Ecography

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Supplementary material

Human overexploitation and extinction risk correlates of Chinese snakes

Supporting information

Appendix 1. Properties of the datasets used, hypotheses and justification

Table A1. Extinction risk (based on China Biodiversity Red List), intrinsic traits and extrinsic factors of Chinese snakes. Abbreviations: China, China Biodiversity Red List; RangeC, species assessed under range-based criteria; IUCN, IUCN Red List; BL, Body length; BR, Body ratio; AP, Activity period; MH, Microhabitat; RM, Reproductive mode; HS, Habitat specificity; RS, Range size; MT, Mean temperature; MP, Mean precipitation. See Minimum elevation (ME) and Exploitation index (EI) in Table S3.

Species[a]	Family[a]	China[b]	RangeC[c]	IUCN[b]	BL (mm)	BR[d]	Toxicity[e]	AP[f]	MH[g]	RM[h]	HS[i]	RS	MT	MP
Achalinus ater	Xenodermatidae	LC	0	LC	327.5	1.0216	0	1	3	0	2	6.5275	17.0857	1275.5387
Achalinus formosanus	Xenodermatidae	LC	0	LC	720	1.0000	0	1	3	0	1	0.0543	20.5532	1098
Achalinus hainanus	Xenodermatidae	VU	1	VU	310	1.0000	0	1	3	0	2	0.0341	24	1500
Achalinus jinggangensis	Xenodermatidae	VU	1	CR	407.5	0.7717	0	1	3	0	1	0.0278	17.5	1836
Achalinus meiguensis	Xenodermatidae	LC	0	LC	520	0.8739	0	1	3	0	3	12.0946	11.3599	950.9581
Achalinus niger	Xenodermatidae	LC	0	LC	588	1.0381	0	1	3	0	2	2.0545	20.4199	1102.2115
Achalinus rufescens	Xenodermatidae	LC	0	LC	400	0.9048	0	1	3	0	1	57.0637	19.8764	1599.2118
Achalinus spinalis	Xenodermatidae	LC	0	LC	515	0.8393	0	1	3	0	2	124.4304	15.9276	1269.8047
Ahaetulla prasina	Colubridae	LC	0	LC	1133	1.0071	1	3	5	1	3	36.0525	20.1028	1456.8462
Amphiesma stolatum	Colubridae	LC	0	NA	616	0.8667	0	3	2	0	4	197.0599	17.3927	1309.2899
Amphiesmoides ornaticeps	Colubridae	VU	1	LC	846.5	1.0155	0	2	2	1	1	13.3319	21.0513	1614.5862
Archelaphe bella	Colubridae	VU	1	LC	1009	1.0697	0	3	3	0	1	51.4	16.8772	1182.0268
Atretium yunnanensis	Colubridae	LC	0	LC	815	0.7285	0	3	2	0	2	4.2593	11.2851	1280.4043
Azemiops feae	Viperidae	VU	0	LC	666	1.0151	1	2	3	0	4	269.679	10.7868	710.011
Boiga cyanea	Colubridae	VU	1	NA	1290	0.8169	1	1	4	0	1	39	16.3175	1039.7943
Boiga guangxiensis	Colubridae	VU	1	LC	1685	0.9824	1	1	5	0	1	1.582	20.9128	1554.3605
Boiga kraepelini	Colubridae	LC	0	LC	1404	1.0014	1	1	5	0	2	159.4006	17.4836	1369.1565
Boiga multomaculata	Colubridae	LC	0	NA	790	0.8545	1	1	5	0	2	162.7306	17.8597	1382.0514

Bungarus fasciatus	Elapidae	EN	0	LC	1486	0.945	1	1	3	0	3	5.2808	7.7328	660.5455
Bungarus multicinctus	Elapidae	EN	0	LC	1492.5	1.0874	1	1	3	0	3	147.8303	17.8776	1369.4992
Calamaria pavimentata	Colubridae	LC	0	LC	314.5	2.3105	0	1	3	0	2	108.4886	17.9549	1333.765
Calamaria septentrionalis	Colubridae	LC	0	LC	353.5	0.846	0	1	3	0	2	110.6583	18.2639	1484.7749
Calamaria yunnanensis	Colubridae	VU	1	EN	353.5	0.6557	0	1	3	0	2	0.3562	18	909.3
Chrysopelea ornata	Colubridae	VU	1	NA	807.5	1.1824	1	3	5	0	2	55.0506	17.3346	1225.138
Coelognathus radiatus	Colubridae	EN	0	LC	1556	0.9329	0	4	3	0	4	110.7673	17.9901	1322.9935
Cyclophiops doriae	Colubridae	VU	1	NA	925	1.0000	0	3	4	0	3	0.4428	19.95	2024.6
Cyclophiops major	Colubridae	LC	0	LC	1314	0.9879	0	3	4	0	4	185.4334	20.3469	1115.4491
Cyclophiops multicinctus	Colubridae	NT	0	LC	1251	1.0177	0	3	4	0	1	15.1129	20.5347	1445.4099
Daboia siamensis	Viperidae	EN	1	LC	1009	1.0000	1	4	3	1	5	117.8393	18.2166	1364.5699
Deinagkistrodon acutus	Viperidae	EN	0	NA	1286.5	1.0784	1	4	3	0	6	203.536	17.3576	1315.5441
Dendrelaphis hollinrakei	Colubridae	NT	0	DD	1200	1.0000	0	3	5	0	2	0.1106	22	1912.8333
Dendrelaphis pictus	Colubridae	LC	0	NA	1334	0.8618	0	3	5	0	2	84.2906	18.6357	1343.3129
Elaphe anomala	Colubridae	VU	0	NA	2135	0.9409	0	4	3	0	2	322.1546	8.8474	565.9058
Elaphe bimaculata	Colubridae	LC	0	LC	846.5	0.8402	0	4	3	0	3	175.7358	12.9147	881.8269
Elaphe carinata	Colubridae	EN	0	NA	2147.5	1.0452	0	4	3	0	2	380.2246	14.1715	904.0103
Elaphe davidi	Colubridae	VU	0	NA	1180	1.4842	0	4	3	0	2	253.9446	5.8604	413.8952
Elaphe dione	Colubridae	LC	0	LC	1007.5	0.9639	0	4	3	0	6	400.9079	6.1971	446.1386
Elaphe schrenckii	Colubridae	VU	0	NA	1587	1.0165	0	4	3	0	4	80.84	3.5157	539.7987
Elaphe zoigeensis	Colubridae	LC	0	LC	880	1.0000	0	3	3	0	1	1.0437	1.1	648.5
Emydocephalus ijimae	Elapidae	LC	0	LC	739.5	0.7079	1	4	1	1	1	0.1866	20.833	1520.7273
Eryx miliaris	Boidae	VU	0	NA	778.5	0.5937	0	2	3	1	2	336.31	6.4199	185.4227
Eryx tataricus	Boidae	VU	0	NA	409	0.9569	0	2	3	1	2	336.31	6.4199	185.4227
Euprepiophis mandarinus	Colubridae	VU	0	LC	1332.5	1.1492	0	4	3	0	3	252.81	20.0313	1113.4769
Euprepiophis perlacea	Colubridae	EN	1	EN	1197	0.9244	0	4	3	0	1	4.0435	10.9729	1097.7585
Gloydius brevicaudus	Viperidae	NT	0	NA	624	1.0032	1	2	3	1	2	356.6846	12.9808	798.6924
Gloydius intermedius	Viperidae	NT	0	NA	595	0.9833	1	3	3	1	2	444.66	6.0848	236.1956

