

Historical biogeography of the leopard (*Panthera pardus*) and its extinct Eurasian populations

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Additional File 1

Figure S1: Maximum likelihood phylogeny, with different *Panthera* species as outgroup.

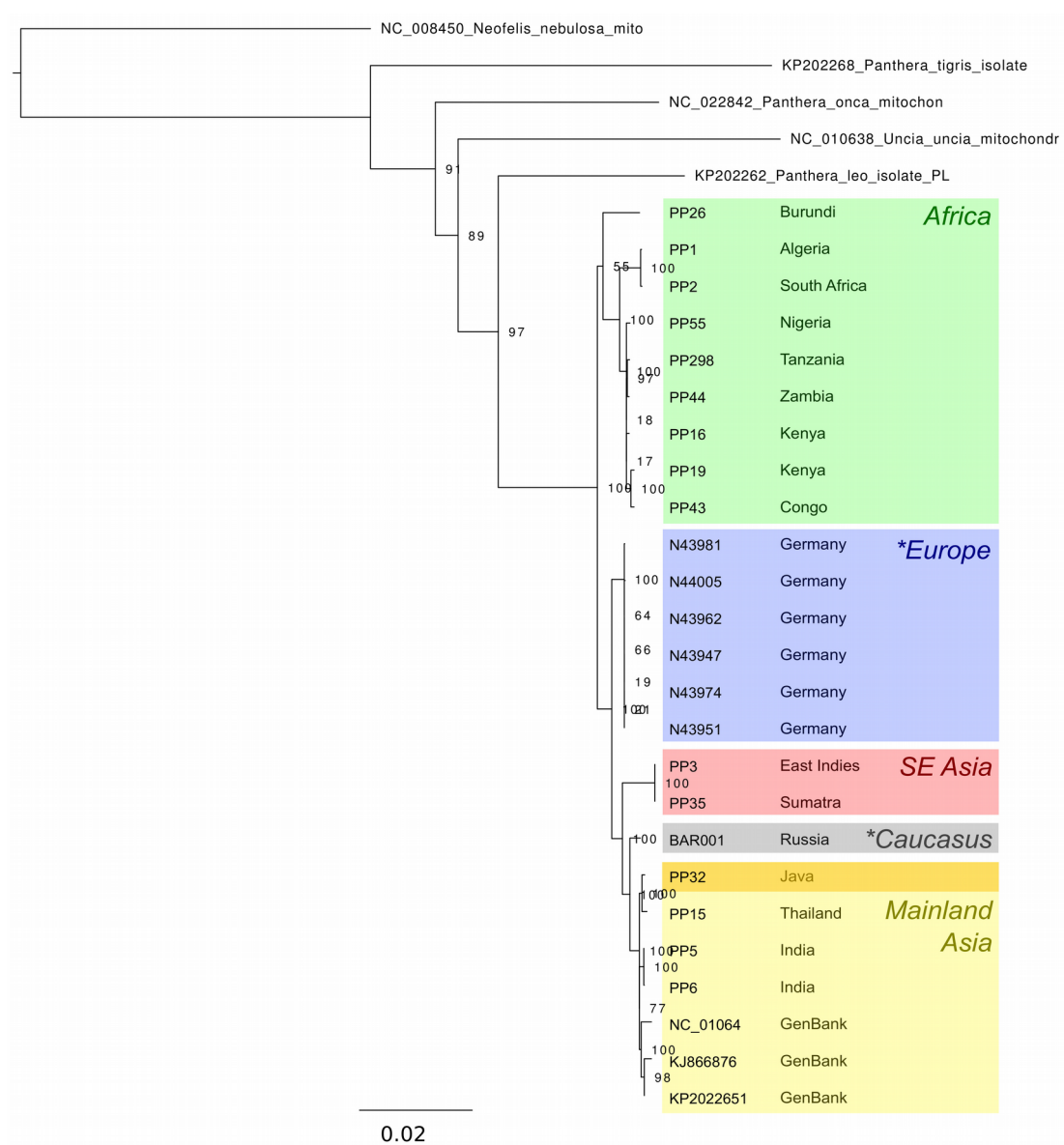


Figure S2: Network of short (456 bp) fragment mtDNA (ND5 gene), including previously published data (based on 267 sequences in total). Number of substitutions are indicated as tick-marks on the branches connecting the haplotypes. Colours indicate the subspecies (following Uphyrkina et al., 2001).

