



## Supplementary Information for

**Ancient genomic DNA evidence reveals the presence of tropical bovid species in northeastern Tibetan Plateau contributed to the prevalence of hunting games till to late Neolithic**

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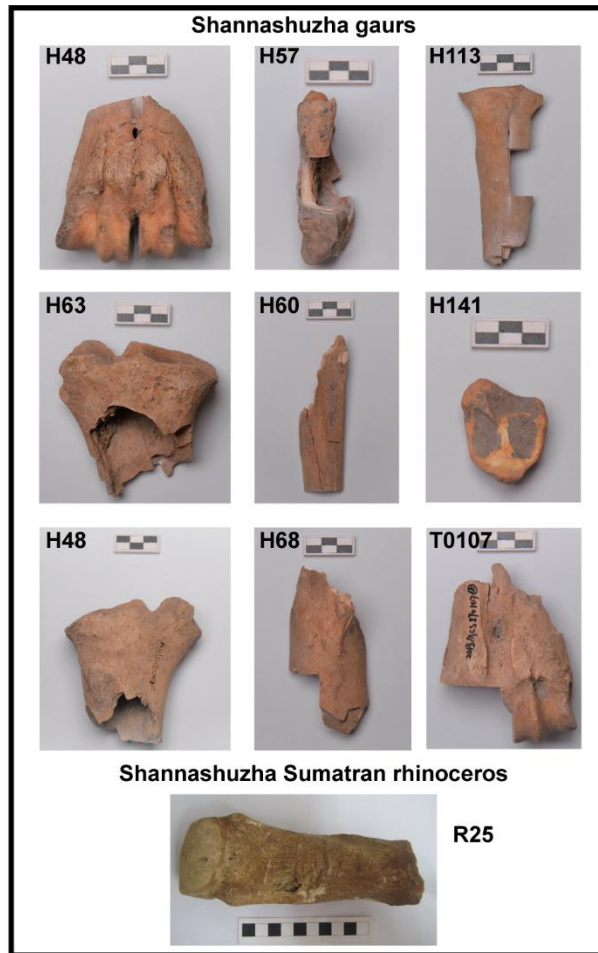
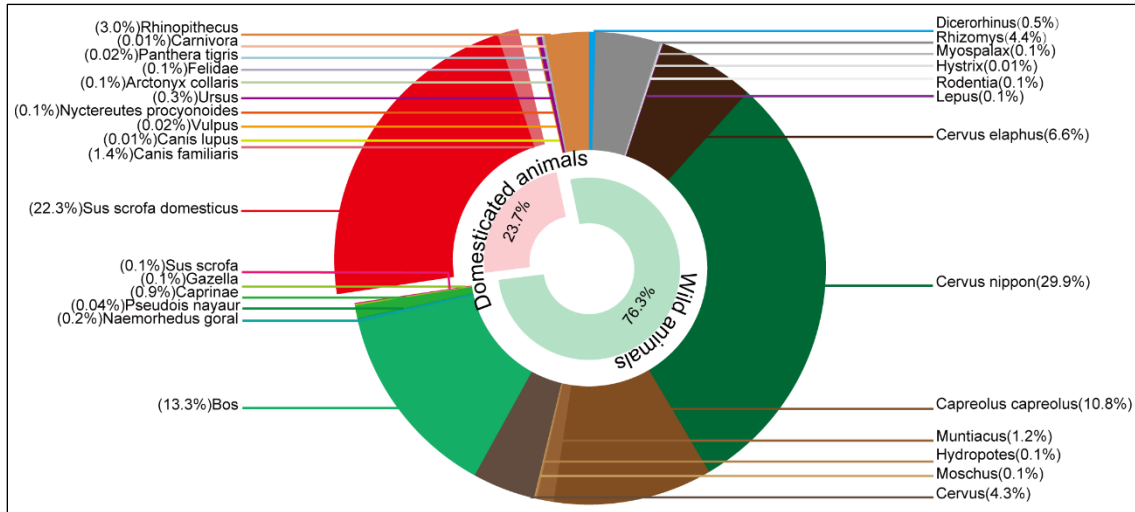
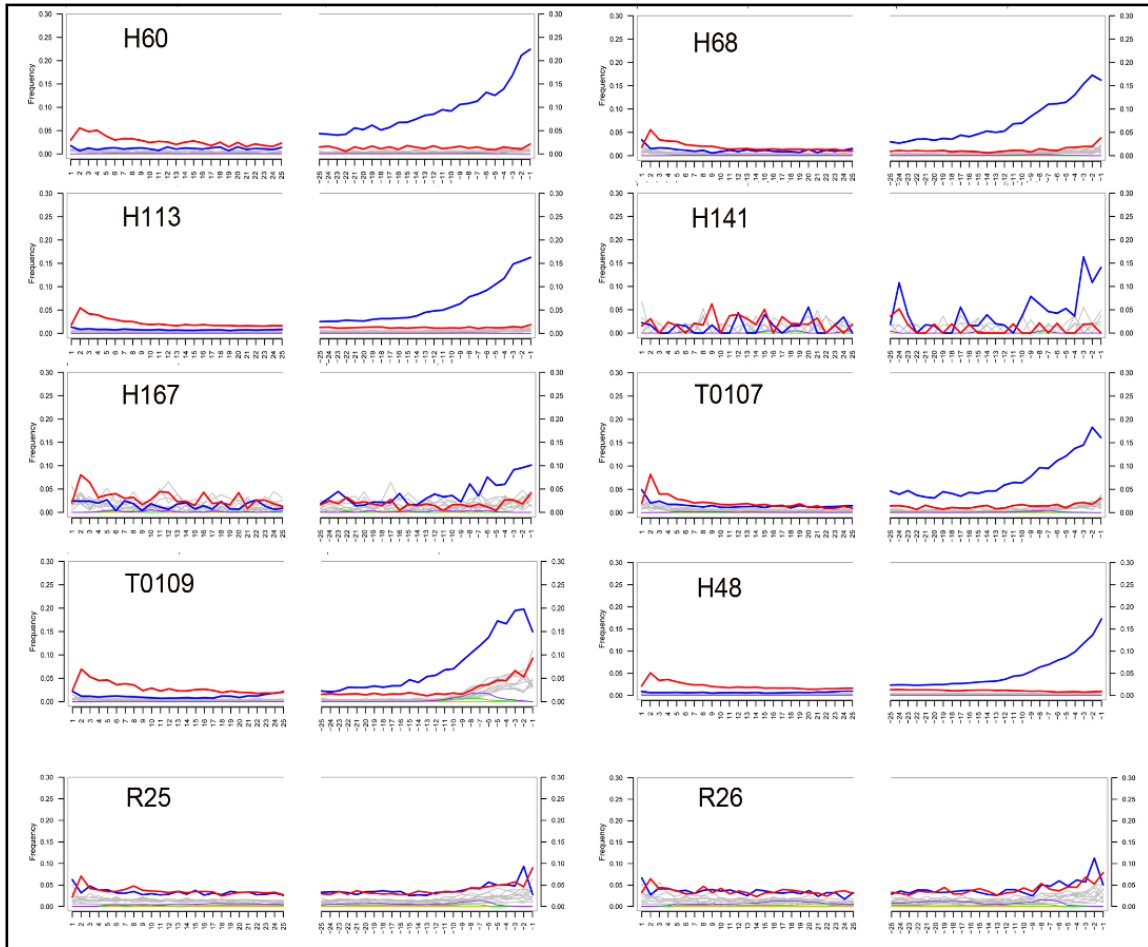


