanum; third and fourth fingers equal. Tail round. Pale olive, with indistinct brown transverse bands on the back; brown lines radiating from the eye, the lower reaching down to the lower lip.

Total length.....	256	millim.
Head.....	21	„
Width of head.....	13	„
Body.....	55	„
Fore limb.....	36	„
Hind limb.....	51	„
Tail.....	180	„

Ceylon.

a. ♀.

b. Yg.

Ceylon.

Ceylon.

B. H. Barnes, Esq. [P.].

***Calotes ceylonensis* Müller, 1887** (Plate: 2)

Müller, F., Verhandlungen der Naturforschenden Gesellschaft in Basel, 8 (2), 1887: 292-293, pl 3. (Fig. 14)

Material examined: One of two syntypes

Male (81.9 mm SVL); *Cat. no.* NMB 3340 (labelled as holotype); *Loc.* Kumbukan-aar: South East Ceylon (= Kumbukkan Ara ?; Sri Lanka); *Coll.* P. Sarasin & F. Sarasin; *Date.* 1886. (Fig. 15, 16)

Original description:

***Calotes mystaceus* var. *ceylonensis* (an n. sp.?) (Taf. 3)**

Kumbukan-aar (S.-O.-Ceylon) und N.-O. Provinz

Ceylon v. d. Hh. Sarasin. [2] (Hierzu Taf. III.)

Die vorliegenden vorzüglich conservierten Stücke zeigen mehrere nicht unerhebliche Abweichungen von den bestehenden Beschreibungen. (DB., Gü. R. b. J., Boul. cat.).

Schuppen der Kopfoberfläche glatt, ziegelig, jede am freien Rand mit einem Kranz von Körnchen besetzt, Schuppen der Supraorbitalregion beträchtlich grösser; über dem Trommelfell jederseits 2 Dornen distant. Trommelfell wenigstens ½ Durchmesser der orbita. – Kein Gularsack. – Kehlschuppen sehr stark gekielt, viel kleiner als Rückenschuppen (8:5). Vier bis fünf schwache Dornen auf dem Nacken; Rückenfirst ohne jede crista noch Denticulation. Rund um die Mitte des Körpers 60 Schuppen. Rückenschuppen kaum merklich gekielt, manche ganz glatt, 1 ½ mal so gross als Bauchschuppen. Bis zur Mitte des Körpers sind alle Schuppen aufwärts and rückwärts, auf der Hinterhälfte beinahe direct rückwärts gerichtet.

Bauchschuppen mucronirt. Das angelegte hintere Glied reicht etwa bis zum hintern Augenrand. Vierter und fünfter Finger gleich lang. Vom Auge zum Trommelfell eine Reihe etwas grösserer Schuppen. Grünlich; über den Rücken 6 grosse sattelartige Querflecke, von denen die 3 vordern orangefarbenen unmittelbar aufeinander folgen und durch dunkle Linien abgegrenzt sind, die 3 hintern distanter, verschwommener und schwächer gefärbt sind. Auch quer über den Kopf ziehen mehrere helle Binden. Am Anfang des Nackenkammes ein schwarzer Doppelfleck, aus 2 kleinen Quadraten bestehend. Auf den Seiten zahlreiche helle Flecken rhombischer oder ovaler Form in ein Netzwerk von schwarzen Linien gefasst. Auf der Schwanzoberfläche 3 grosse braune Rautenflecke. Auge mit schwarzen kräftigen Radien. Von der vordern Lippengegend bis zur Schulter eine breite orangefarbene Zone, oben durch einem kräftigen schwarzen Strich gesäumt. Unterseite blass, gelbgrün.

English translation:

***Calotes mystaceus* var. *ceylonensis* (to new species?) (Plate 3)
Kumbukan-aar (South East Ceylon) and North East Province
Ceylon from the Messrs. Sarasin. [2] (See Plate III.)**

The excellently preserved specimens at hand show several not insignificant deviations from the existing descriptions. (DB., Gü. R. b. J., Boul. cat.).