Gloydius lijianlii	Viperidae	VU	1	NA	687	1.0000	1	3	5	1	2	0	12.6	672.5
Gloydius liupanensis	Viperidae	NT	0	NA	549	1.1115	1	3	3	1	3	52.01	7.1354	262.2981
Gloydius monticola	Viperidae	NT	0	DD	433.5	0.7202	1	2	3	1	2	39	16.3175	1039.7943
Gloydius qinlingensis	Viperidae	NT	0	NA	531	0.9594	1	3	3	1	3	227.3923	6.653	374.9583
Gloydius shedaoensis	Viperidae	EN	1	VU	747.5	1.0479	1	3	5	1	2	0.0091	10	575
Gloydius strauchi	Viperidae	NT	0	NA	496.5	0.9133	1	3	3	1	4	232.3023	6.7891	385.1617
Gloydius ussuriensis	Viperidae	NT	0	NA	647	1.054	1	2	3	1	4	80.84	3.5157	539.7987
Gonyosoma boulengeri	Colubridae	VU	1	NA	1206.5	1.1354	0	3	4	0	1	4.4002	22.2154	1706.7078
Gonyosoma frenatus	Colubridae	LC	0	NA	1342.5	1.219	0	3	5	0	4	182.6967	15.5845	1007.2159
Gonyosoma prasinus	Colubridae	VU	1	NA	908.5	1.0144	0	4	3	0	1	35.879	17.2714	1144.6999
Hebius atemporale	Colubridae	NT	0	DD	444	1.1926	0	3	3	0	2	33.5054	19.8577	1465.8178
Hebius bitaeniatum	Colubridae	NT	0	LC	634	0.9875	0	1	3	0	1	15.8145	18.0489	1140.2754
Hebius boulengeri	Colubridae	LC	0	LC	584.5	1.0155	0	1	2	0	3	47.1533	20.2865	1575.7067
Hebius craspedogaster	Colubridae	LC	0	LC	466.5	0.8697	0	3	2	0	4	175.0492	16.7594	1298.651
Hebius johannis	Colubridae	LC	0	NA	768.5	0.9655	0	1	2	0	2	105.2167	13.5089	611.7649
Hebius metusium	Colubridae	NT	0	EN	757.5	0.7119	0	3	2	0	2	0.2062	12.9013	1325.7
Hebius miyajimae	Colubridae	EN	1	VU	513	0.9731	0	4	2	0	1	1.0153	19.5647	1145.537
Hebius modestum	Colubridae	LC	0	LC	675	0.8	0	1	3	0	2	0.1135	9.7107	858.4286
Hebius octolineatum	Colubridae	LC	0	LC	834.5	0.9751	0	1	2	0	5	39.5003	14.3431	944.2623
Hebius optatum	Colubridae	LC	0	NA	700	0.9718	0	3	2	0	4	119.3067	14.6327	828.6344
Hebius parallelum	Colubridae	NT	0	NA	599.5	0.8057	0	3	2	0	3	39.0123	6.9991	517.9218
Hebius popei	Colubridae	LC	0	LC	512.5	1.0217	0	2	2	0	3	47.6291	19.9016	1525.8983
Hebius sauteri	Colubridae	LC	0	LC	467	1.026	0	3	2	0	4	110.8808	17.901	1437.2741
Hebius venningi	Colubridae	VU	0	LC	505	0.7719	0	1	4	0	2	4.4253	18.1914	1346.0622
Hebius vibakari	Colubridae	VU	1	NA	474	1.0699	0	1	4	0	4	80.84	3.5157	539.7987
Hemorrhois ravergieri	Colubridae	VU	1	LC	1027.5	1.0489	0	3	3	0	3	0.0525	0.6747	282.5
Herpetoreas platyceps	Colubridae	VU	1	NA	725	0.747	0	1	3	0	1	0.0123	4.0319	351.6535
Hydrophis caerulescens	Elapidae	NT	0	LC	780	1.1081	1	4	1	1	1	0.1366	23.0833	1710.0588

Hydrophis curtus	Elapidae	LC	0	NA	905.5	1.1281	1	4	1	1	3	0.0761	23.0315	1567.1667
Hydrophis cyanocinctus	Elapidae	NT	0	LC	1677.5	0.9677	1	4	1	1	2	0.3819	21.1901	1577.4719
Hydrophis fasciatus	Elapidae	NT	0	LC	1098.5	0.9973	1	4	1	1	1	0.1366	23.0833	1710.0588
Hydrophis gracilis	Elapidae	NT	0	LC	970.5	1.2234	1	4	1	1	2	0.1417	22.6317	1463.1905
Hydrophis ornatus	Elapidae	LC	0	LC	1088	1.0000	1	4	1	1	1	0.3855	21.156	1577.4719
Hydrophis peronii	Elapidae	LC	0	NA	1164	1.0000	1	4	1	1	1	0.3353	21.607	1577.4719
Hydrophis platurus	Elapidae	LC	0	LC	547	1.1451	1	4	1	1	2	0.7176	17.6516	1287.5479
Hydrophis stokesii	Elapidae	LC	0	NA	1400	0.75	1	4	1	1	2	0.383	21.1804	1577.4719
Hydrophis viperinus	Elapidae	LC	0	NA	1026	1.1737	1	4	1	1	1	0.4028	20.9842	1566.9468
Hypsiscopus plumbea	Homalopsidae	VU	0	NA	485.5	0.7948	1	2	1	1	2	5.9622	20.4365	1465.5394
Indotyphlops lazelli	Typhlopidae	CR	1	NA	125.25	0.5854	0	1	3	0	1	0.0001	22	1912.8333
Laticauda colubrina	Elapidae	LC	0	LC	1127.5	0.7756	1	1	1	0	4	0.0249	20.3667	1121.8571
Laticauda laticaudata	Elapidae	NT	0	LC	655	2.1566	1	4	1	0	4	0.3855	21.156	1577.4719
Laticauda semifasciata	Elapidae	NT	0	NT	1077	1.2794	1	3	1	0	3	0.2108	20.6474	1529.7872
Lycodon aulicus	Colubridae	NT	0	NA	730	1.0857	0	1	3	0	1	121.2906	14.3153	785.6571
Lycodon fasciatus	Colubridae	LC	0	NA	796	1.5031	0	1	5	0	3	243.8667	13.609	810.2665
Lycodon flavozonatus	Colubridae	LC	0	LC	1091.5	1.0288	0	1	2	0	1	93.1889	18.7831	1556.8738
Lycodon futsingensis	Colubridae	NT	0	LC	890	0.8737	0	1	3	0	1	22.2893	20.8658	1646.2896
Lycodon gongshan	Colubridae	NT	0	DD	862.5	1.2638	0	1	3	0	2	0.1416	13.2858	1217.375
Lycodon liuchengchaoi	Colubridae	LC	0	NA	747	1.0000	0	1	3	0	1	101.78	12.2622	528.6803
Lycodon multizonatus	Colubridae	NT	0	DD	592.5	0.782	0	3	3	0	1	1.9449	13.1	608.0667
Lycodon rosozonatus	Colubridae	EN	1	DD	1018	1.0861	0	1	2	0	1	1.3007	17.8305	1910.5833
Lycodon rufozonatus	Colubridae	LC	0	LC	1320	0.913	0	1	3	0	2	309.8638	14.9627	1089.0703
Lycodon ruhstrati	Colubridae	LC	0	LC	1005.5	0.962	0	1	3	0	2	138.2584	17.5232	1383.0331
Lycodon septentrionalis	Colubridae	LC	0	NA	1290	1.0000	0	1	2	0	2	2.8675	16.6	1741.3333
Lycodon subcinctus	Colubridae	LC	0	LC	537.5	1.0594	0	1	3	0	2	108.1401	17.7402	1304.786
Macropisthodon rudis	Colubridae	LC	0	LC	1026.5	0.776	0	2	3	1	3	142.5182	17.2778	1341.2969
Myrrophis bennettii	Homalopsidae	LC	0	NA	567.5	0.9739	1	4	1	1	2	0.1279	23.0839	1793.9714

Myrrophis chinensis	Homalopsidae	VU	0	NA	780	0.8705	1	4	1	1	2	5.2107	20.6461	1552.9247
Naja atra	Elapidae	VU	0	VU	1325	1.0076	1	3	3	0	2	79.6067	18.9785	1494.8802
Naja kaouthia	Elapidae	EN	0	LC	781	1.7404	1	3	3	0	5	16.2032	15.5035	1120.8107
Natrix natrix	Colubridae	VU	1	LC	935	0.7	0	3	2	0	2	166	7.7374	114.3155
Natrix tessellata	Colubridae	LC	0	LC	770.5	0.9025	0	3	2	0	6	8.8329	8.24	91.9128
Oligodon albocinctus	Colubridae	NT	0	NA	710.5	0.9846	0	3	3	0	1	39.0123	6.9991	517.9218
Oligodon catenatus	Colubridae	NT	0	NA	517.5	1.0097	0	3	3	0	1	54.04	19.9521	1592.9691
Oligodon chinensis	Colubridae	LC	0	LC	714.5	0.9602	0	3	3	0	1	135.7278	17.9914	1391.9874
Oligodon cinereus	Colubridae	LC	0	LC	541.5	0.9835	0	3	3	0	2	95.5263	17.5398	1276.5589
Oligodon fasciolatus	Colubridae	NT	0	NA	805.5	0.8798	0	3	3	0	1	39	16.3175	1039.7943
Oligodon formosanus	Colubridae	NT	0	LC	843.5	1.2644	0	3	3	0	2	100.9937	18.7096	1494.391
Oligodon joynsoni	Colubridae	VU	1	LC	935	1.0000	0	3	3	0	1	0.2318	22.4	1260.4
Oligodon lacroixi	Colubridae	NT	0	VU	463	0.9829	0	3	4	0	1	0.0766	15.4261	760
Oligodon lungshenensis	Colubridae	NT	0	NT	619.5	1.0114	0	3	3	0	2	0.1271	17.4411	1296.75
Oligodon ornatus	Colubridae	NT	0	LC	563	1.5078	0	3	3	0	2	48.3762	17.5081	1505.0936
Oocatochus rufodorsatus	Colubridae	LC	0	LC	1007.5	1.0773	0	3	2	1	3	237.2396	1.0667	846.1206
Ophiophagus hannah	Elapidae	EN	0	VU	2480	1.4136	1	3	3	0	5	61.9982	11.0793	1398.4663
Opisthotropis andersonii	Colubridae	NT	0	NT	500	1.0000	0	1	2	0	2	0.082	22	1912.8333
Opisthotropis balteata	Colubridae	LC	0	NA	937.5	1.1429	0	3	2	0	1	0.7699	3.5	617.9
Opisthotropis cheni	Colubridae	NT	0	LC	513.5	0.7955	0	1	2	0	3	0.1552	19.1732	1601.8889
Opisthotropis guangxiensis	Colubridae	NT	0	NT	425.5	0.8703	0	1	2	0	2	0.4169	19.9166	1669.4
Opisthotropis jacobi	Colubridae	NT	0	DD	478	0.9875	0	1	2	0	2	3.7492	17.8863	968.896
Opisthotropis kuatunensis	Colubridae	LC	0	LC	645	0.9545	0	1	2	0	2	28.8055	18.3013	1585.3044
Opisthotropis lateralis	Colubridae	LC	0	LC	337	1.2925	0	1	2	0	4	12.751	21.4227	1685.8439
Opisthotropis latouchii	Colubridae	LC	0	LC	533.5	0.8492	0	1	2	0	2	102.9086	18.1845	1500.575
Opisthotropis maculosa	Colubridae	NT	0	DD	513.5	1.0256	0	1	2	0	2	0.4078	22	1808.6957
Opisthotropis maxwelli	Colubridae	NT	0	DD	525.5	0.5524	0	1	2	0	1	38.0656	20.073	1633.2731
Oreocryptophis porphyraceus	Colubridae	LC	0	NA	1000.5	1.2333	0	1	3	0	5	349.1689	11.8387	790.6747

