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Annotated catalogue of acrodont lizard types in the collection of the Naturalis Biodiverstity Center (Squamata: Agamidae, Chamaeleonidae)

ESTHER DONDORP[1] & WOLFGANG DENZER[2*]
[1]*Naturalis Biodiversity Center, Darwinweg 2, 2333 CR, Leiden, The Netherlands.*
[2]*Society for Southeast Asian Herpetology, Calle Rio Segura 26, 30600 Archena/Murcia, Spain.*
**Corresponding author: lobo@herpetologica.org; https://orcid.org/0000-0003-2619-4555*

Abstract

A list of acrodont lizard type specimens extant in the Naturalis collection is presented here for the first time. The collections combines original specimens of the former Rijksmuseum van Natuurlijke Historie, Leiden (RMNH) and the former Zoölogisch Museum Amsterdam (ZMA). Currently the Naturalis collection holds primary types of 25 agamid lizard species (11 holotypes, six lectotypes and syntypes for eight species, including types of two species where the type status is unclear) as well as numerous secondary types for 22 species (14 para- and eight paralectotype series). Type material present in the collection represents 29 currently valid agamid lizards taxa and three currently valid chameleon taxa.

Key words: Reptiles, Acrodonta, types, Naturalis

Introduction

The herpetological collection of the Naturalis Biodiversity Center combines the former collections of the Rijksmuseum van Natuurlijke Historie, Leiden (RMNH) and the Zoölogisch Museum, Amsterdam (ZMA). A detailed history of the collection can be found in Gassó Miracle *et al*. (2007). Briefly, the core of the collection goes back to the first half of the 19th century when naturalists were deployed to Indonesia by the Natuurkundige Commissie and sent shipments back to the Netherlands. The Natuurkundige Commissie initially explored Java and later parts of Borneo, Sumatra, Sulawesi and New Guinea as well as some of the Moluccan islands. Consequently the vast amount of agamid lizard types originated from Indonesia. Renowned collectors include the early travellers such C. Reinwardt, H. Kuhl, H. Boie, H. C. Macklot and S. Müller. During the second half of the 19th century notable collections were made by P. Bleeker and M. Weber. The collection efforts made by the 19th century naturalists were reviewed at the beginning of the 20th century and culminated in de Rooij's (1915/1917) books on the reptile fauna of the Indoaustralian Archipelago where all known species of their time were examined and redescribed with special consideration to the Amsterdam and Leiden collections. Later collections made during the 20th century and originating from the Indoaustralian archipelago were provided by F. Kopstein and L. Brongersma. Other material was received in exchange from the Museum in Paris and the Museum of Comparative Zoology, the latter through a connection with A. Loveridge.

While type catalogues including acrodont lizards exist for the ZMA collection (Daan & Hillenius 1965, van Tuijl 1985) no such catalogue was ever compiled for the collection of the former RMNH. In the course of our survey of acrodont lizard types we encountered 25 primary types (11 holotypes, six lectotypes and eight syntypes), all of them agamid lizards, of which 12 types are representative of currently valid species or subspecies, and secondary types of 11 species (paratypes or paralectotypes of species or subspecies where the primary type is deposited in a different collection), two (possibly three) of which represent chamaeleonid taxa.

The majority of acrodont lizard types in the collection belong to the agamid lizard subfamily Draconinae. Amphibolurinae are represented by three *Hypsilurus* species from New Guinea and one species each of the genera *Amphibolurus* and *Pogona* from Australia. Agaminae are represented by two European members of the *Laudakia stellio* complex. The only chameleon types, and therefore African acrodont lizards, belong to the genus *Triocerus*.

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The oldest acrodont lizard type in the Naturalis collection, namely *Agama jacksoniensis*, dates back more than two hundred years and was described by Cloquet in 1816, i. e. four years before the collection of the Rijksmuseum in Leiden was established. Two equally old specimens collected by S. Müller on Sumatra around 1833–1835 were only recently included in the description of a new species, namely *Pseudocalotes baliomus* (Harvey *et al*. 2017). In one case (*Lyriocephalus scutatus*) the type status is unclear; however should it turn out to be a type the collection date would be before 1752 and the specimen would have originated from the Seba collection.

Material and Methods

We consulted original catalogue entries and registers, published catalogues as well as subsequent publications dealing with type specimens of agamid lizards and chameleons. Each jar containing type material was inspected for the presence and number of specimens. Where necessary we measured specimens and compared the data to the original description in order to ascertain their type status.

Museum collection abbreviations follow Sabaj (2020). Other abbreviations used: juv. = juvenile; asl = above sea level; coll. = collected; don. = donated; exch. = exchanged; SVL = snout-vent length; TL = tail length; AG = length between axilla and groin; FLL = forelimb length; HLL = hindlimb length.

The list is arranged alphabetically. Junior synonyms are only listed where they have been described as a new species under a different name and where they have included type material. Valid species are emphasised using bold type font. For currently accepted valid names we follow Uetz *et al*. (2019) and subsequent changes published on the reptile database website (https://reptile-database.reptarium.cz). For convenience the first page of the original description is given for each taxon after the authorship assignment. The full citation is provided under References. The data for each type specimen are presented in the following way: type status, collection number, sex (if known), collection locality and collector followed by the type locality. In cases where the Naturalis collection does not hold a primary type the type locality is given for the holo- or lectotype. Where necessary or appropriate comments are made under Remarks. Also if the Naturalis collection does not hold a primary type, the collection that contains the holotype, lectotype or syntype series is given there.

