

Supplemental Tables

Sup. Table 1. Definition of morphometric characters used in specimen measurement

Morphometric Characters	Abbreviation	Definition
Snout-vent length	SVL	straight-line measurement from tip of snout to vent
Head length	HL	from the posterior of the jaws to the tip of snout
Head width	HW	at the broadest part of head, angle from the jaws
Head depth	HDD	from the posterior edge of eye to directly beneath the jaw
Tympanum Diameter	TD	the broadest horizontal point of tympanum
Eye-Tympanum Distance	ETD	space from the front edge of the tympanum to the posterior corner of the eye
Interorbital Distance	IOD	the minimum distance between the front edges of the orbits
Frontal Eye Distance	DFE	minimum distance between the front edge of orbits, nearest to snout
Internarial Distance	IND	minimum distance between the front edge of nostrils
Eye Diameter	ED	from the anterior to posterior corner of the eye, horizontally
Upper Eyelid Width	UEW	maximum width of the upper eyelid margins, measured perpendicular to the anterior-posterior axis
Snouth Length	SL	distance from the snout's tip to the anterior margin of the eye
Eye-nostril Distance	EN	From the front corner of the eye to the posterior margin of the nostril
Snout-nostril Distance	NS	space between the centre of the external nares to the tip of the snout
Tibia Length	TL	distance from the outer surface of the bent knee to the heel/tibia-tarsal inflection
Foot-heel Length	FOL	distance from the end of the fourth toe to the heel/tibia-tarsal inflection
Thigh Length	THL	distance from the vent to the knee
Foot Length	FL	from base of the inner metatarsal tubercle to the tip of the fourth toe
Hind-limb Length	HLL	measured from vent to tip of fourth toe
Inner Metatarsal Tubercle Length	IMT	maximum length of the inner metatarsal tubercle
Hand Length	HAL	from the base of the outer palmar tubercle to the tip of the third finger
Lower Arm Length	LAL	distance from elbow to the tip of the third finger
Upper Arm Length	UAL	from the body to the elbow
Arm Length	AL	from the body to the tip of the third finger
Forearm Length	FLL	from the flexed elbow to the base of the outer palmar tubercle
Toe 4 Disk Width	Toe4DW	the greatest horizontal distance between the edges of the fourth toe disk
Toe 4 Length	Toe4L	from the metatarsal tubercle to the tip of the fourth toe
Toe 4 Width	Toe4W	the widest point of the fourth toe
Finger 3 Disk Width	Fin3DW	maximum horizontal distance between edges of the third finger disk
Finger 3 Length	Fin3L	from the proximal edge of the palmar tubercle to the tip of the third finger
Finger 3 Width	Fin3W	the widest point of the third finger

Sup. Table 2. Samples of genus *Colleeneremia* and outgroup species used for 16s rRNA analysis

