



A new species of large *Cyrtodactylus* (Squamata: Gekkonidae) from Melanesia

PAUL OLIVER^{1,2,6}, BURHAN TJATURADI³, MUMPUNI⁴, KELIOPAS KREY⁵ & STEPHEN RICHARDS¹

¹Terrestrial Vertebrates, South Australian Museum, North Terrace, Adelaide, South Australia 5000

²Australian Centre for Environmental and Evolutionary Biology, Adelaide University, Adelaide, South Australia 5005

³Conservation International – Papua Program. Current address: Komp Ariau Dunlop Sentani, Papua; Indonesia

⁴Herpetology Division, Museum Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Sciences (LIPI), Widya-satwaloka Building-LIPI, Jalan Raya Cibinong Km 46, Cibinong 16911, West Java, Indonesia.

⁵Department of Biology, University of Papua, Manokwari, Papua, Indonesia

⁶Corresponding author

Abstract.

A new species of large *Cyrtodactylus* is described from lowland rainforest on Batanta Island in the Raja Ampat Archipelago, Papua Barat Province, Indonesian New Guinea. The new species can be distinguished from all other Melanesian *Cyrtodactylus* by the combination of large size (over 110mm SVL), very robust build, presence of enlarged ventral tubercles below the lateral fold and around the angle of the lower jaw only, and dorsal colouration consisting of three to four irregular dark greyish-brown blotches. It is the second species of *Cyrtodactylus* known with certainty only from the Raja Ampat Islands. The morphology of the new species places it within the *C. loriae* group and suggests that it is closely related to *Cyrtodactylus irianjayaensis*.

Key words: Batanta, *Cyrtodactylus*, Gecko, Indonesia, new species, New Guinea, Raja Ampat Archipelago

Introduction

The Indonesian provinces of Papua and Papua Barat cover the western half of New Guinea and together constitute one of the most poorly researched terrestrial biomes on the planet (Beehler 2007a). Faunal collections from this large and topographically complex area have been widely scattered and sporadic, particularly in recent times (Frodin 2007). However, the data currently available indicates that the region is biologically rich and that much of its diversity remains undescribed (Allison 2007).

The most speciose genus of geckos in the Melanesian region is *Cyrtodactylus*; a large and possibly non-monophyletic genus that also occurs throughout south and south-east Asia. Sixteen species are known from New Guinea and surrounding islands (Rösler et al. 2007) but the genus is rich in undescribed taxa, and many new forms have recently been described from Asia (e.g. Bauer 2003; Batuwida and Bahir 2005; for full list see Ngo and Bauer 2008) and the Melanesian region (Rösler 2000, Günther and Rösler 2003, Kraus and Allison 2006, Kraus 2007, Rösler et al. 2007). In this paper we describe a further new species of very large *Cyrtodactylus* from the island of Batanta off the western tip of the island of New Guinea. The new species brings the total number of described Melanesian *Cyrtodactylus* to 17 and is the second species of *Cyrtodactylus* known with certainty only from the Raja Ampat Islands.

Material and methods

Specimens were collected by hand at night while spotlighting, fixed in 10% formalin and stored in 70% etha-

nol. Liver samples were taken from a subsample of specimens and stored in alcohol. New material is lodged in the Museum Zoologicum Bogoriense (MZB).

The following measurements were taken with digital callipers to the nearest 0.1 mm and largely follow Kraus (2007); snout-vent length (SVL), tail length (from the posterior edge of the vent to the tip of the tail (TL), trunk length (TrL), distance from nares to eye (EN), head length from tip of snout to posterior margin of ear opening (HL), maximum head width (HW), maximum head depth (HH), distance from tip of snout to posterior tip of eye (SE), forearm length (FA), crus length (CS), transverse eye diameter (EYE) and transverse ear diameter (ear). We counted left and right supralabials (SUPR) and infralabials (INFR), dorsal tubercle rows at midpoint of body (DTR), tubercles along lateral fold (LTTUB), ventrals at midpoint of body (VENT), subdigital lamellae under 1st and 4th toes (LAM), enlarged precloacal and femoral scales in continuous series (FEM-PRE), precloacal pores where present and postanal tubercles.

Comparative material from the following institutions was examined; Australian Museum (AM), South Australian Museum (SAMA) and Museum Zoologicum Bogoriense (MZB). Specimens examined are given in Appendix 1. Further comparative data were taken from De Rooji 1915, Brongersma 1934, Rösler 2000, Kraus 2006 and Rösler et al. 2007.

Systematics

Cyrtodactylus zugii sp. nov.

Figures 1–3

Holotype: MZB lace 5574 (F-num SJR 7689), adult female with entire original tail, detached at base during collection, collected on large tree trunk in lowland rainforest adjacent to Yakut Camp, Batanta Island, Raja Ampat Archipelago, Papua Barat Province, Indonesia (00°53.749'S, 130°38.498'E; elevation ~ 10 m asl) on 18 June 2005 by K. Krey, B. Tjaturadi and S. Richards.