Orientocoluber spinalis	Colubridae	LC	0	NA	924	1.0465	0	3	3	0	4	527.2146	7.1197	347.5533
Orthriophis moellendorffi	Colubridae	EN	0	NA	1902.5	1.0261	0	4	3	0	3	41.64	20.3437	1583.5401
Orthriophis taeniurus	Colubridae	EN	0	NA	1240	6.5841	0	4	3	0	2	401.8769	11.543	763.5468
Ovophis makazayazaya	Viperidae	NT	0	LC	945	0.7182	1	1	3	0	5	121.1266	18.0129	1412.1496
Ovophis monticola	Viperidae	NT	0	LC	642.5	0.7603	1	1	3	0	5	171.179	8.4162	453.2709
Ovophis tonkinensis	Viperidae	LC	0	LC	585	0.5811	1	1	3	0	1	45.18	20.6345	1603.8628
Paratapinophis praemaxillaris	Colubridae	NT	0	LC	846	0.7265	0	1	2	0	2	1.6665	19.9924	1668.1758
Pareas boulengeri	Pareatidae	LC	0	LC	562	0.7984	0	1	3	0	2	79.9317	16.2723	1292.142
Pareas carinatus	Pareatidae	NT	0	LC	580	0.9016	0	1	3	0	2	6.8809	19.3308	1405.6909
Pareas chinensis	Pareatidae	LC	0	NA	469	0.7867	0	1	3	0	3	211.2267	15.8255	1036.6678
Pareas formosensis	Pareatidae	NT	0	LC	535	1.2292	0	1	3	0	3	3.1479	20.3468	1115.4731
Pareas hamptoni	Pareatidae	NT	0	LC	452.5	0.6306	0	1	3	0	1	27.8547	18.0498	1182.9887
Pareas margaritophorus	Pareatidae	NT	0	LC	430.5	0.9793	0	1	3	0	1	22.3366	21.4308	1601.7141
Pareas monticola	Pareatidae	NT	0	NA	536	0.5952	0	1	3	0	1	39.0123	6.9991	517.9218
Pareas stanleyi	Pareatidae	LC	0	DD	506	0.8267	0	1	3	0	2	1.777	17.473	1592.6522
Plagiopholis blakewayi	Colubridae	LC	0	LC	457.5	0.83	0	3	3	0	1	51.6769	15.8067	1036.9459
Plagiopholis nuchalis	Colubridae	VU	1	LC	473.5	0.8496	0	3	3	0	1	16.763	18.0453	1137.4509
Plagiopholis styani	Colubridae	LC	0	LC	362	1.0394	0	3	3	0	3	142.5068	17.2749	1348.4252
Protobothrops cornutus	Viperidae	CR	1	NT	1094	0.8387	1	4	3	0	1	98.2567	17.9089	1283.9456
Protobothrops jerdonii	Viperidae	LC	0	LC	1073	1.1721	1	4	3	1	3	66.5777	17.7221	1387.0108
Protobothrops mangshanensis	Viperidae	CR	1	EN	2232.5	0.8919	1	4	3	0	1	0.2086	18.3	1600
Protobothrops mucrosquamatus	Viperidae	LC	0	LC	1090	1.1206	1	1	3	0	4	253.3472	15.7864	1129.2401
Protobothrops xiangchengensis	Viperidae	LC	0	LC	1019.5	1.2936	1	1	4	0	2	7.4173	9.8234	738.8136
Psammodynastes pulverulentus	Lamprophiidae	LC	0	NA	539	0.9853	1	4	3	1	3	155.8089	11.8597	925.5718
Psammophis lineolatus	Lamprophiidae	NT	0	NA	922	1.0000	1	3	3	0	3	218.01	7.6065	146.57
Pseudoxenodon bambusicola	Colubridae	LC	0	LC	632	1.0586	0	3	3	0	2	57.0494	19.6336	1592.0427
Pseudoxenodon karlschmidti	Colubridae	LC	0	LC	595.5	1.5287	0	3	3	0	3	44.6369	19.3961	1459.8662
Pseudoxenodon macrops	Colubridae	LC	0	LC	1042	1.1618	0	3	3	0	1	204.5301	16.5129	1250.967

Pseudoxenodon stejnegeri	Colubridae	LC	0	LC	854	1.0957	0	3	3	0	1	106.3663	16.6089	1324.0659
Ptyas carinata	Colubridae	EN	0	LC	3011	1.0000	0	3	3	0	4	0.1893	19.6	1373
Ptyas dhumnades	Colubridae	VU	0	NA	2458	1.1505	0	3	3	0	2	376.9736	13.9893	889.7532
Ptyas korros	Colubridae	VU	0	NA	1638.5	1.2127	0	3	4	0	4	180.3599	17.7163	1358.4849
Ptyas mucosa	Colubridae	EN	0	NA	1972.5	1.0829	0	3	3	0	5	247.5622	12.1532	846.7202
Ptyas nigromarginata	Colubridae	VU	0	NA	1879	0.9272	0	3	3	0	2	105.8534	13.5089	612.1148
Python bivittatus	Pythonidae	CR	0	VU	7000	1.0000	0	1	2	0	5	77.0745	19.2341	1429.5394
Rhabdophis adleri	Colubridae	NT	0	LC	858.5	0.8522	0	3	3	0	4	1.6061	24.1583	1940.9545
Rhabdophis himalayanus	Colubridae	VU	0	NA	784.5	0.8634	0	3	3	0	2	1.0873	16	2529
Rhabdophis leonardi	Colubridae	LC	0	LC	599.5	1.0084	0	3	3	0	2	28.8717	13.3767	939.2007
Rhabdophis nigrocinctus	Colubridae	NT	0	LC	1080	1.1073	0	1	3	0	1	1.1101	19.8005	1781.7213
Rhabdophis nuchalis	Colubridae	LC	0	LC	659.5	0.8422	0	3	3	0	1	108.7808	12.2103	868.3665
Rhabdophis pentasupralabialis	Colubridae	LC	0	NA	622.5	0.9825	0	3	3	0	2	87.6	13.067	508.5282
Rhabdophis subminiatus	Colubridae	LC	0	LC	1054	0.8573	0	3	3	0	4	144.3007	17.2011	1313.5086
Rhabdophis swinhonis	Colubridae	NT	0	LC	547.5	0.8559	0	3	3	0	4	3.1479	20.3468	1115.4731
Rhabdophis tigrinus	Colubridae	LC	0	NA	1012.5	0.8276	1	3	3	0	4	654.1046	9.3533	634.7726
Sibynophis chinensis	Colubridae	LC	0	LC	766.5	1.1963	0	3	3	0	3	222.3571	16.6118	1244.3817
Sibynophis collaris	Colubridae	LC	0	LC	643.5	0.9266	0	3	3	0	2	37.3849	15.1897	995.4202
Sinomicrurus hatori	Elapidae	VU	0	NA	1000	1.0000	1	1	3	0	2	3.6193	20.347	1115.3512
Sinomicrurus kelloggi	Elapidae	LC	0	LC	637.5	0.9676	1	1	3	0	1	101.9733	18.5198	1435.0218
Sinomicrurus macclellandi	Elapidae	VU	0	NA	670	0.8873	1	1	3	0	2	308.9689	11.5326	773.7471
Sinomicrurus sauteri	Elapidae	VU	0	LC	865	1.3067	1	1	3	0	2	1.7079	20.6253	1093.6667
Sinonatrix aequifasciata	Colubridae	VU	0	LC	1012.5	0.8493	0	3	2	0	3	119.4997	1.8055	1442.7153
Sinonatrix annularis	Colubridae	VU	0	NA	594	0.7731	0	3	2	1	2	202.1733	16.078	1091.2307
Sinonatrix percarinata	Colubridae	VU	0	LC	1158.5	0.7823	0	3	2	0	3	160.4574	1.7644	1355.0392
Sinonatrix yunnanensis	Colubridae	VU	0	LC	719.5	0.4609	0	3	2	0	4	5.9244	18.1038	1240.9003
Stichophanes ningshaanensis	Colubridae	NT	0	DD	637.5	0.9466	0	3	4	0	1	0.0576	12.0254	728.5
Thermophis baileyi	Colubridae	CR	0	NT	817.5	0.9123	0	3	2	1	2	4.9806	3.625	479.8794

