Zootaxa 3722 (3): 385–395
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3722.3.7
http://zoobank.org/urn:lsid:zoobank.org:pub:4911C642-A093-47EC-945B-28A7E417F708

A new skink (Scincidae: *Saproscincus*) from rocky rainforest habitat on Cape Melville, north-east Australia

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Abstract

Saproscincus skinks are restricted to wet forest habitats of eastern Australia. Eleven species have previously been described, with most having small distributions in disjunct areas of subtropical and tropical rainforest. The localized distributions and specific habitat requirements of *Saproscincus* have made them a key group for understanding the biogeographic history of Australia's rainforests. Here I describe a new species of *Saproscincus* from the Melville Range on Cape Melville, north-east Australia. The Melville Range is composed of boulder-fields and areas of rainforest in the uplands, and is highly isolated from other areas of elevated rainforest. All individuals of the new species were found on a moist ridgeline, active on boulders under a rainforest canopy or on boulder-field immediately adjacent to rainforest. *Saproscincus saltus* **sp. nov.** is highly distinct in morphology and colour pattern. Of particular interest are its long limbs and digits compared to congeners, which in conjunction with the observed ecology, suggest a long history of association with rock. The discovery of *S. saltus* **sp. nov.** extends the distribution of the genus over 100 km north from the nearest congeners in the Wet Tropics region. This species brings the number of vertebrates known to be endemic to the Melville Range to six, which is remarkable for such a small area.

Key words: *Saproscincus basiliscus*, *Saproscincus lewisi*, Cape York, boulder-field, rainforest, lithorefugia, Queensland

Introduction

The genus *Saproscincus* Wells & Wellington 1984 consists of 11 species distributed in the coastal ranges and lowlands of eastern Australia. Most of the species have localized distributions in rainforests of coastal Queensland and northern New South Wales, and the genus has been a key group in biogeographic analyses of the history of Australia's rainforests (e.g., Moritz *et al.* 2005; Moussalli *et al.* 2005). Most *Saproscincus* (8 species) were described in the 1980s and 1990s during a period of intense interest in the rainforest fauna of eastern Australia that began in the 1970s (e.g., Broadbent & Clark 1976). Since the descriptions of *S. oriarus* Sadlier 1998, *S. hannahae* Couper & Keim 1998 and *S. lewisi* Couper & Keim 1998, only one species has been added, *S. eungellensis* Sadlier *et al.* 2005.

Within *Saproscincus* there is a 'northern' clade (Greer & Kluge 1980; Greer 1989; Couper & Keim 1998) consisting of *S. basiliscus* (Ingram & Rawlinson 1981), *S. lewisi*, *S. czechurai* (Ingram & Rawlinson 1981), *S. tetradactylus* (Greer & Kluge 1980) and *S. hannahae*. Genetics support the monophyly of this clade (Moussalli *et al.* 2005; Sadlier *et al.* 2005) and the group is defined by a number of unique morphological traits (Greer 1989; Couper & Keim 1998). The clade is distributed in rainforests of mid-east and north-east Queensland, with the most northerly species being *S. lewisi* in the northern Wet Tropics region. The largest areas of rainforest north of the Wet Tropics (particularly in regards to elevated rainforest) are in the McIlwraith Range and in the Iron Range area. McIlwraith Range has several endemic rainforest vertebrates, *Orraya occultus* (Couper *et al.* 1993), *Cophixalus crepitans* Zweifel 1985, *Cophixalus peninsularis* Zweifel 1985 and *Cyrtodactylus pronarus* Shea *et al.* 2011, while the only vertebrate endemics known for the Iron Range region are two frogs, *Cophixalus kulakula* Hoskin & Aland 2011 and *Cophixalus pakayakulangun* Hoskin & Aland 2011, that are highly localized in boulder-pile habitats. Interestingly, no *Saproscincus* have been found in these areas.

Accepted by L. Lee Grismer: 30 Sept. 2013; published: 23 Oct. 2013

A much smaller area of rainforest is present at Cape Melville. Cape Melville is dominated by the Melville Range, a range of granite boulder-fields, with patches of rainforest in gullies and on an elevated plateau (approximately 500 m a.s.l.). The rainforest of the Melville Range is isolated from other rainforest areas, lying approximately 170 km north of the rainforests of the Wet Tropics and about 130 km south-east of McIlwraith Range (Fig. 1). The Melville Range is recognized for having three endemic, rock-associated vertebrates: *Cryptoblepharus fuhni* Covacevich & Ingram 1978, *Litoria andiirrmalin* McDonald 1997 and *Cophixalus zweifeli* Davies & McDonald 1998. Surveys at Cape Melville have generally been at lower elevation and the rainforest at higher elevation remains poorly surveyed. Although the total area of rainforest at Cape Melville is small, the associated deeply layered rock habitats may have enabled the persistence of rainforest lineages due to the presence of moist, cool microhabitats amongst the rock, and protection of the rainforest from fire (i.e., a lithorefugium, Couper & Hoskin 2008).

Here I describe a new *Saproscincus* from rocky upland rainforest at Cape Melville. Two other new species were also discovered during these surveys, a *Cophixalus* frog (Hoskin, in press) and a *Saltuarius* gecko (Hoskin & Couper, 2013).