List of type specimens

Agamidae

Agama jacksoniensis Cloquet, 1816: 72 = *Amphibolurus muricatus* (Shaw in White, 1790)

Lectotype: RMNH.RENA.3117, Port Jackson, Australia, coll. Peron (ex. Mus. Paris)

Paralectotype: RMNH.RENA.41196, same data as lectotype

Type locality: Port Jackson, Australia

Remarks: Lectotype designated by Cogger *et al*. (1983): "RMNH.RENA.3117, larger of 2 specimens". The specimen was received from the Paris Museum (MNHN) in 1824 (see Bauer & Wagner 2012). The second specimen designated as paralectotype (RMNH.RENA.41196, formerly RMNH.RENA.3117 "smaller of 2 specimens) is assignable to *Agama diemensis* Cloquet, 1816 [= *Rankinia diemensis* (Gray, 1841)]. The holotype of *Amphibolurus muricatus* is deposited under NHMUK 1946.4.44 (type locality: Collanebri, New South Wales, Australia).

Agama stellio cypriaca Daan, 1967: 129 = *Laudakia cypriaca* (Daan, 1967)

Paratypes: ZMA.RENA.13073, female, Nikosia, coll. H. Schnurrenberger, 1962; ZMA.RENA.13746 and ZMA.RENA.13749 (ex LAR 1010 and 1012), one adult male and one juvenile, Nikosia, Cyprus, coll. Monniot, 1962; ZMA.RENA.13747 (ex LAR 1011), juvenile, Temple de Vouni, Cyprus, coll. Monniot, 1962; ZMA.RENA.13748 (ex LAR 1009), male, Salamis, Cyprus, coll. Biguet, 1962; RMNH.RENA.14881, female, R.A.F. vliegveld bij [airport near] Nicosia, Cyprus, coll. W. J. Roosdorp 1952 (unnumbered RMNH specimen mentioned by Daan), RMNH.RENA.4739 (one male, one female), without locality, coll. H. Rolle, 1905.

Type locality: Limasol, Cyprus

Remarks: van Tuijl (1995) listed ZMA 13746-49 (four specimens) as paratypes. At the time of the original publication by Daan (1967) these specimens were still in the private collection of Dr. L. Ph. Knoepffler and were listed as LAR 1009-1012. RMNH.RENA.4739 contains the unnumbered specimens listed in Daan (1967). The holotype is deposited under NHMUK 1930.10.5.6, Limassol, coll. R. L. Cheverton 1930 as are further paratypes from the same collector and locality NHMUK 1930.3.12.4 (one male), NHMUK 1930.3.12.5 (one female), NHMUK 1930.10.5.6-7 (two males) as well as NHMUK 87.9.27.1 (one female, bad state of conservation) and NHMUK 87.9.27.2-5 (all males) without locality data collected by Lord Lilford, 1887. This former subspecies was elevated to species rank by Karameta *et al*. (2022).

***Agama stellio daani* Beutler & Frör, 1980: 270 = *Laudakia stellio daani* (Beutler & Frör, 1980)**

Paratypes: ZMA.RENA.10695, one juv. male; ZMA.RENA.11546, one juv.; both Ikaria, Therma Loutra, Greece, coll. S. Daan & V. van Laar 16 June 1963

Type locality: Between Agh. Kirikos and Evdilos, Ikaria, Samos region, Greece

Remarks: The ZMA types were not listed by van Tuijl (1995). The holotype is deposited under ZSM 201/1978/2 (given as ZSM 201/1978-1 in the original publication), adult male, coll. Beutler 1978.

***Amphibolurus barbatus minimus* Loveridge, 1933: 69 = *Pogona minor minima* (Loveridge, 1933)**

Paratype: RMNH.RENA.6420 (ex. MCZ 32979), West Wallaby Id, Houtman Abrolhos, W. Australia, coll. G. M. Allen 1931, Harvard Australian Exp. 1931–1932.

Type locality: same as paratype

Remarks: The specimen was received in exchange from the Museum of Comparative Zoology, Cambridge, USA on 5 July 1935. The holotype is deposited under MCZ 32972, same locality data as paratype.

***Amphibolurus muricatus* (Shaw in White, 1790) see *Agama jacksoniensis* Cloquet, 1816**

***Aphaniotis ornata* (Lidth De Jeude, 1893) see *Japalura ornata* Lidth De Jeude, 1893 as well as *Japalura nasuta* de Jong, 1930**

***Bronchocela jubata* Duméril & Bibron, 1837 see *Calotes gutturosus* Schlegel in Duméril & Bibron, 1837**

***Calotes gutturosus* Schlegel in Duméril & Bibron, 1837: 397 = *Bronchocela jubata* Duméril & Bibron, 1837**

Syntypes / **Paralectotypes**: RMNH.RENA.3020, Java, coll. Reinwardt; RMNH.RENA.3849, Pondichery (locality probably incorrect), coll. Leschenault

Type locality: Java

Remarks: *Calotes gutturosus* Schlegel constitutes a taxon different from *Calotes gutturosa* Merrem, 1819 and "*Calotes Agama gutturosa* Merrem, 1820" (see Dubois 2022, Denzer & Tillack 2024, submitted). The name had been published first as a synonym (Art. 11.6.1, ICZN 1999) in Duméril & Bibron (1837) and was made available by Rüppel (1845) and Gray (1845) as *Bronchocela gutturosa* Schlegel in Duméril & Bibron, 1837. Dubois (2022) subsequently placed *Calotes gutturosus* Schlegel in the synonymy of *Bronchocela jubata* Duméril & Bibron, 1837. Specimens listed in the Leyden collection (now Naturalis) under the name *Calotes gutturosus* and available to Schlegel prior to the 1837 have syntype status for *Calotes gutturosus* Schlegel in Duméril & Bibron, 1837. Both specimens (RMNH.RENA.3020 & 3049) came into the collection in the 1820ies. Their original name *Calotes gutturosus* was changed in the handwritten catalogue after 1837 to *Bronchocela jubata*. Amarasinghe *et al*. (2022) designated MNHN-RA 2542 as the lectotype for *Bronchocela jubata* without considering the RMNH material

as original syntypes. Through their lectotype designation these two specimens become additional paralectotypes (Denzer & Tillack 2024, submitted).

