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Research Article

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Supplementary data

Supplementary data

Natural history notes

During our three decades-long faunistic explorations in the southern Western Ghats, we encountered the Malabar Spiny tree mouse from various parts of Periyar Tiger Reserve, Idukki district, Rosemala area of Shendurney WLS, Kollam district, Urulanthanni area of Thattekkad WLS, Ernakulam district, Kurichyarmala and Suryamala part of Wayanad WLS, and Narikadavu part of Aralam WLS, Kannur district in Kerala. As per the study by Jayson and Jayahari (2009), the species is distributed all along the 33 sites across Kerala right from the foothills to the higher elevations. The southernmost range for this endemic murid species is Kalakkad-Mundathurai Tiger Reserve, Tamil Nadu (Mudappa et al., 2001), and the northernmost is the Sagar area of Shimoga, Karnataka (Rajagopalan, 1968). The species is popularly called *Mulleli* or *Mutteli* in the local language in Kerala owing to its spiny furs on the body. The most preferred habitat for the species is in the evergreen forests or moist deciduous forests. However, tree mouse also has been reported from abandoned teak plantations or the plantations adjoining the forest patches.

The altitudinal distribution ranges from 50 m (Aralam WLS and Thattekkad WLS, Kerala) to 2270 m (Upper Bhavani, Nilgiri district, Tamil Nadu) (Shankar, 1996; Jayson and Jayahari, 2009). The species is nocturnal and lives in colonies in tree holes. This arboreal animal feed mainly on leaves, fruits, and seeds (Jayson and Jayahari, 2009). As the animal feeds on cash crops like cashew and pepper, they are considered as a minor pest of cash crops (Rajagopalan, 1968). The excreta remain of fecal or urine in the tree hole are the easiest method to identify the presence of the species in the field. Four young ones have been noted in one litter during the summer months (Gray, 1908). Habitat degradation is the main threats for the species in the Western Ghats. Besides this, Malabar Spiny Tree mouse is also poached for its medicinal value by local communities. In the recent amendments to IUCN Red list, the species has been elevated from 'Least Concern' to 'Vulnerable' status due to its patchy distribution range for prioritizing the conservation of the habitat. To facilitate the statutory protection Malabar Spiny Tree mouse is included under Schedule II of the Indian Wildlife (Protection) Amendment Act, 2022 (Dinesh et al., 2023).