Methods

Specimens examined, including all type material, are held in the Queensland Museum (QMJ codes). All measurements were taken using Mitutoyo electronic calipers and rounded to the nearest 0.1 mm. The following characters were measured: snout to vent length (SVL), tip of snout to posterior margin of precloacal (anal) scale, with body straightened; axilla to groin length (AG), measured from axilla to groin with body straightened; mid-body width (midBW), measured across body at point equidistant from axilla and groin; tail length (TL), from posterior margin of anal scale to tip of tail; length of forelimb (L1) and hindlimb (L2), in both cases measured from insertion to tip of longest digit (claw included), with limb stretched straight perpendicular to body; forearm length (FL), from elbow to 'heel' of the palm (i.e., radioulna length); lower hindlimb length (HLL), from knee to heel (i.e., tibiofibula length); length of 4th finger and 4th toe, in both cases measured from junction of 3rd and 4th digit to tip of 4th (claw included); head length (HL), anterior margin of ear to tip of snout; head width (HW), widest point across back of skull; head depth (HD), vertical measurement of head from top of head between eyes to ventral edge of lower jaw (measured parallel to the sagittal plane); snout length (snout), tip of snout to anterior margin of orbit; eye to ear (EE), posterior margin of orbit to anterior margin of ear; neck length (NL), posterior margin of ear to axilla. The following scale counts require definition: subdigital lamellae, counts of obviously enlarged transverse series beneath 4th finger and 4th toe and including claw sheath; paravertebrals, number of scales from anterior-most nuchal to a point in line with posterior margin of hindlimb; ventrals, number of scales from mental to anal, inclusive.

The scales bordering the posterior margin of the parietal scales require particular definition. In the 'northern' group of *Saproscincus*, typically three scales contact the posterior margin of each parietal scale. Ingram & Rawlinson (1981) and Wilson (2005) define these three scales as two nuchals and one temporal scale, whereas Couper & Keim (1998) and Sadlier *et al.* (2005) define these scales as a single nuchal and two temporal scales (Fig. 2). I follow the latter definition. Either way, in the 'northern' group of *Saproscincus* there is typically a total of six scales contacting the posterior margin of the parietal scales.

Systematics

This new species of scincid lizard is assigned to *Saproscincus* by the following traits: well developed limbs; paired frontoparietal scales; six labial scales; lower eyelid moveable, with a transparent disc; ear opening present; and a pale spot on the posterior base of the hindlimb (Greer 1989; Cogger 2000).

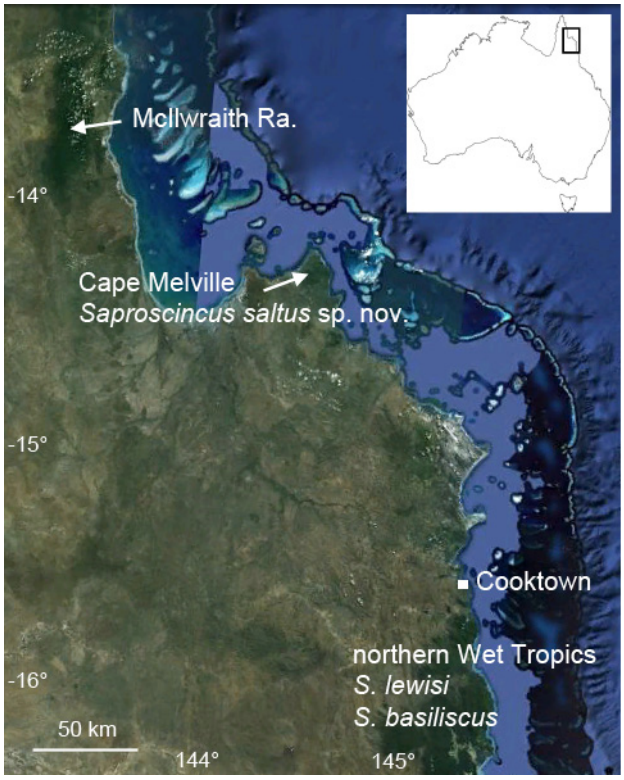

FIGURE 1. Map of north-east Queensland, showing Cape Melville and the northern Wet Tropics region, and the *Saproscincus* present in each of these areas. McIlwraith Range is also shown. The inset shows Australia. Background image is from Google Maps (Imagery 2013 NASA, Map data 2013 GBRMPA, Google).

