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# *LIPINIA NITENS* (PETERS, 1871): DISCOVERY OF A SECOND SPECIMEN AND A REDESCRIPTION OF THE HOLOTYPE

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***ABSTRACT.*** – The rare Bornean skink, *Lygosoma nitens* Peters (1871), previously known only from the holotype of unknown provenance in Sarawak, is reviewed on the basis of the type and a new specimen from Gunung Pueh, western Sarawak. The species is redescribed and allocated to the genus *Lipinia*. *Lipinia nitens* lacks an external ear opening, having in its place a scaly dimple; only six supralabials, with the fourth subocular; longitudinal scale rows at midbody 22; a distinct colour pattern, with dark paravertebral and lateral stripes, especially on the anterior of the trunk.

***KEY WORDS.*** – *Lygosoma nitens, Lipinia nitens*, systematics, Sarawak, Gunung Pueh.

## INTRODUCTION

*Lygosoma nitens* Peters (1871) was described from a single specimen collected by the late Nineteenth Century Italian botanist and explorer, Odoardo Beccari (1843-1920) and nobleman and patron of Museo Civico di Storia Naturale, Genoa, the Marquis Giacomo Doria of Genoa (1840-1913), between 1865-1868, from an unspecified locality in Sarawak. Subsequently, both Bartlett (1895) and Brown (1902) listed the species, although it is unclear whether they actually examined specimens. There have been few literature citations of this species, and indeed, in the next major work on the lizard fauna of south-east Asia by De Rooij (1915), this name is unlisted. More recently, *Lygosoma nitens* Peters, 1871 has been treated as a valid species of *Scincella* Mittleman, 1950, by Mittleman (1952) and of *Sphenomorphus* Fitzinger, 1843, by Bauer et al. (1995: 64).

On 5 September 1999, one of us (ID) found a road killed skink (ZRC 2.4861) at the base of Gunung Pueh (Mount Poi in the older literature; summit at 01° 48'N; 109° 40'E), Kuching Division, western Sarawak, East Malaysia (Borneo), that was thought to be this species. In pursuing the identification of the specimen, one of us (AG) borrowed the type specimen from the Museo Civico di Storia Naturale, Genoa (CE 27975) for examination in a modern context. In this brief note, we provide a redescription of the type specimen, allocate it to the genus *Lipinia* Gray, 1845, and compare it with the recently discovered specimen.

## GENERIC ALLOCATION OF *LYGOSOMA NITENS* PETERS, 1871

*Lygosoma nitens* Peters 1871 is most appropriately assigned to the genus *Lipinia* under current taxonomic concepts. *Lipinia* is a member of the *Sphenomorphus* group of lygosomine skinks (Greer, 1979) and has the following derived characters vis à vis this group: size small (maximum SVL: 58 mm); lower eyelid with clear window (except in *L. leptosoma*); auricular lobules absent; body scales smooth; longitudinal scales rows at midbody $\leq 28$; basal subdigital lamellae expanded (albeit ever so slightly in some taxa); postorbital absent; vomers fused; pterygoid teeth absent; dorsal colour pattern usually comprising a pale (rarely dark) mid-dorsal stripe at least anteriorly; visceral fat bodies absent (except in *L. noctua*); brood size constant, two or one (*L. rouxi*). The genus currently contains 27 species and is distributed from south-east Asia and the Philippines east through the Indonesian Archipelago, Solomon Islands islands of the central Pacific (for the distribution in the Pacific, see Zweifel, 1979: Fig. 8).

## REDESCRIPTION OF *LIPINIA NITENS* (PETERS, 1871)

In general aspect, *Lipinia nitens* is a relatively small (SVL: 29 mm fide Peters, 1871), gracile skink with well developed pentadactyl limbs and a colour pattern consisting of a pair

of thin, jagged-edged paravertebral and lateral stripes (Fig. 1).

In detail, snout somewhat pointed; rostral projects moderately well onto snout in a gently arcing rostral part and a squared labial part; prefrontals moderately separated; supraoculars four, first two contact frontal; frontoparietals fused; interparietal distinct; parietal eyespot distinct; parietals meet behind interparietal; nuchals 2/2.

Nasal a tilted rhomb and wrinkled through desiccation to a point where it is difficult to tell if it is sutured; loreals 1/2; preoculars two; presuboculars two; postsuboculars (scales between lower pretemporal and supralabial subocular) three; lower eyelid with clear spectacle; supraciliaries difficult to count but probably 7/6, first three contact frontal, first separated from frontal on left side but in short contact on right; pretemporals two; primary temporal one; secondary temporals two, upper overlaps lower; tertiary temporals bordering lower secondary temporal one; scales bordering parietal between upper secondary temporal and anterior nuchal one; supralabials six, fourth subocular; postsupralabials 1/2; external ear opening absent, its former position indicated by a deep, scaly dimple.

