

Table S1. List of Caudata species analyzed in this study with their GenBank accession numbers and endangered category from the IUCN Red List of Threatened Species.

Species	Family	Size (bp)	Accession no.	endangered category
<i>Pseudohynobius flavomaculatus</i>	Hynobiidae	16,401	This study	VU(Vulnerable)
<i>Pseudohynobius jinpo</i>	Hynobiidae	16,393	NC026698	/
<i>Pseudohynobius puxiongensis</i>	Hynobiidae	16,398	NC020634	DD (Data Deficient)
<i>Pachyhynobius shangchengensis</i>	Hynobiidae	16,394	NC008080	VU (Vulnerable)
<i>Batrachuperus pinchonii</i>	Hynobiidae	16,390	DQ333815	VU (Vulnerable)
<i>Batrachuperus tibetanus</i>	Hynobiidae	16,379	DQ333817	VU (Vulnerable)
<i>Batrachuperus yenyuanensis</i>	Hynobiidae	16,394	DQ333818	VU (Vulnerable)
<i>Batrachuperus gorganensis</i>	Hynobiidae	16,374	DQ333822	/
<i>Batrachuperus londongensis</i>	Hynobiidae	16,379	DQ333809	EN (Endangered)
<i>Batrachuperus mustersi</i>	Hynobiidae	16,383	DQ333821	/
<i>Hynobius amjiensis</i>	Hynobiidae	16,401	DQ333808	CR (Critically Endangered)
<i>Hynobius arisanensis</i>	Hynobiidae	16,401	NC009335	VU (Vulnerable)
<i>Hynobius chinensis</i>	Hynobiidae	16,408	DQ333819	EN (Endangered)
<i>Hynobius formosanus</i>	Hynobiidae	16,394	DQ333816	EN (Endangered)
<i>Hynobius guabangshanensis</i>	Hynobiidae	16,408	NC013762	DD (Data Deficient)
<i>Hynobius kimurae</i>	Hynobiidae	16,448	JQ929920	LC (Least Concern)
<i>Hynobius leechii</i>	Hynobiidae	16,428	DQ333811	LC (Least Concern)
<i>Hynobius maoershanensis</i>	Hynobiidae	16,412	NC023789	DD (Data Deficient)
<i>Hynobius nebulosus</i>	Hynobiidae	16,447	HM036356	LC (Least Concern)
<i>Hynobius nigrescens</i>	Hynobiidae	16,412	NC026033	LC (Least Concern)
<i>Hynobius quelpaertensis</i>	Hynobiidae	16,407	NC010224	VU (Vulnerable)
<i>Hynobius unisacculus</i>	Hynobiidae	16,413	MN419307	EN (Endangered)
<i>Hynobius yangi</i>	Hynobiidae	16,403	JN415127	EN (Endangered)
<i>Hynobius yiwuensis</i>	Hynobiidae	16,494	HM036354	VU (Vulnerable)
<i>Liua shihi</i>	Hynobiidae	16,376	DQ333810	NT (Near Threatened)
<i>Liua tsinpaensis</i>	Hynobiidae	16,380	NC008081	VU (Vulnerable)
<i>Onychodactylus fischeri</i>	Hynobiidae	16,456	DQ333820	LC (Least Concern)
<i>Onychodactylus zhangyapingi</i>	Hynobiidae	16,537	NC026853	/
<i>Onychodactylus zhaoermii</i>	Hynobiidae	16,533	NC026854	/
<i>Ranodon sibiricus</i>	Hynobiidae	16,418	NC004021	EN (Endangered)
<i>Salamandrella keyserlingii</i>	Hynobiidae	16,338	DQ333814	LC (Least Concern)
<i>Salamandrella tridactyla</i>	Hynobiidae	16,342	NC021106	/
<i>Andrias davidianus</i>	Cryptobrachidae	16,503	NC004926	CR (Critically Endangered)
<i>Andrias japonicus</i>	Cryptobrachidae	16,298	NC007446	NT (Near Threatened)
<i>Echinotriton andersoni</i>	Salamandridae	16,268	NC017870	EN (Endangered)
<i>Echinotriton chinhaiensis</i>	Salamandridae	16,693	EU880315	CR (Critically Endangered)

/: The species is not listed in the IUCN Red List of Threatened Species.

Table S2. Composition and skewness of the mitogenome for 36 Caudata species.