Scales of the top of the head smooth, formed as tiles, each equipped with a collar of granules along the free edge; scales of the supraorbital region considerably larger; above the tympanum on each side bearing 2 spines at distance. Tympanum at least $\frac{1}{2}$ the diameter of the orbit. – No gular sack. – Throat scales very strongly carinated, much smaller than dorsal scales (8:5). Four to five feeble spines on the neck; dorsal ridge without any crest or denticulation. Around the middle of the body 60 scales. Dorsal scales barely carinated, some completely smooth, $1\frac{1}{2}$ times as large as the abdominal scales. Up to the middle of the body all scales are directed upwards and backwards, on the rear half almost straight backwards directed. Ventral scales mucronate. The aligned rear limb reaches up to the rear eye border. Fourth and fifth fingers equally long. From the eye to the tympanum a row of slightly larger scales. Greenish; across the back 6 large saddle-like cross-blotches, of which the 3 anterior orange coloured follow immediately after each other and are delimited by dark lines, the 3 posterior more spaced, indistinct and weakly coloured. Also across the head runs several light bands. At the beginning of the neck ridge a black double spot composed of 2 small squares. On the sides numerous bright spots of rhombic or oval form, contained in a network of black lines. On the upper side of the tail 3 large brown diamond-shaped spots. Eye with strong black radii. From the anterior lip area to the shoulder a broad orange coloured zone, above margined with a thick black line. Underside pale, yellowish green.

***Otocryptis wiegmanni* Wagler, 1830 (Plate: 3)**

Wagler, J., Natürliches System der Amphibien, mit vorangehender Classification der Säugethiere und Vögel., 1830, 150.

Material examined: No type material was designated by Wagler, 1830 (Examined the holotype of *Otocryptis bivittata*) Male (60.0 mm SVL); *Cat. no.* ZMB 708; *Loc.* Ceylon (=Sri Lanka); *Coll.* Bloch; *Date.* Unknown (Fig. 17, 18)

Original description:

OTOCRYPTIS³⁾ *Wieg.*, **Schlufsohr.**

Nares Ophryoessae; aures latentes; vertex squamis subcarinatis; gula laevis; digiti fimbriati; cauda teres. (*America.*) *Species:* *Otocryptis Wiegmanni*⁴⁾ *mihi.*

³⁾ *Ούς* auris, et *κρυπτος* occultus

⁴⁾ Gewiß nicht Azaras Caméléon second.

English translation:

OTOCRYPTIS³⁾ *Wieg.*, **Hiddenear.**

Nostrils like *Ophryoessa*; ears concealed; scale tops subcarinate; throat smooth; fingers threadlike; tail rounded. (*America.*) *Species:* *Otocryptis Wiegmanni*⁴⁾ *mine*

³⁾ *Ούς* ear, and *κρυπτος* hidden

⁴⁾ *certainly not Azara's second Chameleon.*

***Ceratophora stoddartii* Gray, 1835** (Plate: 3)

Gray, J. E., Illustrations of Indian Zoology, II, 1835: pl.68, fig. 2. (Fig. 19)

Material examined: Holotype

Male (67.8 mm SVL); *Cat. no.* BMNH 1946.8.27.37; *Loc.* Ceylon (=Sri Lanka); *Coll.* Stoddart; *Date.* Unknown. (Fig. 20, 21)

***Ceratophora tennentii* Günther, 1861** (Plate: 3)

Günther, A., in Tennent, J. E., Sketches of the Natural History of Ceylon, 1861: 281, fig. (Fig. 22)

Material examined: One specimen of seven syntypes

Male (88.5 mm SVL); *Cat. no.* BMNH 1946.8.27.32-33; *Loc.* Ceylon (=Sri Lanka); *Coll.* Cuming; *Date.* Unknown. (Fig. 23, 24)

Original description:

The specimen in the British Museum is apparently an adult male, ten inches long, and is, with regard to the distribution of the scales and the form of the head, very similar to *C. Stoddartii*. The posterior angles of the orbit are not projecting, but there is a small tubercle behind them; and a pair of somewhat larger tubercles on the neck. The gular sac is absent. There are five longitudinal quadrangular, imbricate scales on each side of the throat; and the sides of the body present a nearly horizontal series of similar scales. The scales on the median line of the back scarcely form a crest; it is, however, more distinct on the nape of the neck. The scales on the belly, on the extremities, and on the tail are slightly keeled. Tail nearly round. This species is more uniformly coloured than *C. stoddartii*; it is greenish, darker on the sides.