Postmental contacts two infralabials on each side; three pairs of large chin scales, members of first pair in contact, members of second pair separated by one scale row and members of third pair separated by three scale rows; large chin scales abut infralabials, i.e., genials do not encroach between chin scales and infralabials; infralabials 5/5.

Longitudinal rows at midbody 22; paravertebral scales 54, appreciably wider than more lateral body scales (paravertebrals counted from parietals to posterior edge of rear limb); body scales smooth, shiny, each with a concentric row of minute pits just anterior to the free edge of scale.

Subdigital lamellae on fourth digit of pes 16/16, basal lamellae were probably obtusely keeled and the keels are dark coloured; scales on dorsal and lateral surface of fourth digit of pes in multiple rows, except for three most distal scales which are single. Subcaudal scales very wide.

Fig 1. Holotype of *Lygosoma nitens* Peters, 1871 (MSNG CE 27975). Detached part of tail shown in ventral view.

Dorsal colour pattern consists of a wide mid-dorsal and two wide laterodorsal pale stripes, these stripes separated by narrower, ragged-edged, brown stripes; sides with wide, slightly diffuse, ragged-edged brown stripe which continues onto tail.

Presacral vertebrae 27; postsacral vertebrae 33+; cervical vertebrae eight; sternal/mesosternal ribs 3/2; sternum with central fontanelle; phalangeal formula of manus/pes: 2.3.4.5.3/2.3.4.5.4; antepenultimate phalange of fourth digit of pes not shorter than more proximal phalange.

As the specimen is now in a fragile condition and re-measurement would require straightening both the body and limbs in a manner we are unwilling to attempt, we repeat the original measurements (Peters, 1871): snout-vent length 29 mm; tail length 47 mm; front limb 8 mm, and rear limb 15 mm.

Description of the second specimen of *Lipinia nitens*.- SVL 33.6 mm; supralabials six; fourth midorbital; paravertebrals 54; subdigital lamellae on fourth toe of pes 16/16; other characterstics as in the holotype, except specimen was too damaged for successful radiographic examination for determining pre- and postsacral vertebrae numbers.

Coloration of the freshly-killed specimen.- vertebral pale stripe yellow, commencing from snout-tip, where it is broad, bordered laterally by jagged dark stripe which is continuous to above level of axilla, but breaks up into blotches posteriorly; laterodorsal pale stripe pale yellow and prominent on head, neck and forebody; belly greyish-yellow, with scattered dark spots, especially on anal and abdominal regions; supra- and infralabials dark barred; limbs grey with irregular yellow blotches; tail yellow with some isolated black speckles, especially on sides.

The specimen was found dead on a logging road at the foot of Gunung Pueh, an isolated sandstone massif in extreme western Sarawak, at the border with Kalimantan (Indonesian Borneo) (Fig. 2). The surrounding habitat consisted of degraded kerangas (from an Iban word for land that will not grow rice), a distinct heath forest, with small, stunted trees, that is associated with unleached sandy soil, and more rarely, on ridge-tops, mainly on sandstone plateaux (MacKinnon et al., 1996: 241).

## COMPARISONS WITH OTHER SPECIES

*Lipinia nitens* lacks an external ear opening, having in its place a scaly dimple. Four other species of *Lipinia* share this feature: *L. infralineolata* from Sulawesi (formerly, Celebes), *L. quadrivittata* from Sulawesi and the Philippines, *L. relicta* from the islands off the west coast of Sumatra (Vinciguerra, 1892; Boulenger, 1895; De Rooij, 1915) and Java (Brongersma, 1942), and *L. subvittata* from Sulawesi. *L. infralineolata* is somewhat variable and may consist of more than one species (AG, pers. obs.). Hence, for the purposes of comparison, we consider those specimens of this

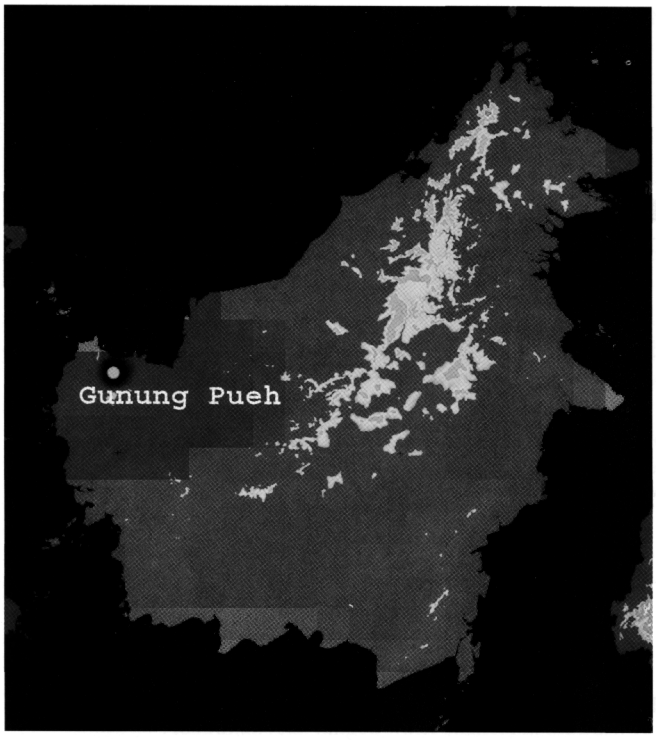


Fig. 2. Map of Borneo, showing the location of Gunung Pueh, from where the second specimen of *Lipinia nitens* was collected.

species which are similar to *L. nitens* in having only six (instead of seven) supralabials with the fourth (instead of fifth) supralabial in the subocular position.