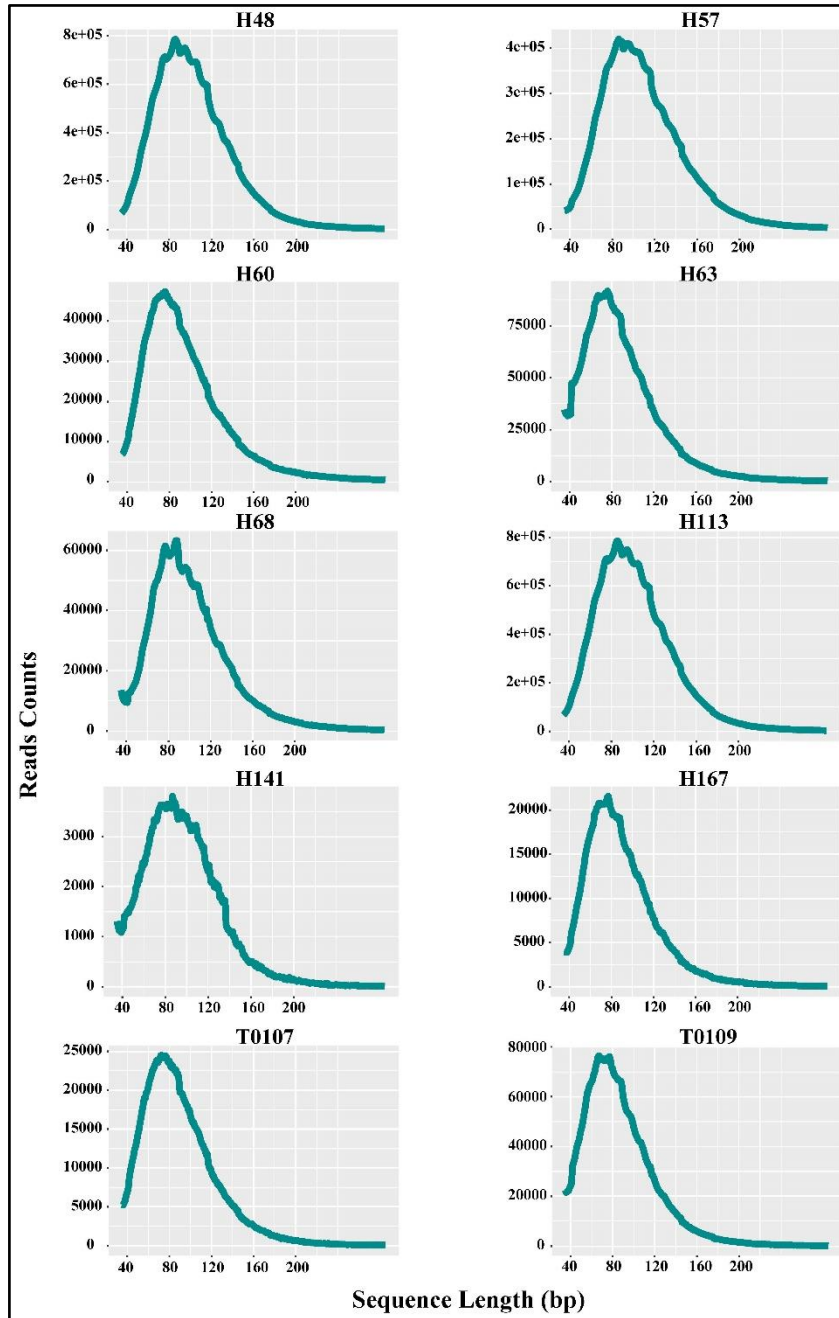
Fig. S1. Bovid and rhinoceros bone specimens from Shannashuzha site included in this study.