No	Species	Specimen Voucher	Genbank Accession	Locality	Source
1	<i>Colleeneremia capitula</i>	MZB.Amph. 31159	PX454879	Indonesia, Tanimbar, Lorulun village	This study
2	<i>Colleeneremia capitula</i>	MZB.Amph. 31160	PX454878	Indonesia, Tanimbar, Lorulun village	This study
3	<i>Colleeneremia nigrocula</i> sp. nov.	MZB.Amph. 31232	PX454877	Indonesia, Tanimbar, Lorulun village	This study
4	<i>Colleeneremia nigrocula</i> sp. nov.	MZB.Amph. 31234	PX454876	Indonesia, Tanimbar, Lorulun village	This study
5	<i>Colleeneremia nigrocula</i> sp. nov.	MZB.Amph. 31233	PX454875	Indonesia, Tanimbar, Lorulun village	This study
6	<i>Colleeneremia rubella</i>	SAMAR42871	DQ116856	-	(Young <i>et al.</i> 2005)
7	<i>Colleeneremia dentata</i>	ABTC1244	FJ945379	-	(Rosauer <i>et al.</i> 2009)
8	<i>Colleeneremia congenita</i>	ABTC64871	FJ945375	-	(Rosauer <i>et al.</i> 2009)
9	<i>Colleeneremia electrica</i>	ABTC16521	FJ945382.1	-	(Rosauer <i>et al.</i> 2009)
10	<i>Pengilleyia amboinensis</i>	ABTC46784	FJ945366	-	(Rosauer <i>et al.</i> 2009)
11	<i>Pengilleyia darlingtoni</i>	ABTC46765	FJ945378.1	-	(Rosauer <i>et al.</i> 2009)
12	<i>Pengilleyia peronii</i>	SAMAR40284	DQ116857	-	(Young <i>et al.</i> 2005)
13	<i>Pengilleyia rothii</i>	SAMAR32545	DQ116858	-	(Young <i>et al.</i> 2005)
14	<i>Ranoidea aurea</i>	AY843691	AM52744	New Caledonia, Province Nord, Valle Phaaye, Nomac River, 8 km E. Poum	(Faivovich <i>et al.</i> 2005)
15	<i>Sandyrana infrafronata</i>	FN7058	PQ334092	Indonesia, Km 54 Nabire-Mapia road	(Ferreira <i>et al.</i> 2025)
16	<i>Oreophryne sibilans</i>	FN7719	PQ334340	Indonesia, Wondiwoi Mountains	(Ferreira <i>et al.</i> 2025)
17	<i>Limnonectes grunnius</i>	BJE1141	PQ334462	Indonesia, Maluku	(Ferreira <i>et al.</i> 2025)
18	<i>Hylarana aurata</i>	RG6548	KR264101	-	(Oliver <i>et al.</i> 2015)

Sup. Table 3. Morphological character measurement of the specimen examined

Characters	<i>Colleeneremia capitula</i>		<i>Colleeneremia nigrocula</i> sp. nov.		Student's t-test p-value	Mann-Whitney U test p-value
	Male (n=22)	Female (n=14)	Male (n=7)	Female (n=1)	Male	Male
SVL	30.1 ± 3.3 (26.0–35.8)	31.0 ± 2.5 (28.6–36.9)	26.0 ± 0.9 (24.9–27.2)	31.9	0.0033*	-
HL	8.6 ± 0.9 (6.7–10.1)	8.6 ± 1.1 (6.9–11.0)	7.2 ± 0.7 (6.3–8.2)	9.1	1.86 x 10 ⁻⁷ *	-
HW	8.2 ± 1.1 (6.5–9.8)	8.3 ± 0.8 (6.7–9.9)	7.1 ± 0.4 (6.6–7.7)	8.8	1.72 x 10 ⁻⁷ *	-
HDD	2.8 ± 0.5 (2.2–3.6)	2.9 ± 0.4 (2.2–3.7)	2.5 ± 0.2 (2.3–2.8)	2.7	1.19 x 10 ⁻¹	-
TD	1.8 ± 0.2 (1.4–2.1)	1.9 ± 0.2 (1.5–2.3)	1.5 ± 0.1 (1.3–1.7)	2.0	6.11 x 10 ⁻⁵ *	-
ETD	1.2 ± 0.1 (1.1–1.4)	1.3 ± 0.1 (1.1–1.5)	1.2 ± 0.1 (1.1–1.3)	1.2	6.71 x 10 ⁻²	-
IOD	3.3 ± 0.3 (2.7–3.9)	3.4 ± 0.3 (3.0–4.3)	2.7 ± 0.2 (2.4–3.0)	3.5	3.81 x 10 ⁻⁸ *	-
DFE	5.0 ± 0.6 (4.2–6.0)	5.1 ± 0.5 (4.6–6.2)	4.4 ± 0.2 (4.2–4.8)	4.4	2.52 x 10 ⁻⁶ *	-
IND	1.8 ± 0.2 (1.5–2.2)	1.9 ± 0.2 (1.6–2.4)	1.4 ± 0.2 (1.2–1.6)	1.9	1.33 x 10 ⁻⁶ *	-
ED	3.0 ± 0.3 (2.5–3.6)	3.0 ± 0.3 (2.5–3.4)	2.6 ± 0.2 (2.4–2.9)	3.5	1.80 x 10 ⁻⁶ *	-
UEW	1.6 ± 0.3 (1.2–2.2)	1.6 ± 0.2 (1.2–1.8)	1.3 ± 0.1 (1.1–1.4)	1.9	5.99 x 10 ⁻³ *	-
SL	3.8 ± 0.4 (3.1–4.5)	3.9 ± 0.4 (3.2–5.0)	3.2 ± 0.2 (3.0–3.6)	3.9	9.9 x 10 ⁻⁸ *	-
EN	2.7 ± 0.3 (2.2–3.2)	2.8 ± 0.3 (2.5–3.5)	2.3 ± 0.3 (1.9–2.8)	2.9	5.51 x 10 ⁻⁴ *	-
NS	1.1 ± 0.1 (0.8–1.4)	1.2 ± 0.1 (1.1–1.4)	1.0 ± 0.1 (0.9–1.2)	1.1	4.84 x 10 ⁻³ *	-
TL	14.2 ± 1.6 (12.1–16.3)	14.8 ± 1.4 (12.6–17.9)	11.9 ± 0.3 (11.5–12.3)	15.0	-	1.28 x 10 ⁻⁶ *
FOL	19.4 ± 2.4 (15.9–22.8)	20.1 ± 2.2 (17.4–25.1)	16.0 ± 0.6 (15.2–16.8)	20.4	1.54 x 10 ⁻¹³ *	-
THL	13.9 ± 1.6	14.2 ± 1.5	11.5 ± 0.6	15.2	7.34 x 10 ⁻¹¹ *	-