Calotes megapogon Duméril & Bibron, 1837: 419 = *Hypsilurus megapogon* (Duméril & Bibron, 1837)

Syntypes: RMNH.RENA.3048, male, Lobo, New Guinea, coll. Müller 1828; RMNH.RENA.3049, male, same locality assumed, coll. Müller & Macklot 1828.

Type locality: "im hohen Wald" [in the high (primary) forest]) near Lobo, Triton Bay, New Guinea

Remarks: The type status and nomenclature of the Naturalis specimens of *Calotes megapogon* are discussed in detail in Denzer & Dondorp (2023b). Briefly, the name *Calotes megapogon* was published as a synonym of *Lophyrus dilophus* (comb. nov. pro *Tiaris dilophus* Duméril & Bibron, 1836) by Duméril & Bibron (1837). In a later publication by Gray (1845) made the name *megapogon* available for nomenclatural purposes in accordance with Art. 11.6.1 of the Code (IZCN 1999) in the new combination *Tiaris megapogon*. Comparison of the Naturalis specimens with the holotype by monotypy of *Tiaris dilophus* Duméril & Bibron, 1836 revealed that they belong to different genera (Denzer & Dondorp 2023b). *Tiaris dilophus* belongs to the genus *Lophosaurus* Fitzinger, current name *Lophosaurus dilophus* (Duméril & Bibron, 1836), while *Calotes megapogon* is a member of the genus *Hypsilurus* Peters related to the species *Hypsilurus auritus* (Meyer, 1874) and *Hypsilurus spinosus* (Duméril & Duméril, 1851). The latter two species were shown to be conspecific and synonymized with *Hypsilurus megapogon* which constitutes the oldest available and therefore the applicable name for the taxon.

Calotes nasicornis van der Hoeven, 1855: 533 = *Pseudocophotis sumatrana* (Hubrecht, 1879)

Holotype (by monotypy): RMNH.RENA.3872, male, Sumatra

Type locality: "Sumatra" (see remarks under *Cophotis sumatrana*)

Remarks: *Calotes nasicornis* van der Hoeven, 1855 was described prior to *Cophotis sumatrana* Hubrecht, 1879 but the earlier name has to be considered a *nomen oblitum* (Denzer *et al*. 2021). The holotypes of both species are identical.

Cophotis sumatrana Hubrecht, 1879: 243 = *Pseudocophotis sumatrana* (Hubrecht, 1879)

Holotype (by monotypy): RMNH.RENA.3872, male, Sumatra

Type locality: Padang area, Sumatra, Indonesia

Remarks: The specimen is identical to *Calotes nasicornis* van der Hoeven, 1855. Denzer *et al*. (2021) suspected that the type locality may be in error and that the species is restricted to Java. *Cophotis sumatrana* Hubrecht, 1879 is the type species of the genus *Pseudocophotis* Manthey, 1997.

Draco boschmai Hennig, 1936 see *Draco volans boschmai* Hennig, 1936

Draco buruensis de Jong, 1926: 89 = *Draco lineatus* Daudin, 1802

Lectotype: ZMA.RENA.10931, male, Leksula, coll. L. J. Toxopeus 23 Feb. 1921

Paralectotypes: ZMA.RENA.10932-33, two males, Ehu, 600–1100 m, coll. L. J. Toxopeus 1921

Type locality: Buru Island, Moluccas, Indonesia

Remarks: de Jong (1926) did not designate a holotype and the three specimens were considered syntypes until the type designation by Musters (1983). *Draco buruensis* was synonymized with *Draco lineatus bourouniensis* Lesson, 1834 by Hennig (1936). McGuire & Kiew (2001) elevated the subspecies to species rank, i.e. *Draco bourouniensis*. In a subsequent publication McGuire *et al*. (2007) synonymized *Draco buruensis* de Jong, 1926 and *Draco bourouniensis* Lesson, 1834 with *Draco lineatus* Daudin, 1802 which therefore constitutes the currently accepted name.

***Draco caerulhians* Lazell, 1992: 482**

Paratypes: RMNH.RENA.25763 (formerly, MCZ 173328), male, Manganitu, coll. F. Kodong, J. Rimbing, R. Tahulending and J. Lazell; RMNH.RENA.25764 (formerly MCZ 173342), female, Manganitu, coll. F. Kodong, J. Rimbing and J. Lazell, 20. March 1988

Type locality: Manganitu, Sangihe, Indonesia

Remarks: The holotype is deposited under MCZ 173321, coll. Fentje Kodong, 20. Mar. 1988.

***Draco dussumieri* Duméril & Bibron, 1837: 456**

Syntype: RMNH.RENA.2954, Malabar, coll. Dussumier

Type locality: "Bengale et cote de Malabar", restricted to Malabar by Smith (1935)

Remarks: Musters (1983: 23) argued that a specimen in the Leiden collection (RMNH.RENA.2954) was also collected by Dussumier in Malabar and that it should be considered as a third syntype. The remaining syntypes are deposited in Paris under MNHN-RA 2590 (2048) Ag 5, Bengale; MNHN-RA 6909 (2049) Ag 5/1, Bengale, Dussumier.