Paratypes: MZB lace 5575 (F-num SJR 7690) adult female with regrown tail, MZB lace 5573 (F-num 7749) adult female with regrown tail and damaged snout, both specimens with same collection information as the holotype except MZB lace 5573 collected 21 June 05.

Diagnosis. *Cyrtodactylus zugii* sp. nov. can be distinguished from all other Melanesian *Cyrtodactylus* by the combination of large size (SVL up to 159 mm), robust build (HW/SVL 0.21–0.22), precloacal groove absent, subcaudal scales less than twice width of lateral and dorsal caudal scales, relatively small rounded tubercles along the lateral fold, a series of enlarged ventral tubercles present below the lateral fold, enlarged tubercles on ventral surface of head confined to the region around the angle of the lower jaw, moderate number of enlarged precloacal and femoral scales (>28) arranged in straight or almost straight series, and dorsal colouration consisting of 3–4 very dark greyish-brown indistinct dorsal blotches between the head and tail.

Description of holotype. A large, robust gecko (SVL 159.0 mm), head long (HL/SVL 0.265), wide (HW/HL 0.744) and very distinct from neck. Skin missing (damaged) in thin triangular section extending from just dorsal of the rostral to halfway up the snout. Loreal region slightly inflated, interorbital region and top of snout concave, canthus rostralis very weakly defined. Snout relatively long, much longer than eye diameter. Eyes relatively large, pupil vertical, supraciliaries prominent and frill like, extending over dorsal half of eye. Ear opening relatively small (Ear/HL= 0.098), much wider than high, surrounded by ventral, posterior and dorsal skinfolds.

Rostral approximately twice as wide (7.2 mm) as high (3.8 mm), with slight medial depression, widest at the ventral edge of the nares, indistinct suture extending down left side from midpoint almost to jaw; two enlarged supranasals separated by two nasals, right nasal much larger and bordered dorso-laterally by smaller left nasal. Nares bordered by first supralabial, rostral, first supranasal and series of five (left) and four (right)

postnasals. Twelve enlarged supralabials on both right and left side, supralabials roughly square to approximately midpoint of eye, posterior of eye greatly reduced and much higher than long, bordered dorsally by a discontinuous series of enlarged scales (becoming continuous just anterior to the eye). Infralabials reaching rictus, with twelve on each side, fifth infralabial on right side divided by horizontal suture into dorsal and slightly smaller ventral sections, bordered ventrally by several rows of enlarged scales. Mental triangular, much wider than long, flared anteriorly, bordered by two enlarged postmentals twice as long as wide. Enlarged tubercles present on ventral surface of head around the angle of the lower jaw, and in single row extending anteriorly along jawline to approximately level with orbital.