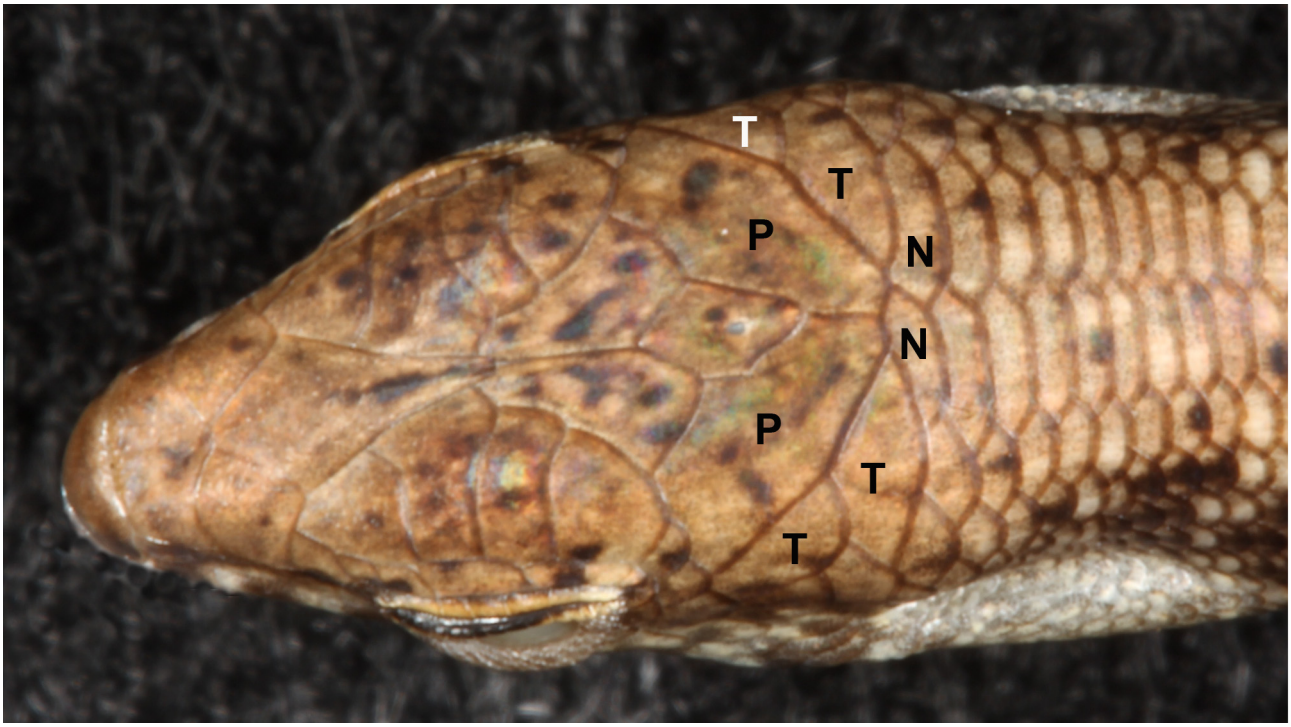

FIGURE 2. In *S. saltus* (QMJ92562 depicted here) and other species in the 'northern' group of *Saproscincus*, typically three scales contact the posterior margin of each parietal (P) scale. These scales are defined as a single nuchal (N) and two temporal (T) scales. This gives a total of six scales contacting the posterior margin of the parietal scales.

***Saproscincus saltus* sp. nov.**
Cape Melville Shade Skink
(Figs 2, 3, 4A, 5)

Material examined. Holotype: QMJ92572, Melville Range (14°16'38" S, 144°29'28" E, elevation 500 m), Cape Melville, north-east Queensland, C. J. Hoskin, 20 March 2013. **Paratypes:** QMJ92561, QMJ92562, collection details as for holotype.

Diagnosis. *Saproscincus saltus* **sp. nov.** is diagnosed from congeners by the following combination of characters: moderate body size (SVL 38.4–42.9 mm), long limbs (L1/SVL 32.3–33.8%, L2/SVL 45.5–46.3%), long digits (4th finger/SVL 7.3–7.6%, 4th toe/SVL 10.5–12.2%), flattened head (HD/SVL 8.2–9.0%), 22–26 lamellae under 4th toe, 23–24 midbody scales, 52–55 paravertebral scales, and parietal scales each bordered by a single nuchal and two temporal scales (i.e., 6 scales contacting posterior margin of parietal scales). The golden dorsal colour with dark flanks is also diagnostic (Figs 3, 4A).

Etymology. *saltus*; from the Latin for leaping. In recognition of the agility of this species across boulders. The species epithet is treated as a noun in apposition.

Measurements and scale counts of holotype (Fig. 5)**.** SVL = 38.4 mm, AG = 19.8 mm, midBW = 6.0 mm, TL (regenerated) = 46.9 mm, L1 = 12.5 mm, FLL = 5.1 mm, 4th finger length = 2.8 mm, L2 = 17.5 mm, HLL = 6.4 mm, 4th toe length = 4.5 mm, HL = 8.0 mm, HW = 5.3 mm, HD = 3.5 mm, snout = 3.2 mm, EE = 2.9 mm, NL = 6.7 mm, midbody scale rows = 24, paravertebrals = 53, ventrals = 54, lamellae 4th toe = 24, lamellae 4th finger = 17, supralabials = 7, infralabials = 6, supraciliaries = 7.