The Naturalis specimen was not listed in Uetz *et al*. (2019). The restriction of the type locality by Smith (1935) is technically invalid as no lectotype was designated.

***Draco fimbriatus fimbriatus* Kuhl, 1820 see *Draco fimbriatus hennigi* Musters, 1983**

***Draco fimbriatus hennigi* Musters, 1983: 27 = *Draco fimbriatus fimbriatus* Kuhl, 1820**

Holotype (by original designation): RMNH.RENA.19973, male, Soekamandi, Java, coll. F. Kopstein Feb. 1936

Paratypes: RMNH.RENA.2922, six males and one female, Parang, coll. H. Boie; RMNH.RENA.2924, 2925, seven males and six females, Parang, coll. H. Boie & H. Macklot; RMNH.RENA.2926, two females, Parang, coll. S. Müller; RMNH.RENA.9019, female, Tomo, Cheribon, 100 m, coll. F. Kopstein Dec. 1930; RMNH.RENA.19972, female, Soekamandi, coll. F. Kopstein Feb. 1936; RMNH.RENA.19971, male, Nongkodjadjar, coll. F. Kopstein 1934; ZMA.RENA.12103, two males, surroundings Buitenzorg coll. H. Boschma. All specimens from localities on Java.

Type locality: Java

Remarks: Musters (1983) followed Hennig (1936) in considering only specimens from the Malay Peninsula as *D. f. fimbriatus*. Consequently he described material from Java as a new subspecies. The subspecies *D. f. hennigi* is currently considered as a junior synonym of *D. f. fimbriatus* fide Kiew & McGuire (2001). Further paratypes are deposited in Frankfurt under SMF 23183-88, three males and three females, Buitenzorg (= Bogor), coll. R. Mertens. 1927. During our current survey we did not locate the holotype RMNH.RENA.19973 as well as the paratypes RMNH.RENA.2922 and RMNH.RENA.19972 in the collection.

***Draco haematopogon* Gray, 1831: 59**

Lectotype: RMNH.RENA.2958 a, male, Parang, Java, coll. H. Boie and H. Macklot

Paralectotypes: RMNH.RENA.2958 b–e, RMNH.RENA.2960 (2 specimens), two males and four females, Parang, Java, same data as lectotype

Type locality: Parang, Java. None given by Gray (1831). Designated by Hennig (1936) as "Malayische Halbinsel" [Malay Peninsula] and Mertens (1957) as "West-Java". Restricted to Parang, Java by Musters (1983).

Remarks: Type designation by Musters (1983: 30). Additional MHNP (now MNHN) specimens were considered as syntypes by Brygoo (1988). These specimens now have the status of paralectotypes (MNHN-RA 2577 (2051), 2577A, Ag 7, Java, received from Leiden Museum).

***Draco lineatus* Daudin, 1802 see *Draco buruensis* de Jong, 1926 and *Draco toxopei* de Jong, 1926**

***Draco lineatus rhytisma* Musters, 1983: 47 = *Draco rhytisma* Musters, 1983**

Holotype (by original designation): RMNH.RENA.20993, male, Lipulalongo, Pulau Labobo, Kepulauan Banggai, elevation 0–50m asl, 17. Nov. 1981, coll. W. F. Rodenburg

Paratypes: RMNH.RENA.20988-92, 20994-96, two males, four females and two juveniles, Lipulalongo, Pulau, Labobo, Kepulauan Banggai; elevation 0–50m asl, 17. Nov. 1981; RMNH.RENA.20997-98, one male and one female, Bonepuro, Pulau Peleng, elevation 20–100m asl, 21. Nov. 1981, all coll. W. F. Rodenburg

Type locality: Lipulalongo, Pulau [island] Labobo, Kepulauan [island group] Banggai, Indonesia

***Draco quinquefasciatus* Hardwicke & Gray, 1827 see *Draco quinquefasciatus longibarba* Hennig, 1936**

***Draco quinquefasciatus longibarba* Hennig, 1936: 193 = *Draco quinquefasciatus* Hardwicke & Gray, 1827**

Paratypes: RMNH.RENA.4996, male, Deli, Sumatra; ZMA.RENA.11022-23, one male and one female, Samarinda, Kalimantan, Borneo, coll. H. A. Lorentz 24 May 1909

Type locality: Baram, Sarawak, Borneo

Remarks: The holotype is deposited under ZRC 2.659 (male, Borneo, Baram, Sarawak). Hennig (1936) stated that apart from the male holotype all other specimens he examined from the collections in Amsterdam (2), Leiden (3) and Singapore (4) should be considered paratypes. Das & Lim (2001) only mention the holotype and two missing paratypes (one male from Samauang River, North Sandakan and one male from Kiau, Mt. Kinabalu) for the ZRC but there should be five type specimens altogether including the holotype according to Hennig (1936); the additional missing ZRC specimens are one male and one female from the type locality, one of which was mentioned by Hanitsch (1900) but could not be located by Das & Lim (2001).

***Draco rhytisma* Musters, 1983 see *Draco lineatus rhytisma* Musters, 1983**

***Draco sumatranus* Schlegel, 1839 see *Draco viridis* var. *sumatrana* Schlegel, 1839**

***Draco timoriensis* Kuhl, 1820 see *Draco viridis var. samaoensis* Schlegel, 1839**

***Draco toxopei* de Jong, 1926: 88 = *Draco lineatus* Daudin, 1802**

Lectotype: ZMA.RENA.10934, male, Wa'katin, Buru, Indonesia, coll. L. J. Toxopeus 6 June 1921

Paralectotype: ZMA.RENA.10935, male, Rana, Buru, Indonesia, coll. L. J. Toxopeus 1921.