***Ceratophora aspera* Günther, 1864** (Plate: 4)

Günther, A., The Reptiles of British India, 1864: 131, pl. XIII, fig. G, G'. (Fig. 25)

Material examined: One of four syntypes

Male (28.5 mm SVL); *Cat. no.* BMNH 1946.8.30.51-52; *Loc.* Ceylon (=Sri Lanka); *Coll.* Cuming; *Date.* Unknown. (Fig. 26, 27)

Original description:

Head covered with very small, irregular shields, each of which is elevated into a small tubercle; a larger tubercle behind the supraciliary edge, and another on each side of the occiput; occiput with a pair of low ridges, convergent interiorly. Nasal appendage cylindrical, slender, covered with small, imbricate, strongly keeled scales; it is nearly half as long as the head in the male, but quite rudimentary in the female. Labial shields numerous; throat with small, strongly keeled scales, without appendage; no fold in front of the shoulder. Nostril small, lateral. Scales on the back and sides very small, with numerous, irregularly scattered, larger keeled scales; no crest whatever, but some of the larger scales form short angular series across the vertebral line, with their angles pointing backwards. Ventral scales strongly keeled; preanal region covered with very small scales. Tail of moderate length, not compressed, with all its scales keeled; those at its lower surface are scarcely longer than broad. Limbs rather long, the hind limbs extending to, or nearly to, the orbit, if laid forwards. Brownish, marbled with darker; a rhombic light-coloured spot on the sacral region. The brown spots on the fore leg are edged with white in the male.

I have examined a male and female of this extraordinary species, both apparently mature, but not longer than 3 inches, of which the tail measures one-half. The British museum received them from Ceylon, from the same source as the *C. stoddartii* and *C. tennentii*; hence it is probable that it is also confined to the mountain parts of the interior of the island.

Figure G of Plate XIII, represents the female in a position which we have observed in many Agames; figure G³ the head of the male.

***Lyriocephalus scutatus* (Linnaeus, 1758)** (Plate: 4)

Linnaeus, C., *Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio decima, reformata.* 201

Material examined: Iconotype

Seb. Mus. vol. I. pl. 109. fig. 3. *Loc.* Asia; *Date.* Unknown (Fig. 28)

Original description:

scutata. 4. L. cauda subcompressa mediocri, futura dorsali dentata, occipite bimucronato.

Seb. muf. I. p. 173. t. 109. f. 3. Salamandra prodigiosa amboinenfis scutata.

Habitat in Asia.

English translation:

Lizard with tail moderately compressed, dorsal suture denticulate, occiput bimucronate [with two points]

Seba's Museum. [Vol.] I. page 173. pl. 109. fig. 3. Prodigious shielded lizard from Ambon

Habitat in Asia.

***Cophotis ceylanica* Peters, 1861** (Plate: 4)

Peters, W. C. H., Monatsberichte der Königlich Akademie der Wissenschaften zu Berlin, 1861: 1103-1105.

Material examined: Lectotype (see Marx, 1958)

Male (63.0 mm SVL); *Cat. no.* ZMB 4240; *Loc.* Ceylon (=Sri Lanka); *Coll.* Nietner; *Date.* Unknown. (Fig. 29, 30)

Original description:

***COPHOTIS* nov. gen. ¹⁾**

Diese Gattung der Iguanoiden schließt sich durch ihre zusammengedrückte Körpergestalt, durch die gleiche Zahl der Finger und Zehen und durch das versteckte Trommelfell den Ceylonesischen Gattungen *Otocryptis*, *Lyriocephalus* und *Ceratophora* an. Sie unterscheidet sich von ihnen leicht durch die äußerst feine Granulation und ungekielte Beschaffenheit der Hand- und Fußsohle, durch die fast gleiche Länge der 3ten und 4ten Zehe, durch den Schuppenkamm, welcher sich über den ganzen Rücken hinzieht, durch die großen Schuppen des Schwanzes und durch die gestrecktere Gestalt der Schnauze. Mit *Ceratophora* stimmt sie am meisten durch die größeren Schuppen an den Seiten der Kehle, des Halses und den Körperseiten, mit *Lyriocephalus* durch die Occipitaldornen und einem kleinen Postocularhorn überein.