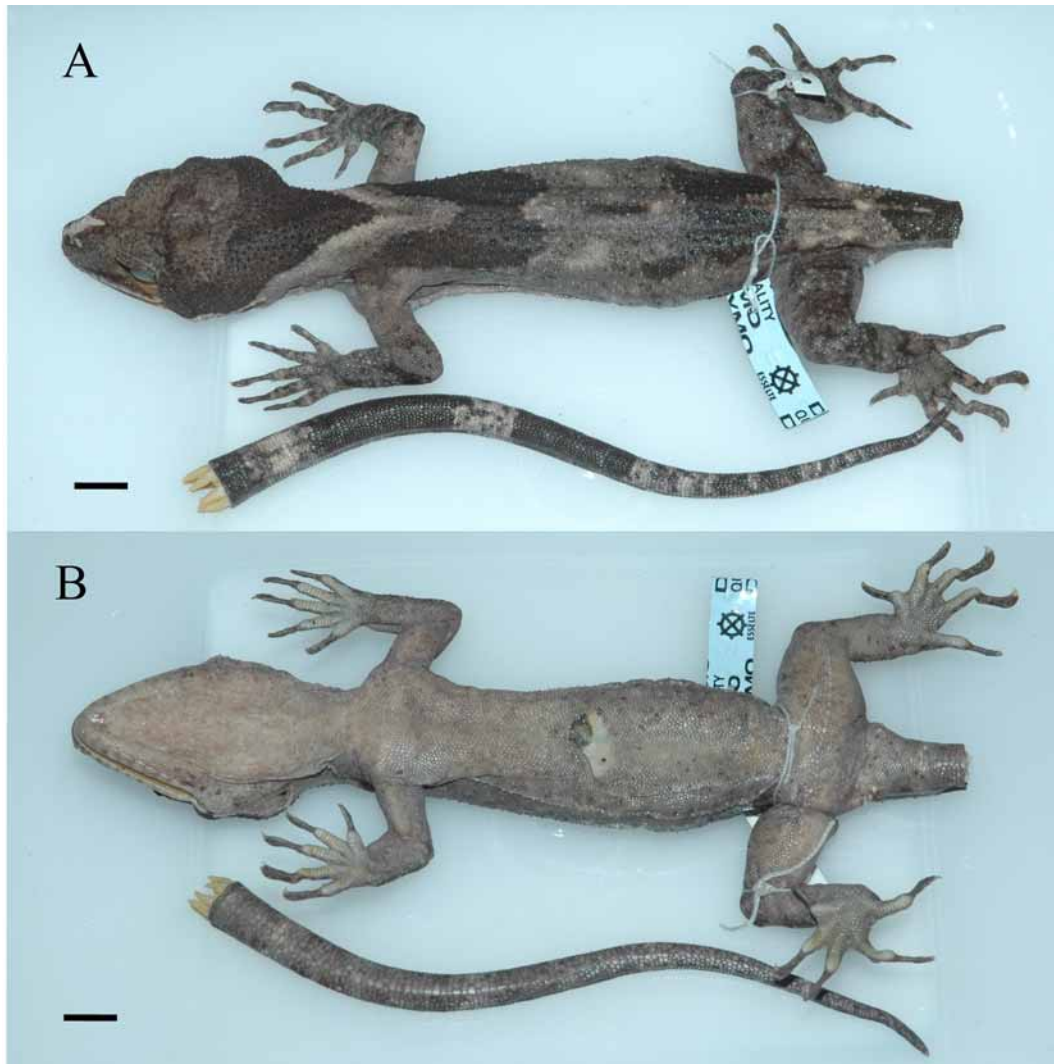


FIGURE 1. Dorsum (A) and venter (B) of preserved holotype of *Cyrtodactylus zugii* sp. nov. (MZB lace 5574). Scale = 10 mm.

Body elongate (TrL/SVL 0.455) with distinct ventrolateral folds. Lateral fold with low rounded tubercles separated from each other by 2–4 granules, posterior tubercles on fold are larger. One row of enlarged tubercles (2–3 times diameter of surrounding scales) positioned ventral to lateral fold. Dorsum heavily tuberculate, relatively large flattened tubercles arranged in approximately twenty indistinct rows at midpoint of body, tubercles on temporal and nuchal regions relatively smaller and tending towards conical. Ventral scales in approximately fifty rows at midpoint, becoming much wider medially; enlarged preloacal and femoral scales in very slightly curved continuous series of 32, extending to halfway along femur, bordered anteriorly by rows of smaller but still enlarged scales, particularly around vent, bordered posteriorly by much smaller granules.

Forelimbs (FA/SVL 0.135) and hindlimbs (CS/SVL 0.187) relatively elongate, hindlimbs more robust and slightly longer than forelimbs (CS/FA 1.386). Lateral and dorsal surfaces of limbs heavily tuberculate, tubercles varying significantly in size, becoming more numerous, larger and somewhat more conical distally on forelimbs; evenly distributed on hindlimbs. Digits long and well developed, inflected at basal interphalangeal joints; subdigital lamellae smooth, undivided, expanded proximal to joint inflection; large recurved claws sheathed by a dorsal and ventral scale, 21 lamellae on left finger I, 24 on left finger IV; 22 lamellae on left toe I, 25 on left toe IV. Slight basal webbing on both manus and pes.