Thermophis zhaoermii	Colubridae	CR	0	EN	820	0.9408	0	3	3	0	2	0.5332	7.1541	703.0357
Trachischium monticola	Colubridae	VU	1	NA	225	1.0000	0	1	3	0	1	0.6367	16	2358
Trachischium tenuiceps	Colubridae	VU	1	NA	300	1.0000	0	1	3	0	1	0.7699	3.5	617.9
Trimeresurus albolabris	Viperidae	LC	0	LC	936	0.6566	1	4	4	1	3	107.5954	17.8746	1327.8426
Trimeresurus gracilis	Viperidae	NT	0	LC	440	1.023	1	2	3	1	2	3.6193	20.347	1115.3512
Trimeresurus gumprechti	Viperidae	LC	0	LC	1250	1.0833	1	1	5	1	1	39	16.3175	1039.7943
Trimeresurus sichuanensis	Viperidae	LC	0	DD	1000	0.8519	1	1	3	0	2	25.8567	15.7773	1111.2973
Trimeresurus stejnegeri	Viperidae	LC	0	NA	844	0.8388	1	1	4	1	2	347.206	14.2409	943.1363
Trimeresurus yunnanensis	Viperidae	LC	0	NA	855.5	0.7694	1	1	4	1	2	87.6	13.067	508.5282
Vipera berus	Viperidae	EN	0	NA	560	0.8983	1	2	3	1	3	184.74	7.3987	161.431
Vipera renardi	Viperidae	EN	0	NA	462.5	1.033	1	3	3	1	1	166	7.7374	114.3155
Xenochrophis flavipunctatus	Colubridae	LC	0	LC	1000	1.0000	0	3	2	0	4	146.4246	19.166	1546.5366
Xenochrophis piscator	Colubridae	LC	0	NA	897.5	0.8505	0	1	2	0	3	225.3522	12.34	940.9748
Xenopeltis hainanensis	Xenopeltidae	NT	0	LC	902.5	0.9202	0	1	3	0	2	38.6257	20.6493	1617.6111
Xenopeltis unicolor	Xenopeltidae	VU	0	LC	737.5	1.418	0	1	3	0	4	47.4866	18.4564	1289.4799

[a] Species and Family: based on China Biodiversity Red List 2015 and the Reptile Database (http://www.reptile-database.org/).

[b] China and IUCN: based on China Biodiversity Red List 2015 or IUCN Red List. Data Deficient (DD), null (NA), Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN) and Critically Endangered (CR).

[c] RangeC: species was assessed under range-based criteria (1), or not (0).

[d] BR: dividing the maximum body length of male species by that of female species.

[e] Toxicity: venomous (1) or not (0).

[f] AP: nocturnal (0), crepuscular (1), diurnal (2), or nocturnal and diurnal (3).

[g] MH: aquatic (1), semi-aquatic (2), terrestrial (3), semi-arboreal (4) and arboreal (5).

[h] RM: oviparous (0) or viviparous (1).

[i] HS: the number of habitat types occupied by each specie.

33 **Table A2.** Hypotheses on the relationship between intrinsic and extrinsic factors and extinction risk.

Factors	**Prediction**	**Justification**	**References**
Body length	+	Large body is related to low population densities, large home ranges, slow reproductive and recover rates	Reed & Shine, 2002; Murray et al. 2011; Böhm et al. 2016
Body ratio	–	Females need comparatively more times than males to become mature, thus have lower reproduction rate	
Toxicity	+	Venomous snakes are prone to human persecution and thus may disappear from areas where human land use dominates.	Todd et al. 2017
Activity period	+	Diurnal species are easier to be hunted by predictors	Gittleman 1985; Fleagle 2013
Microhabitat	–	Species that are highly aquatic and depend on streams and wetlands are more sensitive to human land use	Todd et al. 2017
Reproductive mode	+	Viviparous species tend to be larger than oviparous species	Böhm et al. 2016; Todd et al. 2017
Habitat specificity	–	Habitat specialists are at higher risk of extinction	Böhm et al. 2016
Range size	–	Small-ranged species are vulnerable to demographic stochasticity, local catastrophes and inbreeding	Murray et al. 2011; Böhm et al. 2016
Mean temperature	–	Ectotherms have slower life histories, and therefore lower reproduction in areas of lower temperatures	Böhm et al. 2016

Mean precipitation	+	Areas with high levels of precipitation have higher productivity and potentially higher human disturbance	Böhm et al. 2016
Minimum elevation	+	High minimum elevations suggest smaller, more restricted ranges	Böhm et al. 2016
Exploitation index	+	Higher human exploitation index suggests potentially higher human disturbance and impact, such as for research, medicine, pet trade and food purpose	Ruland & Jeschke 2017

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Table A3. Main sources for assessing the values of minimum elevation (ME) and human exploitation index (EI). The year after IUCN in reference columns indicates the date when species is assessed as recorded in IUCN Red List (http://www.iucnredlist.org/). Human exploitation index: rarely or never exploited (0), occasionally exploited (1), commonly exploited (2) and frequently exploited (3).

Species	ME	References	EI	References
Achalinus ater	500	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Achalinus formosanus	1000	Zhao 2006, IUCN 2017	0	No report, IUCN 2017
Achalinus hainanus	750	Zhao 2006, IUCN 2017	0	No report, IUCN 2017
Achalinus jinggangensis	940	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Achalinus meiguensis	1200	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Achalinus niger	1000	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Achalinus rufescens	370	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Achalinus spinalis	300	Zhao 2006, IUCN 2017	0	No report, IUCN 2017
Ahaetulla prasina	197	Zhao 2006, IUCN 2012	2	Commonly collected as pet in China
Amphiesma stolatum	215	Zhao 2006	1	Pet occasionally, Personal communication
Amphiesmoides ornaticeps	150	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Archelaphe bella	1000	Zhao 2006, IUCN 2018	1	Pet occasionally, IUCN 2018
Atretium yunnanensis	800	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Azemiops feae	100	Zhao 2006, IUCN 2012	2	Frequently exploitation, Zhao 2006
Boiga cyanea	1780	Zhao 2006	1	Pet occasionally, Personal communication
Boiga guangxiensis	200	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Boiga kraepelini	300	Zhao 2006	1	Pet small quantity, IUCN 2012
Boiga multomaculata	0	Zhao 2006	1	Pet occasionally, web report
Bungarus fasciatus	20	Zhao 2006, IUCN 2013	3	Overharvesting, IUCN 2013, Zhou & Jiang 2005
Bungarus multicinctus	20	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012, Zhou & Jiang 2005
Calamaria pavimentata	597	Zhao 2006	0	No report, IUCN 2012

Calamaria septentrionalis	300	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Calamaria yunnanensis	1100	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Chrysopelea ornata	550	Zhao 2006	0	No report
Coelognathus radiatus	300	Zhao 2006, IUCN 2014	3	Overharvesting, IUCN 2014, Zhou & Jiang 2005
Cyclophiops doriae	990	Zhao 2006	0	No report
Cyclophiops major	200	Zhao 2006, IUCN 2014	1	Pet occasionally, IUCN 2014
Cyclophiops multicinctus	100	Zhao 2006, IUCN 2012	1	Pet occasionally, Personal communication
Daboia siamensis	0	Zhao 2006	3	Overharvesting, IUCN 2012
Deinagkistrodon acutus	100	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Dendrelaphis hollinrakei	100	Zhao 2006	0	No report, IUCN 2012
Dendrelaphis pictus	200	Zhao 2006	1	Pet occasionally, web report
Elaphe anomala	460	Zhao 2006	2	Commonly exploited as food, Reports from the web
Elaphe bimaculata	0	Zhao 2006, IUCN 2012	1	Pet small quantity, IUCN 2012
Elaphe carinata	100	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Elaphe davidi	200	Zhao 2006	1	Food occasionally, Personal communication
Elaphe dione	30	Zhao 2006, IUCN 2017	1	local wine, IUCN 2017
Elaphe schrenckii	0	Zhao 2006	2	Commonly exploited as food, Wang et al. 2011, The research status and conservation of the Snake, *Elaphe schrenckii*
Elaphe zoigeensis	2800	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Emydocephalus ijimae	-40	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Eryx miliaris	80	Zhao 2006	1	Pet occasionally, Personal communication
Eryx tataricus	487	Zhao 2006	1	Pet occasionally, Personal communication
Euprepiophis mandarinus	200	Zhao 2006, IUCN 2012	3	Overharvesting for food and pet, IUCN 2012
Euprepiophis perlacea	2000	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012
Gloydius brevicaudus	0	Zhao 2006	3	Over-collected, Zhou & Jiang 2005
Gloydius intermedius	620	Zhao 2006	2	Medicine, food, IUCN 2010
Gloydius lijianlii	0	Zhao 2006	0	No report
Gloydius liupanensis	1950	Zhao 2006	0	No report