Description of type series. Data presented as range followed by mean in brackets. ***Adult measurements*** (mm): SVL = 38.4–42.9 (40.2), AG = 19.8–21.7 (20.9), midBW = 5.2–6.0 (5.6), Tail (regenerated) = 46.9 (holotype only; paratypes no tails), L1 = 12.5–14.5 (13.2), FLL = 5.0–5.2 (5.1), 4th finger length = 7.3–7.6 (7.5), L2 = 17.5–19.9 (18.4), HLL = 6.0–7.3 (6.6), 4th toe length = 10.5–12.2 (11.4), HL = 8.0–9.0 (8.4), HW = 5.0–5.7 (5.3), HD = 8.2–9.0 (8.7), snout = 3.2–3.9 (3.6), EE = 2.9–3.4 (3.1), NL = 6.7–7.4 (7.2). ***Adult proportions*** (as % SVL): AG = 50.5–54.1 (52.0), midBW = 12.9–15.7 (13.9), Tail (regenerated) = 122.2, L1 = 32.3–33.8 (32.9), FLL = 12.2–13.3 (12.7), L2 = 45.5–46.3 (45.8), HLL = 15.2–17.1 (16.3), HL = 20.8–21.0 (20.9), HW = 12.7–13.9 (13.3), snout = 8.3–9.2 (8.9), EE = 7.3–7.9 (7.6), NL = 17.2–18.9 (17.9) (Table 1). ***Body*** slender. Head distinct from body due to slight narrowing at neck. Snout rounded in profile. Limbs long and slender; five fingers; five toes. ***Scalation:*** Dorsal scales smooth, some with faint indication of 2 or 3 grooves; posterior edge broadly curved. Nasals widely spaced, rostral and frontonasal in broad contact; prefrontals moderately to widely separated; frontal contacting frontonasal, prefrontals, first two supraoculars and frontoparietals; supraoculars 4, second the largest; supraciliaries 6–7 (mean 6.7), first the largest; frontoparietals paired and distinct from interparietal; nuchals contacting parietals 2, typically both in obvious contact but in the holotype one is only in point contact; temporals contacting parietals 4 (i.e., 2 contacting each parietal scale), all in broad contact (see Methods for comment on nuchals versus temporal scales); loreals 2; preoculars 1–2 (mean 1.3), the lower being the largest in the case where there are 2; presuboculars 2, the first being the largest; presupraoculars 1–2 (mean 1.7); supralabials 6–7 (mean 6.3); second supralabial not in contact with lower preocular scales; infralabials 5–6 (mean 5.3); postmental contacting 2 infralabials on each side; palpebral disc moderate, half the size of lower eyelid; ear opening round and large, about half the size of eye; midbody scale rows 23–24 (mean 23.3); ventrals 48–54 (mean 50.3); paravertebrals 52–55 (mean 53.3); lamellae under 4th finger 17–18 (mean 17.3), with a medial groove on distal portion; lamellae under 4th toe 22–26 (mean 24.0), with a medial groove on distal portion. **Colour pattern in preservative** (Fig. 5): Dorsal base colour even golden brown, or with scattered dark flecks and pale dots. ***Head:*** Brown or rusty brown on top with dark flecks; labials pale with a smudged grey spot on each scale (giving a barred impression); thin dark line from tip of nose to front of eye, continuing as a broader, brown band down the neck that continues from the forelimbs as the dark flank colour. ***Body:*** Flanks brown (darker in the upper flank) with regular pale spots and scattered darker flecks; red mites obvious in axillary region. Dorsum even golden brown, or with scattered dark flecks and pale dots. ***Original tail*** (only basal portion on type series): Brown with sparsely scattered dark flecks and pale dots. ***Regenerated tail*** (holotype): Light brown with brown flecks down lateral margins. ***Limbs and digits:*** Brown, heavily spotted with dark and pale dots. ***Ventral surfaces:*** creamy yellow, each scale smudged with a pale grey spot; underside of hands and feet grey; underside of regenerated tail creamy white.

Colour pattern in life (Figs 3, 4A). Dorsal colour gold, with scattered black flecks; top of head golden brown with black flecks and mottling. Flanks brown to dark brown (typically darker on upper flank) with regular golden, yellowish or pale spots. Prominent yellow spot on posterior base of hindlimb, and smaller, less prominent yellow dot on upper base of forelimb. Typically many bright red mites in axillary region. Limbs brown to dark brown with fine pale spots. Side of neck dark, typically with several, irregular pale bands. Lips pale, each scale smudged grey. Thin brown line from front of eye to tip of nose. Iris copper. Original tail golden, with dark smudging and yellow dots; regenerated tail tawny, with dark flecks. Ventral surfaces creamy yellow, each scale smudged with a grey spot; underside of hands and feet dark grey.

TABLE 1. Morphological comparison of *S. saltus* **sp. nov.**, *S. lewisi* and *S. basiliscus*. Data is presented as SVL (mm) then relative length of traits as a proportion (%) of SVL, followed by select scale counts. Morphology codes are: SVL: snout to vent length, TL: tail length (only one *S. saltus* **sp. nov.** had a complete tail but because this was a regenerated tail it may not be full length), AG: axilla to groin length, L1: entire forelimb length from body insertion to finger tip, FLL: lower forelimb (radioulna) length, 4th finger length, L2: entire hindlimb length from body insertion to toe tip, HLL: lower hindlimb (tibiofibula) length, 4th toe length, HL: head length, HD: head depth. Scale counts are: number of lamellae under the 4th finger, number of lamellae under the 4th toe, midbody scale rows, and number of paravertebral scales. See Methods for more details. Material examined is the type series for *S. saltus* **sp. nov.** and the specimens listed in the Appendix for *S. lewisi* and *S. basiliscus*. Data for TL/SVL, midbody scales and paravertebral scales for *S. lewisi* and *S. basiliscus* comes from Couper & Keim (1998).

Trait	*S. saltus* **sp. nov.**		*S. lewisi*		*S. basiliscus*	
	mean	range	mean	range	mean	range
SVL (mm)	40.2	38.4–42.9	40.6	39.1–42.5	42.4	38.4–44.9
TL/SVL	122.2		160.6	147.5–173.8	163.0	141.9–186.5
AG/SVL	52.0	50.5–54.1	51.5	46.7–53.2	49.1	44.2–54.8
L1/SVL	32.9	32.3–33.8	28.2	25.4–29.9	31.0	28.6–32.6
FLL/SVL	12.7	12.2–13.3	11.0	10.7–11.6	11.8	10.9–12.4
4th finger/SVL	7.5	7.3–7.6	5.9	5.0–6.5	6.7	5.8–7.1
L2/SVL	45.8	45.5–46.3	38.0	36.6–39.6	41.9	36.8–43.3
HLL/SVL	16.3	15.2–17.1	13.2	12.8–13.9	14.4	13.3–15.2
4th toe/SVL	11.4	10.5–12.2	9.1	8.1–9.8	10.1	8.7–10.9
HL/SVL	20.9	20.8–21.0	20.6	20.2–21.2	20.5	19.5–22.0
HD/SVL	8.7	8.2–9.0	9.5	9.3–9.9	10.2	9.2–11.0
4th finger lam.	17.3	17–18	16.3	15–18	16.2	14–18
4th toe lam.	24.0	22–26	21.3	18–24	21.0	19–24
Midbody rows	23.3	23–24	22.4	22–24	25.9	22–29
paravertebrals	53.3	52–55	47.9	46–50	53.5	50–59