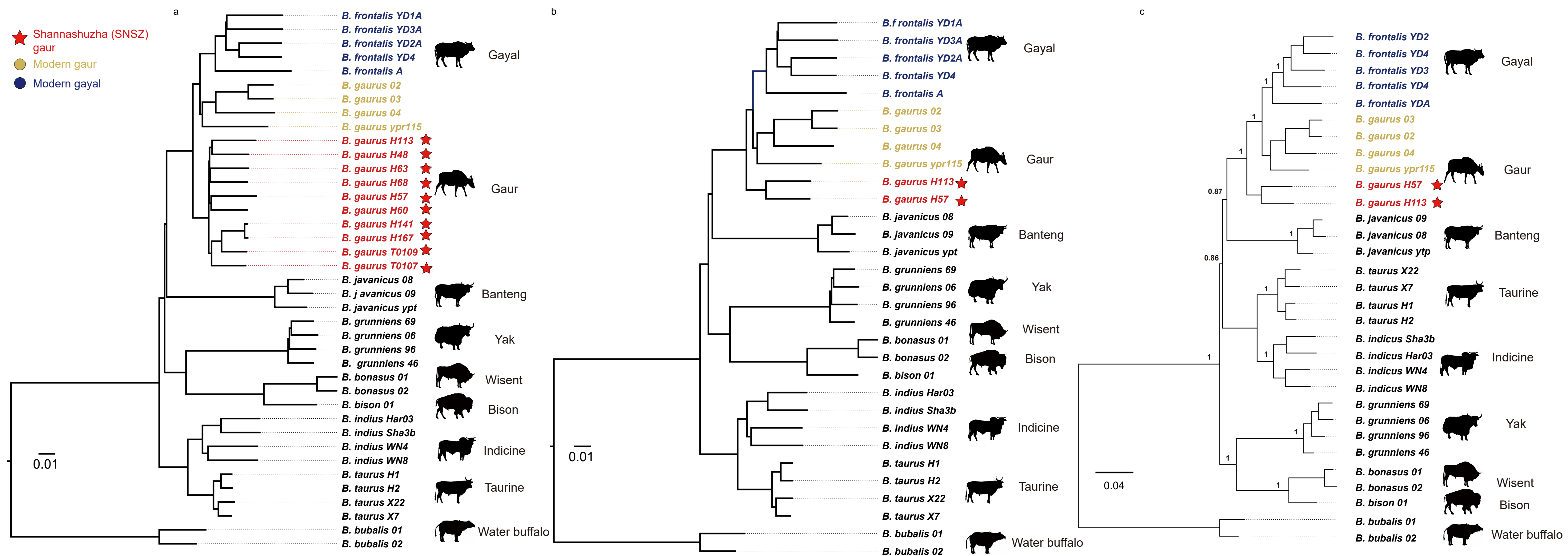
**Fig. S2.** The number of identified specimens (NISP) proportion of different animal species in the faunal assemblage of SNSZ site (the detail index could be seen in Table S1).



**Fig. S3.** The representative terminal damage rate (TDR) maps for shotgun sequences from eight bovid samples and two rhinoceros which calculated by MapDamage 2.07. Nucleotide mis-incorporation patterns along the first and last 25 read positions obtained for the 10 Shannashuzha samples before trimming and rescaling. Mis-incorporation frequencies are shown for the first and last 25 nucleotides of the reads aligned to the bovine reference nuclear genome ARS\_UCD1.2.



**Fig. S4.** Plot of the aDNA fragmental length distribution of the 10 bovid samples using their capture sequenced data in the alignment bam file. Y-axis accounting for the sequence reads numbers, while X-axis represent the aDNA fragmental length. Overall, the relative very short aDNA enrichment pattern indicating of typical aDNA characteristics, which originated from the endogenous material of the faunal bone remains, rather than from modern contaminations.



**Fig. S5. Phylogenetic analysis of species affiliation among Bos genus.**

(a) A neighbor-joining (NJ) phylogenetic tree of 10 SNSZ samples and other species from the Bos genus constructed using 990,246 sites.

(b) An exome-based maximum likelihood (ML) tree confirmed the phylogenetic affinities of present-day gaur and ancient Shannashuazha (SNSZ) gaur using 72,720 sites.

(c) An NJ phylogenetic tree of two high coverage SNSZ samples and other species from the Bos genus constructed using 8,961,232 sites

## Supplemental Tables

Table S1. Proportions of identified faunal remains from excavation of the SNSZ Site.

Species	NISP*	NISP%
<i>Sus scrofa domesticus</i>	1879	22.33%
<i>Canis familiaris</i>	121	1.44%
<i>Dicerorhinus</i>	38	0.45%
<i>Rhizomys</i>	371	4.41%
<i>Myospalax</i>	8	0.10%
<i>Hystrix</i>	1	0.01%
Rodentia	6	0.07%
<i>Lepus</i>	5	0.06%
<i>Cervus elaphus</i>	553	6.57%
<i>Cervus nippon</i>	2513	29.86%
<i>Capreolus capreolus</i>	913	10.85%
<i>Muntiacus</i>	98	1.16%
<i>Hydropotes</i>	11	0.13%
<i>Moschus</i>	5	0.06%
<i>Cervus</i>	360	4.28%
<i>Bos</i>	1123	13.34%
<i>Naemorhedus goral</i>	18	0.21%
<i>Pseudois nayaur</i>	3	0.04%
Caprinae	74	0.88%
<i>Gazella</i>	9	0.11%
<i>Sus scrofa</i>	5	0.06%
<i>Canis lupus</i>	1	0.01%
<i>Vulpus</i>	2	0.02%
<i>Nyctereutes procyonoides</i>	5	0.06%
Canidae	1	0.01%
<i>Ursus</i>	24	0.29%
<i>Arctonyx collaris</i>	1	0.01%
Felidae	11	0.13%
<i>Panthera tigris</i>	2	0.02%
Carnivora	1	0.01%
<i>Rhinopithecus</i>	254	3.02%
<b>Total</b>	<b>8416</b>	<b>100%</b>

\*NISP: the number of identified specimens.