Gloydius monticola	3100	Zhao 2006, IUCN 2012	0	Unknown, IUCN 2012
Gloydius qinlingensis	1500	Zhao 2006	0	very occasionally exploited as pet
Gloydius shedaoensis	50	Zhao 2006, IUCN 2012	0	No report
Gloydius strauchi	1500	Zhao 2006	2	Medicine, food. Web reports
Gloydius ussuriensis	218	Zhao 2006	2	hunting as medicine and food, Web report
Gonyosoma boulengeri	82	Zhao 2006	1	Pet occasionally, Personal communication
Gonyosoma frenatus	200	Zhao 2006	2	Commonly exploited as pet, Reports from the web
Gonyosoma prasinus	700	Zhao 2006	2	Commonly exploited as pet, Reports from the web
Hebius atemporale	416	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Hebius bitaeniatum	800	Zhao 2006	0	No report, IUCN 2016
Hebius boulengeri	80	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius craspedogaster	100	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius johannis	1200	Zhao 2006	0	No report
Hebius metusium	1200	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius miyajimae	0	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius modestum	920	Zhao 2006	0	No report, IUCN 2016
Hebius octolineatum	700	Zhao 2006, IUCN 2016	1	Pet occasionally, IUCN 2016
Hebius optatum	416	Zhao 2006	0	No report
Hebius parallelum	1200	Zhao 2006	0	No report
Hebius popei	281	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius sauteri	680	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius venningi	900	Zhao 2006, IUCN 2016	0	No report, IUCN 2016
Hebius vibakari	69	Zhao 2006	0	No report
Hemorrhois ravergieri	900	Zhao 2006, IUCN 2017	0	No report, IUCN 2017
Herpetoreas platyceps	2290	Zhao 2006	0	No report
Hydrophis caerulescens	-25	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Hydrophis curtus	-30	Zhao 2006	1	Medicine. Web reports
Hydrophis cyanocinctus	-30	Zhao 2006, IUCN 2010	1	Medicine. Web reports

Hydrophis fasciatus	-12	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Hydrophis gracilis	-30	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Hydrophis ornatus	-22	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Hydrophis peronii	-30	Zhao 2006	1	Medicine. Web reports
Hydrophis platurus	-10	Zhao 2006, IUCN 2017	1	Medicine. Web reports
Hydrophis stokesii	-30	Zhao 2006	1	Medicine. Web reports
Hydrophis viperinus	-30	Zhao 2006	2	Medicine. Web reports
Hypsiscopus plumbea	20	Zhao 2006	3	Over-collected, Zhou & Jiang 2005
Indotyphlops lazelli	28	Zhao 2006	0	No report
Laticauda colubrina	-50	Zhao 2006, IUCN 2010	0	No report in China
Laticauda laticaudata	-80	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Laticauda semifasciata	-20	Zhao 2006, IUCN 2010	1	Medicine. Web reports
Lycodon aulicus	0	Zhao 2006	0	No report
Lycodon fasciatus	900	Zhao 2006	1	Pet occasionally, Personal communication
Lycodon flavozonatus	600	Zhao 2006	1	Pet occasionally, IUCN 2012
Lycodon futsingensis	200	IUCN 2012	0	No report, IUCN 2012
Lycodon gongshan	1517	Chen et al. 2018, The Lycodon gongshan Found in Panzhihua City of Sichuan Province, China	0	No report, IUCN 2012
Lycodon liuchengchaoi	1230	Zhao 2006	0	No report
Lycodon multizonatus	1000	Zhao 2006, IUCN 2018	0	No report, IUCN 2018
Lycodon rosozonatus	14	Zhao 2006	1	Pet occasionally, Personal communication
Lycodon rufozonatus	0	Zhao 2006, IUCN 2017	3	Overharvesting, IUCN 2017, Zhou & Jiang 2005
Lycodon ruhstrati	600	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Lycodon septentrionalis	1500	Zhao 2006	0	No report
Lycodon subcinctus	0	Zhao 2006, IUCN 2012	1	Medicine. Web reports
Macropisthodon rudis	600	Zhao 2006, IUCN 2012	3	Trading massively, Zhou & Jiang 2005, IUCN 2012
Myrrophis bennettii	0	Zhao 2006	0	No report
Myrrophis chinensis	20	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005

Naja atra	70	Zhao 2006, IUCN 2014	3	Overharvesting, IUCN 2014, Zhou & Jiang 2005
Naja kaouthia	450	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012
Natrix natrix	850	Zhao 2006	0	No report
Natrix tessellata	90	Zhao 2006, IUCN 2010	1	Pet occasionally, IUCN 2010
Oligodon albocinctus	780	Zhao 2006	0	No report
Oligodon catenatus	700	Zhao 2006	0	No report
Oligodon chinensis	100	IUCN 2012	1	Pet occasionally, IUCN 2012
Oligodon cinereus	0	Zhao 2006, IUCN 2010	1	Pet occasionally, web report
Oligodon fasciolatus	497	Zhao 2006	0	No report
Oligodon formosanus	50	Zhao 2006, IUCN2014	1	Pet occasionally, Personal communication
Oligodon joynsoni	300	Zhao 2006, IUCN 2012	0	Unknown, IUCN 2012
Oligodon lacroixi	1400	Zhao 2006, IUCN 2012	1	Pet occasionally, Personal communication
Oligodon lungshenensis	900	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Oligodon ornatus	600	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Oocatochus rufodorsatus	0	Zhao 2006	1	Pet occasionally, Personal communication
Ophiophagus hannah	225	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012, Zhou & Jiang 2005
Opisthotropis andersonii	300	Zhao 2006, IUCN 2012	0	IUCN 2012
Opisthotropis balteata	149	Zhao 2006	1	Pet occasionally, web report
Opisthotropis cheni	480	Zhao 2006	0	No report, IUCN 2012
Opisthotropis guangxiensis	950	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Opisthotropis jacobi	500	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Opisthotropis kuatunensis	600	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Opisthotropis lateralis	100	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Opisthotropis latouchii	600	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Opisthotropis maculosa	190	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Opisthotropis maxwelli	425	Zhao 2006	0	No report, IUCN 2012
Oreocryptophis porphyraceus	200	Zhao 2006	1	Pet occasionally, Personal communication
Orientocoluber spinalis	518	Zhao 2006	1	Mediation occasionally, Lei et al. 2006, A record of *Coluber spinalis* from Altai mountain

Orthriophis moellendorffi	50	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Orthriophis taeniurus	110	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Ovophis makazayazaya	500	Zhao 2006, IUCN 2012	1	Pet occasionally, IUCN 2012
Ovophis monticola	315	Zhao 2006	1	Medicine
Ovophis tonkinensis	800	IUCN 2012	0	No report, IUCN 2012
Paratapinophis praemaxillaris	475	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Pareas boulengeri	313	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Pareas carinatus	530	Zhao 2006	0	Unknown, IUCN 2012
Pareas chinensis	313	Zhao 2006	0	No report
Pareas formosensis	313	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Pareas hamptoni	500	Zhao 2006, IUCN 2012	1	Pet occasionally, Personal communication
Pareas margaritophorus	100	Zhao 2006, IUCN 2012	1	Pet occasionally, Personal communication
Pareas monticola	1000	Zhao 2006	0	No report
Pareas stanleyi	700	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Plagiopholis blakewayi	1300	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Plagiopholis nuchalis	1000	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Plagiopholis styani	1000	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Protobothrops cornutus	200	IUCN 2012	1	Occasionally, IUCN 2012
Protobothrops jerdonii	1350	Zhao 2006, IUCN 2012	3	Medicine, food, skin, Web reports
Protobothrops mangshanensis	800	Zhao 2006, IUCN 2012	2	High demand for pet and well protected, IUCN 2012
Protobothrops mucrosquamatus	82	Zhao 2006, IUCN 2010	3	over-collected, Zhou & Jiang 2005
Protobothrops xiangchengensis	2750	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Psammodynastes pulverulentus	0	Zhao 2006	0	No report
Psammophis lineolatus	900	Zhao 2006	0	No report
Pseudoxenodon bambusicola	300	Zhao 2006, IUCN 2012	1	Pet occasionally, IUCN 2012
Pseudoxenodon karlschmidti	500	Zhao 2006, IUCN 2014	0	rarely collected as pet