Type locality: Buru

Remarks: Type designation by Musters (1983). *Draco toxopei* was synonymized with *Draco lineatus bourouniensis* Lesson, 1834 by Hennig (1936).

***Draco viridis* var. *javanica* Schlegel, 1839: 91 = *Draco volans* Linnaeus, 1758**

Lectotype: RMNH.RENA.2934 A, male, Java, coll. H. C. Macklot

Paralectotypes: RMNH.RENA.2934 B –F, four males and one female Java, all coll. H. C. Macklot; RMNH. RENA.2928, 3 males, Java, coll. C. G. C. Reinwardt; RMNH.RENA.2931, three males and twelve females, Parang, coll. H. Boie & H. C. Macklot; RMNH.RENA.2932, Java, three females, coll. C. G. C. Reinwardt

Type locality: Java

Remarks: Type designations by Musters (1983). The year of publication for *Draco viridis* var. *javanica* as

well as the following two subspecies of *D. viridis* described by Schlegel is typically given as 1844 (see for example Musters 1983). However, the third decade of Schlegel's "*Abbildungen...*" was already published in 1839. For details on the publication dates see Jacobs & Koch (2021).

***Draco viridis* var. *samaoensis* Schlegel, 1839: 92 = *Draco timoriensis* Kuhl, 1820**

Holotype (by monotypy): RMNH.RENA 2903, one male, Semau, coll. S. Müller & H. Macklot

Terra typica: Semau Island, East Nusa Tenggara, Indonesia

Remarks: The species epithet derives from the historic Dutch name of an island southwest off Timor (10° 13'S, 123° 22'E), i. e. Samao or Semao. *Draco viridis var. samaoensis* was synonymized with *D. timoriensis* by Musters (1983). Kuhl (1820: 103) based his description of *D. timoriensis* on two specimens deposited in Paris and referred to Péron as the original author.

***Draco viridis* var. *sumatrana* Schlegel, 1839: 91 = *Draco sumatranus* Schlegel, 1839**

Lectotype: RMNH.RENA.2933 F, male, Sumatra, coll. S. Müller

Paralectoptypes: RMNH.RENA.2933 A–E, 2933 G, four males and two females, same data as lectotype

Type locality: Sumatra

Remarks: The type series was identified by Musters (1983) who also selected "the best preserved male" as the lectotype. A detailed description including morphometric and meristic data of the lectotype can be found in Musters (1983: 90). *Draco viridis* var. *sumatrana* was recognized as a subspecies of *Draco volans* by Honda *et al*. (1999) and elevated to species rank by McGuire & Kiew (2001).

***Draco volans* Linnaeus, 1758 see *Draco viridis var. javanica* Schlegel, 1844**

***Draco volans boschmai* Hennig, 1936: 180 = *Draco boschmai* Hennig, 1936**

Holotype (by original designation): ZMA.RENA.11025, male, Maumeri, Flores, coll. M. Weber 1888

Paratypes: ZMA.RENA.11026, female, Maumeri, Flores, coll. M. Weber 1888; ZMA.RENA.11027, male, ZMA.RENA.11028 female, Larantuka, Northcoast-Flores, Indonesia, coll. G. A. J. van de Sande, IV.1908; ZMA. RENA.11029, female, Endeh, coll. M. Weber 1888; ZMA.RENA.11030 one male and one female, Sikka, coll. M. Weber, 1888; RMNH.RENA.2943, male, Flores, coll. E.W. A. Ludeking, 1863; RMNH.RENA.4990, one male and one female, Sikka, coll. H. ten Kate, 1891; RMNH.RENA.4991, male, Adoenara [=Adunara, Flores], coll. H . ten Kate

Type locality: Maumeri, Flores, Indonesia

Remarks: The subspecies was elevated to species rank by McGuire & Kiew (2001)

***Gonocephalus bornensis* (Schlegel, 1848) see *Lophyus bornensis* Schlegel, 1848**

***Gonocephalus chamaeleontinus* (Laurenti, 1768) see *Lophyrus sumatranus* Schlegel, 1851**

***Gonocephalus kuhlii* (Schlegel, 1851) see *Lophyrus kuhlii* Schlegel, 1851**

***Gonocephalus megalepis* (Bleeker, 1860) see *Lophyrus megalepis* Bleeker, 1860**

***Gonyocephalus* (*Lophosteus*) *albertisii* Peters & Doria, 1878: 377 = *Hypsilurus papuensis* (Macleay, 1878)**

Syntype: RMNH.RENA.48990, adult male, Yule Island, coll. Albertis

Type locality: Yule Island, Central Province, Papua New Guinea

Remarks: The Naturalis specimen came to the collection around 1880. The handwritten catalogue of incoming material (book 8, p. 13, no. 790) lists "Typische Reptilien [type specimens of reptiles] uit te Museum te Genua [from the museum in Genoa]", among them *Gonyocephalus albertisii*. Further syntypes are deposited under MSNG 29122 (4 ex.), NMW 21052 and ZMB 9722, 9724-25 (see Capocaccia 1961, Denzer *et al*. 1997, Gemel *et al*. 2019). The holotype by monotypy of *Tiaris* [= *Hypsilurus*] *papuensis* is deposited under AMS R 31883 (formerly Macleay Museum, Sydney MR833), Hall Sound, Papua New Guinea (Cogger 1979).

Note: Most of the current literature (e.g. Uetz *et al*. 2019, Manthey & Denzer 2006) give 1877 as the year of the original description of *Tiaris papuensis*. While Macleay presented the paper already on 25th June 1877 during a meeting of the Linnean Society of New South Wales the actual print version did not appear until 1878. Consequently the correct year of description needs to be given as 1878. That Macleay's publication preceded Peters & Doria (1878) is unambiguous as it was already cited in their original description of *Gonyocephalus albertisii*.