**Table S2. Meta-data information for the samples from Shannashuzha site in this study**

NO.	Sample Name	Genetic Species Identification	ID	Skeletal Element	Sequencer	Library Type	Shotgun Raw Sequence Reads after PE Merged (length>=35bp)	Shotgun Sequences Mapped to Reference after Duplicate Removal (length>=35bp)	Mapping Rate (length>=35bp) (Endogenous DNA)	Terminal Damage Rate (TDR)	Average Fragmental Length (bp) (SGS)	Genetic Sex Assignment (using the capture sequenced data)	Genetic Relatedness (using the capture sequenced data)
1	2013MCSTO309H113①-B	<i>Bos gaurus</i>	B. gaurus H113	Metacarpus	Hiseq X-ten	Double Strand Library	7,729,659	93,637	1.21%	16.28%	80	XY	Fourth generation affinity both to H48 and H57 individuals, respectively
2	2013MCSTO209H141-B	<i>Bos gaurus</i>	B. gaurus H141	II toe			14,310,224	219	0.00%	14.06%	64	XX	NA
3	2013MCSTO208H167-B	<i>Bos gaurus</i>	B. gaurus H167	Radius			17,285,636	984	0.01%	10.13%	51	XY	NA
4	2013MCSTO107H48-B	<i>Bos gaurus</i>	B. gaurus H48	-			16,461,428	8,035	0.05%	22.41%	80	XX	Fourth and third generation affinity to H113 and H57 individuals, respectively
5	2013MCSTO107H57-B	<i>Bos gaurus</i>	B. gaurus H57	I toe			6,166,557	19,401	0.31%	17.27%	62	XY	Fourth and third generation affinity to H113 and H48 individuals, respectively
6	2013MCSTO310H60-B	<i>Bos gaurus</i>	B. gaurus H60	Ulna			13,724,094	8,844	0.06%	18.30%	70	XX	NA
7	2013MCSTO107H63②-B	<i>Bos gaurus</i>	B. gaurus H63	Radius			490,541	18,398	3.75%	14.97%	56	XX	NA
8	2013MCSTO210H68-B	<i>Bos gaurus</i>	B. gaurus H68	Humerus			6,226,222	132,713	2.13%	17.24%	76	XX	NA
9	2013MCSTO107⑤-B	<i>Bos gaurus</i>	B. gaurus T0107	Metatarsal			NA*	NA	NA	NA	NA	XY	NA
10	2013MCSTO109④-B	<i>Bos gaurus</i>	B. gaurus T0109	Femur			NA	NA	NA	NA	NA	XY	NA
11	T0110H44-1	<i>Dicerorhinus sumatrensis</i>	R25	Tibia			134,836,059	297 (mtDNA)	0.00%	10.34%	81 (mtDNA)	NA	NA
12	T0110H44-2	<i>Dicerorhinus sumatrensis</i>	R26	Tibia			85,073,083	141 (mtDNA)	0.00%	23.08%	83 (mtDNA)	NA	NA

\*NA: No available.

**Table S3. Mapping results after merging the shotgun and captured sequences data for the 10 ancient gaurs from Shannashuzha**

ID	Endogenous DNA (%)	PCR duplicates that were removed (%)	#MQ25 reads mapped		Coverage (X)		Coverage (1 X)	
			Nuclear genome	Mitochondrial genome	Nuclear Genome	Mitochondrial genome	Nuclear Genome	Mitochondrial genome
B. gaurus H113	6.98	48.03	85,766,842	253,233	3.638	1703.55	49.47%	100%
B. gaurus H57	7.35	63.18	64,683,454	20,799	2.736	157.87	42.72%	100%
B. gaurus H48	5.47	59.1	78,853,961	39,297	1.227	307.99	31.02%	100%
B. gaurus H60	1.01	69.23	6,039,411	57,759	0.172	452.12	7.99%	100%
B. gaurus H63	2.58	77.74	14,912,542	68,407	0.514	493.05	15.10%	100%
B. gaurus H68	1.74	75.32	10,571,066	4,536	0.312	35.77	11.22%	99.77%
B. gaurus H167	0.48	77.66	2,825,165	4,134	0.091	27.69	4.35%	98.91%
B. gaurus H141	0.18	68.25	1,170,486	931	0.039	5.81	2.66%	96.13%
B. gaurus T0107	0.48	76.37	3,566,425	1,424	0.073	9.05	4.43%	97.92%
B. gaurus T0109	2.24	68.62	10,865,531	13,183	0.189	83.67	9.27%	99.51%

#Summarizing the total trimmed reads, mapped reads, mapped after duplicate removal and filter < MQ25 to the *Bos taurus* genome reference (UCD\_ARS1.2), as well as percentage of endogenous DNA for each individual and genome coverage calculated using Qualimap after removal of duplicates and a filtering of minimum mapping quality of 25.

**Table S4. Information on the reference mitochondrial genomes.**

<b>Species</b>	<b>Sample ID</b>	<b>Accession</b>
<i>Bos javanicus</i>	Banteng	JN632605
<i>Bison bison</i>	Bison	NC_012346.1
<i>Bison bonasus</i>	Wisent	NC_014044
<i>Bos indicus</i>	Indicine	NC_005971
<i>Bos taurus</i>	Taurine	V00654
<i>Bubalus bubalis</i>	Water buffalo	NC020617
<i>Bos grunniens</i>	Yak	KU891851
<i>Bos gaurus</i>	<i>B. gaurus</i> ref	NC_024818.1
<i>Bos gaurus</i>	<i>B. gaurus</i> 02	This study
<i>Bos gaurus</i>	<i>B. gaurus</i> 03	This study
<i>Bos gaurus</i>	<i>B. gaurus</i> 04	This study
<i>Bos gaurus</i>	<i>B. gaurus</i> ypr115	This study
<i>Bos frontalis</i>	<i>B. frontalis</i> A	NC_036020
<i>Bos frontalis</i>	<i>B. frontalis</i> YD1	This study
<i>Bos frontalis</i>	<i>B. frontalis</i> YD2	This study
<i>Bos frontalis</i>	<i>B. frontalis</i> YD3	This study
<i>Bos frontalis</i>	<i>B. frontalis</i> YD4	This study
<i>Rhinoceros unicornis</i>	Indian	NC_001779.1
<i>Rhinoceros sondaicus</i>	Javan	FJ905815.1
<i>Dicerorhinus sumatrensis</i>	Sumatran	MF066643.1
<i>Coelodonta antiquitatis</i>	Woolly	FJ905813.1
<i>Ceratotherium simum</i>	White	NC_001808.1
<i>Diceros bicornis</i>	Black	FJ905814.1
<i>Tapirus terrestris</i>	Tapir	KJ417810.1