Pseudoxenodon macrops	500	Zhao 2006, IUCN 2012	1	Pet occasionally, Personal communication
Pseudoxenodon stejnegeri	400	Zhao 2006, IUCN 2014	1	Pet occasionally, IUCN 2014
Ptyas carinata	500	Zhao 2006, IUCN 2012	2	Food, pet, IUCN 2012
Ptyas dhumnades	50	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Ptyas korros	100	Zhao 2006	3	Food, medicine, over-collected, Zhou & Jiang 2005
Ptyas mucosa	150	Zhao 2006	3	Overharvesting, Zhou & Jiang 2005
Ptyas nigromarginata	1500	Zhao 2006	2	Food, pet, Personal communication
Python bivittatus	10	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012
Rhabdophis adleri	82	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Rhabdophis himalayanus	900	Zhao 2006	0	No report
Rhabdophis leonardi	1250	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Rhabdophis nigrocinctus	450	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Rhabdophis nuchalis	620	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Rhabdophis pentasupralabialis	1200	Zhao 2006	0	No report
Rhabdophis subminiatus	850	Zhao 2006, IUCN 2012	1	Snake wine occasionally, IUCN 2012
Rhabdophis swinhonis	500	Zhao 2006	0	No report, IUCN 2012
Rhabdophis tigrinus	30	Zhao 2006	1	Pet occasionally, Personal communication
Sibynophis chinensis	400	Zhao 2006, IUCN 2014	1	Pet occasionally, Personal communication
Sibynophis collaris	830	Zhao 2006	0	No report, IUCN 2010
Sinomicrurus hatori	500	Zhao 2006	0	No report
Sinomicrurus kelloggi	300	Zhao 2006, IUCN 2012	0	Unknown, IUCN 2012
Sinomicrurus macclellandi	215	Zhao 2006	1	Medicine. Web reports
Sinomicrurus sauteri	500	Zhao 2006, IUCN 2012	0	IUCN 2012
Sinonatrix aequifasciata	100	Zhao 2006, IUCN 2012	1	Local food, IUCN 2012
Sinonatrix annularis	100	Zhao 2006	3	Over-collected, Zhou & Jiang 2005
Sinonatrix percarinata	100	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Sinonatrix yunnanensis	100	Zhao 2006, IUCN 2012	0	No report, IUCN 2012

Stichophanes ningshaanensis	1400	Zhao 2006, IUCN 2018	0	No report, IUCN 2018
Thermophis baileyi	3000	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Thermophis zhaoermii	3362	Zhao 2006, IUCN 2014	0	No report, IUCN 2014
Trachischium monticola	600	Zhao 2006	0	No report
Trachischium tenuiceps	800	Zhao 2006	0	No report
Trimeresurus albolabris	281	Zhao 2006, IUCN 2012	2	Collected commonly, IUCN 2012
Trimeresurus gracilis	2000	Zhao 2006, IUCN 2012	0	Unknown, IUCN 2012
Trimeresurus gumprechti	300	IUCN 2012	1	Occasionally Collected
Trimeresurus sichuanensis	878	Zhao 2006, IUCN 2012	0	No report, IUCN 2012
Trimeresurus stejnegeri	150	Zhao 2006	1	Collected occasionally
Trimeresurus yunnanensis	1400	Zhao 2006	0	No report
Vipera berus	120	Zhao 2006	1	Occasionally collected
Vipera renardi	600	Zhao 2006	2	Commonly collected as medicine. Kang 1980, Primary research on *Vipera renadi*
Xenochrophis flavipunctatus	100	Zhao 2006	2	Commonly exploited as pet and food, IUCN 2012
Xenochrophis piscator	0	Zhao 2006	1	Medicine, local collected, He et al. 1999, A primary report on Guangzhou snake market
Xenopeltis hainanensis	200	Zhao 2006, IUCN 2012	1	Occasionally collected as pet
Xenopeltis unicolor	650	Zhao 2006, IUCN 2012	3	Overharvesting, IUCN 2012

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Table A4. Spearman correlation matrices of intrinsic traits and extrinsic factors for all Chinese snakes, human exploited and unexploited species. The values in the upper right diagonal line represent the Spearman ρ, whilst the values in the lower left diagonal line represent the *p* values. The variables that were indicated as significant in univariate PGLS analyses were marked in bold. See Table A1 for variable abbreviations.

(a) All snakes	**BL**	BR	Toxicity	**AP**	MH	**RM**	HS	**RS**	MT	MP	ME	**EI**
BL		0.208	0.188	0.335	0.096	-0.02	0.146	0.148	-0.017	0.015	-0.272	0.548
BR	0.003		0.053	0.169	0.099	-0.018	0.125	0.05	0.083	0.042	-0.165	0.233
Toxicity	0.008	0.453		0.158	0.016	0.563	0.079	-0.024	0.085	-0.023	-0.259	0.277
AP	< 0.001	0.017	0.025		-0.156	0.309	0.09	0.036	-0.016	-0.041	-0.258	0.373
MH	0.176	0.163	0.818	0.027		-0.167	-0.053	0.213	-0.223	-0.266	0.28	0.026
RM	0.782	0.798	< 0.001	< 0.001	0.018		-0.026	-0.029	0.022	-0.072	-0.236	0.231
HS	0.039	0.077	0.263	0.202	0.455	0.71		0.362	-0.173	-0.16	-0.181	0.264
RS	0.036	0.481	0.732	0.609	0.002	0.683	< 0.001		-0.439	-0.391	-0.098	0.408
MT	0.814	0.242	0.229	0.82	0.001	0.755	0.014	< 0.001		0.806	-0.316	-0.056
MP	0.831	0.556	0.746	0.567	< 0.001	0.307	0.023	< 0.001	< 0.001		-0.277	-0.053
ME	< 0.001	0.019	< 0.001	< 0.001	< 0.001	0.001	0.01	0.164	< 0.001	< 0.001		-0.426
EI	< 0.001	0.001	< 0.001	< 0.001	0.712	0.001	< 0.001	< 0.001	0.43	0.454	< 0.001	

(b) exploited snakes	**BL**	BR	Toxicity	**AP**	MH	**RM**	HS	RS	MT	MP	ME
BL		0.167	-0.078	0.243	0.16	-0.274	0.085	-0.036	0.128	0.189	-0.035
BR	0.097		-0.085	0.136	0.000	-0.158	0.068	-0.041	0.068	0.089	-0.065
Toxicity	0.44	0.402		0.097	-0.158	0.519	-0.008	-0.247	0.192	0.175	-0.254

AP	0.015	0.177	0.338		-0.304	0.231	-0.097	-0.247	0.23	0.196	-0.241
MH	0.112	0.999	0.116	0.002		-0.316	0.056	0.388	-0.26	-0.318	0.509
RM	0.006	0.117	< 0.001	0.021	0.001		-0.184	-0.179	0.138	0.073	-0.268
HS	0.4	0.504	0.938	0.337	0.581	0.067		0.347	-0.272	-0.266	0.025
RS	0.724	0.683	0.013	0.013	< 0.001	0.075			-0.629	-0.637	0.216
MT	0.204	0.502	0.056	0.021	0.009	0.171	0.006	< 0.001		0.885	-0.357
MP	0.06	0.378	0.082	0.051	0.001	0.468	0.007	< 0.001	< 0.001		-0.356
ME	0.731	0.521	0.011	0.016	< 0.001	0.007	0.805	0.031	< 0.001	< 0.001	

(c) unexploited snakes	BL	BR	Toxicity	AP	**MH**	RM	HS	**RS**	**MT**	MP	ME
BL		0.029	0.223	0.165	0.084	-0.003	-0.032	-0.104	-0.151	-0.175	0.059
BR	0.777		0.094	0.073	0.21	0.068	0.131	-0.002	0.118	0.014	-0.091
Toxicity	0.025	0.348		0.052	0.272	0.564	0.088	0.045	-0.011	-0.215	-0.018
AP	0.098	0.467	0.607		-0.004	0.273	0.179	0.09	-0.262	-0.222	0.047
MH	0.401	0.035	0.006	0.968		0.076	-0.232	-0.081	-0.159	-0.223	0.17
RM	0.974	0.501	< 0.001	0.006	0.45		0.092	0.014	-0.137	-0.237	0.049
HS	0.753	0.191	0.384	0.073	0.02	0.362		0.194	-0.046	-0.036	-0.148
RS	0.301	0.984	0.654	0.371	0.422	0.892	0.051		-0.262	-0.212	-0.029
MT	0.131	0.242	0.911	0.008	0.112	0.172	0.651	0.008		0.738	-0.475
MP	0.081	0.893	0.031	0.026	0.025	0.017	0.718	0.034	< 0.001		-0.429
ME	0.558	0.365	0.856	0.642	0.089	0.626	0.138	0.772	< 0.001	< 0.001	

Table A5. The performance of PGLS models predicting the extinction risk of all Chinese snakes. The table shows model rank, change in AICc from the top model (ΔAICc), model weight (w_i) and Adjusted-R^2. See Table A1 for variable abbreviations. The two best models that included and excluded geographic range size were highlighted in bold.