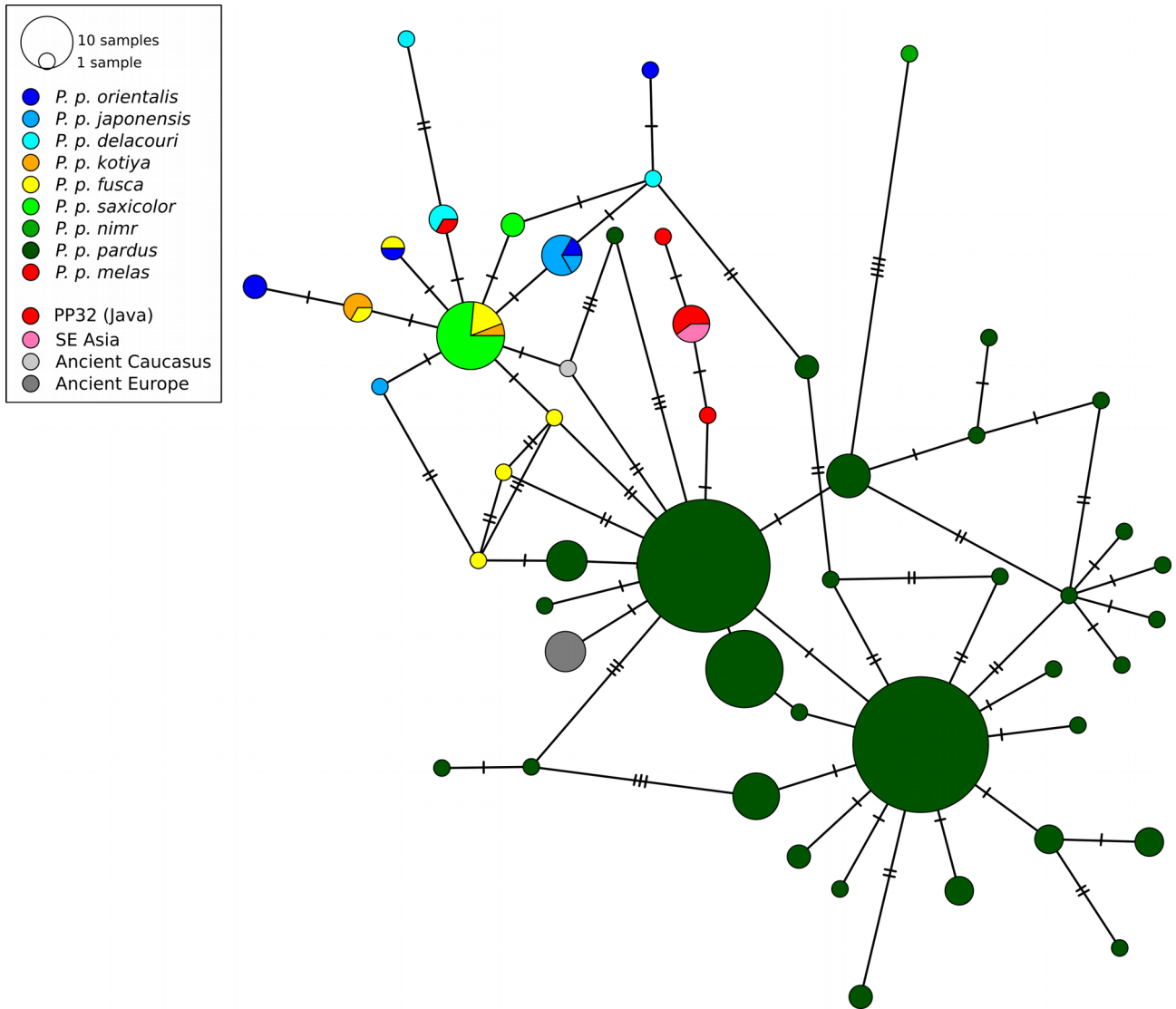


Table S1: Summarised sequence statistics for samples included in our study.