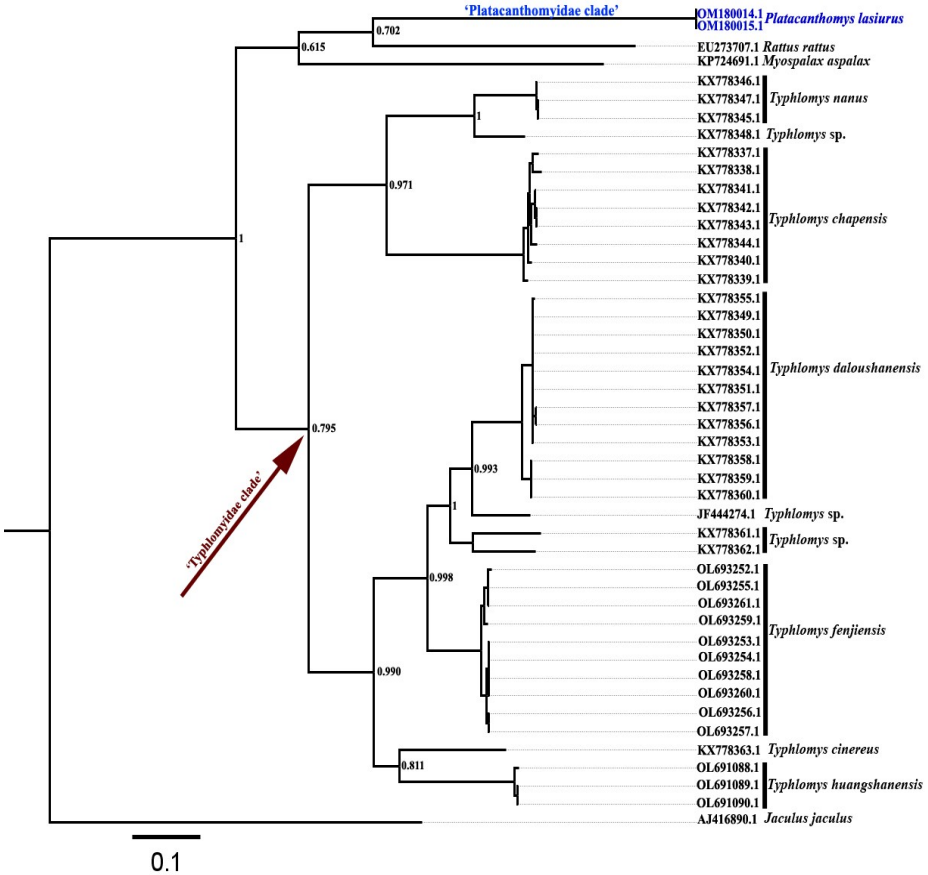

Figure S1: Bayesian phylogenetic tree for the Platacanthomyidae based on 615 bp of mt *COI* DNA gene sequence.