	k	AICc	ΔAICc	w_i
BL + AP + EI + RM + RS	**6**	**552.4**	**0**	**0.4375**
AP + EI + RM + RS	5	553.24	0.85	0.2866
BL + EI + RM + RS	5	554.56	2.16	0.1488
EI + RM + RS	4	555.61	3.22	0.0877
BL + EI + RS	4	559.02	6.62	0.016
BL + AP + EI + RS	5	559.21	6.81	0.0145
EI + RS	3	561.51	9.11	0.0046
AP + EI + RS	4	561.77	9.38	0.004
BL + AP + RM + RS	5	567.4	15	0.0002
BL + AP + RS	4	571.09	18.69	3.82E-05
BL + RM + RS	4	573.46	21.06	1.17E-05
BL + RS	3	574.33	21.93	7.57E-06
AP + RM + RS	4	577.93	25.53	1.25E-06
BL + AP + EI + RM	**5**	**583.53**	**31.14**	**7.59E-08**
AP + RS	3	583.69	31.29	7.03E-08
AP + EI + RM	4	585.12	32.72	3.44E-08

BL + AP + RM	4	585.54	33.14	2.79E-08
RM + RS	3	586.26	33.86	1.94E-08
BL + EI + RM	4	587.28	34.88	1.16E-08
BL + AP + EI	4	588.09	35.69	7.79E-09
RS	2	588.36	35.96	6.79E-09
BL + AP	3	589.08	36.69	4.73E-09
EI + RM	3	589.18	36.78	4.51E-09
BL + EI	3	589.21	36.81	4.45E-09
AP + EI	3	591.02	38.63	1.79E-09
BL + RM	3	591.41	39.01	1.48E-09
EI	2	592.04	39.65	1.08E-09
BL	2	592.05	39.66	1.07E-09
AP + RM	3	592.67	40.27	7.87E-10
AP	2	597.81	45.41	6.02E-11
RM	2	600.78	48.38	1.37E-11
-	1	602.29	49.89	6.42E-12

Table A6. The interaction models between geographic range size and other important variables for all snakes and unexploited snakes in China.

	Estimate	**SE**	***t* value**	***p***
China Biodiversity Red List				
All snakes				
Range size × Body length	-0.014	0.004	-3.764	<0.001
Range size × Reproductive mode	-0.080	0.041	-1.950	0.053
Range size × Activity period	-0.016	0.009	-1.649	0.101
Range size × Exploitation index	0.030	0.016	1.918	0.546
Human unexploited snakes				
Range size × Microhabitat	-0.042	0.008	-5.046	<0.001
Range size × Mean temperature	-0.064	0.008	-8.312	<0.001

Appendix 2. Patterns of extinction risk in Chinese snakes using the IUCN Red List criteria

Among all Chinese snakes, only 132 species were assessed by the IUCN Red List (including 12 Data Deficient species), which are considerably fewer than that in the China Species Red List (236 species). In addition, there are 55 endemic species assessed in the China Species Red List, whereas the IUCN Red List only assessed the extinction status of 33 endemic Chinese snakes.

We found that the IUCN threat assessment of Chinese endemic snakes was significantly correlated with that of the China Species Red List (Spearman $\rho = 0.28$, $p < 0.05$). However, there were large differences in extinction risk between these two Red List criteria. Among Chinese snakes, 22 species were more endangered in China than in global. For example, *Thermophis baileyi* was Critically Endangered in China, but was listed as Near threatened by the IUCN Red List (Table A1).

When using the criteria of IUCN Red List, range size, habitat specificity and body ratio were substantially important for Chinese endemic snakes in the univariate PGLS analysis (Table A7). The best multivariable model for endemic snakes included all above variables (Table A8). Range size ($w_+ = 0.99$, $p < 0.001$), habitat specificity ($w_+ = 0.95$, $p < 0.01$) and body ratio ($w_+ = 0.93$, $p < 0.01$) were also substantially important in the confidence set (Table A9). When using the China Red List, however, high extinction risk in Chinese endemic snakes was associated with diurnal activity period, habitat specialization, small range size, and high exploitation index (Table A9). The main reason for the differences in predictors may result from the large difference in sample size: there are 55 endemic species assessed in the China Species Red List (MEP and CAS 2015), whereas only 33 endemic species were assessed in the IUCN Red List.

Table A7. Results of univariate PGLS models predicting the extinction risk in Chinese endemic snakes using both Red List criteria. Significant correlations were marked in bold: $^{+}p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. See variable abbreviations in Table A1.

Variable	BL	BR	Toxicity	AP	MH	RM	HS	RS	MT	MP	ME	EI
China Red List												
Slope	0.04	-0.41	0.34	**0.56**	0.16	0.41	**-0.48**	**-0.17**	-0.14	0.33	0.01	**0.34**
***t* (*p*)**	0.11	-0.44	0.90	**3.87*****	0.75	1.04	**-2.83****	**-4.44*****	-0.44	0.90	0.76	**1.83**$^{+}$
IUCN Red List												
Slope	0.16	**-2.40**	0.14	0.32	0.21	-0.15	**-0.72**	**-0.30**	-0.10	-0.11	0.01	0.25
***t* (*p*)**	0.27	**-1.96***	0.23	1.66	0.63	-0.21	**-3.55****	**-4.73*****	-0.27	-0.16	1.34	0.91

Table A8. The performance of PGLS models predicting the extinction risk of Chinese endemic snakes using both Red List criteria. The table shows model rank, change in AICc from the top model (ΔAICc), and model weight (w_i). The two best models that included and excluded range size were marked in bold.

China Red List	k	AICc	ΔAICc	w_i	IUCN Red List	k	AICc	ΔAICc	w_i
AP + EI + HS + RS	**5**	**147.05**	**0**	**0.4375**	**HS + BR + RS**	**4**	**86.16**	**0**	**0.8864**
AP + EI + RS	4	148.42	1.38	0.22	HS + RS	3	91.75	5.59	0.0541
AP + HS + RS	4	149.04	2	0.1611	BR + RS	3	92.26	6.11	0.0419
AP + RS	3	150.13	3.09	0.0934	RS	2	94.84	8.69	0.0115
EI + RS	3	151.62	4.58	0.0444	**HS + BR**	**3**	**96.25**	**10.1**	**5.70E-03**
EI + HS + RS	4	151.82	4.77	0.0403	HS	2	101.47	15.31	4.00E-04
HS + RS	3	158.68	11.63	0.0013	BR	2	108.88	22.72	1.03E-05
RS	2	159.29	12.24	1.00E-03	-	1	110.48	24.32	4.64E-06
AP + HS	**3**	**160.61**	**13.56**	**5.00E-04**					
AP + EI + HS	4	161.09	14.04	4.00E-04					
AP	2	165.1	18.05	1.00E-04					
AP + EI	3	166.48	19.43	5.26E-05					
EI + HS	3	167.71	20.67	2.64E-05					
HS	2	168.96	21.92	1.42E-05					
EI	2	174.02	26.97	7.62E-06					
-	1	174.56	27.51	6.08E-07					

Table A9. Model-averaged parameter estimates (θ), unconditional standard errors (SE) and relative variable importance (w_+) for each variable in the 95% confidence set for endemic Chinese snakes using both Red List criteria.

	w_+	θ	SE	z value	p
China Red List					
(Intercept)	/	1.164	0.596	1.952	0.051
Range size	1	-0.152	0.037	4.078	< 0.001
Activity period	0.91	0.363	0.128	2.836	< 0.01
Human exploitation	0.74	0.417	0.164	2.543	< 0.05
Habitat specificity	0.64	-0.261	0.140	1.864	0.062
IUCN Red List					
(Intercept)	/	4.305	1.143	3.768	< 0.001
Range size	0.99	-0.221	0.061	3.598	< 0.001
Habitat specificity	0.95	-0.5	0.173	2.894	< 0.01
Body ratio	0.93	-2.385	0.847	2.815	< 0.01

Appendix 3. Distribution of extinction risk among snake genera

Statistical analyses

Following Bennett and Owens (1997), we applied a simulation test to determine whether extinction risk is randomly distributed among genera of Chinese snakes. We could not perform such an analysis in family level because there are only eleven families in Chinese snakes based on the classification of the Reptile Database (http://www.reptile-database.org/). We randomly picked 67 species from China species list because 67 species were classified as threatened by China Biodiversity Red List. We then calculated the proportion of species in each genus that had been randomly picked. This procedure was iterated 10000 times, and the average number of genera in ten proportion classes across all simulation replicates was taken as the predicted distribution of extinction risk (Bennett & Owens, 1997; Wang et al., 2018). If predicted proportional distribution was significantly different from that of observed one, we would expect that extinction risk is non-randomly distributed among genera. To test for such difference, we applied chi-square (χ^2) test on the sets of observed and predicted distribution datasets (Sokal & Rohlf, 1995; Bennett & Owens, 1997; Zar, 2010).

We then used the binomial distribution test to identify which families or genera contain unexpectedly large or small number of threatened species (Bielby et al., 2006). The null hypothesis predicts that species in each family (or genus) are threatened randomly. Thereby, the probability that a family (or genus) of N species contains K threatened species should follow the binomial distribution (Bennett & Owens, 1997), where the overall proportion of species threatened across all genera is 0.3333 (67 threatened species out of 201 species). Because this question was tested independently for each snake family (or genus), we thus calculated adjusted critical values using the Dunn–Sidak method (Sokal &

Rohlf, 1995). The conventional significance levels of 5% were correspondent to $p < 4.65 \times 10^{-3}$ for family and $p < 8.27 \times 10^{-4}$ for snake genus.

