

## Supplementary Figures and Tables



### Supplementary Figure S1 Natural history and distribution of *Gonyosoma hainanense* sp. nov.

A: Female *Gonyosoma hainanense* sp. nov. (Jianfengling, Hainan, China) laying eggs (clutch size: 6) on 20 April 2019. B: First-day neonates on 21 June 2019. Female and neonates were released in Jianfengling a few weeks later. C: Juvenile *Gonyosoma hainanense* sp. nov. in Jianfengling, gray in color, not captured. D: Paratype (ANU20190003, subadult), body beginning to turn green. E: Paratype

(ANU20190003, subadult) eating a juvenile (pinky) mouse. F: Adult *Gonyosoma hainanense* **sp. nov.** preyed on by *Lycodon rosazonatus* in Diaoluoshan, Hainan, China. G: Habitat of *Gonyosoma hainanense* **sp. nov.** in Diaoluoshan. Photos by H. Yang (A), Y.W. Zhu (B, C, E), S. Huang (D), J.C. Wang (F) and Y. Zhang (G).

## Supplementary Materials

**Supplementary Table S1** Matrix of uncorrected *P*-distances (%) of *cyt b* gene among 7 species of *Gonyosoma*.

	1	2	3	4	5	6	7
1. <i>G. hainanense</i> sp. nov. (n=6)	0-0.6						
2. <i>G. bouleengeri</i> (n=9)	2.5-3.0	0-0.7					
3. <i>G. frenatum</i> (n=5)	6.6-8.9	7.1-8.6	0-3.4				
4. <i>G. margaritatum</i> (n=1)	14.0-14.4	14.6-15.2	13.9-14.8	-			
5. <i>G. prasinum</i> (n=2)	13.3-15.9	14.1-18.4	14.6-18.5	14.6-16.1	0-2.6		
6. <i>G. jansanii</i> (n=1)	19.4-21.9	19.1-21.8	19.1-23.3	20.8	18.7-22.9	-	
7. <i>G. oxycephalum</i> (n=2)	17.9-19.7	18.9-20.3	19.4-21.3	20.0-20.6	18.8-20.9	7.5-9.1	0-0.6

n: number(s) of individuals. Intraspecific distances are shadowed in gray. Others are the interspecific distances.

**Supplementary Table S2** Morphological characters scored and measured for *Gonyosoma hainanense* sp. nov. (n=6, 1-6) and their sister species *G. boulengeri* (Mocquard, 1897) (n=9, 7-15).