Table S5. Summary information of 60 individuals of the tribe *Bovini*

No.	Species	Breeds	Sample ID	Accession	Source	Region	Mapping rate	Duplication	Depth	Used for data set
1	<i>Bos taurus</i>	Hereford	<i>B. taurus</i> H1	SRR1365128	PRJNA176557	Europe	99.30%	8.67%	15.2	High confidence dataset used for phylogenetic analysis and specie identification.
2	<i>Bos taurus</i>	Hereford	<i>B. taurus</i> H2	SRR1365131	PRJNA176557	Europe	99.20%	8.93%	15.32	
3	<i>Bos taurus</i>	Tibetan	<i>B. taurus</i> X22	SRR6024571, SRR5507249	PRJNA379859	Tibet	98.38%	10.96%	26.28	
4	<i>Bos taurus</i>	Tibetan	<i>B. taurus</i> X7	SRR6024572, SRR5507248	PRJNA379859	Tibet	98.93%	10.20%	24.56	
5	<i>Bos indicus</i>	Wannan	<i>B. indicus</i> WN4	SRR6024573	PRJNA379859	South China	97.88%	10.12%	22.96	
6	<i>Bos indicus</i>	Wannan	<i>B. indicus</i> WN8	SRR6024574	PRJNA379859	South China	98.90%	9.91%	23.16	
7	<i>Bos indicus</i>	Sahiwal	<i>B. indicus</i> Sha3b	SRR6936540	PRJNA379859	India	99.55%	8.88%	20.96	
8	<i>Bos indicus</i>	Haryana	<i>B. indicus</i> Har03	SRR6936539	PRJNA379859	India	99.48%	13.64%	34.73	
9	<i>Bos javanicus</i>	American zoo banteng	<i>B. javanicus</i> 08	SRR4035276-79	PRJNA325061	America	97.87%	7.76%	8.99	
10	<i>Bos javanicus</i>	American zoo banteng	<i>B. javanicus</i> 09	SRR4035280-83	PRJNA325061	America	98.77%	11.81%	12.6	
11	<i>Bos javanicus</i>	South Asian wild banteng	<i>B. javanicus</i> ypt	SRR6448720-22	PRJNA427536	South Asia	99.75%	14.66%	22.84	
12	<i>Bison bison</i>	American bison	<i>B. bison</i> 01	SRP075182	PRJNA321590	America	99.75%	21.31%	30.23	
13	<i>Bubalus bubalis</i>	Xiajiang Swamp buffalo	<i>B. bubalis</i> 01	SRR9208767	PRJNA547460	South China	98.49%	11.43%	19.86	
14	<i>Bubalus bubalis</i>	Xiajiang Swamp buffalo	<i>B. bubalis</i> 02	SRR9208768	PRJNA547460	South China	98.29%	10.91%	18.62	
15	<i>Bos gaurus</i>	American zoo gaur	<i>B. gaurus</i> 02	SRS1620839	PRJNA325061	America	99.15%	4.33%	6.57	
16	<i>Bos gaurus</i>	American zoo gaur	<i>B. gaurus</i> 03	SRS1620840	PRJNA325061	America	98.90%	4.36%	6.57	
17	<i>Bos gaurus</i>	European zoo gaur	<i>B. gaurus</i> 04	ERS3381389	PRJEB31621	Europe	99.20%	18.86%	37.01	
18	<i>Bos gaurus</i>	Chinese wild gaur	<i>B. gaurus</i> ypr115	SRS2814552	PRJNA427536	South Asia	99.34%	9.67%	19.3	
19	<i>Bos frontalis</i>	Chinese gayal	<i>B. frontalis</i> A	<i>B. frontalis</i> A	PRJNA387130	China	99.02%	29.93%	47.04	
20	<i>Bos frontalis</i>	South Asian wild gayal	<i>B. frontalis</i> YD1	This study		Burma	99.79%	10.72%	19.38	
21	<i>Bos frontalis</i>	South Asian wild gayal	<i>B. frontalis</i> YD2	This study		Burma	99.81%	10.90%	19.83	
22	<i>Bos frontalis</i>	South Asian wild gayal	<i>B. frontalis</i> YD3	This study		Burma	99.84%	12.15%	20.96	
23	<i>Bos frontalis</i>	South Asian wild gayal	<i>B. frontalis</i> YD4	This study		Burma	99.50%	8.37%	17.32	
24	<i>Bison bonasus</i>	European wisent	<i>B. bonasus</i> 01	SRS1439150	PRJNA321590	Europe	99.35%	40.19%	45	
25	<i>Bison bonasus</i>	European wisent	<i>B. bonasus</i> 02	SRR3531976	PRJNA321599	Europe	98.63%	33.17%	12.25	
26	<i>Bos grunniens</i>	Wild yak	<i>B. grunniens</i> 46	SRR2058046	PRJNA285834	Tibet	99.81%	14.93%	18.2	
27	<i>Bos grunniens</i>	Wild yak	<i>B. grunniens</i> 96	SRR2059896	PRJNA285834	Tibet	98.31%	12.33%	20.93	
28	<i>Bos grunniens</i>	Wild yak	<i>B. grunniens</i> 69	SRR2059969	PRJNA285834	Tibet	81.68%	15.48%	18.12	
29	<i>Bos grunniens</i>	Wild yak	<i>B. grunniens</i> 06	SRR2062306	PRJNA285834	Tibet	99.52%	12.94%	20.16	
30	<i>Bos indicus</i>	Leiqiong	HN5M	SRR5507190	PRJNA379859	South China	99.15%	6.33%	11.50	Used for investigate the gene flow between ancient SNSZ and modern indicine populations.
31	<i>Bos indicus</i>	Leiqiong	HN12M	SRR5507189	PRJNA379859	South China	99.15%	6.14%	11.20	
32	<i>Bos indicus</i>	Leiqiong	LZ15	SRR5507188	PRJNA379859	South China	99.35%	5.91%	10.64	
33	<i>Bos indicus</i>	Wannan	WN9M	SRR5507197	PRJNA379859	South China	98.99%	5.63%	9.65	
34	<i>Bos indicus</i>	Wannan	WN10M	SRR5507196	PRJNA379859	South China	99.10%	6%	10.16	
35	<i>Bos indicus</i>	Wannan	WN11M	SRR5507195	PRJNA379859	South China	99.34%	6.33%	11.78	
36	<i>Bos indicus</i>	Guangfeng	JXGF1	SRR5507286	PRJNA379859	South China	99.75%	5.86%	9.46	
37	<i>Bos indicus</i>	Guangfeng	JXGF2	SRR5507285	PRJNA379859	South China	99.78%	6.13%	10.14	
38	<i>Bos indicus</i>	Guangfeng	JXGF3	SRR5507284	PRJNA379859	South China	99.71%	5.79%	9.31	
39	<i>Bos indicus</i>	Guangfeng	JXGF4	SRR5507283	PRJNA379859	South China	99.76%	6.46%	11.45	
40	<i>Bos indicus</i>	Jian	JXJA1	SRR5507282	PRJNA379859	South China	99.76%	6.35%	10.94	
41	<i>Bos indicus</i>	Jian	JXJA2	SRR5507281	PRJNA379859	South China	99.66%	5.71%	9.71	
42	<i>Bos indicus</i>	Jian	JXJA3	SRR5507280	PRJNA379859	South China	99.75%	5.84%	10.51	
43	<i>Bos indicus</i>	Jian	JXJA4	SRR5507279	PRJNA379859	South China	99.76%	6.19%	11.38	
44	<i>Bos indicus</i>	Jingjiang	JXJJ1	SRR5507278	PRJNA379859	South China	99.75%	6.12%	10.59	
45	<i>Bos indicus</i>	Jingjiang	JXJJ3	SRR5507275	PRJNA379859	South China	99.71%	5.87%	9.70	
46	<i>Bos indicus</i>	Jingjiang	JXJJ4	SRR5507274	PRJNA379859	South China	99.75%	6.31%	11.33	
47	<i>Bos indicus</i>	Dianzhong	DZ9	SRR6024563	PRJNA379859	Southwest China	99.61%	5.90%	9.59	
48	<i>Bos indicus</i>	Dianzhong	DZ12	SRR6024564	PRJNA379859	Southwest China	99.57%	5.81%	8.86	
49	<i>Bos indicus</i>	Dianzhong	DZ4	SRR6024565	PRJNA379859	Southwest China	99.22%	5.63%	8.23	
50	<i>Bos indicus</i>	Dianzhong	DZ7	SRR6024566	PRJNA379859	Southwest China	99.23%	5.85%	8.61	
51	<i>Bos indicus</i>	Dianzhong	DZ2	SRR6024567	PRJNA379859	Southwest China	99.27%	5.79%	8.92	
52	<i>Bos indicus</i>	Dianzhong	DZ3	SRR6024568	PRJNA379859	Southwest China	99.42%	5.99%	9.01	
53	<i>Bos indicus</i>	Wenshan	WS3	SRR6024562	PRJNA379859	Southwest China	99.32%	7.57%	11.00	
54	<i>Bos indicus</i>	Wenshan	WS4	SRR6024569	PRJNA379859	Southwest China	98.51%	7.56%	11.06	
55	<i>Bos indicus</i>	Wenshan	WS7	SRR6024570	PRJNA379859	Southwest China	99.55%	7.13%	11.61	
56	<i>Bos indicus</i>	Wenshan	WS8	SRR6024577	PRJNA379859	Southwest China	99.51%	7.58%	10.65	
57	<i>Bos indicus</i>	Wenshan	WS12	SRR6024575	PRJNA379859	Southwest China	99.55%	6.60%	9.40	
58	<i>Bos indicus</i>	Wenshan	WS17	SRR6024576	PRJNA379859	Southwest China	99.56%	7.17%	11.60	
59	<i>Bos indicus</i>	SriLanka	CA279	This study		South Asia	97.91%	7.21%	11.25	
60	<i>Bos indicus</i>	SriLanka	CA288	This study		South Asia	96.41%	7.55%	11.11	