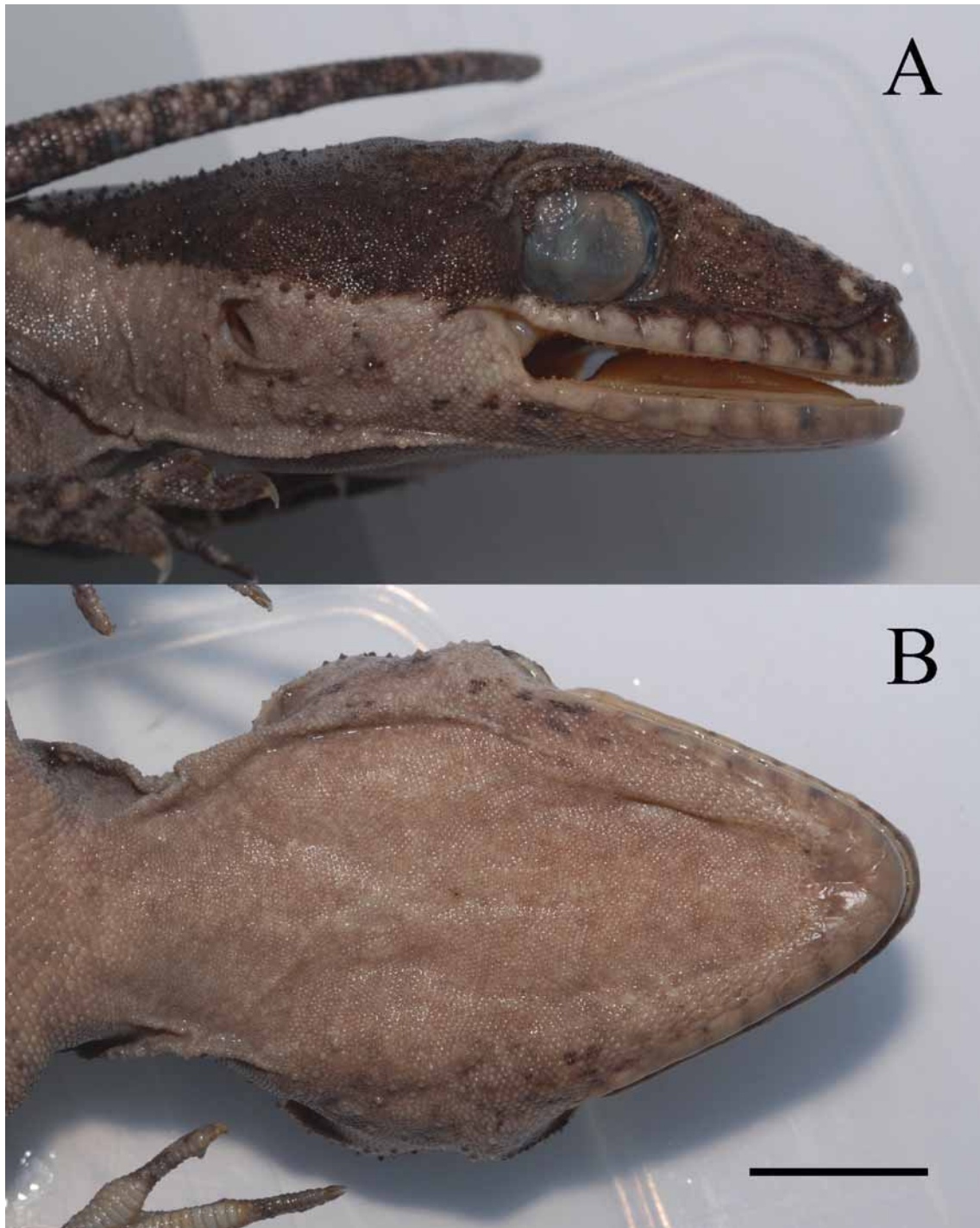


FIGURE 2. Details of head of holotype of *Cyrtodactylus zugii* sp. nov. (MZB lace 5574), (A) lateral view and (B) ventral view. Note the presence of enlarged tubercles on the angle of the lower jaw (absent in *C. loriae*), but absence of enlarged tubercles extending across the throat (present in *C. novaeguineae*). Scale = 10 mm.

