Supplementary Information

N. Vidal, J.-C. Rage, A. Couloux, and S.B. Hedges. Snakes (Serpentes). Pp. 390–397 in *The Timetree of Life*, S. B. Hedges and S. Kumar, Eds. (Oxford University Press, 2009).

Laboratory methods. Amplification and sequencing was performed using the following sets of primers: L39, 5'-CTG-SAR-YTT-TCT-YCA-TCT-GT-3' (Vidal and Hedges, 2002), HC3, 5'-CAA-ACA-TTA-YRT-TCT-GTG-ATG-A-3'(Vidal and Hedges, 2002) and G74, 5'-TGA-GCA-TCC-AAA-GTC-TCC-AAT-3' (Saint et al., 1998) for the C-mos gene; L2408, 5'-TGCACTGTGACATTGGCAA-3' (Vidal and Hedges, 2004), H2928, 5'-GACTGCYTG GCATTCATTTT-3' (Vidal and Hedges, 2004) and H2920, 5'-GCCATTCATTTTYCGAA-3' (Vidal and Hedges, 2004) for the RAG1 gene; L562, 5'-CCT-RAD-GCC-AGA-TAT-GGY-CAT-AC-3' (Vidal and Hedges, 2005) and H1306, 5'-GHG-AAY-TCC-TCT-GAR-TCT-TC-3' (Vidal and Hedges, 2005) for the RAG2 gene; L29, 5'-CTG-AAA-ATK-CAG-AAC-AAA-A-3' (Vidal and Hedges, 2005), L29B, 5' -CTG-AAA-ATG-CAG-AAC-AAA-AGT-AC-3' (Vidal and Hedges, 2005), L42, 5' –GAA-CAA-AAG-TAC-WGT-TTC-AAT-3' (Vidal and Hedges, 2005), L75, 5'-TCT-AAG-TGT-GGA-TGA-TYT-GAT-3' (Vidal and Hedges, 2005), H786, 5'-TTG-GRA-GCC-ARA-GAA-TGA-CTT-3' (Vidal and Hedges, 2005), H792, 5'-CAT-CAT-TGG-RAG-CCA-AAG-AA-3' (Vidal and Hedges, 2005), H792B, 5' -CAT-CAT-TGG-GAG-CCA-RAG-AAT-GA-3' (Vidal and Hedges, 2005) for the R35 gene; F2, 5'-ATC-GAG-CCC-ACC-GTC-ATG-TTT-CTC-TAC-GAC-3' (Mortlock et al., 2000), F35, 5' -GTC-ATG-TTY-CTY-TAC-GAC-AAC-AG-3' (Vidal and Hedges, 2005), F54, 5' -ACA-ACA-GCY-TGG-ARG-AGA-TYA-ACA-A- 3' (Vidal and Hedges, 2005), R2, 5'-TGG-TAG-AAA-GCA-AAC-TCC-TTG-3' (Mortlock et al., 2000), R2B, 5' -TGG-TAG-AAA-GCA-AAC-TCC-TTG-G-3' (Vidal and Hedges, 2005) for the HOXA13 gene; LJUN, 5'-CAG-TTC-YTS-TGC-CCC-AAG-AA-3' (Vidal and Hedges, 2005), HJUN, 5'-GAC-TCC-ATG-TCR-ATR-GGG-GA-3' (Vidal and Hedges, 2005) for the JUN gene; LAM2D, 5'-TAY-CCA-CRK-TAY-DSY-TAT-GAR-CC-3' (Vidal and Hedges, 2005), LAM2N, 5'-TAT-CCA-CGT-TAT-GGC-TAT-GAA-CC-3'(Vidal and Hedges, 2005), HAM, 5'-CAC-TTC-YTC-YTK-CTT-GGT-YT-3' (Vidal and Hedges, 2005) for AMEL; BDNF-F, 5'-GAC-CAT-CCT-TTT-CCT-KAC-TAT-GGT-TAT-TTC-ATA-CTT-3' (Noonan and Chippindale, 2006), BDNF-R, 5'-CTA-TCT-TCC-CCT-TTT-AAT-GGT-CAG-TGT-ACA-AAC-3' (Noonan and Chippindale, 2006) for BDNF; NT3-F3, 5'-ATA-TTT-CTG-GCT-TTT-CTC-TGT-GGC-3' (Noonan and Chippindale, 2006), NT3-R4, 5'-GCG-TTT-CAT-AAA-AAT-ATT-GTT-TGA-CCG-G-5' (Noonan and Chippindale, 2006) for NT3.