**Table S6. Outgroup  $f_3$  analysis using the whole genome SNP dataset test using ADMIXTOOLS**

Source 1	Source 2	Target	$f_3$ -statistic	Standard error	Z score
SNSZ gaur	Asian wild gaur	Buffalo	0.245961	0.005869	212.22
SNSZ gaur	Chinese gayal	Buffalo	0.233736	0.005854	212.661
SNSZ gaur	European zoo gaur	Buffalo	0.226822	0.005857	212.186
SNSZ gaur	Southeast Asia wild gayal	Buffalo	0.211403	0.005811	213.124
SNSZ gaur	American zoo banteng	Buffalo	0.194375	0.005783	214.12
SNSZ gaur	American zoo gaur	Buffalo	0.169263	0.005594	211.713
SNSZ gaur	Asian banteng	Buffalo	0.143924	0.00558	212.098

**Table S7. Results of the D statistics tests performed to detect admixtures from Y to either W or X. Negative D statistics indicate that gene flow has occurred from Y to X, and positive D statistics indicate that gene flow has occurred from Y to W.**

<b>W</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>D</b>	<b>Z-value</b>	<b>Note</b>
Gayal	Gaur	SNSZ gaur	Buffalo	-0.0399	-6.749	Exist gene flow from SNSZ gaur to modern gaur
Yak	Bison	SNSZ gaur	Buffalo	-0.0097	-2.31	No gene flow from SNSZ gaur into
Yak	Bison	Gayal	Buffalo	-0.0113	-2.9	Tibetan yak
Yak	Bison	Gaur	Buffalo	-0.0075	-1.883	
Yak	Bison	Banteng	Buffalo	0.0131	3.07	
Yak	Bison	South Asian indicine	Buffalo	0.0157	3.266	
Yak	Bison	Tibetan	Buffalo	0.1168	6.506	
South Asian indicine	Wannan	Banteng	Buffalo	-0.4362	-51.417	Exist gene flow from Banteng, Gaur,
South Asian indicine	Wannan	Gaur	Buffalo	-0.3128	-45.695	Gayal, SNSZ gaur into Chinese
South Asian indicine	Wannan	SNSZ gaur	Buffalo	-0.2959	-44.132	indicine cattle
South Asian indicine	Wannan	Gayal	Buffalo	-0.2466	-35.309	
South Asian indicine	Wannan	Wisent	Buffalo	-0.1642	-30.315	
South Asian indicine	Wannan	Yak	Buffalo	-0.1622	-30.322	
South Asian indicine	Wannan	Bison	Buffalo	-0.1604	-29.936	



**Table S9. The number of identified specimens of wild mammals and radiocarbon dates along the Yellow River basin during 8,000-3,000 yr B.P.**