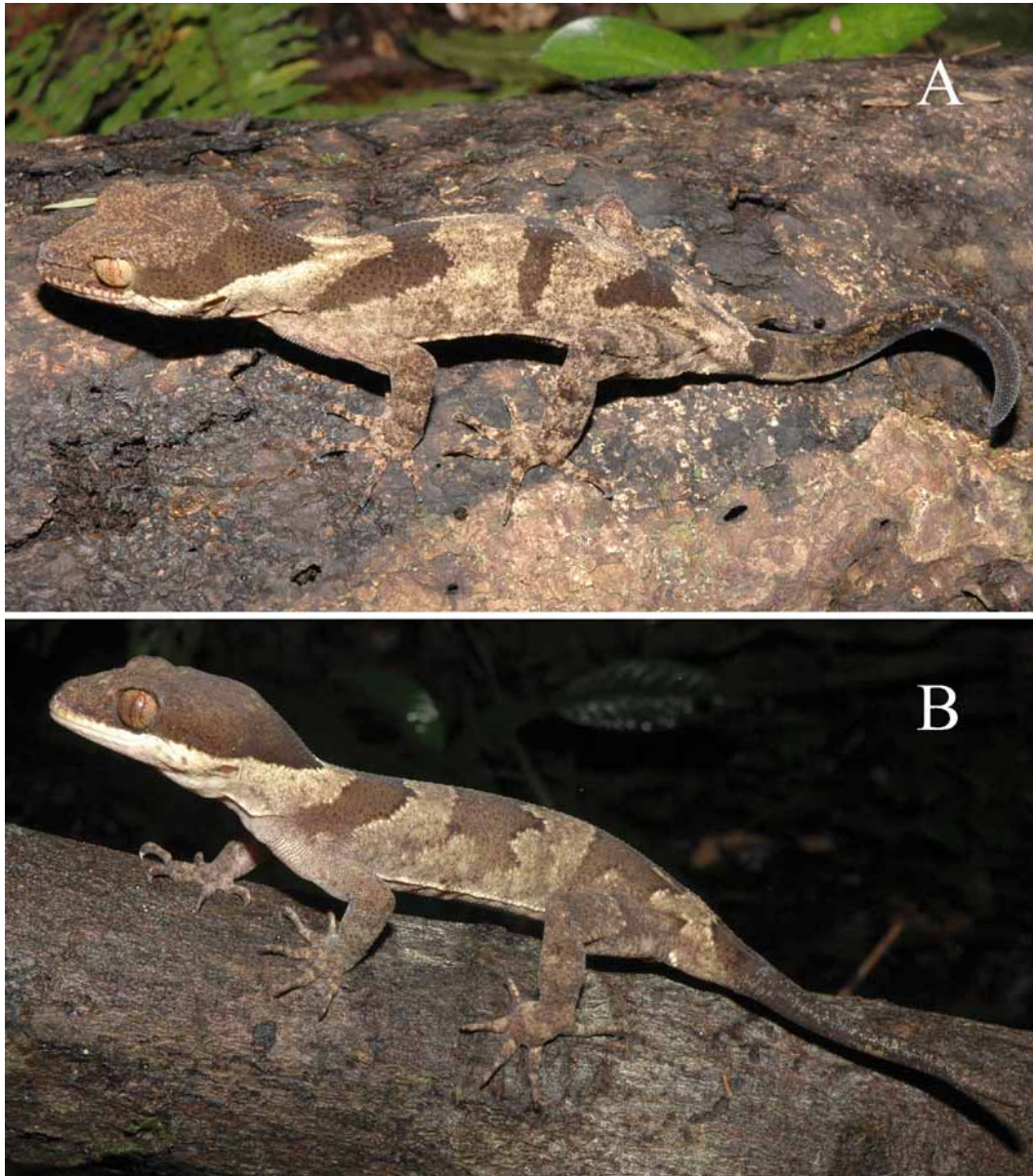


FIGURE 3. Photos in life of the two similar species of large bodied *Cyrtodactylus* known from the Raja Ampat archipelago A) *Cyrtodactylus zugii* **sp. nov.** (paratype; MZB lace 5575) and B) *Cyrtodactylus irianjayaensis* (MZB lace 5765), from Salawati Island. Note the darker bands, strongly defined nuchal stripe and patterned dorsal surface of head on *C. zugii* **sp. nov.** Photographs S. Richards.

Tail original but broken at time of collection, narrow, tapering to a point, with distinct lateral fold; caudal scales increasing in size ventrally, divided subcaudal scales distinctly enlarged relative to lateral and dorsal caudal scales. Enlarged tubercles absent on lateral and ventral surfaces of tail; numerous rows of enlarged dorsal tubercles at base of tail reduce to two rows that extend along tail for approximately 30 mm; four (left) and three (right) enlarged postanal tubercles at base of tail.

Colouration. Dorsum with three large, dark greyish-brown irregular blotches (including nuchal band) on a background of various shades of light grey, tending to off-white in patches. Dark blotches extend laterally to approximately midpoint of body; further very small and indistinct dark dorsal blotches are barely visible between the two posterior-most large blotches. Nuchal band with almost straight (slightly concave) edge anteriorly (just above ears), extends posteriorly to axilla in a triangular shape and laterally across temporal region to posterior edge of the eyes: ventral edge of nuchal band sharply demarcated against greyish off-white lower

lateral colouration of head; dorsal edge of nuchal band sharply demarcated against dorsal surface of head and lores which are light brown finely mottled with darker brown. Labials off-white, with indistinct brown barring. Throat finely mottled with light grey and off-white, venter of torso darker with scattered dark grey spots increasing in frequency posteriorly. Arms and legs mottled dark brown and dark grey dorsally, dark to light grey ventrally. Tail with three very wide dark brown dorsal bands followed by numerous smaller and increasingly broken bands posteriorly; area between dark bands light grey with numerous scattered dark brown spots; ventral surface of tail heavily mottled with numerous shades of grey and brown.

TABLE 1. Measurements (in mm) for the type series of *Cyrtodactylus zugii* **sp. nov.**

	MZB holotype	MZB paratype	MZB paratype
	F	F	F
SVL	159.0	154.0	136.0
Trunk	72.4	69.3	62.1
Total tail	177.5	114.0	86.0
Original tail	177.5	33.0	15.0
FA	21.4	22.4	19.5
CS	29.7	28.1	25.4
HW	33.5	33.7	29.5
HL	42.1	40.9	36.5
HH	20.1	20.3	16.8
EN	14.5	13.4	11.7
EYE	10.2	9.7	7.9
IN	5.3	5.2	3.9
EAR	4.1	3.8	2.8
SUPR(R)	12	11	11
SUPR (L)	12	12	12
INFR(R)	11	11	12
INFR(L)	12	11	13
NASALS	4	3	4
INTERNARIALS	4	5	4
POMEN	2	2	2
DTR	20–21	24	19–22
LTTUBR	32	31	37
LTTUBL	34	33	36
VENT	50–52	49–52	45–46
LAM1(pes)	22	18	20
LAM4(pes)	25	27	26
FEM-PRE	32	34	29
Postanal tubercles	3–4	3	3

Variation. Comparative mensural and meristic data for the holotype and paratypes are given in Table 1. All specimens conform broadly with the description of the holotype. MZB lace 5573 has a large scar on the snout extending from the rostral to between the eyes, and has a largely regrown tail. The regrown section lacks

transverse bands, is dark grey with two light grey dorso-lateral stripes and has irregular and relatively small scales. The venter of this specimen is slightly darker and more heavily spotted with dark grey than the holotype, particularly in the gular region. MZB lace 5575 (Fig. 3A) has a largely regrown tail, has four instead of three large dorsal blotches, has a slightly indented enlarged femoral and precloacal scale series and has more brown pigmentation on the venter, giving an overall impression of being much darker.

Colouration in life. Photographs in life of one paratype MZB 5575 show the pattern to be consistent with that retained in preservative. The iris is pale gold tending towards reddish at the centre with sparse dark brown vertical venation and extensive fine, very light brown reticulation.