***Hypsilurus hikidanus* Manthey & Denzer, 2006: 28**

Hamadryad 30: 28

Holotype (by original designation): RMNH.RENA.28905, adult male, Enarotali, Ned. Nieuw Guinea (Irian Jaya), Wisselmeren, coll. M. Boeseman & L.B. Holthuis 1955

Paratype: RMNH.RENA.29080, adult female, Tigi meer, Ned. Nieuw Guinea (Irian Jaya), coll. 1939

Type locality: Enarotali, Wisselmeren (3°55'S, 136°21'E)

***Hypsilurus magnus* Manthey & Denzer, 2006: 26**

Holotype (by original designation): RMNH.RENA.29093, adult male, Gariau aan het Jamoer meer, coll. L. D. Brongersma 3 Jan. 1955

Paratypes: RMNH.RENA.28983, adult female, Kampong Goreda aan het Jamoer meer (3°39'S 134°58'E), coll. L. D. Brongersma 11 Dec. 1954; RMNH.RENA 4621, adult male, Moaif Ned. N. Guinea [Papua, Indonesia], coll. Nieuw Guinea Expeditie, 1903.

Type locality: Gariau near Lake Jamur,(3°42'S 134°56'E), Papua, Province of Indonesia

***Hypsilurus megapogon* (Duméril & Bibron, 1837) see *Calotes megapogon* Duméril & Bibron, 1837**

***Hypsilurus papuensis* (Macleay, 1878) see *Gonyocephalus* (*Lophosteus*) *albertisii* Peters & Doria, 1878**

***Japalura ornata* Lidth De Jeude, 1893: 251 = *Aphaniotis ornata* (Lidth De Jeude, 1893)**

Holotype (by monotypy): RMNH.RENA.4344, Sandakan Bay, adult female, Borneo, coll. J. C. Prakke

Type locality: Sandakan-Bay, N Borneo

***Japalura nasuta* de Jong, 1930: 115 = *Aphaniotis ornata* (Lidth De Jeude, 1893)**

Paratypes: ZMA.RENA.10989-90, Sabah, North Borneo, coll. Mohari 1912

Type locality: North Borneo [North Kalimantan according to Iskandar & Mumpini (2002)]

Remarks: *Japalura nasuta* de Jong, 1930 was synonymized with *Aphaniotis ornata* (van Lidth de Jeude, 1893) by Ota & Hikida (2000). De Jong (1930) stated that the type series of *Japalura nasuta* comprised six specimens (two males and four females) deposited in the Buitenzorg Museum (now Museum Zoologicum Bogoriense) at the time of the original description. Ota & Hikida (2000) reported that a holotype "was not detected in our survey of various

museum collections" and examined a paratype that is deposited in Frankfurt (SMF 78702, adult female, formerly in Mus.[eum] [zoologicum] Bog.[oriense]). Interestingly Daan & Hillenius (1966: 131) and van Tuijl (1995: 131) had already stated that there were two paratypes in the ZMA collection and that the holotype and three further paratypes were in the MZB. This was corroborated by Iskandar & Mumpuni (2002) who stated that the holotype (MZB Lace. 175a, male, North Kalimantan, coll. Mohari 1912) and three paratypes (MZB Lace. 175b, sex undetermined, same data as for the holotype) are present in the Museum Zoologicum Bogoriense. With one paratype too many we re-examined the Naturalis specimens in order to corroborate their type status. De Jong (1930) provided measurements for all specimens he had to hand. A comparison shows that ZMA.RENA.10989 and ZMA.RENA.10990 agree well with the data provided for the female paratypes sp. 3 and sp. 4, respectively (see Table 1). We therefore conclude that the Naturalis specimens represent two of the paratypes. We can further report that the paratype from the Senckenberg collection (SMF 78702) is in very good agreement with sp. 5 in de Jong (1930).

TABLE 1. Measurements of the three examined syntypes of *Japalura nasuta* in comparison with the data provided by de Jong (1930).

Specimen	SVL	TL	AG	FLL	HLL
ZMA.RENA.10989	52 mm	107 mm	25 mm	30 mm	52 mm
(de Jong sp. 3)	(52 mm)	(102 mm)	(25 mm)	(31 mm)	(52 mm)
ZMA.RENA.10990	38 mm	82 mm	17 mm	22 mm	38 mm
(de Jong sp. 4)	(38 mm)	(82 mm)	(18 mm)	(22 mm)	(40 mm)
SMF 78702	53 mm	n/a	24 mm	31 mm	55 mm
(de Jong sp.5)	(52 mm)	n/a	(23 mm)	(32 mm)	(54 mm)

***Lacerta scutata* Linnaeus, 1758: 201 = *Lyriocephalus scutatus* (Linnaeus, 1758)**

Syntypes (status uncertain): RMNH.RENA.3015, Ceylon (added later), anc.[ienne] cab.[inet[; RMNH.RENA.3062, Ceylon, van Lidth de Jeude, 1866

Type locality: Amboina (ex errore)