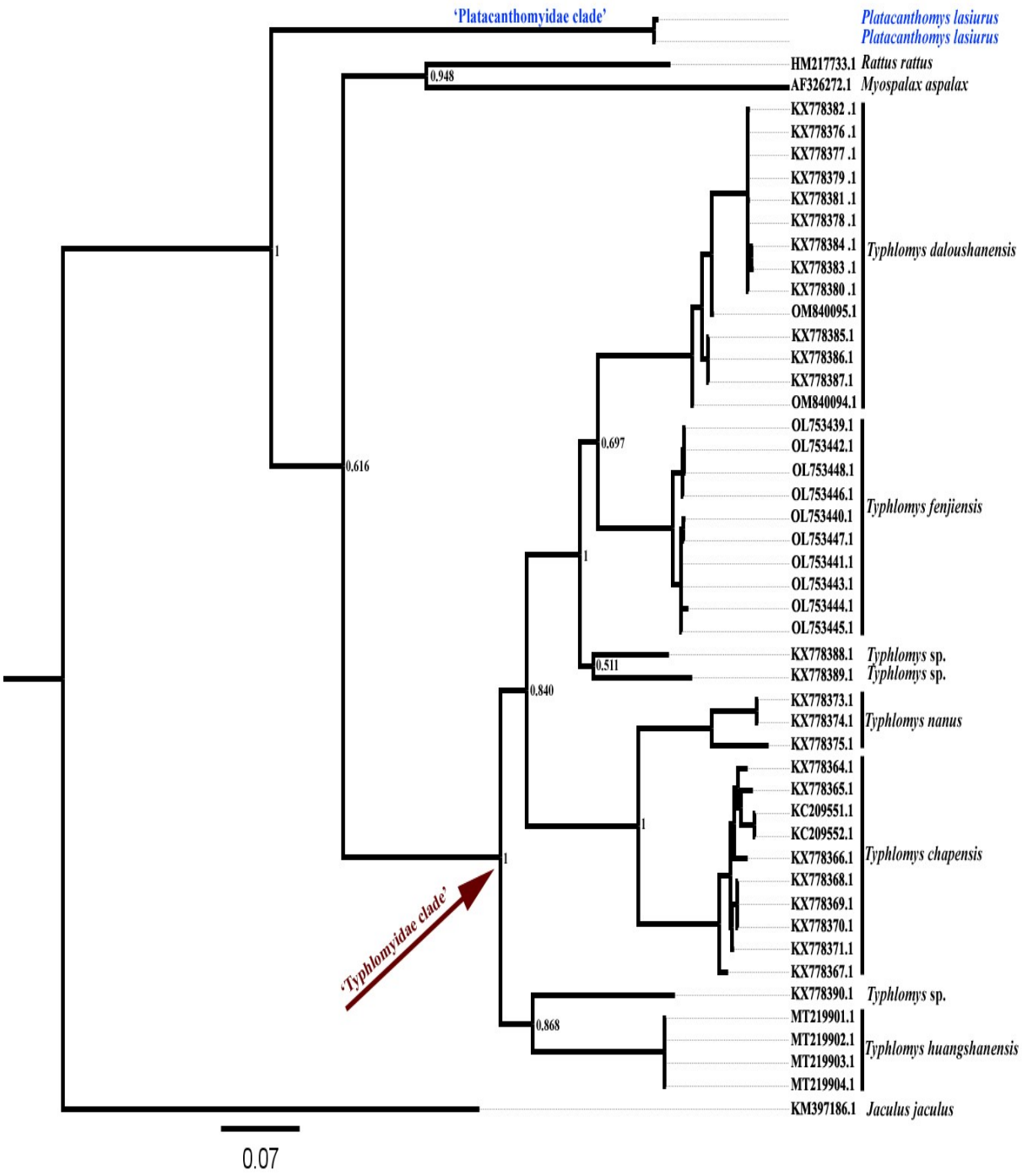

Figure S2: Bayesian phylogenetic tree for the Platacanthomyidae based on 1075 bp of mt *Cyt b* DNA gene sequence.