*Lipinia nitens* differs from *L. infralineolata* and *L. quadrivittata* in having longitudinal scale rows at midbody 22 instead of 20 (or sometimes 18). It differs from *L. relicta* in having six supralabials instead of seven. It differs from *L. subvittata* in having fewer paravertebral scales (54-55, n = 2 vs 57-64, n = 10, data from Brown and Alcala, 1963) and a more distinct colour pattern, the dark paravertebral and lateral stripes extending the length of the body instead of becoming "indistinct in the posterior half of the trunk" and being "lost behind the shoulder" (Günther, 1873; Brown and Alcala, 1963: fig.1b, respectively).

A cladistic analysis (PAUP 4.0b10) of the species of *Lipinia* using heuristic search on a matrix of 15 morphological characters and 26 ingroup taxa revealed 134315 trees. However, the strict consensus tree had as one of its few resolved groups four of the five earless species: *L. infralineolata, L. nitens, L. quadrivittata* and *L. subvittata.* The derived characters supporting this group were: frontoparietals fused, supralabials six (even though *L. infralineolata* was scored as "?" for this character - see above), external ear opening absent and presacral vertebrae 27. The relationships of these four species were not resolved further, and the relationships of the fifth earless species, *L. relicta*, were completely unresolved.

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## LITERATURE CITED

Bartlett, E., 1895. The crocodiles and lizards of Borneo in the Sarawak Museum, with descriptions of supposed new species, and the variation of colours in the several species during life. *Journal of the Straits Branch of the Royal Asiatic Society,* **1895**(28): 73-96.

Bauer, A. M., R. Günther & M. Klipfel, 1995. The herpetological contributions of Wilhelm C. H. Peters (1815-1883). Society for the Study of Amphibians and Reptiles/Deutsche Gesellschaft für Herpetologie und Terrarienkunde, Facsimile Reprints in Herpetology, Oxford, Ohio. 714 pp.

Boulenger, G., 1895. A list of the reptiles and batrachians collected by Dr. E. Modigliani on Sereinu (Sipora), Mentawei Islands. *Annali Museo Civico Storia Naturale, Genoa,* **34**: 613-618.

Brongersma, L. D., 1942. Notes on scincid lizards. *Zoologische Mededelingen, Leiden,* **24**: 125-152.

Brown, A. E., 1902. A collection of reptiles and batrachians from Borneo and the Loo Choo Islands. *Proceedings of the Academy of Natural Sciences, Philadelphia,* **54**: 175-186.

Brown, W. C. & A. C. Alcala, 1963. Additions to the leiolopismid lizards known from the Philippines, with descriptions of a new species and subspecies. *Proceedings of the Biological Society of Washington,* **76**: 69-80.

De Rooij, N., 1915. The reptiles of the Indo-Australian Archipelago. Vol. I. Lacertilia, Chelonia, Emydosauria. E. J. Brill, Leiden. xiv + 384 pp.

Greer, A. E., 1979. A phylogenetic subdivision of Australian skinks. *Records of the Australian Museum,* **32**: 339-371.

Günther, A. C. L. G., 1873. Notes on some reptiles and batrachians obtained by Dr. Adolf Bernhard Meyer in Celebes and the Philippine Islands. *Proceedings of the Zoological Society of London,* **1873**: 165-172.

MacKinnon, K., G. Hatta, M. Malim & A. Mangalik., 1996. *The ecology of Kalimantan.* Periplus Editions (HK) Ltd., Singapore. xxiv + 802 pp; 44 pl.

Mittleman, M. B., 1952. A generic synopsis of the lizards of the subfamily Lygosominae. *Smithsonian Miscellaneous Collections,* **117**: 1-35.

Peters, W. C. H., 1871. Über neue Reptilien aus Ostafrika und Sarawak (Borneo), vorzüglich aus der Sammlung des Hrn. Doria zu Genoa. *Monatsberichte der königlich Akademie der Wissenschaften zu Berlin,* 1871: 566-581.

Vinciguerra, D., 1892. Rettili e Batraci di Engano. *Annali Museo Civico Storia Naturale, Genoa,* (2)**12**(32): 517-526.

Zweifel, R. G., 1979. Variation in the scincid lizard *Lipinia noctua* and notes on other *Lipinia* from the New Guinea region. *American Museum Novitates* (2676): 1-21.