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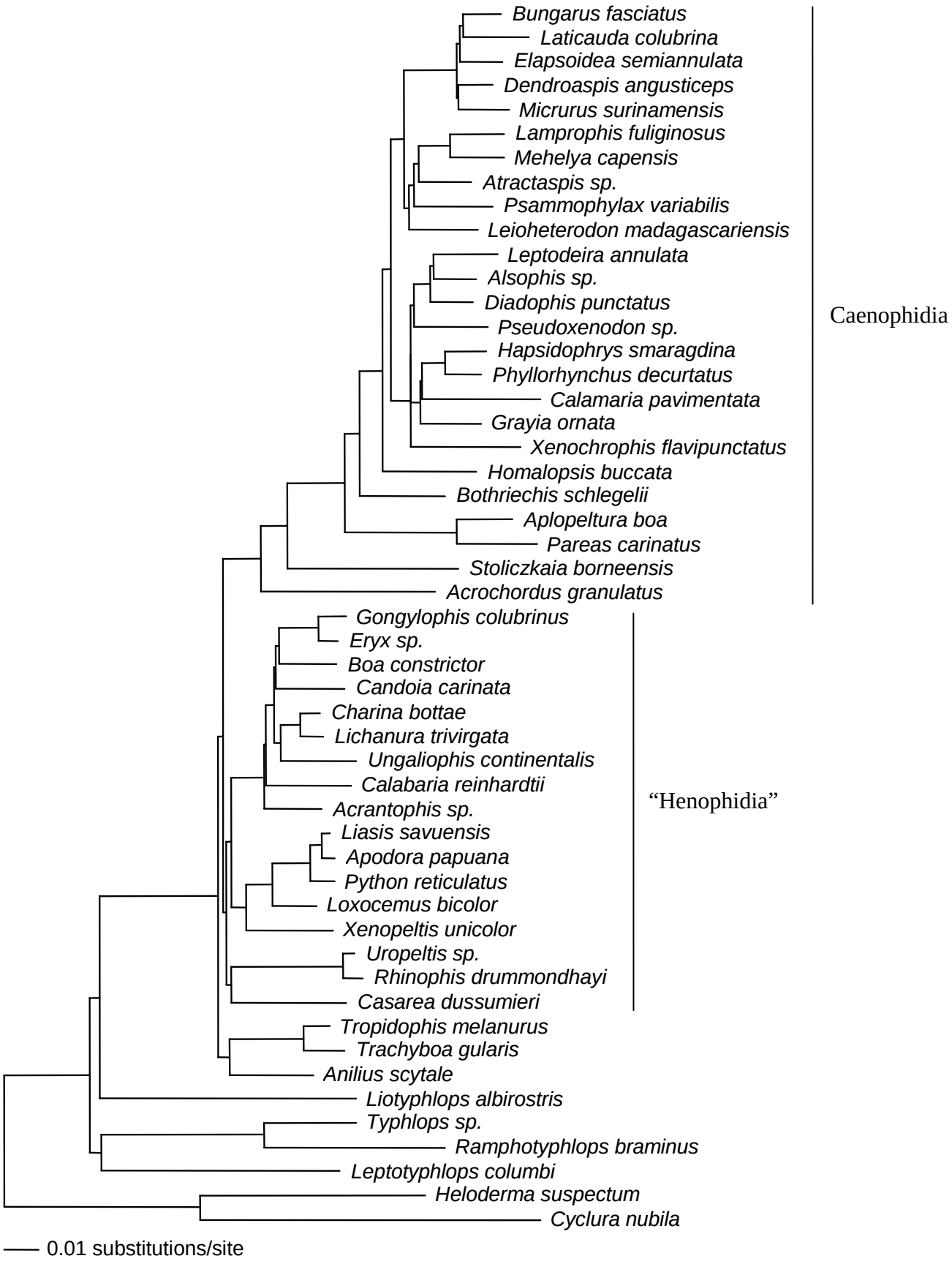
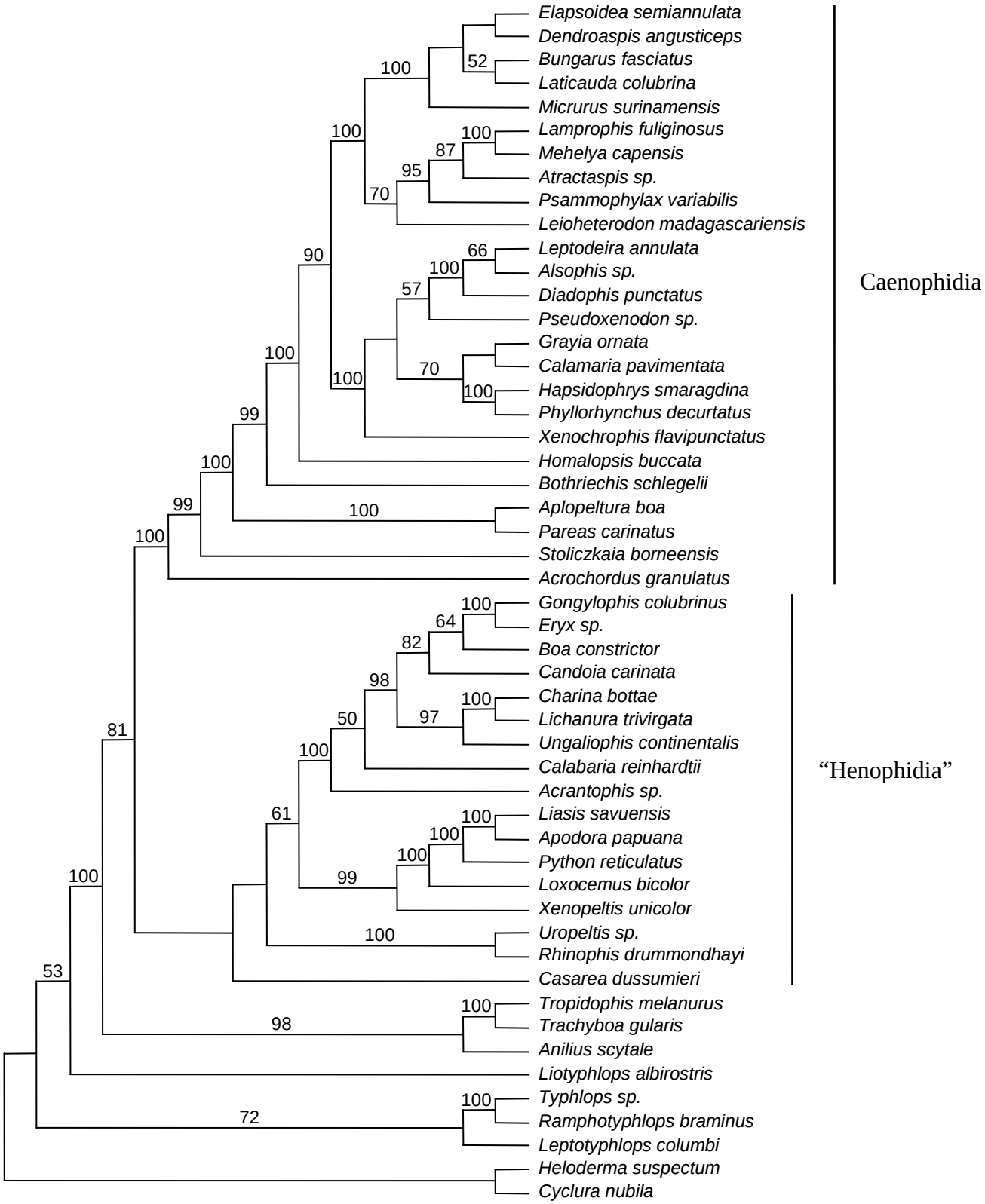
Supplementary Table 1. The sequences produced for this work have been deposited in GenBank under Accession Numbers FJ433886-FJ434106

		Cmos	Rag1	Rag2	R35	HOXA13	BDNF	JUN	AMEL	NT3
		(561 bp)	(510 bp)	(708 bp)	(708 bp)	(408 bp)	(669 bp)	(330 bp)	(378 bp)	(519 bp)
Iguania	*Cyclura nubila*	DQ119595	DQ119625	DQ119641	DQ119623	DQ119608	**FJ433956**	**FJ434007**	FJ434035	FJ434062
Anguimorpha	*Heloderma suspectum*	AY487348	AY487352	DQ119635	DQ119617	DQ119604	FJ433955	FJ434006	FJ434034	FJ434061
Anomalepididae	*Liotyphlops albirostris*	AF544727	FJ433886	FJ433890	FJ433914	FJ433938	FJ433960	FJ434011	FJ434039	Missing
Typhlopidae	*Ramphotyphlops braminus*	AF544717	AY487410	FJ433889	FJ433913	FJ433937	FJ433959	FJ434010	FJ434038	FJ434065
Typhlopidae	*Typhlops jamaicensis*	AF544733	AY487387	FJ433888	FJ433912	FJ433936			FJ434037	
Typhlopidae	*Typhlops lumbricalis*						FJ433958			
Typhlopidae	*Typhlops elegans*							FJ434009		FJ434064
Leptotyphlopidae	*Leptoptyphlops columbi*	AF544718	AY487383	FJ433887	FJ433911	FJ433935	FJ433957	FJ434008	FJ434036	FJ434063
Aniliidae	*Anilius scytale*	AF544722	AY487382	FJ433891	FJ433915	FJ433939	FJ433961	FJ434012	FJ434040	FJ434066
Tropidophiidae	*Tropidophis melanurus*	AF544725	AY487384	FJ433892	FJ433916	Missing	FJ433962	FJ434013	FJ434041	FJ434067
Tropidophiidae	*Trachyboa gularis*	AY491999	AY487409	FJ433893	FJ433917	Missing	FJ433963	FJ434014	FJ434042	FJ434068
Uropeltidae	*Rhinophis drummondhayi*	AF544719	AY487386	FJ433896	FJ433920	FJ433942	FJ433966	FJ434017	FJ434045	FJ434071
Uropeltidae	*Uropeltis phillipsi*	AF571100								
Uropeltidae	*Uropeltis melanogaster*		AY487399	FJ433895	FJ433919	FJ433941	FJ433965	FJ434016	FJ434044	FJ434070
Bolyeriidae	*Casarea dussumieri*	AF544731	AY487408	FJ433894	FJ433918	FJ433940	FJ433964	FJ434015	FJ434043	FJ434069
Loxocemidae	*Loxocemus bicolor*	AF544730	AY487406	FJ433897	FJ433921	FJ433943	FJ433967	FJ434018	FJ434046	FJ434072
Xenopeltidae	*Xenopeltis unicolor*	AF544689	AY487400	FJ433898	FJ433922	FJ433944	FJ433968	FJ434019	FJ434047	FJ434073
Pythonidae	*Python reticulatus*	AF544675	AY487396	FJ433899	FJ433923	FJ433945	FJ433969	FJ434020	FJ434048	FJ434074
Pythonidae	*Liasis savuensis*	AF544726	AY487397	FJ433900	FJ433924	FJ433946	FJ433970	FJ434021	FJ434049	FJ434075
Pythonidae	*Apodora papuana*	AF544720	AY487405	FJ433901	FJ433925	FJ433947	FJ433971	FJ434022	FJ434050	FJ434076
	Calabaria reinhardtii	AF544682	AY487391	FJ433902	FJ433926	FJ433948	FJ433972	FJ434023	FJ434051	AY988058
Boidae	*Boa constrictor*	AF544676	AY487351	FJ433905	FJ433929	Missing	FJ433975	FJ434026	FJ434054	AY988047
Boidae	*Acrantophis madagascariensis*	AF544707	AY487401	FJ433903	FJ433927	FJ433949	FJ433973	FJ434024	FJ434052	
Boidae	*Acrantophis dumerili*									AY988049
Boidae	*Candoia carinata*	AF544674	AY487402	FJ433904	FJ433928	FJ433950	FJ433974	FJ434025	FJ434053	FJ434077
Boidae	*Eryx miliaris*	AF544683	AY487393	FJ433907	FJ433931	FJ433952	FJ433977	FJ434028	FJ434056	
Boidae	*Eryx johni*									DQ465569
Boidae	*Ungaliophis continentalis*	AF544724	AY487407	FJ433910	FJ433934	Missing	FJ433980	FJ434031	FJ434059	FJ434081
Boidae	*Charina bottae*	AF544681	AY487390	FJ433908	FJ433932	FJ433953	FJ433978	FJ434029	FJ434057	FJ434079
Boidae	*Lichanura trivirgata*	AF544687	AY487394	FJ433909	FJ433933	FJ433954	FJ433979	FJ434030	FJ434058	FJ434080
Boidae	*Gongylophis colubrinus*	AF544716	AY487392	FJ433906	FJ433930	FJ433951	FJ433976	FJ434027	FJ434055	FJ434078
Acrochordidae	*Acrochordus granulatus*	AF544706	AY487388	EF144093	EF144065	Missing	FJ433981	EF144042	EF143995	FJ434082
Xenodermatidae	*Stoliczkaia borneensis*	AF544721	AY487398	EF144094	EF144066	EF144018	FJ433982	EF144043	EF143996	FJ434083
Pareatidae	*Aplopeltura boa*	AF544715	Missing	Missing	EF144068	EF144020	FJ433984	EF144044	EF143998	FJ434085