***Cophotis Ceylanica* n. sp.**

Der Kopf ist pyramidal, doppelt so lang wie breit und hoch, die Schnauze an Länge gleich der Distanz der Augen von einander. Die runden Nasenlöcher öffnen sich seitlich in einfachen Schildchen, welche unmittelbar mit den Supralabialia in Verbindung stehen, von dem Rostralschild durch ein oder zwei, von einander durch drei Reihen convexer Schuppen getrennt werden. Regelmäßige, aber an Größe den auf der Schnauze befindlichen ziemlich gleiche, gekielte Schuppen bilden jederseits einem Supraorbitalbogen, welcher aus sieben Schuppen besteht und sich dem postorbitalen Dorn anschließt. Die Supraorbitalbögen werden nur durch eine Reihe Schuppen von einander getrennt und der Bogen wird bis zum Supraorbitalrande durch drei bis vier Reihen Schuppen ausgefüllt, welche von innen nach außen an Größe abnehmen. Es finden sich jederseits neun Supralabialia, an welche sich eine zweite Reihe kaum kleinerer Schildchen anschließt. Die Schuppen der Schläfengegend sind eben so groß wie die des Vorderkopfes und einige etwas größere zeigen eben so wie diese in der Mitte eine kurze Spitze. Das Hinterhaupt endigt mit zwei kurzen, wie bei *Lyriocephalus* convergirenden Dornen. Die Augenlider sind ganz von kleinen körnigen Schuppen bedeckt, nur an den Augenlidrändern erscheinen sie glatter, und auf dem obren Augenlide sieht

man eine Reihe von drei bis fünf etwas größeren platten Schüppchen. Die Submental- und Kehlgegend wird von schwach gekielten Schuppen bedeckt, welche in, den Infralabialia parallelen, Reihen liegen und an Größe nach der Mittellinie allmählich abnehmen. Oben zählt man einem kurzen einspitzigen Mittelzahn, auf welchen jederseits zwei eben so kurze, dann ein längerer und dann dreizehn dreispitzige Backzähne folgen; im Unterkiefer fehlt der Mittelzahn und es folgen jederseits auf zwei einspitzige vierzehn dreispitzige Zähne. Hals, Rumpf und Schwanz sind comprimirt und letzterer bei beiden vorliegenden Exemplaren nach unten gebogen (Greifschwanz?). Der Rücken, die Seiten des Halses, des Rumpfes und der Schwanz sind mit großen dachziegelförmig liegenden Schuppen bedeckt, welche in der Mitte der Körperseiten besonders groß sind; an der Unterseite des Halses, wo sich bei dem kleinen Exemplar ein unbedeutender Kehlsack findet, und an der Brust sind die Schuppen am kleinsten, aber eben so wie die etwa um die Hälfte größeren Bauchschuppen gekielt. Auf dem Nacken bilden drei bis vier spitze lange Schuppen einen Kamm, welcher sich durch ähnliche, aber einzeln stehende Schuppen bis zur Kreuzgegend fortsetzt. Der Schwanz hat nichts von einem dorsalen Kamm, aber zwei untere Kiele wie *Ceratophora*. Die Extremitäten, welche kürzer als bei den verwandten Gattungen erscheinen, sind auf ihrer oberen und äußeren Seite mit großen Schuppen bedeckt, zeichnen sich aber sehr von denen der verwandten Gattungen dadurch aus, daß die Schuppen der Hand- und Fußsohlen äußerst klein sind und die Sohlen der Finger und Zehen gar nicht oder nur sehr schwach, der geringen Größe der Schuppen entsprechend, gekielt sind. – Die Farbe ist braun (an den entschuppten Stellen blau); von der Schnauzenspitze längs dem Rande der Oberlippe geht eine gelbliche Binde bis zur Schulter, wo sie plötzlich breiter wird; ein länglicher Fleck hinter jedem Auge, ein größerer Nackenfleck vor dem Nackenkamm, ein großer dreieckiger nach dem Rücken hin spitzer Seitenfleck gleich hinter der vorderen Extremität und breite etwas undeutliche Querbinden am Schwanz sind ebenfalls gelb. Auch die Kehle ist gelb, aber jederseits durch quer von dem Unterlippenrande ausgehende, unregelmäßige Binden ausgezeichnet. Totallänge 0^m, 136; Kopf 0^m, 018; Schwanz 0^m, 075; vordere Extremität 0^m, 023; hintere Extremität 0^m, 027; Breite des Kopfs 0^m, 008. Die beiden Exemplare sind von Hrn. Nietner auf Ceylon gesammelt worden.

English translation:

***COPHOTIS* nov. gen. 1)**

This genus of the iguanoids is allied to the Ceylonese genera *Otocryptis*, *Lyriocephalus* and *Ceratophora* for reason of the compressed body, by the same number of fingers and toes, and by the hidden tympanum. It is easily distinguished from them by the extremely fine granulation and the non-carinated condition of the hand and foot soles, by the almost identical length of the 3rd and 4th toe, by the scale ridge which runs along the whole back, by the large scales of the tail, and by the more elongated shape of the snout. It agrees best with *Ceratophora* by the larger scales on the side of the throat, the neck and the body sides, with *Lyriocephalus* by the occipital spines and a small postocular spine.