Site	Chinese name	Major Period (BP)	Location	References
Dadiwan	大地湾	7800-7300	Gansu, Tianshui	The Gansu Provincial Institute of Cultural Relics and Archaeology <i>Dadiwan In Qin'an: Report on Excavations at a Neolithic Site</i> (in Chinese) (Cultural Relics Press, 2006).
Yuezhuang	月庄	7800-7000	Shandong, Jinan	Song, Y. <i>Zooarchaeology research of Neolithic period, Haidai region</i> (in Chinese) Ph.D. thesis, Shandong University, (2012).
Baijiacun	白家村	7330-7000	Shaanxi, Lintong	The Institute of Archaeology, CASS. <i>Baiji Site at Lintong</i> (in Chinese) (Ba-Shu Publishing House, 1994).
Lingkoucun	零口村	7300-6500	Shaanxi, Lintong	Zhao, C. <i>A study on the faunal remains of prehistoric period in Guanzhong Region</i> (in Chinese) Master thesis, Jinlin University, (2009).
Dadiwan	大地湾	6500-5900	Gansu, Tianshui	The Gansu Provincial Institute of Cultural Relics and Archaeology <i>Dadiwan In Qin'an: Report on Excavations at a Neolithic Site</i> (in Chinese) (Cultural Relics Press, 2006).
Jiangzhai	姜寨	6800-6350	Shaanxi, Lintong	Banpo Museum. <i>Jiangzhai: The excavation report of a Neolithic site</i> (in Chinese) (Cultural Relics Press, 1988).
Lingkoucun	零口村	6500-6200	Shaanxi, Lintong	Zhao, C. <i>A study on the faunal remains of prehistoric period in Guanzhong Region</i> (in Chinese) Master thesis, Jinlin University, (2009).
Wayaogou	瓦窑沟	6500-6000	Shaanxi, Tongchuan	Wang, H. <i>Animal subsistence of the Yangshao period in the Wei river valley: a case-study from the site of Wayaogou in Shaanxi Province, China</i> . Ph.D. thesis, University College London, (2011).
Jiangzhai	姜寨	6500-5900	Shaanxi, Lintong	Banpo Museum. <i>Jiangzhai: The excavation report of a Neolithic site</i> (in Chinese) (Cultural Relics Press, 1988).
Dadiwan	大地湾	5900-5500	Gansu, Tianshui	The Gansu Provincial Institute of Cultural Relics and Archaeology <i>Dadiwan In Qin'an: Report on Excavations at a Neolithic Site</i> (in Chinese) (Cultural Relics Press, 2006).
Beiqian	北阡	6100-5500	Shandong, Jimo	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology (X)</i> (in Chinese) (Science Press, 2014).
Xipo	西坡	5950-5450	Henan, Lingbao	Ma, X. The faunal remains in Xipo Site, Lingbao, Henan Province (in Chinese) <i>Cultural Relics of Central China</i> 4, 48-61 (2007).
Dazhongjia	大仲家	6100-5500	Shandong, Yantai	Song, Y. <i>Zooarchaeology research of Neolithic period, Haidai region</i> (in Chinese) Ph.D. thesis, Shandong University, (2012).
Wengjiabu	翁家埠	6100-5500	Shandong, Rushan	Song, Y. <i>Zooarchaeology research of Neolithic period, Haidai region</i> (in Chinese) Ph.D. thesis, Shandong University, (2012).
Xishan	西山	5500-5000	Gansu, Li County	Yu, C. The identification and research of animal remains of Xishan site in Li County, Gansu Province (in Chinese) <i>Cultural Relics in Southern China</i> 3, 73-79 (2011).
Dadiwan	大地湾	5500-4900	Gansu, Tianshui	The Gansu Provincial Institute of Cultural Relics and Archaeology <i>Dadiwan In Qin'an: Report on Excavations at a Neolithic Site</i> (in Chinese) (Cultural Relics Press, 2006).
Andaqiha	安达其哈	5400-4900	Qinghai, Hualong	Ren, L. <i>A study on animal exploitation strategies from the late Neolithic to Bronze Age in northeastern Tibetan Plateau and its surrounding areas, China</i> (in Chinese) Ph.D. thesis, Lanzhou University, (2017).
Shannashuzha	山那舒扎	5050-5280	Gansu, Min County	Ren, L. <i>A study on animal exploitation strategies from the late Neolithic to Bronze Age in northeastern Tibetan Plateau and its surrounding areas, China</i> (in Chinese) Ph.D. thesis, Lanzhou University, (2017).
Longshangang	龙山岗	6000-5000	Henan, Nanyang	Lin, M. <i>Analyses on faunal remains from Longshangang site, in Xichuan County, Henan Province</i> (in Chinese) Master thesis, Shandong University, (2011).
Quanhucun	泉护村	5640-5100	Shaanxi, Hua County	Shaanxi Provincial Institute of Archaeology, Antiquities and Tourism Bureau in Weinan, & Antiquities and Tourism Bureau in Hua county <i>the Quanhucun site in Huaxian County: A report of the 1997-year excavation</i> (in Chinese) (Cultural Relics Press, 2014).
Jiangzhai	姜寨	5600-4900	Shaanxi, Lintong	Banpo Museum. <i>Jiangzhai: The excavation report of a Neolithic site</i> (in Chinese) (Cultural Relics Press, 1988).