Comparison with similar species. *Saproscincus saltus* **sp. nov.** can be distinguished from congeners by its long limbs and digits, and its unique colouration of golden dorsum and dark flanks with golden spots. In more detail the following traits distinguish *S. saltus* **sp. nov.** from congeners. It is assigned to the 'northern' group of *Saproscincus* (*S. basiliscus*, *S. lewisi*, *S. tetradactylus*, *S. czechurai*, *S. hannahae*) by the fact that each parietal scale is bordered by a single nuchal and two temporal scales (i.e., typically 6 scales contacting posterior margin of parietal scales) (Fig. 2). In all other *Saproscincus* species each parietal scale is bordered by a single nuchal and temporal scale (i.e., typically 4 scales contacting posterior margin of parietal scales). *Saproscincus saltus* **sp. nov.** can be distinguished from *S. tetradactylus* by having 5 fingers (*vs* 4). *Saproscincus saltus* **sp. nov.** can be distinguished from *S. czechurai* and *S. hannahae* by larger size (max SVL 42.9 mm *vs* 34 mm for *S. czechurai* and 38.4 mm for *S. hannahae*), longer limbs (L2/SVL 45.5–46.3% *vs* 27–35% for *S. czechurai* and 34–45.5% for *S. hannahae*), more 4th toe lamellae (22–26 *vs* 15–19 for *S. czechurai* and 16–22 for *S. hannahae*), and golden dorsum (*vs* brown for *S. czechurai* and *S. hannahae*).

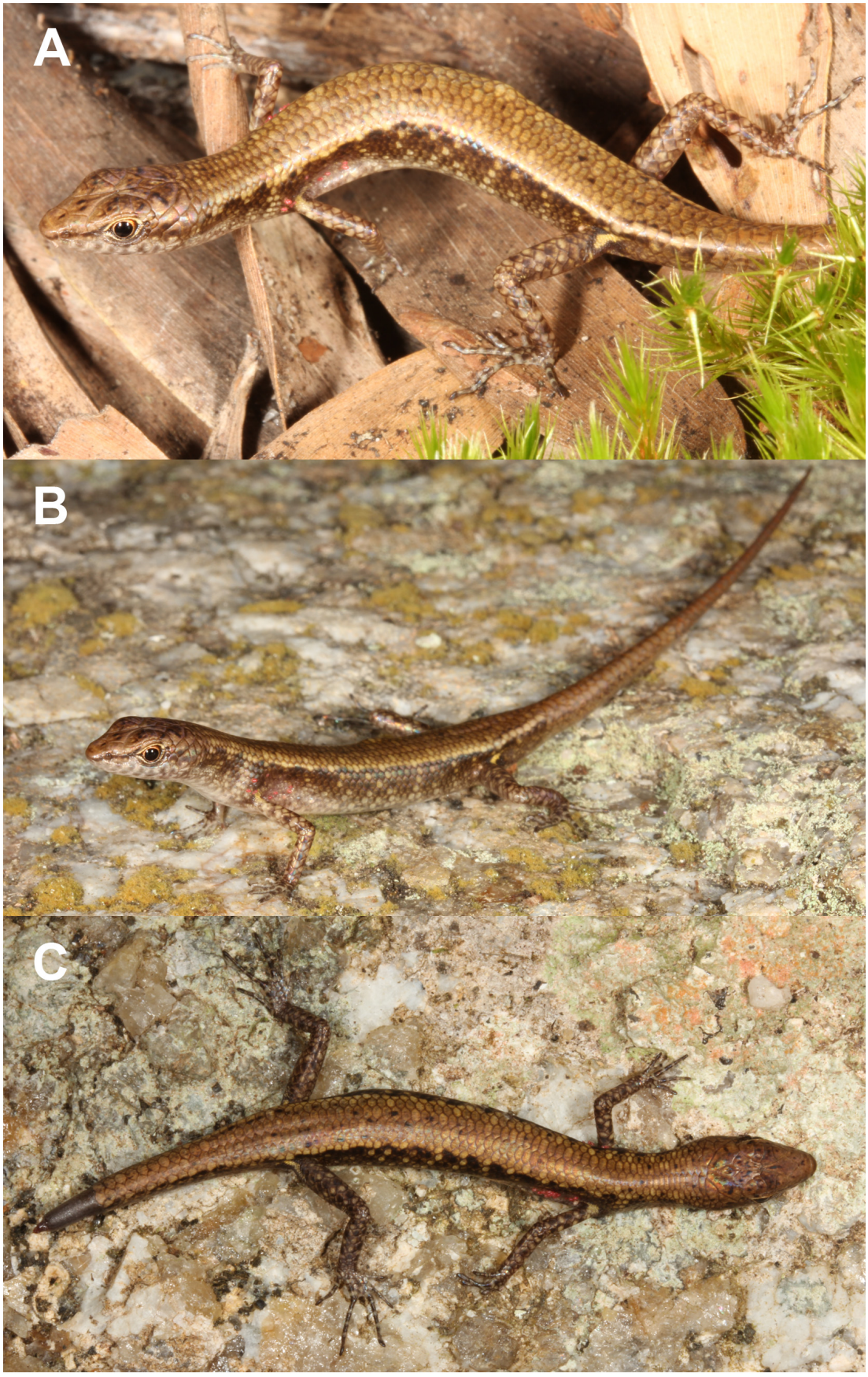

FIGURE 3. *Saproscincus saltus* **sp. nov.** in life: (A, B) holotype QMJ92572, (C) paratype QMJ92562.