***Cophotis Ceylanica* n. sp.**

The head is pyramidal, twice as long as wide and high, the snout length identical to the distance between the eyes. The round nostrils open up to the side into simple small shields which are immediately connected to the supralabials, separated from the rostral shield by one or two convex scales, separated from each other by three rows of convex scales. Regular, but in size quite similar to those present on the snout, carinated scales form on each side a supraorbital arch which consists of seven scales and which connects to the postorbital spine. The supraorbital arches are only separated by one row of scales and the arch up to the supraorbital margin is filled by two to three rows of scales which decline in size from inside to outside. On each side there are nine supralabials, to which connects a second row of barely smaller shields. The temple scales are as large as those of the front ones, and some of the larger ones also show a small point in the middle. The occiput ends with two short converging spines as in *Lyriocephalus*. The eyelids are totally covered by small grainy scales, only at the eyelid margins they appear to be smoother, and on the upper eyelid one can see a row of three to five somewhat larger flat scales. The submental and throat area is covered by weakly carinated scales which lie in parallel rows to the infralabials and are gradually reduced in size after the midline. In the upper jaw one counts one short, unicuspid median tooth, followed on each side by two equally short ones, then a longer one and then thirteen tricuspid molar teeth; in the lower jaw the median tooth is absent and on each side follows after two unicuspid teeth fourteen tricuspid molar teeth. Neck, trunk and tail are compressed, and the latter is bent downwards in the two specimens at hand (grasping tail?). The back, the side of the neck, the trunk, and the tail are covered by large scales arranged like roof tiles, and which are particularly large on the middle of the body sides; on the lower side of the neck, where an

insignificant throat pouch is found in the small specimen, and on the chest the scales are the smallest, but even so carinated just as the abdominal scales half the size larger. On the neck three to four large pointed scales form a ridge, which continues with similar, but isolated scales up to the small of the back. The tail bears no dorsal ridge but two lower ridges as in *Ceratophora*. The limbs, which seem to be shorter compared to the related genera, are covered by large scales on the upper and outer sides, but they set themselves apart against the related genera by the extremely small scales of the hand and foot sole and that the soles of the fingers and toes show no or only very weak carination in accordance with the small scale size. – The colour is brown (blue where scales removed); from the snout tip along the margin of the upper lip runs a yellowish band up to the shoulder, where it widens abruptly; an elongate spot behind each eye, a larger nape spot in front of the neck ridge, immediately behind the anterior limb a larger triangular lateral blotch which more pointed toward the back, and broad somewhat indistinct crossbands on the tail, are also yellow. The throat is also yellow, but on each side marked by irregular bands originating from the margin of the lower lip. Total length 0^m, 136; Head 0^m, 018; Tail 0^m, 075; front limb 0^m, 023; rear limb 0^m, 027; head width 0^m, 008. Both specimens were collected by Mr. Nietner on Ceylon.

***Sitana ponticeriana* Cuvier, 1829** (Plate: 4)

Cuvier, Règne Animal, 2nd ed. ii, 1829: 43.

Material examined: Holotype

Male (46.4 mm SVL); *Cat. no.* MNHN 6901; *Loc.* Pondicherry - India; *Coll.* Leschenault; *Date.* Unknown (Fig. 31, 32).

Original description:

LES SITANES. (SITANA. CUV.) (2)

Ont, comme les dragons, des dents d'agames et quatre canines; le corps et les membres couverts d'écailles imbriquées et carénées; les cuisses sans pores; mais leurs côtes ne s'étendent point. Ils se distinguent par un énorme fanon qui se porte jusque sous le milieu du ventre, et a plus du double de la hauteur de l'animal.

L'espèce connue (*Sit. Ponticeriana*. Cuv.) est petite, fauve, et a le long du dos une série de grandes taches rhomboïdales brunes. Elle vit aux Indes orientales.

C'est peut-être de cette tribu des Agamiens que l'on doit rapprocher un reptile fort extraordinaire, qui ne se trouve plus que parmi les fossils d'anciennes couches jurassiques.

English translation:

They have, like the dragons, teeth of agamas and four canines: the body and limbs are covered with imbricate and keeled scales; the thighs without pores; but their sides are pointed. They are distinguished by an enormous dewlap which reaches to almost below the middle of the belly, and is more than double the height of the animal.