Comparisons. *Cyrtodactylus zugii* **sp. nov.** is most similar to the large bodied animals placed in the *C. loriae* group by Rösler et al. (2007). It can be readily distinguished from *C. serratus* by the absence of spini-form tubercles along the lateral fold and the tail, and complete absence of lateral tubercles on the tail. It can be distinguished from *C. loriae* by the presence of enlarged tubercles around the angle of the lower jaw and ventral to the lateral fold (absent in *C. loriae*) and a straight or almost straight short series of enlarged precloacal and femoral scales, as opposed to V-shaped and much longer (29–34 V 60–80). *Cyrtodactylus zugii* **sp. nov.** can be distinguished from *C. novaeguineae* by the absence of enlarged tubercles extending across the ventral surface of the throat (illustrated in Brongersma (1934)). The recently described and geographically proximate species *Cyrtodactylus irianjayaensis* is most similar to *C. zugii* **sp. nov.**, but has a shorter series of enlarged precloacal and femoral scales (12–21 vs 29–34), a narrower head (HW/SVL 0.173–0.204 vs 0.210–0.221), lacks mottling on the dorsum of the head and lateral surface of the body, lacks dark speckling on the venter and lacks dark brown labial barring (Rösler et al. 2007, Fig. 3).

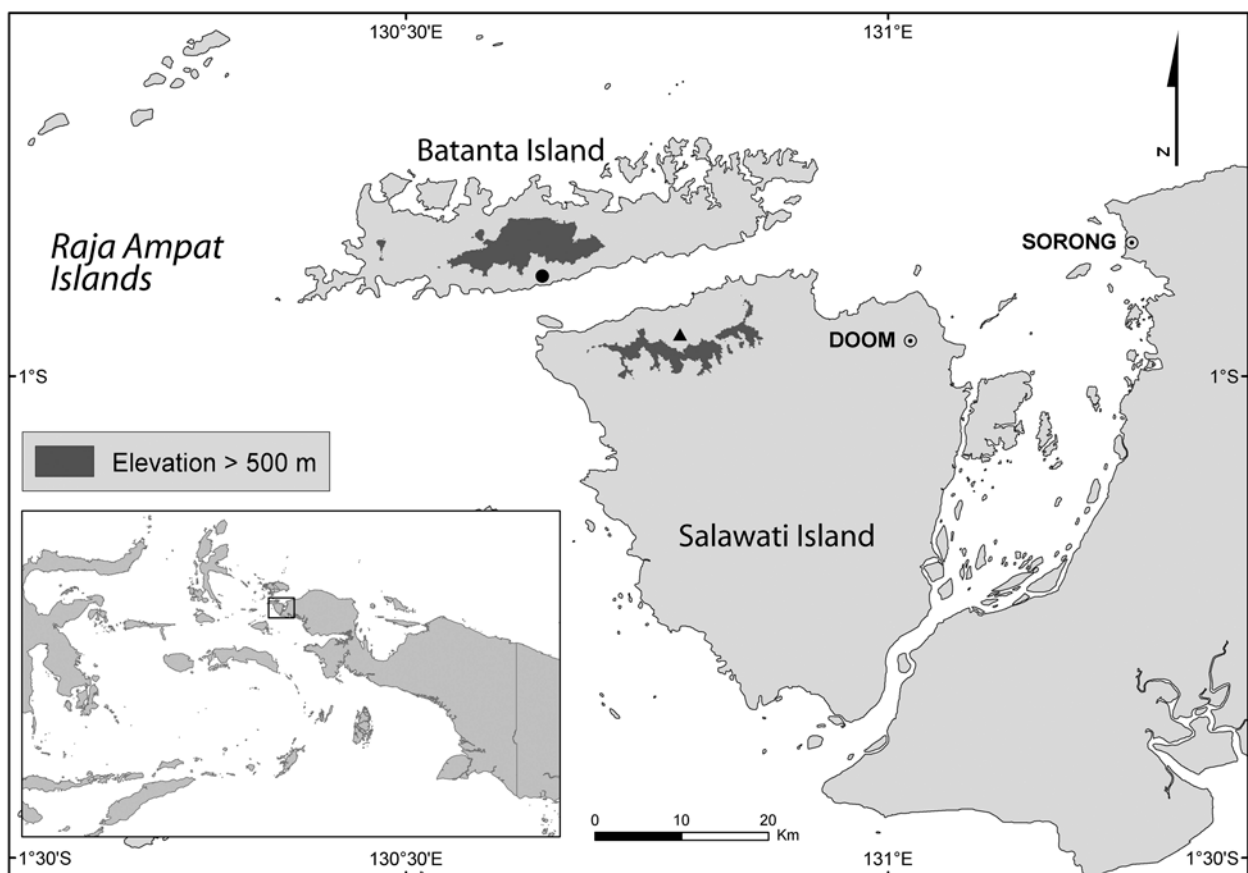


FIGURE 4. Known distribution of *Cyrtodactylus zugii* **sp. nov.** (circle) and *Cyrtodactylus irianjayaensis* (triangle) in Papua Barat, Indonesia.