Species	A%	T%	G%	C%	A+T%	G+C%	AT-skew	GC-skew
<i>Pseudohynobius flavomaculatus</i>	33.5	31.8	14.1	20.6	65.3	34.7	0.03	-0.19
<i>Pseudohynobius jinjo</i>	33.6	31.8	14.1	20.6	65.4	34.7	0.03	-0.19
<i>Pseudohynobius puxiongensis</i>	33.2	30.4	14.5	21.9	63.6	36.4	0.04	-0.20
<i>Pachyhynobius shangchengensis</i>	34.2	32.9	13.1	19.8	67.1	32.9	0.02	-0.20
<i>Batrachuperus pinchonii</i>	34.0	32.8	13.5	19.6	66.8	33.1	0.02	-0.18
<i>Batrachuperus tibetanus</i>	34.0	32.9	13.6	19.6	66.9	33.2	0.02	-0.18
<i>Batrachuperus yenyuanensis</i>	34.1	33.3	13.6	19.0	67.4	32.6	0.01	-0.17
<i>Batrachuperus gorganensis</i>	33.6	32.3	13.6	20.4	65.9	34.0	0.02	-0.20
<i>Batrachuperus londongensis</i>	33.9	33.2	13.4	19.5	67.1	32.9	0.01	-0.19
<i>Batrachuperus mustersi</i>	33.4	32.4	13.7	20.5	65.8	34.2	0.02	-0.20
<i>Hynobius amjiensis</i>	33.4	32.0	13.8	20.8	65.4	34.6	0.02	-0.20
<i>Hynobius arisanensis</i>	34.3	32.8	13.0	19.9	67.1	32.9	0.02	-0.21
<i>Hynobius chinensis</i>	33.4	31.6	13.8	21.2	65.0	35.0	0.03	-0.21
<i>Hynobius formosanus</i>	34.3	32.8	13.0	19.9	67.1	32.9	0.02	-0.21
<i>Hynobius guabangshanensis</i>	33.4	31.6	13.7	21.2	65.0	34.9	0.03	-0.21
<i>Hynobius kimurae</i>	34.0	33.8	13.0	19.2	67.8	32.2	0.00	-0.19
<i>Hynobius leechii</i>	33.5	32.5	13.7	20.3	66.0	34.0	0.02	-0.19
<i>Hynobius maoershanensis</i>	33.3	31.6	13.9	21.1	64.9	35.0	0.03	-0.21
<i>Hynobius nebulosus</i>	33.7	32.2	13.5	20.7	65.9	34.2	0.02	-0.21
<i>Hynobius nigrescens</i>	33.2	32.4	13.9	20.5	65.6	34.4	0.01	-0.19
<i>Hynobius quelpaertensis</i>	33.5	32.0	13.8	20.7	65.5	34.5	0.02	-0.20
<i>Hynobius unisacculus</i>	33.5	32.0	13.8	20.7	65.5	34.5	0.02	-0.20
<i>Hynobius yangi</i>	33.5	32.3	13.6	20.5	65.8	34.1	0.02	-0.20
<i>Hynobius yiwuensis</i>	33.5	32.4	13.6	20.5	65.9	34.1	0.02	-0.20
<i>Liua shihi</i>	33.9	32.5	13.5	20.1	66.4	33.6	0.02	-0.20
<i>Liua tsinpaensis</i>	33.4	32.6	13.7	20.3	66.0	34.0	0.01	-0.19
<i>Onychodactylus fischeri</i>	34.7	33.7	12.9	18.8	68.4	31.7	0.01	-0.19
<i>Onychodactylus zhangyapingi</i>	35.0	33.8	12.7	18.4	68.8	31.1	0.02	-0.18
<i>Onychodactylus zhaoermii</i>	34.8	33.8	12.8	18.6	68.6	31.4	0.01	-0.18
<i>Ranodon sibiricus</i>	35.0	32.9	13.0	19.1	67.9	32.1	0.03	-0.19
<i>Salamandrella keyserlingii</i>	33.2	32.0	14.1	20.7	65.2	34.8	0.02	-0.19
<i>Salamandrella tridactyla</i>	33.5	32.1	13.9	20.6	65.6	34.5	0.02	-0.19
<i>Andrias davidianus</i>	31.9	32.6	14.4	21.1	64.5	35.5	-0.01	-0.19
<i>Andrias japonicus</i>	32.1	32.5	14.4	21.0	64.6	35.4	-0.01	-0.19
<i>Echinotriton andersoni</i>	34.3	26.7	13.9	25.2	61.0	39.1	0.12	-0.29
<i>Echinotriton chinhaiensis</i>	34.1	26.0	14.0	25.9	60.1	39.9	0.13	-0.30