

## Supplemental Tables

**Sup. Table 1.** The samples used for phylogenetic analyses in this study. Voucher abbreviations: CAS = California Academy of Sciences Herpetological Collections; FMNH = Field Museum of Natural History; JAM = Jimmy A McGuire field series; KIZ = Kunming Institute of Zoology; KUHE = Kyoto University, Human and Environmental Studies; MZB = Museum Zoologicum Bogoriense; SAMN = Collection series of College of Life Science, China West Normal University; UNIMAS = Universitas Malaysia Sarawak; USFS = U.S. Forest Service; USNM = National Museum of Natural History; ZCAK = Zoological Collection of Atsushi Kurabayashi ;ZMMU = Zoological Museum of Moscow University.

Species	Locality	GenBank	Voucher	Reference
<i>Glyphoglossus capsus</i>	Borneo	KJ488544	UNIMAS MYS 9389	Das et al., 2014
<i>Glyphoglossus capsus</i>	Borneo	KJ488545	UNIMAS MYS P0610	Das et al., 2014
<i>Glyphoglossus guttulatus</i>	Thailand	AB634685	KUHE 35163	Matsui et al., 2011
<i>Glyphoglossus guttulatus</i>	Vietnam	DQ283144	FMNH 252955	Frost et al., 2006
<i>Glyphoglossus guttulatus</i>	Vietnam	EF017956	FMNH 252956	Boexlaer et al., 2006
<i>Glyphoglossus guttulatus</i>	Southeast Asia	LC640579	ZCAK SEA0006	Kambayasi et al., 2022
<i>Glyphoglossus huadianensis</i>	China	MN860396	KIZ 2014005781	Zhang et al., 2020
<i>Glyphoglossus minutus</i>	Peninsular Malaysia	AB598340	KUHE 52463	Matsui, 2011
<i>Glyphoglossus molossus</i>	Thailand	AB201193	KUHE 35182	Matsui et al., 2005
<i>Glyphoglossus molossus</i>	Cambodia	AY948734	FMNH 257351	Roelants et al., 2007
<i>Glyphoglossus molossus</i>	Myanmar	KC180000	USFS 34044	de Sa et al., 2012
<i>Glyphoglossus molossus</i>	Myanmar	KC180052	USFS 34043	de Sa et al., 2012
<i>Glyphoglossus molossus</i>	Myanmar	KC822484	CAS HERP 221608	Blackburn et al., 2013
<i>Glyphoglossus molossus</i>	Southeast Asia	LC640625	ZCAK SEA0007	Kambayasi et al., 2022
<i>Glyphoglossus molossus</i>	Myanmar	MG935811	USNM Herp 523961	Mulcahy et al., 2018
<i>Glyphoglossus volzi</i>	Sumatra	PQ212617	MZB Amph 23532	This study
<i>Glyphoglossus yunnanensis</i>	China	AB634684	KUHE 44148	Matsui et al., 2011
<i>Glyphoglossus yunnanensis</i>	China	KC822481	FMNH 232988	Blackburn et al., 2013
<i>Glyphoglossus yunnanensis</i>	China	KM509102	CAS HERP 242184	Peloso et al., 2016
<i>Glyphoglossus yunnanensis</i>	China	MZ542769	SAMN 20166212	Huang & Huang 2021
<i>Kalophrynus kiewi</i>	Peninsular Malaysia	LC208815	KUHE 12559	Matsui et al., 2017
<i>Kaloula baleata</i>	Bali	KC822570	JAM 3232	Blackburn et al., 2013
<i>Microhyla heymonsi</i>	Myanmar	MK208932	ZMMU NAP8277	Poyarkov et al., 2019
<i>Micryletta steinegeri</i>	Taiwan	AB634696	KUHE 35937	Matsui et al., 2011
<i>Pulchrana baramica</i>	Borneo	AB719237	KUHE 53640	Matsui et al., 2012

**Sup. Table 2.** Genetic distances of 16S rRNA (%) among *Glyphoglossus*

	<i>G. volzi</i>	<i>G. capsus</i>	<i>G. guttulatus</i>	<i>G. huadianensis</i>	<i>G. minutus</i>	<i>G. molossus</i>	<i>G. yunnanensis</i>
<i>G. volzi</i>							
<i>G. capsus</i>	13.49–13.95	0.70					
<i>G. guttulatus</i>	5.12–5.81	14.19–14.88	0–1.16				
<i>G. huadianensis</i>	7.44	11.63–12.33	8.60–9.30				
<i>G. minutus</i>	1.86	13.26–13.72	5.35–6.05	6.98			
<i>G. molossus</i>	6.28–6.98	13.26–14.65	7.67–9.53	7.21–7.44	5.58–6.28	0.47–3.26	6.74–7.21
<i>G. yunnanensis</i>	6.98–7.44	11.16–11.86	9.77–10.47	2.56	7.21	6.74–7.21	

**Sup. Table 3.** Comparison of morphometric and meristic data for all known *Glyphoglossus* (edited from Zhang et al. (2021) based on published data. Characters: 1. Male SVL (maximum, unless range given, in mm); 2. Female SVL (maximum, unless range given, in mm); 3. Supratympanic fold indistinct (0) or distinct (1); 4. Dorsum smooth or granular (0) or tuberculate (1); 5. Foot webbing absent (0), basal (1), or extensive (2); 6. Lateral fringes on toes absent (0) or present (1); 7. Outer metatarsal tubercle absent (0) or present (1); 8. Pupil shape vertical (0), horizontal (1), or rounded (2); 9. Tips of toes obtusely rounded (0) or expanded (1); 10. Interorbital fold absent (0), indistinct (1), or distinct (2); 11. Dorsum ground colour olive (0), yellow (1) or brown (2); 12. Dorsum is unpatterned (0), with small spots (1) or a large dark central area (2); 13. Flanks unpatterned (0), with dark blotches (1) or with red bars (2). In addition, ‘?’ represents an unknown character state; ‘/’ represents a multistate character; \* represents unknown sex; # represents no sexual dimorphism for *G. molossus*.

Species	Characters												
	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>G. brooksii</i>	51.0–55.0	60.0–73.5	0	1	1	1	0	0	0	0	1	1	1
<i>G. capsus</i>	34.2–36.0	?	0	0	1	1	1	2	0	1	0	1	2
<i>G. flavus</i>	35.3*	?	0	0	1	1	0	?	1	1	1	1	0
<i>G. guttulatus</i>	34.0–45.0	38.0–50.0	1	0	1	1	0	0	0	1	0	2	0
<i>G. minutus</i>	30.9–32.7	25.5	1	1	2	1	1	2	0	0	1	2	0
<i>G. smithi</i>	33.0	37.0–39.0	1	0	1	?	0	1/2	1	?	2	2	1
<i>G. volzi</i>	29.7–34.0	?	1	0	2	1	1	1/2	1	2	2	1	1
<i>G. yunnanensis</i>	22.–32.7	40.0–48.8	1	0	2	1	1	2	0	0	2	2	0
<i>G. molossus</i>	41.0–94.9	41.0–94.9 <sup>#</sup>	1	0	2	?	1	0	0	1	0	0	0
<i>G. huadianensis</i>	34.8–37.8	?	1	1	2	1	1	2	0	0	2	0/1	0