The known species (*Sit. Ponticeriana* Cuv.) is small, tan, and along the back a series of large brown rhomboidal blotches. It lives in East India.

Perhaps it is with this tribe of agamas that one must reconcile a very special reptile, which is no longer found except among the fossils of ancient Jurassic layers.

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PLATE 01



Fig. 01: Syntype of *Calotes calotes*: NRM 106 (BK)



Fig. 02: Syntype of *Calotes calotes*: NRM 106 (BK)



Fig. 03: Reprinted from Seba (1734). muf. I. pl. 95. fig. 3



Fig. 04: Reprinted from Seba (1734). muf. I. pl. 95. fig. 4

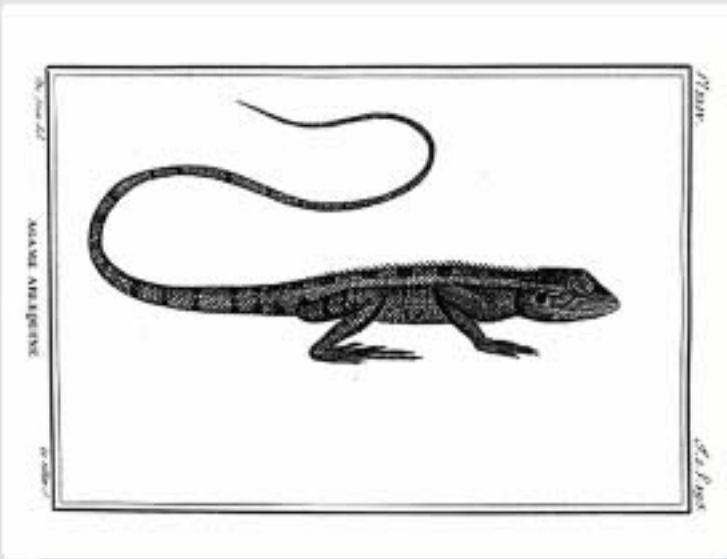


Fig. 05: Reprinted from Daudin (1802). *Histoire Naturelle des Reptiles*, III: 395-397, pl. XLIV



Fig. 06: Reprinted from Seba (1734). *Thes. tom. I*, pag. 144, pl. XCII, fig. I.



Fig. 07: Holotype of *Calotes nigrilabris*: NMW 23355 (FT)



Fig. 08: Holotype of *Calotes nigrilabris*: NMW 23355 (FT)

PLATE 02



Fig. 09: Holotype of *Calotes liocephalus*: BMNH 1946.8.11.33 (CM)



Fig. 10: Holotype of *Calotes liocephalus*: BMNH 1946.8.11.33 (CM)

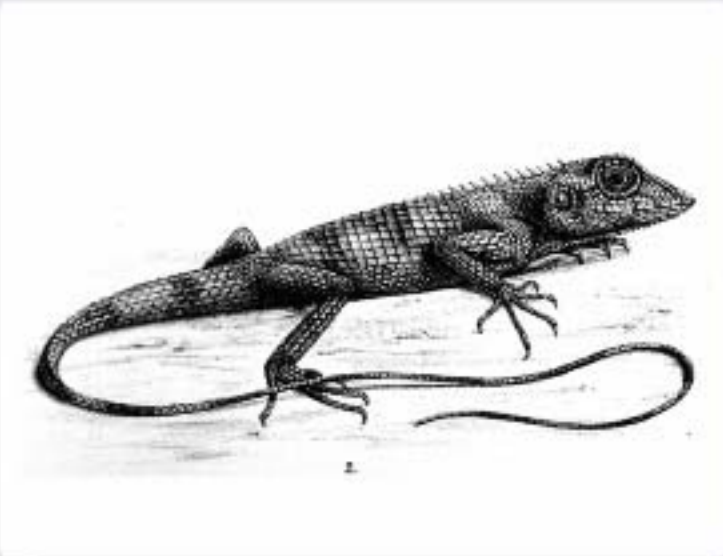


Fig. 11: Reprinted from Boulenger (1885). Catalogue of the Lizards in the British Museum, I: 326-327, pl. 25, fig. 2



Fig. 12: Syntype of *Calotes liolepis*: BMNH 69.7.24.2 (CM)



Fig. 13: Syntype of *Calotes liolepis*: BMNH 69.7.24.2 (CM)

