

**Advertisement calls of *Fejervarya multistriata* (Anura:  
Dicroglossidae), with a review of anurans in China**

**You-Fu Lin<sup>1,2</sup>, Zhi-Qiang Chen<sup>1,3</sup>, Yun Tang<sup>1,4</sup>, Jing-Yi Chen<sup>1</sup>, Guo-Hua Ding<sup>1,4,\*</sup>,**

**Zhi-Hua Lin<sup>1</sup> and Xiang Ji<sup>4</sup>**

<sup>1</sup> Laboratory of Amphibian Diversity Investigation, College of Ecology, Lishui University, Lishui  
323000, Zhejiang, P.R. China

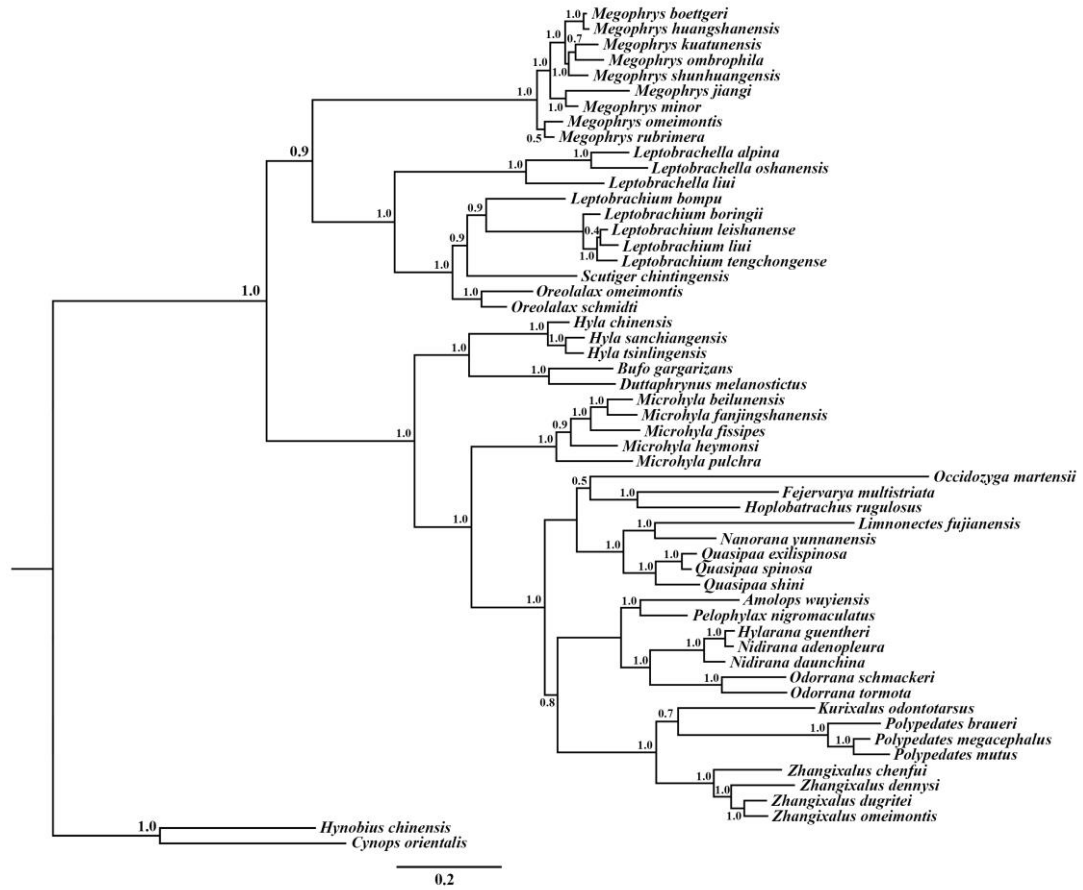
<sup>2</sup> College of Forestry, Nanjing Forestry University, Nanjing 210037, Jiangsu, P.R. China

<sup>3</sup> College of Animal Science and Technology, Zhejiang A & F University, Lin'an 311300, Zhejiang, P.R.  
China

<sup>4</sup> College of Life Sciences, Nanjing Normal University, Nanjing 210046, Jiangsu, P.R. China

Submitted: June 30, 2019. Final revision received: June 26, 2020. Accepted: June 26, 2020

**Supplementary material**



**Figure S1.** The Bayesian inference tree for 53 anurans distributed in China reconstructed based on mitochondrial 12S+16S+COI gene sequences (1898 bp). One *Hynobius chinensis* sample and one *Cynops orientalis* sample are chosen as outgroups. The scaleplate represents substitutions/site. The posterior probabilities showed in each node. The GenBank accession number of specimens are showed in supplementary table S1.