Cyrtodactylus zugi **sp. nov.** can be distinguished from similar-sized animals in the *C. lousiadensis* group (sensu Rösler et al. 2007), *C. lousiadensis*, *C. murua*, *C. salomonensis*, and *C. tuberculatus* by possessing relatively small (vs wide undivided) subcaudal scales and by the presence of enlarged tubercles below the lateral fold and under the supra-angular edge of the lower jaw.

All Melanesian *Cyrtodactylus* not listed above have a maximum SVL of less than 110 mm, much smaller than *Cyrtodactylus zugi* **sp. nov.** The dorsal colouration of three to four dark grey bands (including the nuchal band) exhibited by *C. zugi* **sp. nov.** is also different from all of these species; *C. aaroni* and *C. mimikanus* have more than eight thin white bands on a chocolate brown ground colour; *C. derongo* has a relatively plain dorsum with small dark spots and white tubercles; *C. capreoloides*, *C. marmoratus*, *C. papuensis* and *C. sermowaiensis* all have six or more dark dorsal bands or a series of spots on a comparatively light dorsum. *Cyrtodactylus zugi* **sp. nov.** can be further distinguished from *C. marmoratus* and *C. papuensis* by the absence of a precloacal pit.



FIGURE 5. Large fig tree in disturbed rainforest at the type locality of *Cyrtodactylus zugi* **sp. nov.** on the southern coast of Batanta Island, Papua Barat, Indonesia. Both the holotype (MZB lace 5574) and one paratype (MZB lace 5575) were collected from the lower trunk of this tree on the same night. Photograph S. Richards.

Distribution and Natural History. The new species is known only from lowland tropical rainforest on Batanta Island (Fig. 4). The habitat at the type locality consisted of selectively logged forest with numerous

remaining large old trees, but also with extensive regrowth. Specimens were collected at night from the 0.5–3 m above the ground on large rainforest trees. The holotype and paratype (MZB lace 5575) were both collected at separate times from the same large fig (*Ficus*) tree on the same night (Fig. 5).

Etymology. Named in honour of George Zug from the Smithsonian Institution in recognition of his vast contributions to our knowledge of the systematics and ecology of the herpetofauna of Melanesia and Asia.

Discussion

The large size, small subcaudals and relatively few dorsal bands of the new species clearly place it within the *Cyrtodactylus loriae* group of Rösler et al. (2007). Within this grouping, the combination of morphological features shown by *C. zugii* **sp. nov.** ally it with *C. irianjayaensis*. These two species share large size, possess relatively straight enlarged precloacal scale series, and enlarged ventral tubercles both at the angle of the lower jaw and in series below the lateral fold. These two species are also geographically proximate; *C. irianjayaensis* is thus far known only from Salawati, less than 20 km to the south of Batanta (Oliver et al. in press). The known distributions of these two species support the biogeographical distinctiveness of these two islands and the importance of the narrow but deep Sagewin strait that separates them (See Beehler 2007a). Batanta shares much of its biogeographic history with Waigeo, and the distribution of some bird species reflects this (Beehler 2007b). Further study and surveying is required to determine if *C. zugii* **sp. nov.** shares this distribution. *Cyrtodactylus zugii* **sp. nov.** brings to two the number of reptiles known only from Batanta; the other possible endemic being the recently described *Varanus macraei* (Böhme and Jacobs 2001).

Cyrtodactylus zugii **sp. nov.** is the second very large gecko species described from western New Guinea in the last ten years (the other being *C. irianjayaensis*, Rösler 2000). At around 160mm SVL and with a correspondingly very robust build, both new species are amongst the largest geckos in New Guinea (*C. louisianensis* and *C. novaeguineae* are known to reach similar sizes (Rösler et al. 2007)), and they are also amongst the largest geckos in the world (see Glaw, et al. 2006). New Guinea's two smallest geckos have also been described in the last five years, from islands to the south-east of Papua New Guinea (Kraus 2005). The fact that such distinctive species are still being described serves to underline both the diversity of the Papuan herpetofauna, and the need for further research into its taxonomy, distribution and evolution.

Acknowledgements

Field work in the Raja Ampat Islands was supported by Conservation International and the South Australian Museum. We are most grateful to Yance deFretes, Muhamad Farid and Jatna Supriatna of Conservation International for their organisational skills and support, and to Herlina Kafiar, Rizana Kurniati, Elias Kore, Sofia Roni, Arthur Tipawael and Adelina Werimon for assistance in the field. We thank Sancoyo Lanang for his kind assistance, and we are also extremely grateful to the Indonesian Institute of Sciences (LIPI) for their support and approval of specimens export and to the Forestry Department, especially Balai KSDA Papua 2, Sorong and Directorate Jenderal PHKA. We thank Randal Storey for producing the distribution map, Rainer Günther, Ross Sadlier and Glenn Shea for providing access to material in their care, and Mark Hutchinson, Kate Sanders and Carolyn Kovach for assistance at the South Australian Museum. We thank the two anonymous reviewers for their constructive criticisms of the original manuscript.