Sample ID	Nr_reads merged (seqprep)	Nr_reads aligning	Nr_reads aligning after rmdup	mean_coverage _depth	percentage_ove r_15x	%_mito_>2x
Ancient capture:						
BAR001-cap2	5,282,537	2,238,082	93,758	314.52	99.7	99.89%
N43951-cap2	3,557,529	997,929	22,649	52.2	91.1	98.76%
N43962-cap2	3,683,484	1,069,833	21,873	49.22	89.7	98.27%
N43974-cap2	4,782,338	1,208,060	22,305	53.02	92.7	98.73%
N43981-cap2	4,728,170	944,769	7,962	18.45	50.1	94.85%
N44005-cap2	3,725,267	1,512,124	11,084	26.03	77.9	98.06%
N43947-cap2	3,563,518	484,795	8,251	19.73	57	96.06%
Historical shotgun:						
leo-PP19	23,636,029	34,521	33,163	146.84	95.3	98.45%
leo-PP32	27,155,197	8,137	7,949	34.07	93.1	99.79%
leo-PP44	12,748,947	5,172	5,062	23.31	78.6	94.93%
leo-PP5	24,632,610	11,663	11,374	47.55	97.1	99.45%
Historical capture:						
PP1-cap2	8,428,050	1,780,262	974,381	4226.33	99.4	99.68%
PP15-cap	7,399,879	3,387,087	13,045	64.24	99.8	99.96%
PP16-cap2	6,845,173	1,780,262	700,530	3307.66	99.4	99.65%
PP2-cap2	7,962,286	4,752,083	666,768	2799	99.3	99.50%
PP26-cap	6,606,406	2,308,481	914,522	4553.08	99.8	99.79%
PP298-cap2	4,920,382	1,868,918	334,589	1967.92	98.1	99.52%
PP3-cap	8,378,965	3,888,526	128,455	548.2	99	99.68%
PP35-cap2	7,095,539	3,123,992	771,634	4013.24	99.5	99.69%
PP43-cap2	7,152,437	2,382,558	599,103	2966.61	98.9	99.21%
PP55-cap	6,493,490	2,277,276	54,877	278.44	96.7	99.23%
PP6-cap	7,840,609	5,008,104	701,180	3132.21	100	100.00%
Negative controls						
liBLK-14-9-15-2-cap2	2	0	0	0	0	0.00%
eBLK-08-09-2015-3-cap3	840,748	59,276	28	0.07	0	1.00%
eBLK-8-9-15-2-cap2	500,019	4,647	5	0.01	0	0.00%
liBLK-15-9-15-cap2	443,137	0	0	0	0	0.00%
PP-eBLK-28-10-15-2	77	11	11	0.04	0	0.00%
PP-liBLK-17-11-15-1	74	18	4	0.02	0	0.00%
PP-liBLK-17-11-15-2	70	0	0	0	0	0.00%
PP-liBLK-22-9-15-I	200,771	0	0	0	0	0.00%
PP-liBLK-23-09-15-I	215,492	0	0	0	0	0.00%

Table S2: Fossil constraints and calibration priors used in the time-calibrated BEAST analysis performed for Felidae alignment. The resulting root age was then applied as calibration for the leopards-only phylogeny.

Uniform prior				
Fossil Calibration	Min	Max	Estimated mean age	Reference
<i>Caracal</i> fossil: 3.8 Ma	3.8 Ma	10 Ma	7.2	van Valkenburg et al. 1990
<i>Lynx</i> fossil: 5.3 Ma	5.3 Ma	10 Ma	6.2	Eizirik et al. 2010, McKenna & Bell 1997
<i>Panthera</i> fossil: 3.8 Ma	3.8 Ma	10 Ma	7.8	van Valkenburg et al. 1990, Turner & Anton 2005
<i>Acinonyx</i> fossil: 3.8 Ma	3.8 Ma	10 Ma	5.1	van Valkenburg et al. 1990
<i>P. onca</i> fossil: 1.5 Ma	1.5 Ma	10 Ma	4.3	Turner & Anton 2005
<i>P. tigris</i> fossil: 1.5 Ma	1.5 Ma	10 Ma	4.3	Turner & Anton 2005
<i>P. uncia</i> fossil: 1.4 Ma	1.4 Ma	10 Ma	3.8	Turner & Anton 2005

Table S3: Radiocarbon dating (^{14}C) information.

Leopard specimen	Labcode MAMS	Identifier	^{14}C Age [yr BP]	$\pm$	$\delta^{13}\text{C}$ AMS [‰]	Cal 1-sigma	Cal 2 Sigma	C:N	C [%]	Collagen [%]	Material type
N43962	31739	GMP 196	44710	630	-3	cal BC 46840-45275	cal BC47597-44612	3.3	22.4	1.1	bone
N43981	31740	GMP 197	37880	300	-12.6	cal BC 40420-39995	cal BC40641-39769	2.9	22	1.9	bone
N44005	31741	GMP 198	40470	410	-24.9	cal BC 42480-41665	cal BC42856-41295	-	-	3.1	bone