Results and Discussion

We found no significant difference between the observed and predicted frequency distributions of extinction risk among genera in Chinese snakes (chi-square test, $\chi^2 = 2.82$, df = 9, $p = 0.971$). A main explanation for nonrandom extinction is that species in similar lineages may share endangering traits, predisposing them to higher risk than others (Bennett & Owens 1997; Bielby et al. 2006; Jones et al. 2003). However, our findings showed that extinction risk of snakes was randomly distributed across genera, which disagrees with previous research among taxa (Bielby et al., 2006; Dulvy et al., 2014; Wang et al., 2018). Compared to these studies, we used a boarder range of species' biology traits and external factors, and found that a group of factors, including small range size, large body size, oviparous reproduction, diurnal activity and high human exploitation index, may have separate or combined effects on high extinction risk of Chinese snakes (Fig. 2). Therefore, species in different lineages may have different extinction-promoting traits, which conversely predisposes them less statistically different than expected.

In addition, our study showed that none of the snake families or genera contained remarkably more or less threatened species than expected by chance ($p > 0.05$; Tables A10, A11), despite that species in some families (e.g. Boidae) and genera (e.g. Ptyas) are all threatened. This could be largely explained by the binomial distribution itself, which has relatively low statistics power when family is small (Sokal & Rohlf, 1995; Bennett & Owens, 1997). As indicated by Bennett and Owens (1997), these small families may harbor some unique functional and phylogenetic information. Thereby, any loss of species from these small families would lead to a disproportionately large loss of biodiversity (Tonini et al., 2016).

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Table A10. Unusually highly threatened families within Chinese snakes. See Table 1 for more information.

Family name	No. species in family	No. species threatened [a]	Proportion threatened	Binomial probability [b]
Boidae	2	2	1.00	0.1111
Colubridae	123	41	0.33	0.0761
Elapidae	23	8	0.35	0.1707
Homalopsidae	3	2	0.67	0.2222
Lamprophiidae	2	0	0.00	0.4445
Pareatidae	8	0	0.00	0.0390
Pythonidae	1	1	1.00	0.3333
Typhlopidae	1	1	1.00	0.3333
Viperidae	28	9	0.32	0.1583
Xenodermatidae	8	2	0.25	0.2732
Xenopeltidae	2	1	0.50	0.4444

[a] Data of 67 threatened species (Vulnerable, Endangered, and Critical Endangered) from the China Biodiversity Red List (MEP & CAS, 2015).

[b] Binomial probability $p = 0.3333$ (overall proportion of species threatened across all families).

* Adjusted significance using Dunn–Šidák correction at the 5% level ($p < 4.65 \times 10^{-3}$).

Table A11. Unusually highly threatened genera within Chinese snakes (top 13 abundant genera). See Table 1 and A10 for more information.

Family name	No. species in genera	No. species threatened	Proportion threatened	Binomial probability
Hebius	15	3	0.20	0.1299
Lycodon	12	1	0.08	0.0463
Oligodon	10	1	0.10	0.0867
Hydrophis	10	0	0.00	0.0174
Opisthotropis	10	0	0.00	0.0174
Gloydius	9	2	0.22	0.2341
Rhabdophis	9	1	0.11	0.1171
Achalinus	8	2	0.25	0.2732
Pareas	8	0	0.00	0.0390
Elaphe	7	4	0.57	0.1280
Trimeresurus	6	0	0.00	0.0878
Ptyas	5	5	1.00	0.0041
Protobothrops	5	2	0.40	0.3292

* Adjusted significance using Dunn–Šidák correction at the 5% level ($p < 8.27 \times 10^{-4}$).

Appendix 4. Correlates of extinction risk in Chinese snakes when species classified under range-based criteria were excluded

Small range size is likely to be the most important predictor for reptile species (Böhm et al., 2016), even in some cases when species listed as threatened due to their small geographical range are excluded from the analyses (e.g. Cooper et al. 2008). In our study, 28 species were assessed as threatened on the basis of their small range size (criteria B and D2). When excluding these species from the analyses, the traits of range size ($w_+ = 1$), body length ($w_+ = 1$) and human exploitation index ($w_+ = 1$) were still important in determining the patterns of extinction risk (Table A13, A14), which is consistent with our findings for all Chinese snakes (Fig. 2).

It is interesting that body ratio had no strong correlation with other traits (Table A12), but was substantially important in the 95% confidence set when species classified under range-based criteria were excluded (Table A14). This indicates that when male body size of a given adult snake is larger than that of female one, this species has considerably higher extinction risk. Therefore, our finding was contrary to the previous expectation that females with a larger body size need comparatively more times than males to become mature, thus have lower reproduction (Table A2). In general, large body size often means higher mortality under resource limitation (Rankin & Kokko 2007). Our study already showed that species with larger body size were more likely to extinct due to the dual effects of habitat degradation and human exploitation. With a larger body size, male snakes may put themselves at continuously high risk of human over-harvesting and resource limitation before getting mature. This may conversely limit female access to a partner, and consequently decrease female mating rate and the size of later generations (Bessa-Gomes et al. 2004), which overall increase their extinction probability. Moreover, small-bodied females often have lower fecundity than larger ones (Goodwin et al. 2005), which may also play a role in the extinction vulnerability of snake population.

However, body ratio had a very low explanation on all Chinese species when including these species assessed due to small geographical ranges (Table 2). This probably due to the artificial exclusion of species classified under range-based criteria, which changes the structure of vectors and the relationship between body ratio and extinction risk. Moreover, it is also probably due to body ratio itself, which is correlated with variables that are themselves positively and negatively related to extinction risk (as discussed above).

References

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Rankin, J. D. and Kokko, H. (2007). Do males matter? The role of males in population dynamics. Oikos, 116(2), 335-348.

Table A12. Spearman correlation matrix of intrinsic traits and extrinsic factors for all Chinese snakes. Species listed as threatened based only on their small range size have been omitted. The values in the upper right diagonal line represent the Spearman ρ, whilst the values in the lower left diagonal line represent the corresponding *p* values. See variable abbreviations in Table A1.

	BL	**BR**	Toxicity	**AP**	MH	RM	HS	**RS**	MT	MP	ME	**EI**
BL		0.167	-0.078	0.243	0.160	-0.274	0.085	-0.036	0.128	0.189	-0.035	0.351
BR	0.097		-0.085	0.136	0.000	-0.158	0.068	-0.041	0.068	0.089	-0.065	0.149
Toxicity	0.44	0.402		0.097	-0.158	0.519	-0.008	-0.247	0.192	0.175	-0.254	0.083
AP	0.015	0.177	0.338		-0.304	0.231	-0.097	-0.247	0.23	0.196	-0.241	0.133
MH	0.112	0.999	0.116	0.002		-0.316	0.056	0.388	-0.26	-0.318	0.509	0.09
RM	0.006	0.117	< 0.001	0.021	0.001		-0.184	-0.179	0.138	0.073	-0.268	0.03
HS	0.4	0.504	0.938	0.337	0.581	0.067		0.347	-0.272	-0.266	0.025	0.286
RS	0.724	0.683	0.013	0.013	< 0.001	0.075	< 0.001		-0.629	-0.637	0.216	0.155
MT	0.204	0.502	0.056	0.021	0.009	0.171	0.006	< 0.001		0.885	-0.357	-0.081
MP	0.06	0.378	0.082	0.051	0.001	0.468	0.007	< 0.001	< 0.001		-0.356	-0.066
ME	0.731	0.521	0.011	0.016	< 0.001	0.007	0.805	0.031	< 0.001	< 0.001		0.081
EI	< 0.001	0.139	0.413	0.187	0.371	0.768	0.004	0.124	0.426	0.515	0.425	

Table A13. Results of univariate PGLS models predicting extinction risk in Chinese snakes when species classified under range-sized criteria were excluded. Significant correlations were marked in bold: $^{+}$ p< 0.1, *p< 0.05, **p< 0.01, ***p< 0.001. See variable abbreviations in Table A1.

Variable	**BL**	BR	Toxicity	**AP**	MH	RM	HS	**RS**	MT	MP	ME	**EI**
Slope	**0.87**	0.28	-0.30	**0.14**	-0.01	-0.31	-0.01	**-0.06**	0.10	0.10	0.01	**0.36**
t (p)	**4.63*** **	2.28*	-0.64	**1.85**$^{+}$	-0.03	-1.26	-0.05	**-2.22* **	0.86	0.78	0.11	**5.34*** **

Table A14. Model-averaged parameter estimates (θ), unconditional standard errors (SE) and relative variable importance (w_+) for each variable in the 95% confidence set for all Chinese snakes when species classified under range-sized criteria were excluded.

Variables	w_+	θ	**SE**	***z* value**	***p***
intercept	/	-2.845	1.384	2.056	< 0.05
Range size	1	-0.102	0.027	3.743	< 0.001
Body length	1	0.588	0.191	3.079	< 0.01
Human exploitation index	1	0.328	0.073	4.466	< 0.001
Body ratio	1	0.251	0.105	2.386	< 0.05
Activity period	0.31	0.050	0.066	0.751	0.453