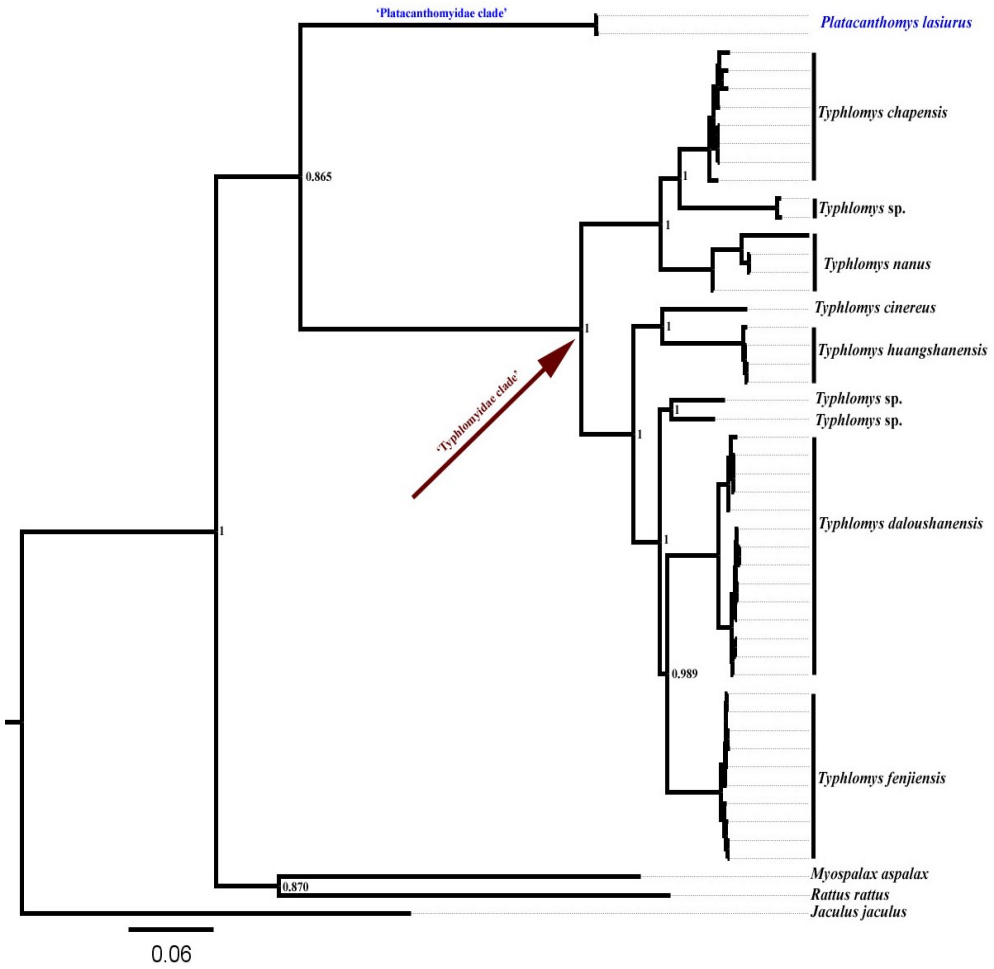

Figure S3: Bayesian phylogenetic tree for the Platacanthomyidae based on 4490 bp of concatenated (*COI+Cyt b+ND2+GHR+IRBP*) dataset.

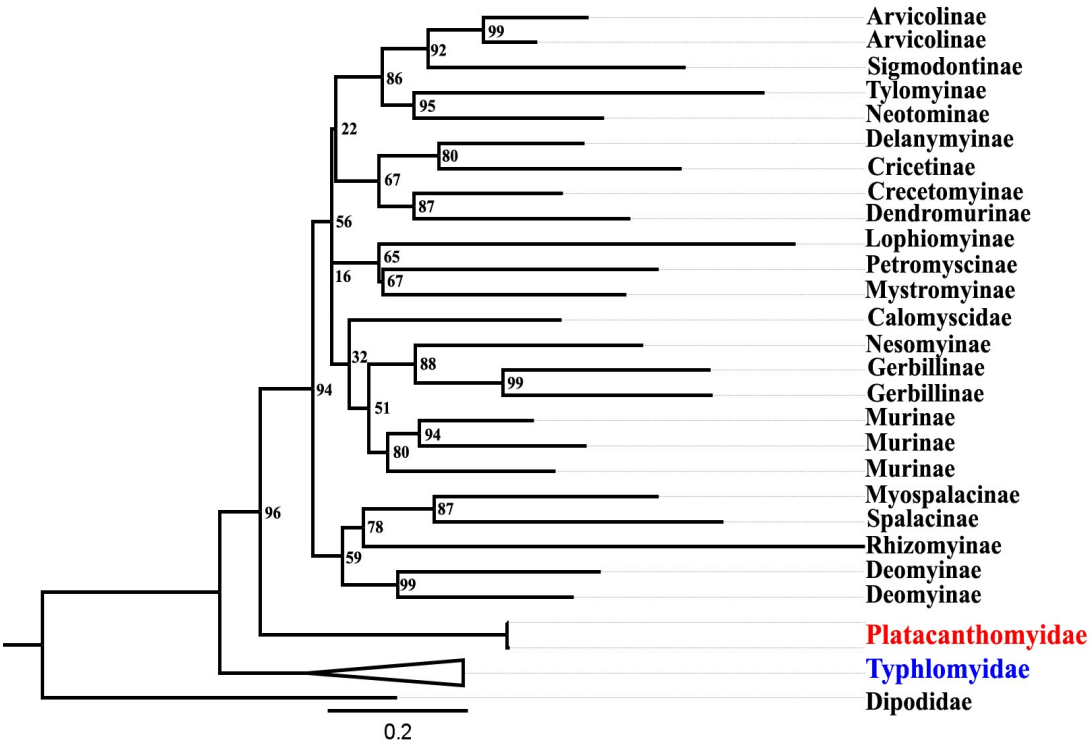

Figure S4: Subfamily level IQ tree for the members of Muroidea.