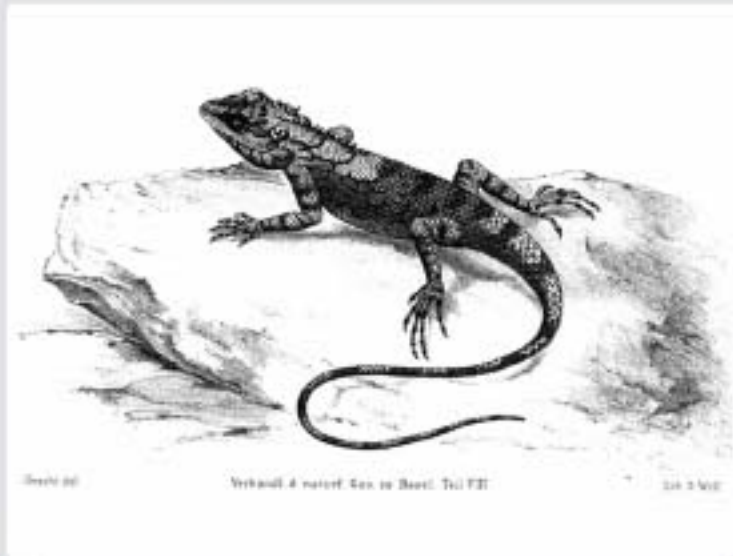


Fig. 14: Reprinted from Müller (1887). Verhandlungen der Naturforschenden Gesellschaft in Basel, 8 (2): 292-293, pl 3

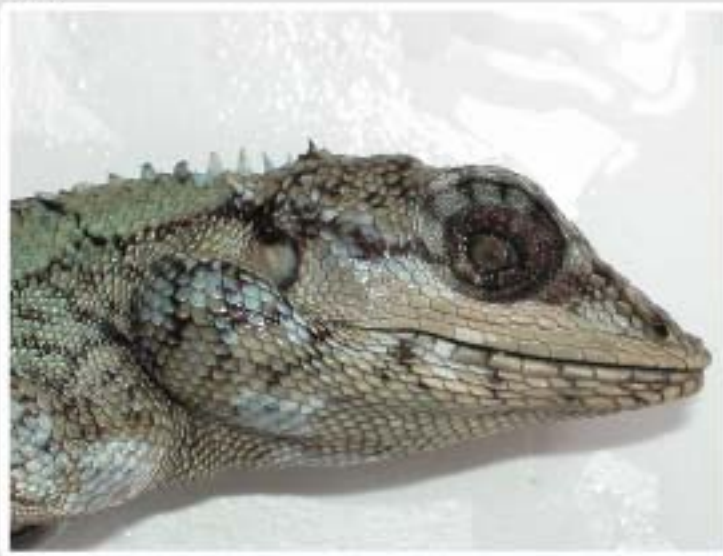


Fig. 15: Syntype of *Calotes ceylonensis*: NMB 3340 (ES)



Fig. 16: Syntype of *Calotes ceylonensis*: NMB 3340 (ES)

PLATE 03



Fig. 17: Holotype of *Otocryptis bivittata*: ZMB 708 (MO)



Fig. 18: Holotype of *Otocryptis bivittata*: ZMB 708 (MO)



Fig. 19: Reprinted from Gray (1835). Illustrations of Indian Zoology, II: pl.68, fig. 2

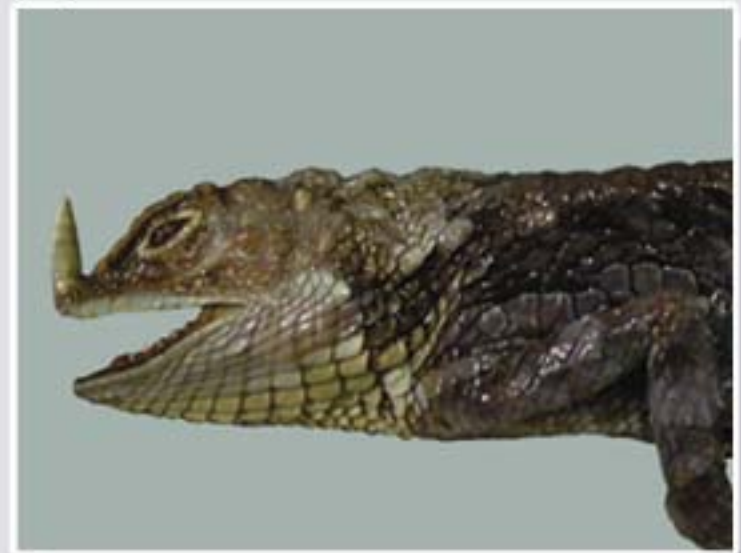


Fig. 20: Holotype of *Ceratophora stoddartii*: BMNH 1946.8.27.37 (CM)