	(11.0–16.6)	(12.0–18.3)	(10.5–12.4)			
FL	11.4 ± 1.6 (8.9–14.1)	11.8 ± 1.2 (10.1–14.9)	9.5 ± 0.4 (8.9–10.0)	12.5	4.87 x 10 ^{-11*}	-
HLL	47.5 ± 5.5 (39.8–55.6)	49.2 ± 4.8 (41.9–61.4)	39.5 ± 1.2 (37.9–41.1)	50.5	6.39 x 10 ^{-15*}	-
IMT	1.1 ± 0.2 (0.8–1.5)	1.1 ± 0.2 (0.7–1.3)	0.9 ± 0.1 (0.6–1.0)	1.1	7.75 x 10 ^{-3*}	-
HAL	7.6 ± 1.2 (6.0–9.6)	7.5 ± 0.6 (6.5–9.1)	6.1 ± 0.3 (5.7–6.6)	7.4	-	2.43 x 10 ^{-5*}
LAL	12.7 ± 1.7 (10.6–15.5)	12.4 ± 1.6 (10.9–16.6)	10.4 ± 0.3 (10.0–10.9)	12.9	7.86 x 10 ^{-13*}	-
UAL	4.3 ± 0.6 (3.2–5.6)	4.1 ± 0.7 (3.2–5.5)	3.6 ± 0.5 (3.0–4.1)	4.7	9.18 x 10 ^{-3*}	-
AL	16.9 ± 2.1 (13.9–20.6)	16.4 ± 2.1 (14.2–22.1)	14.0 ± 0.6 (13.3–14.7)	17.6	-	1.28 x 10 ^{-6*}
FLL	5.3 ± 0.8 (3.7–6.7)	5.0 ± 1.1 (3.6–7.6)	4.2 ± 0.3 (3.7–4.7)	6.5	-	3.84 x 10 ^{-5*}
Toe4DW	1.1 ± 0.2 (0.8–1.4)	1.1 ± 0.1 (0.9–1.4)	0.9 ± 0.1 (0.7–1.0)	1.1	1.14 x 10 ^{-5*}	-
Toe4L	8.9 ± 2.1 (5.0–13.1)	9.0 ± 1.4 (6.6–11.1)	6.7 ± 1.1 (5.5–8.6)	11.1	3.08 x 10 ^{-4*}	-
Toe4W	0.8 ± 0.1 (0.6–1.0)	0.9 ± 0.1 (0.7–1.0)	0.7 ± 0.1 (0.6–0.8)	1.8	3.56 x 10 ^{-3*}	-
Fin3DW	1.2 ± 0.2 (0.9–1.5)	1.2 ± 0.1 (1.0–1.5)	1.0 ± 0.1 (0.8–1.1)	1.1	8.61 x 10 ^{-4*}	-
Fin3L	5.4 ± 1.1 (3.9–7.5)	5.4 ± 0.8 (3.8–6.9)	4.3 ± 0.6 (3.2–5.1)	6.4	1.75 x 10 ^{-4*}	-
Fin3W	0.7 ± 0.1 (0.6–0.9)	0.8 ± 0.1 (0.7–0.9)	0.7 ± 0.1 (0.6–0.8)	0.7	6.88 x 10 ⁻²	-