Table S1: Details of the mt *Cyt b* sequences used for the construction of subfamily level Bayesian tree (Fig. S4)**.**

Sr. No.	GenBank Numbers	Species name	Locality	References
1	MT381922.1	*Alticola lemminus*	Russia	Abramson et al. (2021)
2	HM165423.1	*Eothenomys melanogaster*	China	Liu et al. (2012)
3	JQ966244.1	*Holochilus sciureus*	Brazil	Machado et al. (2014)
4	DQ179812.1	*Tylomys nudicaudus*	USA	Unpublished
5	DQ179855.1	*Neotoma cinerea*	Moffat Co., Colorado	Matocq et al. (2007)
6	KY753969.1	*Delanymys brooksi*	Uganda: Kigezi, Mgahina Gorilla Nat Pk	Steppan and Schenk (2017)
7	AJ973384.1	*Cricetulus barabensis*	Russia	Neumann et al. (2006)
8	AF160613.1	*Cricetomys emini*	Madagascar	Jansa et al. (1999)
9	KF811234.1	*Dendromus mystacalis*	Africa	Solano et al. (2014)
10	MZ159977.1	*Lophiomys imhausi*	Israel	Lazagabaster et al. (2021)
11	AF160600.1	*Petromyscus collinus*	Madagascar	Jansa et al. (1999)
12	AF160607.1	*Mystromys albicaudatus*	Africa	Jansa et al. (1999)
13	EU135583.1	*Calomyscus hotsoni*	Pakistan: Balochistan, Khuzder Dist., Dancer village	Norris et al. (2008)
14	MK053267.1	*Nesomys rufus*	Madagascar: MidongySud	Unpublished
15	AJ430555.1	*Gerbillus nigeriae*	Niger	Unpublished
16	AJ430563.1	*Tatera indica*	Pakistan	Unpublished
17	AB762702.1	*Rattus rattus*	Sri Lanka:Kandy	Yasuda et al. (2014)
18	AY532798.1	*Apodemus gurkha*	Nepal	Unpublished
19	AY057815.1	*Mus saxicola*	NA	Lundrigan et al. (2002)
20	KY754052.1	Myospalax aspalax	Mongolia: Gorkji Terelj National Park	Steppan and Schenk (2017)
21	KF021261.1	Spalax zemni	Hungary	Németh et al., (2013)
22	MH189046.1	Cannomys badius	Africa	Šumbera et al. (2018)
23	EU349745.1	*Deomys ferrugineus*	USA	Rowe et al. (2008)
24	AJ012023.1	*Lophuromys sikapusi*	France	Unpublished
25	PP779398.1	*Platacanthomys lasiurus*	Suryamudi, Kottiyur WLS, Kannur, Kerala, India	This study
26	PP779399.1	*Platacanthomys lasiurus*	Suryamudi, Kottiyur WLS, Kannur, Kerala, India	This study
27	KX778368.1	*Typhlomys chapensis*	China: Yunnan, Mt. Ailao	Cheng et al. (2017)
28	KX778369.1	*T. chapensis*	China: Yunnan, Mt. Ailao	Cheng et al. (2017)
29	KX778370.1	*T. chapensis*	China: Yunnan, Mt. Ailao	Cheng et al. (2017)
30	KX778371.1	*T. chapensis*	China: Yunnan, Mt. Ailao	Cheng et al. (2017)
31	KX778366.1	*T. chapensis*	China: Yunnan, Mt. Wuliang	Cheng et al. (2017)
32	KX778364.1	*T. chapensis*	China: Yunnan, Mt. Huanglian	Cheng et al. (2017)
33	KX778365.1	*T. chapensis*	China: Yunnan, Mt. Huanglian	Cheng et al. (2017)
34	KC209548.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
35	KC209552.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
36	KC209556.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
37	KC209553.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
38	KC209550.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
39	KC209557.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
40	KC209554.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
41	KC209551.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
42	KC209555.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
43	KC209549.1	*T. chapensis*	Vietnam: Lao Cai Province	Abramov et al. (2014)
44	KX778372.1	*T. nanus*	China: Yunnan, Mt. Jiaozi	Cheng et al. (2017)
45	KX778367.1	*T. chapensis*	China: Yunnan, Mt. Wuliang	Cheng et al. (2017)
46	KX778373.1	*T. nanus*	China: Yunnan, Mt. Jiaozi	Cheng et al. (2017)
47	KX778374.1	*T. nanus*	China: Yunnan, Mt. Jiaozi	Cheng et al. (2017)
48	KX778375.1	*T. nanus*	China: Yunnan, Mt. Dawei	Cheng et al. (2017)
49	KX778388.1	*Typhlomys* sp. 2	China: Yunnan, Mt. Dawei	Cheng et al. (2017)
50	KX778389.1	*Typhlomys* sp. 2	China: Yunnan, Mt. Laojun	Cheng et al. (2017)
51	KX778382 .1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
52	KX778376.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
53	KX778377.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
54	KX778379.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
55	KX778381.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
56	KX778378.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
57	KX778385.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
58	KX778384.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
59	KX778380.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
60	KX778386.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
61	KX778387.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
62	KX778383.1	*T. daloushanensis*	China: Chongqing, Mt. Jinfo	Cheng et al. (2017)
63	KX778390.1	*T. cinereus*	China: Fujian, Mt. Wuyi	Cheng et al. (2017)
64	KX397283.1	*T. cinereus*	China	Lv et al. (2016)
65	MT219901.1	*T. huangshanensis*	China	Hu et al. (2021)
66	MT219902.1	*T. huangshanensis*	China	Hu et al. (2021)
67	MT219903.1	*T. huangshanensis*	China	Hu et al. (2021)
68	MT219904.1	*T. huangshanensis*	China	Hu et al. (2021)
69	MW682393.1	*Sicista concolor*	China: Baima Snow Mountain, Yunan	Song et al. (2021)