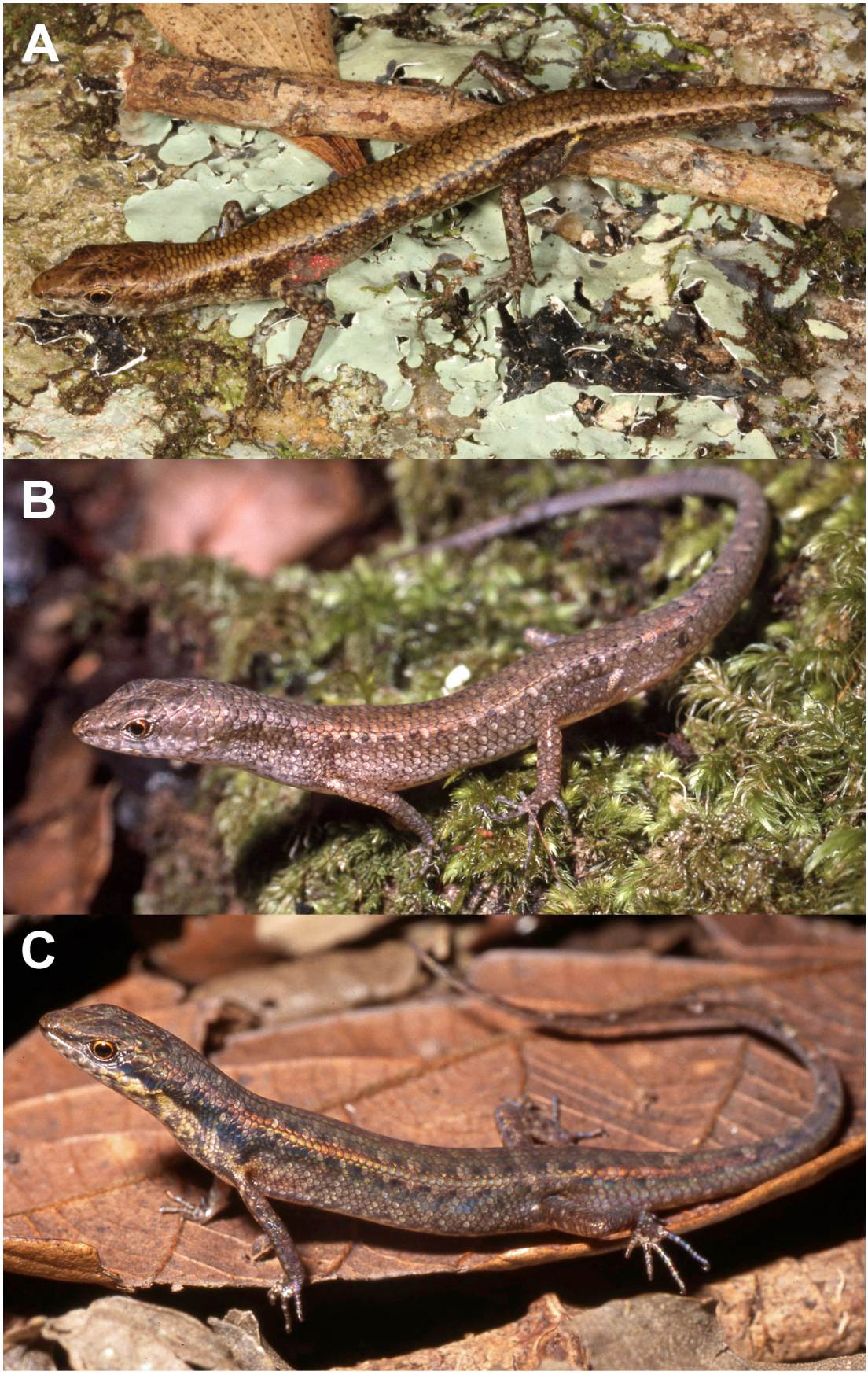

FIGURE 4. Comparison of: (A) *S. saltus* **sp. nov.** (QMJ92562), (B) *S. lewisi* (Shiptons Flat), and (C) *S. basiliscus* (Curtain Fig NP). Photos B and C courtesy of Steve Wilson.

Saproscincus saltus **sp. nov.** is most similar to *S. lewisi* and *S. basiliscus* (Fig. 4). Distinguished from *S. lewisi* by longer limbs and digits (non-overlapping ranges for L1/SVL, FLL/SVL, 4th finger/SVL, L2/SVL, HLL/SVL, 4th toe/SVL; Table 1), flatter head (HD/SVL 8.2–9.0% *vs* 9.3–9.9%), more 4th toe lamellae (mean 24 *vs* 21), and more paravertebral scales (52–55 *vs* 46–50) (Table1). Distinguished from *S. basiliscus* by smaller size (mean SVL 40.2 mm *vs* 42.4 mm), longer limbs and digits (non-overlapping ranges for 4th finger/SVL, L2/SVL, HLL/SVL; nearly non-overlapping ranges for L1/SVL, FLL/SVL, 4th toe/SVL; Table 1), flatter head (HD/SVL 8.2–9.0% *vs* 9.2–11.0%), more 4th toe lamellae (mean 24 *vs* 21), and fewer midbody scale rows (mean 23 *vs* 26) (Table1). *Saproscincus saltus* **sp. nov.** is further distinguished from *S. lewisi* and *S. basiliscus* by its golden dorsum (*vs* shades of brown) and dark flanks with golden spots (*vs* typically shades of brown, sometimes dark upper flanks, without golden spots) (Fig. 4). *Saproscincus saltus* **sp. nov.** is the only *Saproscincus* known to occur at Cape Melville.