**Table S1.**

Vouchers, localities and GenBank accession numbers for samples used in the molecular analyses.

Family Species	Voucher ID	Locality	GenBank accession number		
			12S	16S	COI
Megophryidae					
<i>Leptobranchella alpina</i>	SYSa003927	Jingdong County, Yunnan, China	MH406639	MH406905	MH406368
<i>Leptobranchella liui</i>	SYSa004052	Mt. Jinggang, Jiangxi, China	MH406642	MH406908	MH406371
<i>Leptobranchella oshanensis</i>	CIB20050095	—	KC460337	KC460337	KC460337
<i>Leptobranchium bompu</i>	CIB LX694	—	KY486758	KY486758	
<i>Leptobranchium boringii</i>	SCUM120630	Emei Mountain, Sichuan, China	KJ630505	KJ630505	KJ630505
<i>Leptobranchium leishanense</i>	—	—	KU760082	KU760082	KU760082
<i>Leptobranchium liui</i>	ZYC 636	—	—	EF544198	—
<i>Leptobranchium liui</i>	2001.0276	Shimentai, Guangdong, China	—	—	KR087752
<i>Leptobranchium tengchongense</i>	SYSa004604d	China	—	KX066880	—
<i>Megophrys boettgeri</i>	SYSa004149	Mt. Wuyi, Fujian, China	MF667847	MF667878	MH406247
<i>Megophrys feii</i>	—	—	—	—	—
<i>Megophrys huangshanensis</i>	SYSa002703	Huangshan, Anhui, China	MF667854	MF667883	MH406161
<i>Megophrys jiangi</i>	KIZ021889	Fanjingshan, Guizhou, China	—	KX811912	—
<i>Megophrys kuatunensis</i>	SYSa003449	Guadun, Fujian, China	MF667850	MF667881	MH406206
<i>Megophrys minor</i>	SYSa003209	Dujiangyan, Sichuan, China	MF667825	MF667862	MH406194
<i>Megophrys ombrophila</i>	NJFU2015204	—	KX856424	KX856403	—
<i>Megophrys omeimontis</i>	SYSa005301	—	MH406620	—	—
<i>Megophrys omeimontis</i>	KIZ025765	Emei Shan, Sichuan, China	—	KX811884	KX812136
<i>Megophrys rubrimera</i>	VNMN2017.002	Sa Pa, Lao Cai, Vietnam	—	MF536420	—

<i>Megophrys shunhuangensis</i>	HNNU18NS01	Nanshan National Forest Park, Hunan, China	MK836032	MK836031	MK977598
<i>Oreolalax omeimontis</i>	CIB-XM439	Omei Mt., Sichuan, China	EF397264	EF397264	—
<i>Oreolalax schmidti</i>	CIB-XM417	Da Yi, Sichuan, China	EF397258	EF397258	—
<i>Scutiger chintingensis</i>	ROM39065	Hongya, Sichuan, China	EF397269	EF397269	—
<i>Scutiger chintingensis</i>	LC141	—	—	—	KY310878
Hylidae					
<i>Hyla chinensis</i>	—	—	AY458593	AY458593	—
<i>Hyla chinensis</i>	17916	Taiping, Taichung, Taiwan, China	—	—	MH034215
<i>Hyla sanchiangensis</i>	Xiuning_Anhui5	Xiuning, Anhui, China	KP742640	KP742759	—
<i>Hyla simplex</i>	—	—	—	—	—
<i>Hyla tsinlingensis</i>	—	—	KU601448	KU601448	KU601448
Bufonidae					
<i>Bufo gargarizans</i>	—	—	KU321581	KU321581	KU321581
<i>Duttaphrynus melanostictus</i>	—	—	AY458592	AY458592	AY458592
Microhylidae					
<i>Microhyla beilunensis</i>	CIBBL002	Chaiqiao, Beilun, Ningbo, Zhejiang, China	MH234521	MH234535	MH234543
<i>Microhyla fanjingshanensis</i>	CIBFJS20180425006	Fanjing Mountain, Guizhou, China	MK087853	MK087856	MK087859
<i>Microhyla fissipes</i>	—	Taiwan, China	MF673131	MF673131	MF673131
<i>Microhyla heymonsi</i>	—	—	AY458596	AY458596	AY458596
<i>Microhyla pulchra</i>	—	Dongguan, Guangdong, China	KF798195	KF798195	KF798195
Occidozygidae					
<i>Occidozyga martensii</i>	—	—	GU177877	GU177877	GU177877
Dicroglossidae					
<i>Fejervarya multistriata</i>	zjbj3	—	KR071859	KR071859	KR071859