Remarks: In recent literature the type is considered untraceable (see Amarasinghe *et al*. 2009) and an illustration in Seba (1734, Vol. 1, pl. 109, fig. 3) is treated as the iconotype, i.e. the specimen depicted constitutes the actual type. However, Denzer & Dondorp (2023a) suggested that the specimens in the Naturalis collection may have been from Seba's collection and possibly constitute the original specimen(s), i.e. type material, on which Seba's illustration was based. Briefly, a collector named A(e)rnout Vosmaer bought the specimen(s) at the auction of Seba's cabinet in 1752. Vosmaer's collection was later sold to the Dutch Princes Anne of Hanover and integrated into the Cabinet of the Stadtholder (RMNH.RENA.3015). This collection was ceased by the French in 1795, a considerable part of which was returned to the Netherlands in 1815 and may have contained this particular specimen. Alternatively, Vosmaer had been hiding part of his private collection and important items of the Stadtholder collection from the French (see also Pieters 1980). At least one specimen (RMNH.RENA.3062) from Vosmaer's collection came later into the hands of van Lidth de Jeude. The returned items from Stadtholder collection were incorporated into the new founded Rijksmuseum (now Naturalis) in 1820 and parts of the van Lidth de Jeude collection were acquired by the Rijksmuseum in 1866. A detailed report on the possible ways how the specimens ended up in the Naturalis collection was provided by Denzer & Dondorp (2023a). *Lacerta scutata* Linnaeus, 1758 is the type species of the genus *Lyriocephalus* Merrem, 1819 (see Denzer & Dondorp 2023a for details) and the type species of the genus *Lophurus* Fleming, 1822 (Feuer & Smith 1972).

***Laudakia cypriaca* (Daan, 1967) see *Agama stellio cypriaca* Daan, 1967**

***Laudakia stellio daani* (Beutler & Frör, 1980) see *Agama stellio daani* Beutler & Frör, 1980**

***Lophyus bornensis* Schlegel, 1851: 6 = *Gonocephalus bornensis* (Schlegel, 1851)**

Syntypes: RMNH.RENA.3043 & 3044, two females, Borneo, coll. Schwaner

Type locality: Borneo

Remarks: According to the original catalogue the specimens were identified as the "co-type[s]" by R. F. Inger (Chicago) in 1959.

Lophyrus kuhlii Schlegel, 1851: 5 = *Gonocephalus kuhlii* (Schlegel, 1851)

Syntypes: RMNH.RENA.3045, male, Java, coll. Kuhl & van Hasselt, 1821; RMNH.RENA.3047a, male, Java, coll. Kuhl & van Hasselt, 1821; RMNH.RENA.3047b, female, Java, coll. Kuhl & van Hasselt, 1821; RMNH.RENA.3046, possibly male (not dissected), Sumatra, 1848; all specimens originally registered in the handwritten catalogue as *Lophyrus minor*.

Type locality: Java and Sumatra, Indonesia

Remarks: Schlegel (1851) noted that the two specimens collected by Kuhl & van Hasselt were in a state that "would not allow a rigorous examination" [our translation]. When we retrieved the specimens we were surprised that they were actually in an acceptable state of preservation. While their colours are faded, morphological traits necessary for species identification are well preserved. The total length (10 pouces, 1 pouce approx. 25 mm in 1851) given in Schlegel (1851) agrees well with the size of RMNH.RENA.3046 (260 mm) from Sumatra. The syntypes RMNH.RENA 3047a, b are probably the specimens illustrated in Schlegel (1851).

Several publications (e.g. de Rooij 1915, Manthey & Denzer 1993) gave 1848 as the publication date, but according to the publisher Brill the third volume of the Bijdragen tot de Dierkunde was published on 14th June 1851. We would like to note that while the authorship of this taxon is typically assigned to Schlegel, who provided a detailed description and illustrations of two specimens taken in life, already Gray (1831) gave a very short description of "*Lophyrus kuhlii*, Boie, MS". The manuscript Gray (1831) referred to was most probably Boie's unpublished Erpetologie de Java. If Gray's description is accepted as the original publication RMNH.RENA.3046 does no longer constitute a syntype owing to its late collection date, and only specimens that were available to Boie prior to his finishing the manuscript in 1825 would have type status.

Lophyrus megalepis Bleeker 1860: 327 = *Gonocephalus megalepis* (Bleeker, 1860)

Syntype: RMNH.RENA.3954, Arch. Ind. [Oost Indische Archipel], don. Bleeker [coll. Ludeking]

Type locality: Agam, West Sumatra, Indonesia

Remarks: Until now a specimen deposited under NHMUK (formerly BMNH) 1946.8.27.21 (male, "East Indian Archipelago", Dr. Bleeker) has been considered as the holotype by monotypy of *Gonocephalus megalepis* as well as the holotype by monotypy of *Tiaris tuberculatus* Günther, 1872, a junior synonym of *Gonocephalus megalepis* (see Manthey & Denzer 1991, Uetz *et al*. 2019). However, Bleeker (1860) did not state how many specimens he had nor did he report any measurements that could help identify a holotype of *Gonocephalus megalepis*. Our discovery of a second specimen from Bleeker's collection implies that the NHMUK and Naturalis specimens both constitute syntypes of *Gonocephalus megalepis*. This is corroborated by the fact that the specimen is also listed as type in the catalogue of incoming material INK.RMNH.RENA 503 (Book 8, p. 11, under *Lophyrus melapogon* [sic]): "Typische Exemplare [type specimens] van Rept. en Amph. uit de collectie [from the collection of] Dr. Bleeker in ruil [in exchange] van Prof. Dr. Fürbringer, April 1880". The specimen was additionally identified as type in 1959 by R. F. Inger, Chicago in the handwritten catalogue. According to the original publication (Bleeker 1860) the locality and collector should be given as Agam, Sumatra, coll. Ludeking.

Lophyrus sumatranus Schlegel, 1851: 5 = *Gonocephalus chamaeleontinus* (Laurenti, 1768)

Holotype (by monotypy): RMNH.RENA.3051, male, Sumatra, 1848

Type locality: Sumatra, Indonesia

Remarks: Schlegel (1851) did not indicate how many specimens he had to hand and the only measurement he gave was a total length of 17 pouces (1 pouce approx. 25 mm in 1851). This agrees well with the size of RMNH.