FIGURE 5. Holotype of *S. saltus* **sp. nov.** (QMJ92572): (A) dorsolateral, (B) ventral.

Genetics. For a 900 base pair sequence of the *ND4* region of mtDNA, *S. saltus* **sp. nov.** is most closely related to *S. basiliscus* and *S. lewisi* but is highly divergent from both at approximately 19.5% and 20.5% divergence, respectively (Hoskin, unpub. data). *ND4* sequences for two individuals are deposited on GenBank (QMJ92561 = KF704365, QMJ92562 = KF704366).

Distribution. Known only from the vicinity of the type locality in the uplands of the Melville Range, Cape Melville, north-east Australia (Fig. 1).

Habitat and habits. Found in upland boulder habitat associated with rainforest (Fig. 6). Two individuals were found on mossy boulders under a rainforest canopy (Fig. 6B), and one individual was found on exposed boulder-field immediately adjacent to rainforest. All three individuals were found active in the day on boulders. They moved rapidly across the rocks and leapt between boulders when pursued. The type locality is on a ridge that clearly receives plenty of moisture from cloud intercept. The only other skink found at the type locality was *Glaphyromorphus fuscicaudis* (Greer 1979), which was common in thick leaf-litter around the base of boulders. Searches in nearby upland rainforest that was less rocky failed to find *S. saltus* **sp. nov.**. *Carlia rubrigularis* Ingram & Covacevich 1989 and *C. longipes* (Macleay 1877) were common in these areas. *Eulamprus brachysoma* (Lönnberg & Andersson 1915) occurred in nearby areas of rock amongst rainforest that appeared noticeably drier than at the *S. saltus* **sp. nov.** site, while *C. fuhni* was the only skink found on the exposed boulder-fields away from forest cover.