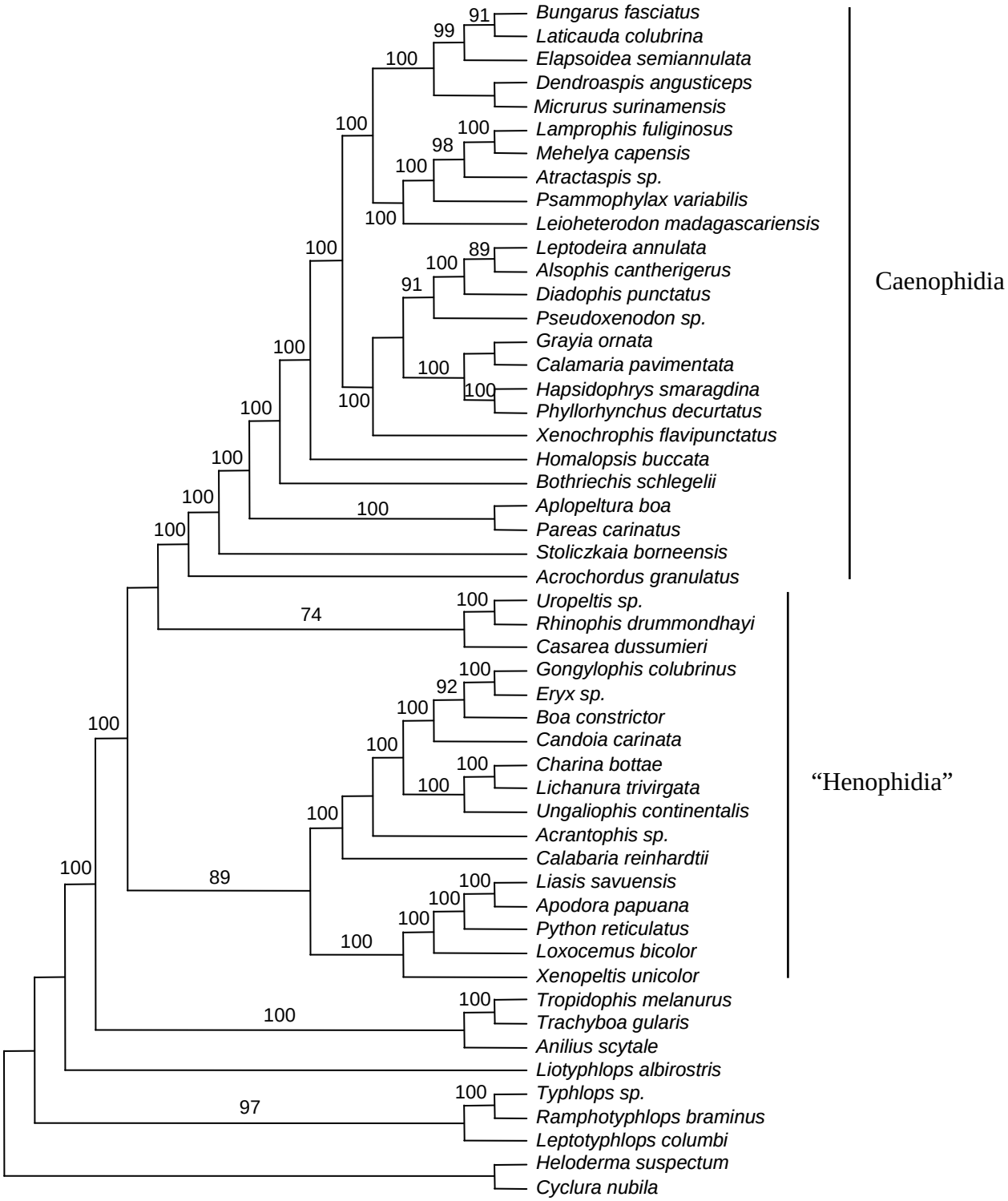
Pareatidae	*Pareas carinatus*	AF544692	Missing	EF144096	EF144069	EF144021	FJ433985	EF144045	EF143999	FJ434086
Viperidae	*Bothriechis schlegelii*	AF544680	AY487374	EF144095	EF144067	EF144019	FJ433983	FJ434032	EF143997	FJ434084
Homalopsidae	*Homalopsis buccata*	AF544701	Missing	EF144097	EF144070	EF144022	FJ433986	EF144046	EF144000	FJ434087
Dipsadidae	*Leptodeira annulata*	AF544690	AY487375	EF144108	EF144081	EF144033	FJ433998	EF144056	EF144011	FJ434099
Dipsadidae	*Alsophis cantherigerus*	AF544694	AY487376	EF144109	EF144082	EF144034	FJ433999	EF144057		FJ434100
Dipsadidae	*Alsophis vudii*								FJ434060	
Dipsadidae	*Diadophis punctatus*	AF544705	AY487403	EF144110	EF144083	EF144035	FJ433997	EF144058	Missing	FJ434098
Colubridae	*Phyllorhynchus decurtatus*	AF544728	AY487385	EF144115	EF144088	EF144040	FJ434004	EF144063	EF144016	FJ434105
Colubridae	*Hapsidophrys smaragdina*	AF544691	AY487381	EF144114	EF144087	EF144039	FJ434003	EF144062	EF144015	FJ434104
Colubridae	*Calamaria pavimentata*	AF471103	EF144092	EF144116	EF144089	EF144041	FJ434005	EF144064	EF144017	FJ434106
Colubridae	*Grayia ornata*	AF544684	EF144091	EF144113	EF144086	EF144038	FJ434002	EF144061	EF144014	FJ434103
Pseudoxenodontidae	*Pseudoxenodon bambusicola*		EF144090	EF144111	EF144084	EF144036	FJ434000	EF144059	EF144012	FJ434101
Pseudoxenodontidae	*Pseudoxenodon karlschmidti*	AF471102								
Natricidae	*Xenochrophis flavipunctatus*	AF544714	Missing	EF144112	EF144085	EF144037	FJ434001	EF144060	EF144013	FJ434102
Elapidae	*Elapsoidea semiannulata*	AF544678	AY487373	EF144098	EF144071	EF144023	FJ433987	EF144047	EF144001	FJ434088
Elapidae	*Laticauda colubrina*	AF544702	AY487404	EF144101	EF144074	EF144026	FJ433990	EF144050	EF144004	FJ434091
Elapidae	*Bungarus fasciatus*	AF544732	AY487389	EF144100	EF144073	EF144025	FJ433989	EF144049	EF144003	FJ434090
Elapidae	*Dendroaspis angusticeps*	AF544735	AY487395	EF144099	EF144072	EF144024	FJ433988	EF144048	EF144002	FJ434089
Elapidae	*Micrurus surinamensis*	AF544708	AY487411	EF144102	EF144075	EF144027	FJ433991	EF144051	EF144005	FJ434092
Lamprophiidae	*Psammophylax variabilis*	AF544709	AY487380	EF144107	EF144080	EF144032	FJ433996	EF144055	EF144010	FJ434097
Lamprophiidae	*Leioheterodon madagascariensis*	AF544685	AY487377	EF144103	EF144076	EF144028	FJ433992	FJ434033	EF144006	FJ434093
Lamprophiidae	*Lamprophis fuliginosus*	AF544686	AY487378	EF144104	EF144077	EF144029	FJ433993	EF144052	EF144007	FJ434094
Lamprophiidae	*Mehelya capensis*	AF544703	AY487379	EF144106	EF144079	EF144031	FJ433995	EF144054	EF144009	FJ434096
Lamprophiidae	*Atractaspis micropholis*	AF544677		EF144105	EF144078		FJ433994	EF144053	EF144008	FJ434095
Lamprophiidae	*Atractaspis corpulenta*		DQ993174			EF144030				