Fig. 21: Holotype of *Ceratophora stoddartii*: BMNH 1946.8.27.37 (CM)

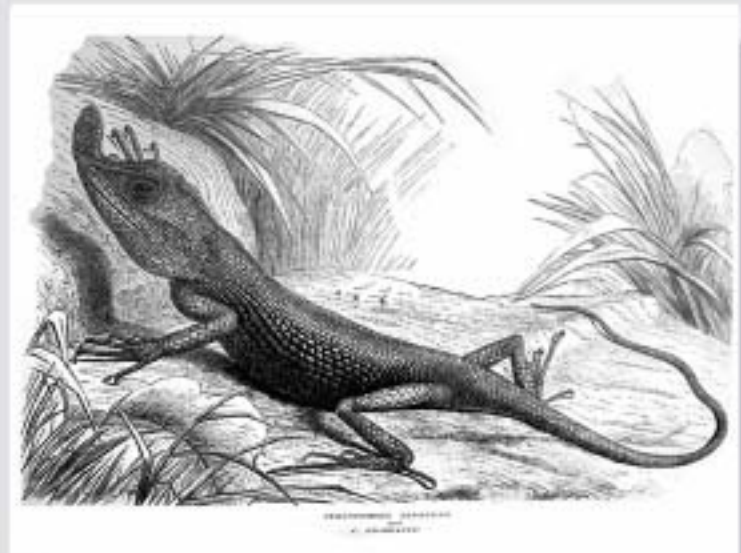


Fig. 22: Reprinted from Günther (1861). in Tennent, J. E., Sketches of the Natural History of Ceylon: 281, fig.



Fig. 23: Syntype of *Ceratophora tennentii*: BMNH 1946.8.27.32 (CM)



Fig. 24: Syntype of *Ceratophora tennentii*: BMNH 1946.8.27.33 (CM)

PLATE 04

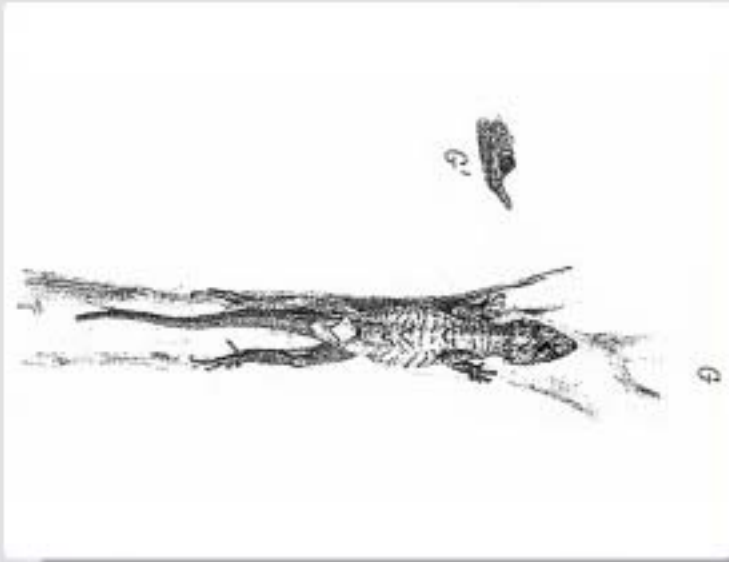


Fig. 25: Reprinted from Günther (1864). *The Reptiles of British India*: 131, pl. XIII, fig. G, G'



Fig. 26: Syntype of *Ceratophora aspera*: BMNH 1946.8.30.51 (CM)



Fig. 27: Syntype of *Ceratophora aspera*: BMNH 1946.8.30.52 (CM)



Fig. 28: Reprinted from Seba (1734). *Mus.* vol. I. pl. 109. fig. 3



Fig. 29: Lectotype of *Cophotis ceylanica*: ZMB 4240 (RG)



Fig. 30: Lectotype of *Cophotis ceylanica*: ZMB 4240 (RG)



Fig. 31: Holotype of *Sitana ponticeriana*: MNHN 6901 (II)



Fig. 32: Holotype of *Sitana ponticeriana*: MNHN 6901 (II)