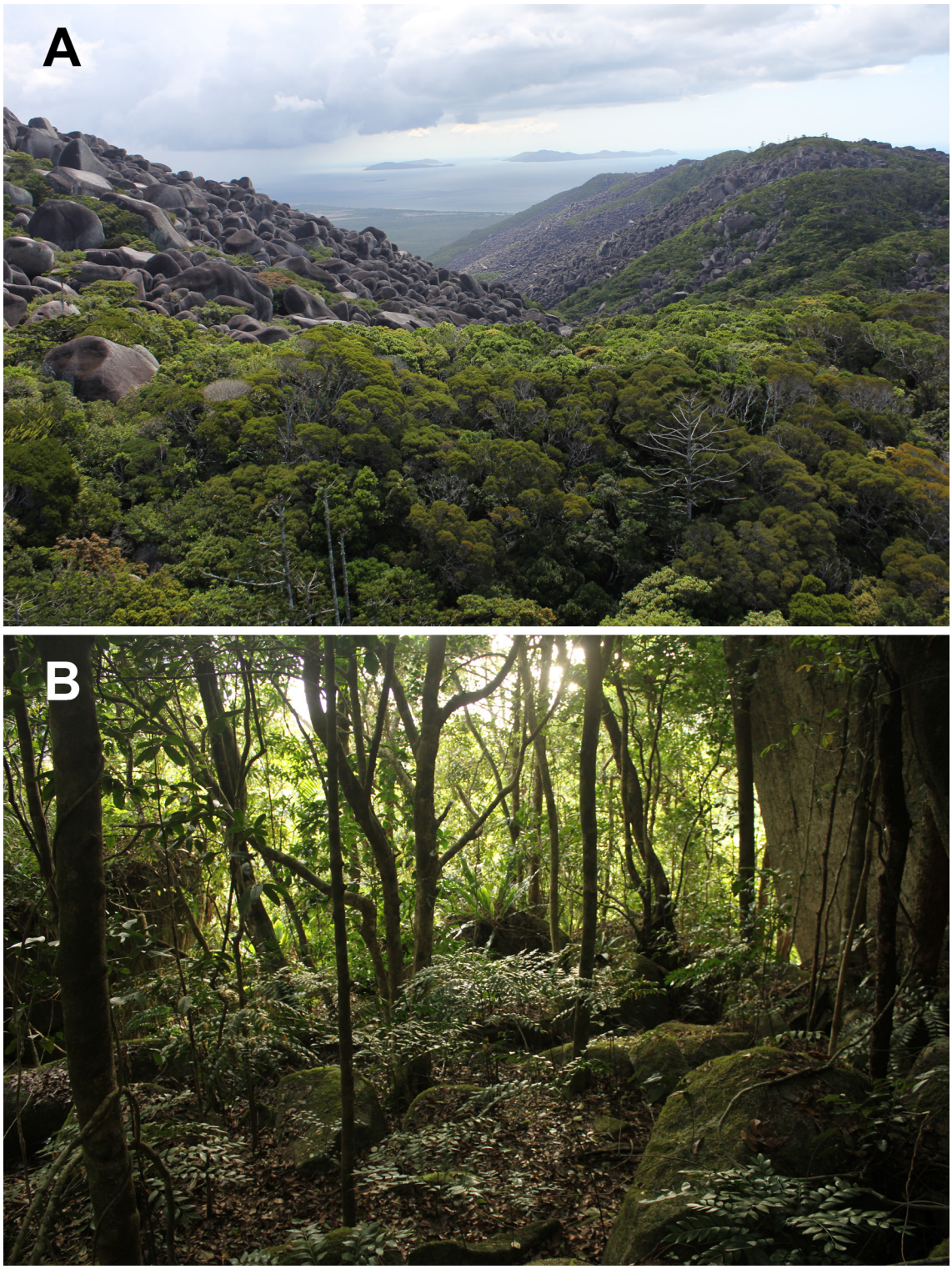

FIGURE 6. Habitat of *S. saltus* **sp. nov.**, Melville Range. (A) shows the edge of the rainforest plateau and the extensive boulder-fields that characterize Cape Melville. (B) shows the rocky rainforest at the type locality.

Discussion

The description of *S. saltus* **sp. nov.** brings the number of *Saproscincus* to 12, and extends the distribution of the genus 110 km north from the northern end of the range of *S. lewisi* at Mt Webb (15°04' S, 145°07' E) (Couper & Keim 1998). *Saproscincus saltus* **sp. nov.** is almost certainly restricted to the Melville Range, and probably to the

uplands given that previous surveys in lower areas have not detected it. Even within the uplands it may be patchy as it was only found on boulders along a moist ridgeline despite searches in surrounding areas. It is one of six vertebrates known to be endemic to Cape Melville, the others being: another skink *Cryptoblepharus fuhni*, a treefrog *Litoria andiirrmalin*, the microhylid frogs *Cophixalus zweifeli* and *Cophixalus* sp. (Hoskin, in press), and the gecko *Saltuarius eximius* (Hoskin & Couper, 2013). All these species are associated with rocky habitats, be it exposed boulder-fields or rainforest areas growing amongst rock. With the exception of *C. fuhni*, all these species are related to rainforest-associated species to the south (Hoskin, in prep.), showing both a past rainforest connection to the Wet Tropics region and a subsequently long period of isolation. The long-term persistence of these species in such a small area is remarkable and can probably be attributed to the utilization of rock habitats by all these species. *Saproscincus saltus* **sp. nov.** shows typical adaptations seen in rock-dwelling lizards (e.g., proportionally long limbs, flattened head) (Goodman *et al.* 2009), indicating long-term association with rocky habitats. Deeply layered rock environments can act as lithorefugia by providing cool, moist microhabitats that can buffer organisms from short and long-term hot and/or dry climatic conditions, and protect rainforest from fire (Couper & Hoskin 2008; Shoo *et al.* 2009). In this way rock habitats may facilitate the persistence of rainforest lineages in areas from which they would otherwise have disappeared.

Acknowledgments

The fieldtrip to Cape Melville was organized with Tim Laman as part of the Cape York Peninsula and Torres Strait Biodiversity Expedition (National Geographic Expeditions Council grant EC0566-12). Thanks to Tim Laman and Nancy Donnelly for funding and organization, and to Tim, Nancy and Mark Lamble for assistance in the field. I thank Janie White (Ranger In Charge, Cape Melville National Park) for access and discussions. I thank Bungie and Lorraine of Bungie Helicopters. I thank Steve Wilson for the use of two photos, Patrick Couper and Andrew Amey for assistance at the Queensland Museum, and Kieran Aland and Megan Higgie for discussions. This work was funded by National Geographic (grant EC0566-12) and the Australian Biological Resources Study (grant BBR210-27). Collecting was conducted under permit WITK05232208, provided by the Queensland Department of Environment and Resource Management.

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APPENDIX. Additional material examined.

Saproscincus basiliscus: QMJ61038, Graham Range (17°17' S, 145°58' E); QMJ61040, Upper Plath Rd (17°23' S, 145°28' E); QMJ61059, Kjelberg Rd, Mt Fisher (17°32' S, 145°33' E); QMJ66708, Koolmoon Ck, Ravenshoe (17°44' S, 145°34' E); QMJ71030, Palmerston NP (17°35'05" S, 145°45'30" E); QMJ76062, Hinchinbrook Is. (18°24'41" S, 146°16'56" E); QMJ77956, QC Camp, Kareeya Power Station, Tully Gorge (17°46'02" S, 145°35'16" E); QMJ84662, Spencer Falls, Windsor Tableland (16°17'36" S, 145°03'18" E); QMJ84667, Oliver Ck, south of Cape Tribulation (16°08'16" S, 145°26'28" E); QMJ89874, Butchers Ck (17°17'41" S, 145°43'27" E); QMJ90691, Favier, Yungaburra (17°16'19" S, 145°34' E). ***Saproscincus lewisi:*** QMJ57776, Big Tableland (15°43' S, 145°17' E); QMJ62752, Noah Beach, Cape Tribulation (16°05' S, 145°29' E); QMJ84661, no data; QMJ84664, Cape Tribulation Beach House (16°04'10" S, 145°27'44" E); QMJ84665, just north of Cape Tribulation (16°04'21" S, 145°27'47" E); QMJ84666, top of Noah Range (16°07'26" S, 145°27'25" E); QMJ84668, Noah Beach, south of Cape Tribulation (16°08'07" S, 145°27'07" E).