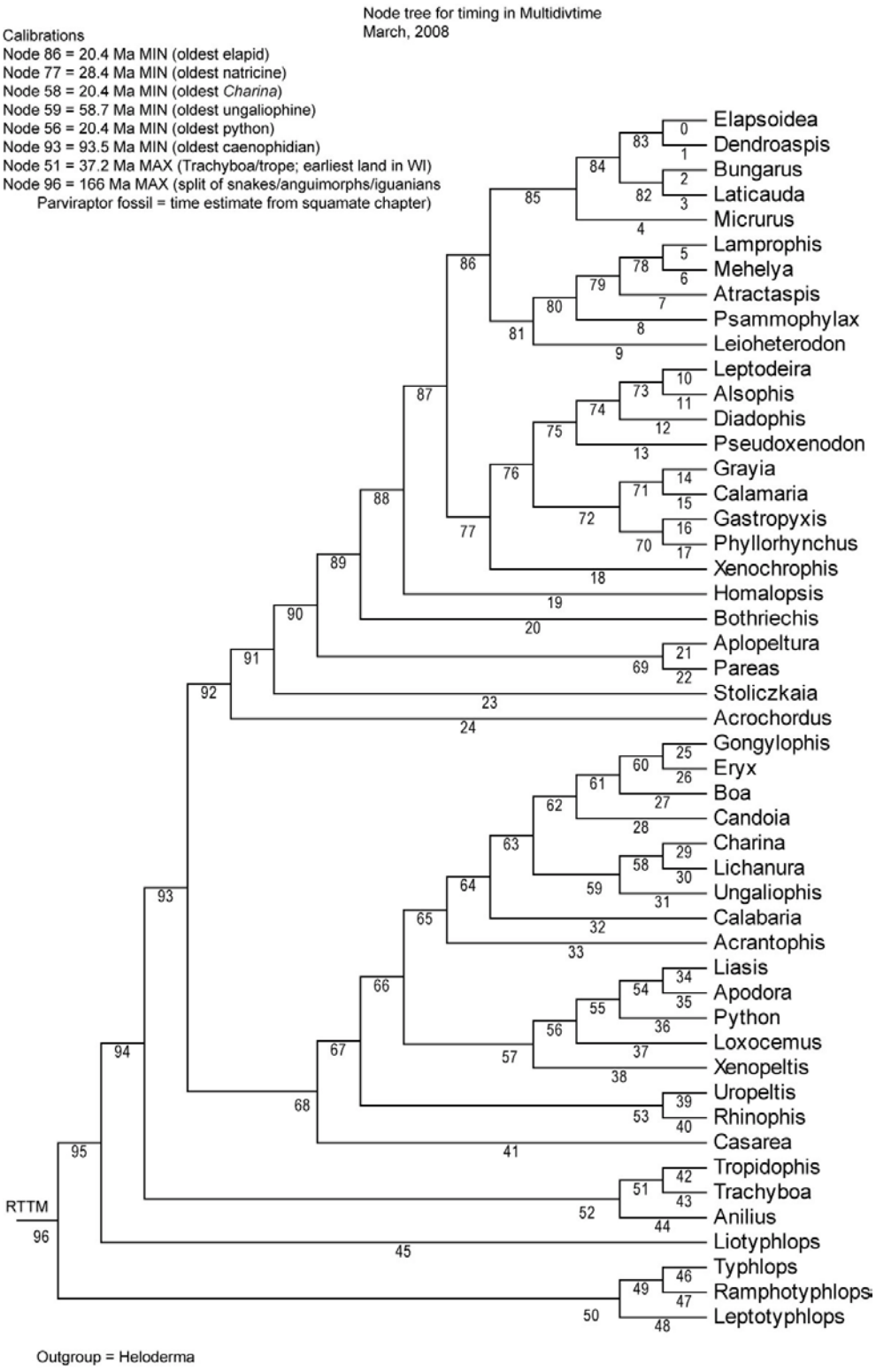
Supplementary Figure 1. ML phylogram.



Suppementary Figure 2. ML bootstrap consensus tree (BP values above 50% are shown).



Supplementary Figure 3. Bayesian consensus tree (PP values above 70% are shown).



Supplementary figure 4. ML tree nodes used for timing. The outgroup (not shown) is *Heloderma*.

Primary analysis (partitioned analysis, rttm=130 myr, 8 calibration points)