Table S2: Sequence details used for 4490 bp of concatenated dataset used in Bayesian phylogenetic analysis for the members of Platacanthomyidae (Figure 4; Figure 5; Figures S1, S2, and S3).

Sr. No.	Species name	Identification code	Collection locality	Cyt b	COI	ND2	GHR	IRBP	References
1	*Typhlomys cinereus*	Tcin7-1	Mt. Wuyi, Fujian, China	KX778390.1	KX778363.1	KX778471.1	KX778417.1	KX778444.1	Cheng et al. (2017)
2	*T. daloushanensis*	Tdal8-1	Mt. Jinfo, Chongqing, China	KX778382 .1	KX778355.1	KX778463.1	KX778409.1	KX778436.1	Cheng et al. (2017)
3	*T. daloushanensis*	Tdal8-2	Mt. Jinfo, Chongqing, China	KX778376.1	KX778349.1	KX778457.1	KX778403.1	KX778430.1	Cheng et al. (2017)
4	*T. daloushanensis*	Tdal8-3	Mt. Jinfo, Chongqing, China	KX778377.1	KX778350.1	KX778458.1	KX778404.1	KX778431.1	Cheng et al. (2017)
5	*T. daloushanensis*	Tdal8-4	Mt. Jinfo, Chongqing, China	KX778379.1	KX778352.1	KX778460.1	KX778406.1	KX778433.1	Cheng et al. (2017)
6	*T. daloushanensis*	Tdal8-5	Mt. Jinfo, Chongqing, China	KX778381.1	KX778354.1	KX778462.1	KX778408.1	KX778435.1	Cheng et al. (2017)
7	*T. daloushanensis*	Tdal8-6	Mt. Jinfo, Chongqing, China	KX778378.1	KX778351.1	KX778459.1	KX778405.1	KX778432.1	Cheng et al. (2017)
8	*T. daloushanensis*	Tdal8-7	Mt. Jinfo, Chongqing, China	KX778385.1	KX778358.1	KX778466.1	KX778412.1	KX778439.1	Cheng et al. (2017)
9	*T. daloushanensis*	Tdal8-8	Mt. Jinfo, Chongqing, China	KX778384.1	KX778357.1	KX778465.1	KX778411.1	KX778438.1	Cheng et al. (2017)
10	*T. daloushanensis*	Tdal8-9	Mt. Jinfo, Chongqing, China	KX778380.1	KX778353.1	KX778461.1	KX778407.1	KX778434.1	Cheng et al. (2017)
11	*T. daloushanensis*	Tdal8-10	Mt. Jinfo, Chongqing, China	KX778386.1	KX778359.1	KX778467.1	KX778413.1	KX778440.1	Cheng et al. (2017)
12	*T. daloushanensis*	Tdal8-11	Mt. Jinfo, Chongqing, China	KX778387.1	KX778360.1	KX778468.1	KX778414.1	KX778441.1	Cheng et al. (2017)
13	*T. daloushanensis*	Tdal8-12	Mt. Jinfo, Chongqing, China	KX778383.1	KX778356.1	KX778464.1	KX778410.1	KX778437.1	Cheng et al. (2017)
14	*T. daloushanensis*	CSD4999	Mt. Guangwushan, Sichuan, China	OM840094.1	-	OM840096.1	-	-	Pu et al. (2022)
15	*T. daloushanensis*	CSD5200	Kaixian, Chongqing, China	OM840095.1	-	OM840097.1	-	-	Pu et al. (2022)