<i>Hoplobatrachus rugulosus</i>	Chin-Nongkh-3	Nong Khai, Thailand	AB636609	AB636618	—
<i>Hoplobatrachus rugulosus</i>	2007.6265	Huu Lie, Lang So'n, Vietnam	—	—	KR087678
<i>Limnonectes fujianensis</i>	—	Fujian, China	AY974191	AY974191	AY974191
<i>Nanorana yunnanensis</i>	CIBYN090071	China	KU139947	KU140023	—
<i>Nanorana yunnanensis</i>	—	—	—	—	KF199150
<i>Quasipaa exilispinosa</i>	WYE13	—	JX989596	JX989342	—
<i>Quasipaa exilispinosa</i>	—	—	—	—	KF199151
<i>Quasipaa shini</i>	LUS12	—	JX989568	JX989314	—
<i>Quasipaa spinosa</i>	—	—	FJ432700	FJ432700	FJ432700
<b>Ranidae</b>					
<i>Amolops wuyiensis</i>	—	—	KJ933509	KJ933509	KJ933509
<i>Hylarana guentheri</i>	—	—	KM035413	KM035413	KM035413
<i>Nidirana adenopleura</i>	UMMZ 189963	Taipei, Taiwan, China	DQ283117	DQ283117	—
<i>Nidirana adenopleura</i>	SYS a005943	—	—	—	MF807893
<i>Nidirana daunchina</i>	CIB20110629001	—	MK293804	MK293822	MK293840
<i>Odorrana schmackeri</i>	—	—	KP732086	KP732086	KP732086
<i>Odorrana tormota</i>	—	—	DQ835616	DQ835616	DQ835616
<i>Pelophylax nigromaculatus</i>	—	—	KT878718	KT878718	KT878718
<b>Rhacophoridae</b>					
<i>Kurixalus odontotarsus</i>	YGH 090178	—	KX554444	KX554506	—
<i>Kurixalus odontotarsus</i>	2006.2456	Ban Keng Koug, Louangphrabang, Laos	—	—	KR087750
<i>Polypedates braueri</i>	—	—	MK687567	MK687567	MK687567
<i>Polypedates megacephalus</i>	20130003	China	MH936677	MH936677	MH936677
<i>Polypedates mutus</i>	USNM:Herp:587059	Pyin Oo Lwin, Mandalay, Myanmar	—	MG935985	MG935691
<i>Zhangixalus chenfui</i>	KIZ060821280	—	EF564466	EF564538	—
<i>Zhangixalus chenfui</i>	C123	Lichuan, Hubei, China	—	—	KP996818

<i>Zhangixalus dennysi</i>	RDEN20150618	China	KT191129	KT191129	KT191129
<i>Zhangixalus dugritei</i>	KIZ2005029	—	EF564473	EF564545	—
<i>Zhangixalus dugritei</i>	C129	Leibo, Sichuan, China	—	—	KP996823
<i>Zhangixalus omeimontis</i>	KIZ2006025	—	EF564493	EF564565	—
<i>Zhangixalus omeimontis</i>	C134	Yibin, Sichuan, China	—	—	KP996827
Hynobiidae					
<i>Hynobius chinensis</i>	—	—	DQ333819	DQ333819	DQ333819
Salamandridae					
<i>Cynops orientalis</i>	—	China	KY399474	KY399474	KY399474

**Table S2.**

Acoustic characteristics of *F. multistriata* from the three populations. *N*: sample size, SVL: snout-vent length, NN: note number, ND: note duration, CD: call duration, DF: dominant frequency.

	Zhejiang Province		Anhui Province
	Lishui	Wenzhou	Tunxi
Coordinates	28.35°N, 119.75°E	29.14°N, 118.05°E 27.93°N, 120.71°E	29.7114°N, 118.3125°E
<i>N</i>	26	6	1
Temperature (°C)	20-22	–	27.3
SVL (mm)	36.7	–	37.3
NN	12.3	1.33	2
ND (s)	0.105	0.07	0.08
CD (s)	2.31	0.16	0.381
DF (Hz)	1412.49 2953.89	1456.28 2893.48	1371
Reference	This study	Zhou et al., 2014	Grosjean and Dubois, 2011

## References

- Grosjean, S. & Dubois, A. (2011) Description of the advertisement calls of nine species of *Fejervarya* Bolkay, 1915 and *Minervarya* Dubois, Ohler & Biju, 2001 from China, India and Nepal. *Alytes*, 27, 117-141.
- Zhou, Y.L., Qiu, X., Fang, X.B., Yang, L.Y., Zhao, Y., Fang, T., Zheng, W.H. & Liu, J.S. (2014) Acoustic characteristics of eight common Chinese anurans during the breeding season. *Zool. Res.*, 35, 42-50.