Estimated times, standard deviation, and credibility intervals

Actual time node 49 = 73.16916 (Std. Dev. = 7.39078) (58.96057, 88.20380)
Actual time node 50 = 151.91491 (Std. Dev. = 6.56453) (137.36421, 162.92366)
Actual time node 51 = 25.99301 (Std. Dev. = 4.86561) (16.39582, 35.32082)
Actual time node 52 = 89.09869 (Std. Dev. = 5.67270) (78.20397, 99.81177)
Actual time node 53 = 11.19110 (Std. Dev. = 3.35526) (4.85766, 18.00069)
Actual time node 54 = 8.51522 (Std. Dev. = 3.36142) (2.05561, 15.40441)
Actual time node 55 = 19.34661 (Std. Dev. = 4.33498) (11.11907, 27.93917)
Actual time node 56 = 43.67390 (Std. Dev. = 5.66924) (32.54704, 55.53989)
Actual time node 57 = 70.07368 (Std. Dev. = 5.74128) (59.12687, 81.46409)
Actual time node 58 = 28.67488 (Std. Dev. = 3.88522) (21.66444, 36.55385)
Actual time node 59 = 60.12187 (Std. Dev. = 1.32322) (58.73224, 63.54593)
Actual time node 60 = 19.73336 (Std. Dev. = 4.24053) (11.71230, 28.46724)
Actual time node 61 = 50.11659 (Std. Dev. = 5.25497) (39.39121, 60.32538)
Actual time node 62 = 56.47210 (Std. Dev. = 4.65120) (46.54687, 65.13435)
Actual time node 63 = 63.16927 (Std. Dev. = 2.52574) (59.33376, 68.96147)
Actual time node 64 = 66.21942 (Std. Dev. = 3.23952) (60.75526, 73.26339)
Actual time node 65 = 68.35600 (Std. Dev. = 3.57759) (62.15716, 76.05295)
Actual time node 66 = 86.28275 (Std. Dev. = 5.06513) (76.95123, 96.40690)
Actual time node 67 = 91.98907 (Std. Dev. = 5.12953) (82.38971, 102.15979)
Actual time node 68 = 96.94789 (Std. Dev. = 5.15690) (87.03453, 107.58374)
Actual time node 69 = 26.30675 (Std. Dev. = 5.08499) (17.23402, 37.58557)
Actual time node 70 = 19.79708 (Std. Dev. = 3.44870) (13.66640, 27.05326)
Actual time node 71 = 31.33477 (Std. Dev. = 4.52107) (23.02480, 40.44779)
Actual time node 72 = 33.40142 (Std. Dev. = 4.54982) (25.33186, 42.57130)
Actual time node 73 = 22.61495 (Std. Dev. = 3.70476) (15.99664, 30.24759)
Actual time node 74 = 24.81427 (Std. Dev. = 3.92663) (18.06615, 33.12967)
Actual time node 75 = 32.89412 (Std. Dev. = 4.53666) (24.72998, 42.55658)
Actual time node 76 = 36.63719 (Std. Dev. = 4.74293) (28.10371, 46.15212)
Actual time node 77 = 39.77681 (Std. Dev. = 5.06917) (30.61160, 49.93390)
Actual time node 78 = 21.33000 (Std. Dev. = 3.71868) (14.58623, 28.86380)
Actual time node 79 = 32.51117 (Std. Dev. = 4.52300) (24.46776, 41.43330)
Actual time node 80 = 35.67112 (Std. Dev. = 4.69443) (27.35075, 45.25874)
Actual time node 81 = 38.68895 (Std. Dev. = 4.96374) (29.35984, 48.93757)
Actual time node 82 = 20.97081 (Std. Dev. = 3.52178) (14.22931, 28.27050)
Actual time node 83 = 20.08860 (Std. Dev. = 3.60296) (13.32181, 27.30924)
Actual time node 84 = 23.62167 (Std. Dev. = 3.66789) (17.00128, 31.04215)
Actual time node 85 = 25.45157 (Std. Dev. = 3.83374) (18.28672, 33.44113)
Actual time node 86 = 41.46232 (Std. Dev. = 5.19372) (31.71766, 52.50980)
Actual time node 87 = 46.34915 (Std. Dev. = 5.48716) (36.39589, 57.51414)
Actual time node 88 = 49.23057 (Std. Dev. = 5.79865) (38.66004, 60.64558)
Actual time node 89 = 54.33200 (Std. Dev. = 6.14898) (43.14407, 66.68622)
Actual time node 90 = 63.97247 (Std. Dev. = 6.66504) (51.84702, 77.47030)
Actual time node 91 = 82.22573 (Std. Dev. = 6.83380) (69.20687, 95.89671)
Actual time node 92 = 90.69110 (Std. Dev. = 6.58204) (78.37923, 103.98181)
Actual time node 93 = 103.74136 (Std. Dev. = 5.09725) (94.83112, 113.99665)
Actual time node 94 = 105.82409 (Std. Dev. = 5.26398) (96.69045, 116.24761)
Actual time node 95 = 155.59559 (Std. Dev. = 5.46416) (143.54089, 164.00980)
Actual time node 96 = 159.88717 (Std. Dev. = 4.88861) (147.56443, 165.78781)

Time estimates from unpartitioned analysis (rttm=130 myr, 8 calibration points)

Actual time node 49 = 72.88390 (Std. Dev. = 8.76952) (55.58141, 89.73208)
Actual time node 50 = 153.11927 (Std. Dev. = 6.39493) (137.90958, 162.75625)
Actual time node 51 = 30.62606 (Std. Dev. = 4.12827) (21.74864, 36.84833)
Actual time node 52 = 96.81430 (Std. Dev. = 5.26067) (87.26733, 107.66628)
Actual time node 53 = 13.78787 (Std. Dev. = 3.65767) (7.95938, 22.07185)
Actual time node 54 = 13.06340 (Std. Dev. = 3.85175) (6.79710, 21.99956)
Actual time node 55 = 24.61262 (Std. Dev. = 5.49424) (15.06081, 36.53085)
Actual time node 56 = 61.65543 (Std. Dev. = 6.72701) (48.59473, 75.20632)
Actual time node 57 = 85.29087 (Std. Dev. = 5.42503) (75.37337, 96.50694)
Actual time node 58 = 37.24211 (Std. Dev. = 4.96028) (28.05798, 47.62755)
Actual time node 59 = 62.18376 (Std. Dev. = 3.03549) (58.80222, 69.94666)
Actual time node 60 = 23.88510 (Std. Dev. = 4.58391) (15.70576, 33.83812)
Actual time node 61 = 61.47417 (Std. Dev. = 4.04916) (54.28239, 70.27474)
Actual time node 62 = 64.33044 (Std. Dev. = 3.82575) (57.84606, 72.88891)
Actual time node 63 = 66.89430 (Std. Dev. = 3.64319) (61.04523, 75.17554)
Actual time node 64 = 72.71727 (Std. Dev. = 4.17769) (65.47886, 81.93272)
Actual time node 65 = 74.77399 (Std. Dev. = 4.27047) (67.39432, 84.06494)
Actual time node 66 = 96.71167 (Std. Dev. = 4.79812) (88.37759, 106.68431)
Actual time node 67 = 98.94693 (Std. Dev. = 4.79130) (90.75538, 109.00999)
Actual time node 68 = 100.63965 (Std. Dev. = 4.83377) (92.43151, 110.76890)
Actual time node 69 = 20.08298 (Std. Dev. = 3.52588) (13.98267, 27.83336)
Actual time node 70 = 18.56416 (Std. Dev. = 2.68334) (13.95239, 24.59876)
Actual time node 71 = 27.54135 (Std. Dev. = 3.02423) (22.89422, 34.51627)
Actual time node 72 = 28.67930 (Std. Dev. = 3.04178) (24.11831, 35.79237)
Actual time node 73 = 22.09583 (Std. Dev. = 2.82480) (17.43544, 28.48538)
Actual time node 74 = 23.84202 (Std. Dev. = 2.87260) (19.16342, 30.43962)
Actual time node 75 = 30.34118 (Std. Dev. = 3.05872) (25.99188, 37.55133)
Actual time node 76 = 31.78812 (Std. Dev. = 3.10373) (27.60556, 39.09839)
Actual time node 77 = 32.65368 (Std. Dev. = 3.13471) (28.58814, 40.09976)
Actual time node 78 = 17.76982 (Std. Dev. = 2.71294) (13.12229, 23.76416)
Actual time node 79 = 28.80600 (Std. Dev. = 3.31573) (23.34156, 36.22901)
Actual time node 80 = 30.51486 (Std. Dev. = 3.37240) (24.91630, 37.97160)
Actual time node 81 = 32.66199 (Std. Dev. = 3.45601) (26.94351, 40.48321)
Actual time node 82 = 14.49143 (Std. Dev. = 2.32271) (10.53462, 19.70369)
Actual time node 83 = 14.86960 (Std. Dev. = 2.32875) (10.92393, 20.05888)
Actual time node 84 = 16.03204 (Std. Dev. = 2.43547) (11.84663, 21.38835)
Actual time node 85 = 17.11920 (Std. Dev. = 2.56365) (12.75939, 22.77810)
Actual time node 86 = 34.38955 (Std. Dev. = 3.52940) (28.61424, 42.34272)
Actual time node 87 = 39.39929 (Std. Dev. = 3.68144) (33.61298, 47.74274)
Actual time node 88 = 42.17897 (Std. Dev. = 3.89448) (35.82088, 50.84277)
Actual time node 89 = 50.28069 (Std. Dev. = 4.34416) (42.73021, 59.66774)
Actual time node 90 = 55.96625 (Std. Dev. = 4.73486) (47.54922, 66.00387)
Actual time node 91 = 75.64246 (Std. Dev. = 5.17112) (66.21798, 86.33185)
Actual time node 92 = 85.12234 (Std. Dev. = 5.18209) (75.72084, 95.95750)
Actual time node 93 = 102.59759 (Std. Dev. = 4.84542) (94.34999, 112.76718)
Actual time node 94 = 105.21165 (Std. Dev. = 4.95682) (96.57815, 115.58816)
Actual time node 95 = 154.30888 (Std. Dev. = 6.11981) (139.80504, 163.32275)
Actual time node 96 = 158.54672 (Std. Dev. = 5.98552) (143.85913, 165.75159)