	Collection number/ Accession number	Location	Sex	SVL	TaL	TL	TaL/T L	DSR	VEN	SC	PreAn	Lor	SL	IL	IL-CS	PrO	PtO	Tem	HL	HW	HW/HL	HH	EL	EW	RW
1	ANU20190002 MW495258	Diaoluoshan, Hainan, China	F	927	302	1229	0.246	19-19-13	216	122	divided	2	9/9 (4-6/4-6)	11/12	5	1/1	2/2	2-3-3/2-3-3	33.2	14.1	0.425	11.2	4.0	3.8	5.1
2	ANU20190003 MW495260	Diaoluoshan, Hainan, China	S	575	179	754	0.237	19-19-15	217	122	divided	2	9/9 (4-6/4-6)	11/10	5	1/1	2/2	2-2-3/2-2-3	24.1	10.9	0.452	7.1	3.1	2.9	3.6
3	HNU20190001 MW495259	Diaoluoshan, Hainan, China	M	733	300	1033	0.290	19-19-15	218	133	divided	2	9/9 (4-6/4-6)	10/11	5	1/1	2/2	2-2-3/2-2-3	30.3	13.7	0.452	9.2	4.0	3.4	5.0
4	HNU20190002 MW495259	Diaoluoshan, Hainan, China	S	485	233	718	0.325	19-19-15	221	135	divided	2	9/9 (4-6/4-6)	11/12	5	1/1	2/2	2-2-3/2-2-3	24.9	12.3	0.494	8.4	3.4	2.9	4.4
5	HNU20190003 MK201361	Diaoluoshan, Hainan, China	F	652	261	913	0.286	19-19-15	220	126	divided	2	9/9 (4-6/4-6)	*/11	5	1/1	2/2	2-2-3/2-2-3	28.6	14.8	0.517	8.7	3.8	3.0	4.7
6	HNU20190004 MK201361	Diaoluoshan, Hainan, China	M	840	292	1132	0.258	19-19-15	219	129	divided	2	9/9 (4-6/4-6)	10/11	5	1/1	2/2	*	31.8	13.7	0.431	10.3	4.1	3.8	5.1
7	ANU2010073 MK201360	Yunnan, China	M	658	222	880	0.252	19-19-15	212	126	divided	1	9/9 (4-6/4-6)	11/11	5	1/1	2/2	2-3-3/2-3-3	24.8	11.3	0.456	7.6	3.1	2.8	4
8	ANU2011020 MK201360	Yunnan, China	F	993	324	1317	0.246	19-19-15	213	130	divided	1	9/9 (4-6/4-6)	11/10	5	1/1	2/2	2-3-4/2-3-4	31.1	15.3	0.492	11.4	4.1	4.1	5.0
9	ANU2012086 MK201360	Yunnan, China	F	842	258	1100	0.235	19-19-15	215	116	divided	1	10/9 (5-7/4-6)	11/10	5	1/1	2/2	2-3-3/2-3-3	29.5	12.5	0.424	11.6	3.5	3.1	3.7
10	ANU2018176 MW495261	Guangdong, China	M	655	255	910	0.280	19-19-15	220	101	divided	1	9/9 (4-6/4-6)	10/10	5	1/1	2/2	2-3-3/2-3-3	26.9	13.0	0.483	11.2	*	*	*
11	ANU2018177	Guangdong,	F	740	44 <sup>+</sup>	*	*	19-19-15	218	19 <sup>+</sup>	divided	1	9/9	11/11	5	1/1	2/2	1-3-3/1-3-3	29.1	13.8	0.474	11.1	*	*	*

MW495261	China											(4-6/4-6)												
12 ANU2018178	Guangdong,	M	638	20 <sup>+</sup>	*	*	19-19-15	222	10 <sup>+</sup>	divided	1	9/10	10/10	5	1/1	2/2	2-2-3/2-3-3	25.4	12.6	0.496	9.6	*	*	*
MW495261	China											(4-6/5-7)												
13 ANU2012083	Lào Cai,	M	958	362	1320	0.274	19-19-15	218	128	divided	1	9/9	10/10	5	1/1	2/2	2-2-3/2-2-3	34.2	15.8	0.462	13.2	4	3.5	5.6
MW495262	Vietnam											(4-6/4-6)												
14 ANU2012084	Lào Cai,	F	898	253	1151	0.220	19-19-15	217	110 <sup>+</sup>	divided	1	10/9	10/11	5	1/1	2/2	2-3-3/2-3-3	30.2	12.9	0.427	10.4	3.7	3.2	4.4
MW495262	Vietnam											(5-7/4-6)												
15 ANU2012085	Lào Cai,	F	904	303	1207	0.251	19-19-15	215	123 <sup>+</sup>	divided	1	9/10	10/10	5	1/1	2/2	2-4-4/2-2-4	32.8	13.9	0.424	11	4.1	3.5	4.5
MW495262	Vietnam											(4-6/5-7)												

Bilateral scale counts were given as left/right. “+” means the tail was incomplete. The symbol “\*” represents missing data. Characters (abbreviations): Female (F), Male (M), Subadult (S), snout-vent length (SVL), tail length (TaL), total length (TL), dorsal scale row (DSR), ventral (VEN), subcaudal (SC), Preanal plate (PreAn), loreal (Lor), supralabial (SL), infralabial (IL), infralabial contact with chin shield (IL-CS), preocular (PrO), postocular (PtO), temporal (Tem), head length (HL), head width (HW), head height (HH), eye length (EL), eye width (EW), rostral width (RW).