16	*T. nanus*	Tnan9-1	Mt. Jiaozi, Yunnan, China	KX778373.1	KX778346.1	KX778454.1	KX778400.1	KX778427.1	Cheng et al. (2017)
17	*T. nanus*	Tnan9-2	Mt. Jiaozi, Yunnan, China	KX778374.1	KX778347.1	KX778455.1	KX778401.1	KX778428.1	Cheng et al. (2017)
18	*T. nanus*	Tnan3-1	Mt. Dawei, Yunnan, China	KX778375.1	KX778348.1	KX778456.1	KX778402.1	KX778429.1	Cheng et al. (2017)
19	*T. chapensis*	Tcha1-1	Mt. Huanglian, Yunnan, China	KX778364.1	KX778337.1	KX778445.1	KX778391.1	KX778418.1	Cheng et al. (2017)
20	*T. chapensis*	Tcha2-1	Mt. Huanglian, Yunnan, China	KX778365.1	KX778338.1	KX778446.1	KX778392.1	KX778419.1	Cheng et al. (2017)
21	*T. chapensis*	Ty-145	Mt. Fan Si Pan, Lao Cai, Vietnam	KC209551.1	KC209573.1	-	KJ949612.1	KC209546.1	Cheng et al. (2017)
22	*T. chapensis*	Ty-148	Mt. Fan Si Pan, Lao Cai, Vietnam	KC209552.1	KC209574.1	-	KJ949613.1	KC209547.1	Cheng et al. (2017)
23	*T. chapensis*	Tcha11-1	Mt. Wuliang, Yunnan, China	KX778366.1	KX778339.1	KX778447.1	KX778393.1	KX778420.1	Cheng et al. (2017)
24	*T. chapensis*	Tcha11-2	Mt. Wuliang, Yunnan, China	KX778367.1	KX778340.1	KX778448.1	KX778394.1	KX778421.1	Cheng et al. (2017)
25	*T. chapensis*	Tcha12-1	Mt. Ailao, Yunnan, China	KX778368.1	KX778341.1	KX778449.1	KX778395.1	KX778422.1	Cheng et al. (2017)
26	*T. chapensis*	Tcha13-1	Mt. Ailao, Yunnan, China	KX778369.1	KX778342.1	KX778450.1	KX778396.1	KX778423.1	Cheng et al. (2017)
27	*T. chapensis*	Tcha13-2	Mt. Ailao, Yunnan, China	KX778370.1	KX778343.1	KX778451.1	KX778397.1	KX778424.1	Cheng et al. (2017)
28	*T. chapensis*	Tcha14-1	Mt. Ailao, Yunnan, China	KX778371.1	KX778344.1	KX778452.1	KX778398.1	KX778425.1	Cheng et al. (2017)
29	*T. huangshanensis*	Ths19-1	Mt. Huangshan, Anhui, China	MT219901.1	OL691088.1★	OL753479.1★	MT232968.1	MT232972.1	Hu et al. (2021)
30	*T. huangshanensis*	Ths19-2	Mt. Huangshan, Anhui, China	MT219902.1	OL691089.1★	OL753480.1★	MT232969.1	MT232973.1	Hu et al. (2021)
31	*T. huangshanensis*	Ths19-3	Mt. Huangshan, Anhui, China	MT219903.1	OL691090.1★	OL753481.1★	MT232970.1	MT232974.1	Hu et al. (2021)
32	*T. huangshanensis*	Ths19-4	-	MT219904.1	-	-	MT232971.1	MT232975.1	Hu et al. (2021)