Partitioned versus unpartitioned time estimates

Partitioned	Unpartitioned	Abs. deviation	Abs. % deviation
73.16916	72.8839	0.28526	0.38986371
151.9149	153.11927	1.20436	0.79278591
25.99301	30.62606	4.63305	17.824215
89.09869	96.8143	7.71561	8.65962227
11.1911	13.78787	2.59677	23.2038852
8.51522	13.0634	4.54818	53.4123605
19.34661	24.61262	5.26601	27.2192906
43.6739	61.65543	17.98153	41.1722562
70.07368	85.29087	15.21719	21.7159852
28.67488	37.24211	8.56723	29.8771259
60.12187	62.18376	2.06189	3.42951741
19.73336	23.8851	4.15174	21.0391945
50.11659	61.47417	11.35758	22.662316
56.4721	64.33044	7.85834	13.9154379
63.16927	66.8943	3.72503	5.89690209
66.21942	72.71727	6.49785	9.81260482
68.356	74.77399	6.41799	9.38906607
86.28275	96.71167	10.42892	12.0869119
91.98907	98.94693	6.95786	7.56378992
96.94789	100.63965	3.69176	3.80798386
26.30675	20.08298	6.22377	23.6584527
19.79708	18.56416	1.23292	6.22778713
31.33477	27.54135	3.79342	12.1061045
33.40142	28.6793	4.72212	14.1374828
22.61495	22.09583	0.51912	2.29547269
24.81427	23.84202	0.97225	3.91810841
32.89412	30.34118	2.55294	7.76108314
36.63719	31.78812	4.84907	13.2353764
39.77681	32.65368	7.12313	17.9077457
21.33	17.76982	3.56018	16.6909517
32.51117	28.806	3.70517	11.3966062
35.67112	30.51486	5.15626	14.4549989
38.68895	32.66199	6.02696	15.577988
20.97081	14.49143	6.47938	30.8971375
20.0886	14.8696	5.219	25.979909
23.62167	16.03204	7.58963	32.1299468
25.45157	17.1192	8.33237	32.7381376
41.46232	34.38955	7.07277	17.0583074
46.34915	39.39929	6.94986	14.9945792
49.23057	42.17897	7.0516	14.3236205
54.332	50.28069	4.05131	7.45658176
63.97247	55.96625	8.00622	12.5151022
82.22573	75.64246	6.58327	8.00633816
90.6911	85.12234	5.56876	6.14035997
103.7414	102.59759	1.14377	1.10252073
105.8241	105.21165	0.61244	0.57873401
155.5956	154.30888	1.28671	0.82695788
159.8872	158.54672	1.34045	0.83837246
		5.3935208	**14.5588725**

Time estimates from unpartitioned analysis (rttm=100, 8 calibrations points).

Actual time node 49 = 72.84979 (Std. Dev. = 8.87846) (55.40504, 90.13802)
Actual time node 50 = 152.58966 (Std. Dev. = 6.58497) (137.38562, 162.48698)
Actual time node 51 = 30.52619 (Std. Dev. = 4.16125) (21.53905, 36.81149)
Actual time node 52 = 96.60995 (Std. Dev. = 5.29321) (87.15783, 107.43781)
Actual time node 53 = 13.89432 (Std. Dev. = 3.72770) (7.99205, 22.58082)
Actual time node 54 = 13.16376 (Std. Dev. = 3.95405) (6.84219, 21.95012)
Actual time node 55 = 24.65767 (Std. Dev. = 5.55008) (15.13623, 36.59183)
Actual time node 56 = 61.64756 (Std. Dev. = 6.72351) (48.73938, 74.88264)
Actual time node 57 = 85.20343 (Std. Dev. = 5.47724) (74.85571, 96.39721)
Actual time node 58 = 37.27733 (Std. Dev. = 4.96937) (28.12003, 47.60893)
Actual time node 59 = 62.21256 (Std. Dev. = 3.02922) (58.81182, 69.82152)
Actual time node 60 = 23.87511 (Std. Dev. = 4.58547) (15.95126, 33.87783)
Actual time node 61 = 61.51171 (Std. Dev. = 4.04130) (54.32275, 70.18936)
Actual time node 62 = 64.36369 (Std. Dev. = 3.79977) (57.87506, 72.75929)
Actual time node 63 = 66.91063 (Std. Dev. = 3.63582) (60.98134, 75.27556)
Actual time node 64 = 72.66843 (Std. Dev. = 4.10907) (65.41480, 81.50375)
Actual time node 65 = 74.69685 (Std. Dev. = 4.19801) (67.38184, 83.63491)
Actual time node 66 = 96.55330 (Std. Dev. = 4.81188) (88.48480, 106.65721)
Actual time node 67 = 98.73731 (Std. Dev. = 4.83858) (90.68195, 108.89213)
Actual time node 68 = 100.44842 (Std. Dev. = 4.86467) (92.41125, 110.77661)
Actual time node 69 = 20.13795 (Std. Dev. = 3.58333) (14.03116, 28.13232)
Actual time node 70 = 18.62564 (Std. Dev. = 2.70096) (14.06989, 24.74684)
Actual time node 71 = 27.59822 (Std. Dev. = 2.99850) (22.97413, 34.53856)
Actual time node 72 = 28.74799 (Std. Dev. = 3.02943) (24.18995, 35.77691)
Actual time node 73 = 22.15343 (Std. Dev. = 2.78278) (17.56047, 28.39763)
Actual time node 74 = 23.91822 (Std. Dev. = 2.84976) (19.30036, 30.40954)
Actual time node 75 = 30.42877 (Std. Dev. = 3.05387) (26.03758, 37.62458)
Actual time node 76 = 31.87657 (Std. Dev. = 3.09014) (27.63019, 39.13861)
Actual time node 77 = 32.72280 (Std. Dev. = 3.11901) (28.61775, 40.10830)
Actual time node 78 = 17.78192 (Std. Dev. = 2.71173) (13.02267, 23.75124)
Actual time node 79 = 28.87350 (Std. Dev. = 3.29852) (23.29944, 36.25692)
Actual time node 80 = 30.58814 (Std. Dev. = 3.36975) (24.94247, 38.11518)
Actual time node 81 = 32.74789 (Std. Dev. = 3.45388) (26.96757, 40.61403)
Actual time node 82 = 14.51041 (Std. Dev. = 2.33255) (10.51317, 19.61019)
Actual time node 83 = 14.89400 (Std. Dev. = 2.35183) (10.83868, 20.15894)
Actual time node 84 = 16.06125 (Std. Dev. = 2.45599) (11.83261, 21.49433)
Actual time node 85 = 17.13923 (Std. Dev. = 2.56310) (12.71610, 22.80315)
Actual time node 86 = 34.46695 (Std. Dev. = 3.52487) (28.66489, 42.41038)
Actual time node 87 = 39.47023 (Std. Dev. = 3.65042) (33.65931, 47.75245)
Actual time node 88 = 42.25475 (Std. Dev. = 3.88201) (35.94617, 51.02389)
Actual time node 89 = 50.33443 (Std. Dev. = 4.37111) (42.76650, 59.79807)
Actual time node 90 = 55.96545 (Std. Dev. = 4.75429) (47.61179, 66.07290)
Actual time node 91 = 75.54755 (Std. Dev. = 5.17596) (65.93787, 86.29244)
Actual time node 92 = 84.96744 (Std. Dev. = 5.18888) (75.54673, 95.98506)
Actual time node 93 = 102.40727 (Std. Dev. = 4.88371) (94.35043, 112.57391)
Actual time node 94 = 104.99567 (Std. Dev. = 5.02140) (96.56066, 115.43460)
Actual time node 95 = 153.81397 (Std. Dev. = 6.35773) (139.11906, 163.37420)
Actual time node 96 = 157.95711 (Std. Dev. = 6.26138) (143.11863, 165.72455)

Time estimates from unpartitioned analysis (rttm=166, 8 calibrations points).