Sup. Table 4. Principal Component Analysis (PCA) loadings of the morphological measurement of *Colleeneremia capitula* and *Colleeneremia nigrocula* sp. nov

	PC1	PC2	PC3
Standard Deviation	4.203	0.98	0.775
Proportion of Variance	0.822	0.0447	0.0279
Cumulative Proportion%	61.0	69.9	76.1
HL	-0.20759884	-0.04364026	-0.43445461
HW	-0.2150453	0.01886464	-0.4342748
IOD	-0.22323937	0.00880652	-0.05878849
DFE	-0.18639009	0.28725344	-0.22664735
IND	-0.2027229	0.26947466	0.27525541
ED	-0.13142892	0.11209573	0.03085768
SL	-0.20469911	0.20465415	-0.35820767
EN	-0.1748515	0.34183079	0.1751166
TL	-0.26220747	0.13477222	-0.01290098
FOL	-0.26551318	0.08873927	0.04135022
THL	-0.24713263	0.00690287	0.06619784
FL	-0.25110424	0.17568727	0.07708434
HLL	-0.27385523	0.08267035	0.03367939
HAL	-0.23373781	0.09172457	0.33055365
LAL	-0.26299863	-0.10183794	0.03180866
AL	-0.25308283	-0.25297983	0.11548993
FLL	-0.17703791	-0.46875074	-0.25327418
Toe4L	-0.19169031	-0.37887687	0.02254288
Fin3L	-0.19194027	-0.31234627	0.34236042
UAL+LAL	-0.25314118	-0.25264472	0.11539664

Sup. Table 5. uncorrected p-distances of 16s rRNA among genus *Colleeneremia* (%)

No.	Species	1	2	3	4	5	6	7	8	9
1	<i>Colleeneremia capitula</i>									
2	<i>Colleeneremia capitula</i>	0.0								
3	<i>Colleeneremia nigrocula</i> sp. nov	0.3	0.3							
4	<i>Colleeneremia nigrocula</i> sp. nov	1.1	0.8	1.1						
5	<i>Colleeneremia nigrocula</i> sp. nov	1.4	1.1	0.8	0.3					
6	<i>Colleeneremia rubella</i>	3.5	3.5	3.0	3.8	3.6				
7	<i>Colleeneremia dentata</i>	7.8	7.8	7.3	8.1	7.8	5.6			
8	<i>Colleeneremia congenita</i>	9.1	9.1	8.6	9.4	9.2	7.4	6.7		
9	<i>Colleeneremia electrica</i>	9.0	9.0	8.5	9.3	9.1	7.5	4.8	6.8	