33	*Typhlomys* sp. 2	Tsp2 4-1	Mt. Dawei, Yunnan, China	KX778388.1	KX778361.1	KX778469.1	KX778415.1	KX778442.1	Cheng et al. (2017)
34	*Typhlomys* sp. 2	Tsp2 5-1	Mt. Laojun, Yunnan, China	KX778389.1	KX778362.1	KX778470.1	KX778416.1	KX778443.1	Cheng et al. (2017)
35	*T. fengjiensis*	CSD4202	Fenjie, Chongqing, China	OL753439.1	OL693252.1	OL753449.1	OL753459.1	OL753469.1	Pu et al. (2022)
36	*T. fengjiensis*	CSD4222	Fenjie, Chongqing, China	OL753440.1	OL693253.1	OL753450.1	OL753460.1	OL753470.1	Pu et al. (2022)
37	*T. fengjiensis*	CSD4223	Fenjie, Chongqing, China	OL753441.1	OL693254.1	OL753451.1	OL753461.1	OL753471.1	Pu et al. (2022)
38	*T. fengjiensis*	CSD4238	Fenjie, Chongqing, China	OL753442.1	OL693255.1	OL753452.1	OL753462.1	OL753472.1	Pu et al. (2022)
39	*T. fengjiensis*	CSD4241	Fenjie, Chongqing, China	OL753443.1	OL693256.1	OL753453.1	OL753463.1	OL753473.1	Pu et al. (2022)
40	*T. fengjiensis*	CSD4249	Fenjie, Chongqing, China	OL753444.1	OL693257.1	OL753454.1	OL753464.1	OL753474.1	Pu et al. (2022)
41	*T. fengjiensis*	CSD4273	Fenjie, Chongqing, China	OL753445.1	OL693258.1	OL753455.1	OL753465.1	OL753475.1	Pu et al. (2022)
42	*T. fengjiensis*	CSD4274	Fenjie, Chongqing, China	OL753446.1	OL693259.1	OL753456.1	OL753466.1	OL753476.1	Pu et al. (2022)
43	*T. fengjiensis*	CSD4276	Fenjie, Chongqing, China	OL753447.1	OL693260.1	OL753457.1	OL753467.1	OL753477.1	Pu et al. (2022)
44	*T. fengjiensis*	CSD4281	Fenjie, Chongqing, China	OL753448.1	OL693261.1	OL753458.1	OL753468.1	OL753478.1	Pu et al. (2022)
45	*Typhlomys* sp.	ROM 118593	Libo,Guizhou, China	-	JF444274.1*	-	-	-	Unpublished
46	*Platacanthomys lasiurus*	M/922	Suryamudi, Kottiyur WLS, Kannur, Kerala, India	PP779398.1	OM180014.1	-	-	-	This study
47	*Platacanthomys lasiurus*	M/922	Suryamudi, Kottiyur WLS, Kannur, Kerala, India	PP779399.1	OM180015.1	-	-	-	This study
48	*Jaculus jaculus*			KM397186.1	AJ416890.1	-	KM397231.1	KM397140.1	-
49	*Myospalax aspalax*			AF326272.1	KP724691.1	KP724691.1	GQ272599.1	AY326097.1	-
50	*Rattus rattus*			HM217733.1	EU273707.1	EU273707.1	AM910976.1	HM217746.1	-

★ Sequences by Pu et al. (2022)

*Sequence only used for *COI* phylogenetic analysis

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