Actual time node 49 = 72.60867 (Std. Dev. = 8.79459) (55.34223, 89.43356)
Actual time node 50 = 153.69613 (Std. Dev. = 6.10409) (139.23260, 162.77576)
Actual time node 51 = 30.48071 (Std. Dev. = 4.10493) (21.75006, 36.82344)
Actual time node 52 = 96.74795 (Std. Dev. = 5.22001) (87.29830, 107.43287)
Actual time node 53 = 13.76844 (Std. Dev. = 3.57418) (8.00648, 22.04661)
Actual time node 54 = 13.08327 (Std. Dev. = 3.85280) (6.78262, 21.85074)
Actual time node 55 = 24.58285 (Std. Dev. = 5.45400) (15.23759, 36.64295)
Actual time node 56 = 61.59137 (Std. Dev. = 6.61353) (48.63928, 74.73235)
Actual time node 57 = 85.19603 (Std. Dev. = 5.36011) (75.15289, 96.10540)
Actual time node 58 = 37.10122 (Std. Dev. = 4.88499) (27.94950, 47.08627)
Actual time node 59 = 62.15423 (Std. Dev. = 2.99898) (58.81195, 69.95367)
Actual time node 60 = 23.69039 (Std. Dev. = 4.45893) (15.87177, 33.14482)
Actual time node 61 = 61.41755 (Std. Dev. = 3.99346) (54.40200, 70.25840)
Actual time node 62 = 64.28486 (Std. Dev. = 3.77377) (57.83218, 72.77742)
Actual time node 63 = 66.86277 (Std. Dev. = 3.57752) (61.06939, 75.12056)
Actual time node 64 = 72.69742 (Std. Dev. = 4.08006) (65.61884, 81.66381)
Actual time node 65 = 74.72916 (Std. Dev. = 4.17865) (67.37655, 83.73528)
Actual time node 66 = 96.67387 (Std. Dev. = 4.72408) (88.47379, 106.71298)
Actual time node 67 = 98.92110 (Std. Dev. = 4.72244) (90.92593, 108.76161)
Actual time node 68 = 100.63947 (Std. Dev. = 4.75121) (92.55373, 110.56700)
Actual time node 69 = 20.12887 (Std. Dev. = 3.50243) (14.09526, 27.86918)
Actual time node 70 = 18.58868 (Std. Dev. = 2.65292) (14.10944, 24.58491)
Actual time node 71 = 27.58426 (Std. Dev. = 2.96739) (23.01608, 34.51142)
Actual time node 72 = 28.73951 (Std. Dev. = 3.00487) (24.23160, 35.66024)
Actual time node 73 = 22.07869 (Std. Dev. = 2.80383) (17.47496, 28.45986)
Actual time node 74 = 23.84493 (Std. Dev. = 2.84340) (19.23040, 30.39652)
Actual time node 75 = 30.38321 (Std. Dev. = 3.04766) (25.98687, 37.57114)
Actual time node 76 = 31.83613 (Std. Dev. = 3.08570) (27.59596, 39.11500)
Actual time node 77 = 32.69067 (Std. Dev. = 3.11012) (28.60032, 39.97520)
Actual time node 78 = 17.79712 (Std. Dev. = 2.69699) (13.19823, 23.78003)
Actual time node 79 = 28.87003 (Std. Dev. = 3.29969) (23.28875, 36.28073)
Actual time node 80 = 30.58992 (Std. Dev. = 3.38141) (24.90002, 38.20925)
Actual time node 81 = 32.74019 (Std. Dev. = 3.44467) (27.04039, 40.56036)
Actual time node 82 = 14.53976 (Std. Dev. = 2.31526) (10.47140, 19.61115)
Actual time node 83 = 14.90127 (Std. Dev. = 2.33953) (10.88484, 19.97013)
Actual time node 84 = 16.07151 (Std. Dev. = 2.44082) (11.89215, 21.37939)
Actual time node 85 = 17.14949 (Std. Dev. = 2.54090) (12.81159, 22.67189)
Actual time node 86 = 34.45493 (Std. Dev. = 3.51686) (28.61040, 42.35908)
Actual time node 87 = 39.47246 (Std. Dev. = 3.65850) (33.62080, 47.85606)
Actual time node 88 = 42.25440 (Std. Dev. = 3.85405) (35.95661, 50.93715)
Actual time node 89 = 50.33740 (Std. Dev. = 4.33130) (42.83844, 59.75744)
Actual time node 90 = 55.99037 (Std. Dev. = 4.69410) (47.59775, 65.85178)
Actual time node 91 = 75.64865 (Std. Dev. = 5.09366) (66.26021, 86.14852)
Actual time node 92 = 85.08447 (Std. Dev. = 5.11561) (75.89375, 95.73711)
Actual time node 93 = 102.60822 (Std. Dev. = 4.78216) (94.52785, 112.55657)
Actual time node 94 = 105.17739 (Std. Dev. = 4.89306) (96.70382, 115.22644)
Actual time node 95 = 154.97672 (Std. Dev. = 5.82651) (141.28882, 163.49720)
Actual time node 96 = 159.27503 (Std. Dev. = 5.60954) (145.19792, 165.78316)

Time estimates from unpartitioned analysis (rttm=130, 7 calibrations points, 37.2 Myr max calibration removed).