References

Allison, A. (2007) Introduction to the fauna of Papua. Pp 479–494. Chapter 4.2 In 'The ecology of Papua.' Part one. Eds

Andrew J Marshall and Bruce Beehler.

- Bauer, A. M. (2003) Descriptions of seven new *Cyrtodactylus* (Squamata: Gekkonidae) with a key to the species of Myanmar. *Proceedings of the California Academy of Sciences*, 54, 463–498.
- Baruwida, S. and Bahir, M.M. (2005) Description of five new species of *Cyrtodactylus* (Reptilia: Gekkonidae) from Sri Lanka. *Raffles Bulletin of Zoology*. Supp No. 12, 231–380.
- Beehler, B. (2007a) Introduction to Papua Chapter 1. Pp 3–13. In ‘The ecology of Papua.’ Part one. Eds Andrew J Marshall and Bruce Beehler.
- Beehler, B. (2007b) Papuan Terrestrial Biogeography with special reference to birds. Pp 196–206. In ‘The ecology of Papua.’ Part one. Eds Andrew J Marshall and Bruce Beehler.
- Brongesma, L.D. (1934) Contributions to the Indo-Australian Herpetology. *Zoologische Mededelingen Leiden*, 17, 161–251.
- De Rooji, N. (1915) The reptiles of the Indo-Australian Archipelago. I. Lacertilia, Chelonia and Emydosauria. Leiden. Reprint A. Asher and Co. N.V. Vaals 1970.
- Frodin, D. G. (2007) Biological Exploration of New Guinea. Pp 196–206. In ‘The ecology of Papua, part one. Eds Andrew J Marshall and Bruce Beehler.
- Glaw, F., Kosuch, J., Henkel, F.W., Sound, P. and Böhme, W. (2006) Genetic and morphological variation of the leaf-tailed gecko *Uroplatus fimbriatus* from Madagascar, with description of a new giant species. *Salamandra*, 42(2/3), 129–144.
- Günther, R and Rösler, R. (2003) Ein neue Art der Gattung *Cyrtodactylus* Gray, 1827 aus dem Westen von Neuguinea (Reptilia: Sauria: Gekkonidae). *Salamandra*, 38(4), 195–312.
- Kraus, F. (2005) The genus *Nactus* (Lacertilia: Gekkonidae): a phylogenetic analysis and description of two new species from the Papuan Region. *Zootaxa*, 1061, 1–28.
- Kraus, F. (2007) A new species of *Cyrtodactylus* (Squamata: Gekkonidae) from western Papua New Guinea. *Zootaxa*, 1425, 63–68.
- Kraus, F. & Allison, A. (2006) A new species of *Cyrtodactylus* (Lacertilia: Gekkonidae) from Papua New Guinea. *Zootaxa*, 1247, 59–68.
- Ngo, V. T. & Bauer, A.M. (2008) Descriptions of two new species of *Cyrtodactylus* Gray 1827 (Squamata: Gekkonidae) endemic to southern Vietnam. *Zootaxa*, 1715, 25–42.
- Oliver, P., Tjaturadi, B., and Richards, S.J. (In press) *C. irianjayaensis*. Geographic distribution. *Herpetological Review*.
- Rösler, H (2000) Eine neue großwüchsige *Cyrtodactylus*-Art von Neuguinea (Reptilia: Sauria: Gekkonidae). *Zoologische Abhandlungen Staatliches Museum für Tierkunde*. Dresden, 51(7), 61–71.
- Rösler, H., Richards, S.J. and Günther, R. (2007) Remarks on morphology and taxonomy of geckos of the genus *Cyrtodactylus* Gray, 1827, occurring east of Wallacea, with descriptions of two new species (Reptilia: Sauria: Gekkonidae). *Salamandra*, 43, 193–230.

Appendix. 1. Material examined.

- C. irianjayaensis* MZB lace 5765, Salawati Island, Papua Barat Province, Indonesia.
- C. loriae* SAMA R62635 Darai Plateau, Kikori Basin, Gulf Province, PNG; SAMA R62636 Herowana Village, Crater Mountain Wildlife Management Area, Eastern Highlands Province, PNG; SAMA R62637 Moro, Southern Highlands Province, PNG; SAMA R8305, 8369, WAM R67688-9 Karimui, Chimbu Province, PNG.
- C. louisiadensis* SAMA R62638-644, Misima Mine site, Misima Island, Milne Bay Province, PNG.
- C. novaeguineae* AMS 129290, Maprik, East Sepik Province; AMS 119548-119550 Wigote, Torricelli Mts, West Sepik (Sandaun) Province, PNG; MZB 5435-6, Marina Valen, Mamberamo Basin, Papua Barat Province, Indonesia.
- C. tuberculatus* SAMA R12058, SAMA 14002 Cooktown, Australia.
- C. salomonensis* SAMA 56879 (holotype), SAMA R56780 (paratype), Kolopakisa, Santa Isabel Island, Solomon Islands.
- C. seromowaiensis* SAMA R62653 Kurumbukari, Ramu, Madang Province, PNG.