RENA.3051 (430 mm). There exists another specimen in the Naturalis collection that may constitute a syntype: RMNH.RENA.3055, male, Sumatra, coll. S. Müller 1826. However, the year of collection given in the handwritten catalogue does not coincide with Müller's visit to Sumatra (1833–1835). As we could not ascertain the precise collection data for RMNH.RENA.3055 we currently consider RMNH.RENA.3051 as the holotype by monotypy. Barbour (1912) stated that „Schlegel's *G*. [*onocephalus*] (*Lophyrus*) *sumatranus* should be added to the synonymy [of *G. chamaeleontinus*]" and the species has been treated as such ever since with one major exception, namely de Rooij (1915: 103). With regard to Sumatran populations currently considered to represent *G. chamaeleontinus* the name *Gonocephalus sumatranus* is available for nomenclatural purposes. The specimen depicted in Schlegel (1851, plate III) and the holotype exhibit morphological traits such as well a developed dorsal crest (not present in several other *G. chamaeleontinus* populations) that may warrant species status. Regarding the date of publication of Schlegel's original description see comment under *Lophyrus kuhlii*.

***Lyriocephalus scutatus* (Linnaeus, 1758) see *Lacerta scutata* Linnaeus, 1758**

***Phoxophrys tuberculata* Hubrecht, 1881: 51**

Holotype (by monotypy): RMNH.RENA.4140, Batang Singalang, coll. S. Müller

Type locality: Batang Singalang, West Sumatra, Indonesia

Remarks: *Phoxophrys tuberculata* Hubrecht, 1881 is the type species of the genus *Phoxophrys* Hubrecht, 1881. Uetz *et al*. (2019) erroneously listed BMNH [=NHMUK] 1946.8.13.92 as the holotype. This is, however, the holotype of *Japalura robinsoni* Boulenger, 1920, a junior synonym of *Phoxophrys tuberculata*.

***Pogona minor minima* (Loveridge, 1933) see *Amphibolurus barbatus minimus* Loveridge, 1933**

***Pseudocalotes baliomus* Harvey, Shaney, Hamidy, Kurniawan & Smith, 2017: 218**

Paratypes: RMNH.RENA.3013a, adult male; RMNH.RENA.3013b, female; both Sumatra, Indonesia, coll. S. Müller.

Type locality: forest west of the mountain crest next to the road from Tapan to Sungai Penuh, Sumatera Barat Department, Sumatra, Indonesia, 2.04294°S, 101.31129°E (WGS 84 geodetic system), 1181 m elevation

Remarks: The holotype is deposited under MZB 9813, adult male, coll. E. Wostl and E. N. Smith, 23 June 2013.

***Pseudocophotis sumatrana* (Hubrecht, 1879) see *Cophotis sumatrana* Hubrecht, 1879 and *Calotes nasicornis* van der Hoeven, 1855**

Chamaeleonidae

***Chamaeleo pollenii* Peters, 1874: 792 = *Furcifer polleni* (Peters, 1874)**

Paralectotypes (status uncertain): ZMA.RENA 40141, six specimens of both sexes, Mayotte, coll. Pollen

Type locality: Comoreninsel Mayotte

Remarks: There are six specimens (ZMA.RENA 40141) of *Furcifer polleni* listed as syntypes in the catalogue. The specimens were collected by Pollen on Mayotte and were clearly part of his original series and as such constitute topotypes. The original description by Peters (1874) does not mention the number of specimens and subsequently Klaver (2008) designated ZMB 7892 as the lectotype and ZMB 8155 as paralectotype. If the Naturalis specimens were part of the original syntype series they have to be seen as paralectotypes, but as we did not find any indication that the specimens came from the museum in Berlin their type status is currently unclear.

***Chamaeleon incornutus* Loveridge, 1932: 380 = *Trioceros incornutus* (Loveridge, 1932)**

Paratypes: ZMA.RENA.10249 (ex MCZ R-31356), male, Nyamwanga, Poroto Mts., Tanganyika, coll. Loveridge 17 Mar. 1930; ZMA.RENA.10984 (ex MCZ R-31357), female, same data

Type locality: Madehani, Ukinga Mts., Tanzania

Remarks: The paratype status of the specimens is confirmed by a note ("2 ex. exchange with Amsterdam") in the handwritten MCZ catalogue under R-31356/7. The holotype is deposited under MCZ 31350, adult male, Madehani (7000 ft. alt.), Ukinga Mts., Tanzania.

***Chamaeleon laterispinis* Loveridge, 1932: 381 = *Trioceros laterispinis* (Loveridge, 1932)**

Paratype: ZMA.RENA 10250 (ex MCZ R-31387), Kigogo, Mufindi, Udzungwa Mountains, Tanganyika Territory, coll. Loveridge, Jan. 1930

Type locality: Kibau Iyaya, SW Uzngwa Mts., Tanzania

Remarks: The paratype status of the specimens is confirmed by a note ("1 ex. exchange with Amsterdam") in the handwritten MCZ catalogue under MCZ R-31387. The holotype is deposited under MCZ 31386 (same data as paratype).

***Furcifer polleni* (Peters, 1874) see *Chamaeleon polleni* Peters, 1874**

***Triocerus incornutus* (Loveridge, 1932) see *Chamaeleon incornutus* Loveridge, 1932**

***Triocerus laterispinis* (Loveridge, 1932) see *Chamaeleon laterispinis* Loveridge, 1932**

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