Actual time node 49 = 73.20308 (Std. Dev. = 8.84083) (55.76921, 89.93953)
Actual time node 50 = 153.34435 (Std. Dev. = 6.22966) (138.63496, 162.75092)
Actual time node 51 = 33.70863 (Std. Dev. = 6.49069) (22.33416, 47.59683)
Actual time node 52 = 98.10989 (Std. Dev. = 5.67868) (87.83419, 109.63499)
Actual time node 53 = 14.02733 (Std. Dev. = 3.69040) (8.13704, 22.28809)
Actual time node 54 = 13.24320 (Std. Dev. = 3.98028) (6.88971, 22.40545)
Actual time node 55 = 24.86336 (Std. Dev. = 5.61415) (15.29591, 37.26250)
Actual time node 56 = 62.20995 (Std. Dev. = 6.91069) (48.83757, 75.87372)
Actual time node 57 = 85.94541 (Std. Dev. = 5.61326) (75.42755, 97.38743)
Actual time node 58 = 37.43026 (Std. Dev. = 4.98541) (28.02164, 47.87801)
Actual time node 59 = 62.41122 (Std. Dev. = 3.20343) (58.81259, 70.65942)
Actual time node 60 = 23.92568 (Std. Dev. = 4.55679) (15.99221, 33.79051)
Actual time node 61 = 61.74757 (Std. Dev. = 4.13263) (54.45798, 70.76572)
Actual time node 62 = 64.64381 (Std. Dev. = 3.92376) (57.99777, 73.54622)
Actual time node 63 = 67.20603 (Std. Dev. = 3.76206) (61.24428, 75.85825)
Actual time node 64 = 73.10359 (Std. Dev. = 4.29610) (65.65190, 82.41637)
Actual time node 65 = 75.16355 (Std. Dev. = 4.41531) (67.49599, 84.63092)
Actual time node 66 = 97.47474 (Std. Dev. = 4.99262) (88.76711, 107.85277)
Actual time node 67 = 99.72811 (Std. Dev. = 5.03648) (91.10009, 110.29817)
Actual time node 68 = 101.45741 (Std. Dev. = 5.07771) (92.78703, 111.99460)
Actual time node 69 = 20.24624 (Std. Dev. = 3.65963) (14.05587, 28.37440)
Actual time node 70 = 18.67563 (Std. Dev. = 2.71845) (14.12381, 24.73153)
Actual time node 71 = 27.68199 (Std. Dev. = 3.08421) (22.92175, 34.83609)
Actual time node 72 = 28.84033 (Std. Dev. = 3.11327) (24.13120, 36.03759)
Actual time node 73 = 22.23700 (Std. Dev. = 2.87818) (17.54649, 28.61347)
Actual time node 74 = 23.98306 (Std. Dev. = 2.92484) (19.32589, 30.68394)
Actual time node 75 = 30.50652 (Std. Dev. = 3.15605) (25.95503, 37.98328)
Actual time node 76 = 31.96204 (Std. Dev. = 3.19839) (27.61778, 39.64139)
Actual time node 77 = 32.81830 (Std. Dev. = 3.23771) (28.59454, 40.55110)
Actual time node 78 = 17.80299 (Std. Dev. = 2.74280) (13.10955, 23.87167)
Actual time node 79 = 28.95779 (Std. Dev. = 3.38718) (23.30376, 36.47431)
Actual time node 80 = 30.68753 (Std. Dev. = 3.48077) (24.92643, 38.34510)
Actual time node 81 = 32.84205 (Std. Dev. = 3.56390) (26.99905, 40.78279)
Actual time node 82 = 14.60189 (Std. Dev. = 2.36338) (10.60231, 19.91034)
Actual time node 83 = 14.95856 (Std. Dev. = 2.39364) (10.90687, 20.28369)
Actual time node 84 = 16.13544 (Std. Dev. = 2.48916) (11.89167, 21.69719)
Actual time node 85 = 17.22277 (Std. Dev. = 2.61201) (12.79682, 23.05604)
Actual time node 86 = 34.56223 (Std. Dev. = 3.62870) (28.71670, 42.66165)
Actual time node 87 = 39.61272 (Std. Dev. = 3.77258) (33.73859, 48.30578)
Actual time node 88 = 42.42668 (Std. Dev. = 3.99573) (36.01986, 51.50228)
Actual time node 89 = 50.66646 (Std. Dev. = 4.52981) (42.97658, 60.78126)
Actual time node 90 = 56.36858 (Std. Dev. = 4.94005) (47.64005, 67.14166)
Actual time node 91 = 76.25247 (Std. Dev. = 5.41694) (66.55489, 87.45713)
Actual time node 92 = 85.80571 (Std. Dev. = 5.42898) (76.09122, 97.25649)
Actual time node 93 = 103.45226 (Std. Dev. = 5.12096) (94.68226, 114.17739)
Actual time node 94 = 106.10036 (Std. Dev. = 5.26377) (96.82638, 116.94963)
Actual time node 95 = 154.61779 (Std. Dev. = 6.00753) (140.62921, 163.47968)
Actual time node 96 = 158.78748 (Std. Dev. = 5.82911) (144.37401, 165.74073)

Time estimates from unpartitioned analysis (rttm=130, 7 calibrations points, 93.5 Myr min calibration removed).

Actual time node 49 = 72.75100 (Std. Dev. = 8.74387) (55.59278, 89.43725)
Actual time node 50 = 152.61476 (Std. Dev. = 6.87095) (135.83382, 162.64284)
Actual time node 51 = 30.46644 (Std. Dev. = 4.17882) (21.68583, 36.85225)
Actual time node 52 = 96.14843 (Std. Dev. = 5.79022) (84.95828, 107.53770)
Actual time node 53 = 13.72140 (Std. Dev. = 3.61191) (7.83551, 21.88104)
Actual time node 54 = 12.98745 (Std. Dev. = 3.86668) (6.81160, 21.84802)
Actual time node 55 = 24.42652 (Std. Dev. = 5.47540) (15.24735, 36.48126)
Actual time node 56 = 61.25260 (Std. Dev. = 6.77866) (48.11717, 74.59916)
Actual time node 57 = 84.66933 (Std. Dev. = 5.73805) (73.73460, 96.19483)
Actual time node 58 = 37.15011 (Std. Dev. = 4.88735) (27.88278, 47.25569)
Actual time node 59 = 62.03945 (Std. Dev. = 2.93774) (58.80468, 69.61289)
Actual time node 60 = 23.75257 (Std. Dev. = 4.53313) (15.76723, 33.37821)
Actual time node 61 = 61.23663 (Std. Dev. = 4.01445) (54.23792, 69.93322)
Actual time node 62 = 64.08513 (Std. Dev. = 3.79507) (57.76557, 72.55805)
Actual time node 63 = 66.61746 (Std. Dev. = 3.60352) (60.84391, 74.84976)
Actual time node 64 = 72.37886 (Std. Dev. = 4.17464) (65.07994, 81.30534)
Actual time node 65 = 74.38483 (Std. Dev. = 4.31734) (66.75531, 83.68417)
Actual time node 66 = 96.02162 (Std. Dev. = 5.29612) (85.93454, 106.67588)
Actual time node 67 = 98.21088 (Std. Dev. = 5.38840) (87.84906, 109.01996)
Actual time node 68 = 99.89385 (Std. Dev. = 5.44654) (89.33686, 110.66948)
Actual time node 69 = 20.00754 (Std. Dev. = 3.55987) (13.98988, 27.87174)
Actual time node 70 = 18.50329 (Std. Dev. = 2.62531) (14.06551, 24.35612)
Actual time node 71 = 27.44536 (Std. Dev. = 2.91760) (22.90991, 34.32849)
Actual time node 72 = 28.57387 (Std. Dev. = 2.93751) (24.12924, 35.45790)
Actual time node 73 = 22.01618 (Std. Dev. = 2.73802) (17.53237, 28.17330)
Actual time node 74 = 23.74566 (Std. Dev. = 2.79180) (19.23566, 30.10954)
Actual time node 75 = 30.23791 (Std. Dev. = 2.96689) (25.94860, 37.27911)
Actual time node 76 = 31.68258 (Std. Dev. = 3.01501) (27.55393, 38.96192)
Actual time node 77 = 32.53561 (Std. Dev. = 3.04651) (28.58765, 39.99229)
Actual time node 78 = 17.69162 (Std. Dev. = 2.62916) (13.10376, 23.44608)
Actual time node 79 = 28.72512 (Std. Dev. = 3.23390) (23.23335, 35.81805)
Actual time node 80 = 30.42510 (Std. Dev. = 3.30928) (24.84669, 37.88676)
Actual time node 81 = 32.57635 (Std. Dev. = 3.40948) (26.91396, 40.34646)
Actual time node 82 = 14.49080 (Std. Dev. = 2.28647) (10.58760, 19.53677)
Actual time node 83 = 14.84756 (Std. Dev. = 2.29291) (10.94087, 19.87010)
Actual time node 84 = 16.01094 (Std. Dev. = 2.38746) (11.95226, 21.20726)
Actual time node 85 = 17.09335 (Std. Dev. = 2.51927) (12.80880, 22.61904)
Actual time node 86 = 34.30063 (Std. Dev. = 3.48248) (28.57233, 42.23306)
Actual time node 87 = 39.25677 (Std. Dev. = 3.61624) (33.59392, 47.62928)
Actual time node 88 = 42.05122 (Std. Dev. = 3.88376) (35.67856, 50.87790)
Actual time node 89 = 50.06703 (Std. Dev. = 4.40358) (42.40256, 59.80175)
Actual time node 90 = 55.66776 (Std. Dev. = 4.86832) (47.07044, 66.19706)
Actual time node 91 = 75.18417 (Std. Dev. = 5.43546) (65.07097, 86.34546)
Actual time node 92 = 84.56244 (Std. Dev. = 5.52994) (74.15199, 95.77170)
Actual time node 93 = 101.84922 (Std. Dev. = 5.49708) (91.20037, 112.64624)
Actual time node 94 = 104.46820 (Std. Dev. = 5.61463) (93.51412, 115.48730)
Actual time node 95 = 153.74352 (Std. Dev. = 6.67685) (137.84535, 163.31558)
Actual time node 96 = 157.98172 (Std. Dev. = 6.56063) (141.70123, 165.74000)