Xinglefang	兴乐坊	5500	Shaanxi, Huayin	Hu, S., Yang, Q. & Yang, M. Analysis on the Faunal Remains from the Xinlefang Site, Huayin, Shaanxi Province (in Chinese) <i>Archaeology and Cultural Relics</i> 6, 117-125 (2011).
Xishan	西山	5300-4800	Henan, Zhengzhou	Chen, Q. A study of the faunal remains from the Xishan site in Zhengzhou (in Chinese). <i>Acta Archaeologica Sinica</i> 385-418 (2006).
Longshangang	龙山岗	5250-4450	Henan, Nanyang	Lin, M. <i>Analyses on faunal remains from Longshangang site, in Xichuan County, Henan Province</i> (in Chinese) Master thesis, Shandong University, (2011).
Yangjiasha	杨界沙	5000-4900	Shaanxi, Yulin	Hu, S. <i>et al.</i> Research on faunal remains from the Yangjiasha Site in Hengshan County, Shaanxi Province (in Chinese) <i>Acta Anthropologica Sinica</i> 32(1), 77-92 (2013).
Duzhong	笃忠	5000	Henan, Mianchi	Wang, M., Wu, Z. & Hou, Y. Analysis on Animal Remains at Duzhong site in Mianchi County, Henan (in Chinese) <i>Cultural Relics of Central China</i> 2, 29-36 (2009).
Jiaojia	焦家	5000-4500	Shandong, Jinan	Wang, J. <i>Research on the faunal remains of middle-late Dawenkou culture unearthed during 2017 excavation at Jiaojia site, Zhangqiu</i> (in Chinese) Master thesis, Shandong University, (2019).
Dagujie	大古界	4900-4400	Shaanxi, Yulin	Hu, S., Yang, L., Kang, N., Yang, M. & Li, X. An analysis of faunal remains from the Dagujie site in Hengshan, Shaanxi (in Chinese) <i>Archaeology and Cultural Relics</i> 4, 106-112 (2012).
Zongri	宗日	4600-4000	Qinghai, Tongde	Ren, L. <i>A study on animal exploitation strategies from the late Neolithic to Bronze Age in northeastern Tibetan Plateau and its surrounding areas, China</i> (in Chinese) Ph.D. thesis, Lanzhou University, (2017).
Yangguanzhai	杨官寨	5400-4000	Shaanxi, Gaoling	Hu, S., Wang, W., Guo, X., Zhang, W. & Yang, M. Faunal analysis of the animal remains found near the west gate of the settlement moat at Yangguanzhai Site, Gaoling County, Shaanxi Province (in Chinese) <i>Archaeology and Cultural Relics</i> 6, 97-107 (2011).
Zhuanglixi	庄光里西	4600-4000	Shandong, Zaozhuang	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology (IX)</i> (in Chinese) (Science Press, 2012).
Yinjiacheng	尹家城	4600-4000	Shandong, Jinling	Department of History, Shandong University <i>Sishui Yinjiacheng</i> (in Chinese) (Cultural Relics Press, 1990).
Dingong	丁公	4600-4000	Shandong, Binzhou	Rao, X. <i>Research on the faunal remains of Longshan culture in Dingong site, Zouping</i> (in Chinese) Master thesis, Shandong University, (2014).
Longshangang	龙山岗	4450-4100	Henan, Nanyang	Lin, M. <i>Analyses on faunal remains from Longshangang site, in Xichuan County, Henan Province</i> (in Chinese) Master thesis, Shandong University, (2011).
Houyangguanzhuang	后杨官庄	4400-4200	Shandong, Linyi	Shandong Provincial Institute of Cultural Relics and Archaeology <i>Haidai Archaeology (VI)</i> (in Chinese) (Science Press, 2013).
Jiangzhai	姜寨	4350-3950	Shaanxi, Lintong	Banpo Museum. <i>Jiangzhai: The excavation report of a Neolithic site</i> (in Chinese) (Cultural Relics Press, 1988).
Zhoujiazhuang	周家庄	4300-3900	Shanxi, Yuncheng	Brunson, K., He, N. & Dai, X. Sheep, cattle, and specialization: New zooarchaeological perspective on the Taosi Longshan <i>International Journal of Osteoarchaeology</i> 26, 460-475 (2016).
Taosi	陶寺	4300-3900	Shanxi, Linfen	Brunson, K., He, N. & Dai, X. Sheep, cattle, and specialization: New zooarchaeological perspective on the Taosi Longshan <i>International Journal of Osteoarchaeology</i> 26, 460-475 (2016).
Kangjia	康家	4200-4100	Shaanxi, Lintong	Liu, L., Yan, Y. & Qin, X. The faunal remains unearthed at 1990 from Kangjia site in Lintong, Shaanxi (in Chinese) <i>Huaxia Archaeology</i> 1, 3-24 (2001).
Xichengyi	西城驿	3700-3600	Gansu, Zhangye	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology 13</i> (in Chinese) (Science Press, 2016).
Jinchankou	金蝉口	4000-3800	Qinghai, Huzhu	Ren, L. <i>A study on animal exploitation strategies from the late Neolithic to Bronze Age in northeastern Tibetan Plateau and its surrounding areas, China</i> (in Chinese) Ph.D. thesis, Lanzhou University, (2017).
Dahezhuang	大河庄	4000-3600	Gansu, Linxia	Gansu Archaeological Team, Institute of Archaeology, Chinese Academy of Sciences. Excavation report of Dahezhuang site in Yongjing, Gansu (in Chinese) <i>Acta Archaeologica Sinica</i> 2, 56 (1974).
Shimao	石峁	4300-3800	Shaanxi, Shenmu	Hu, S., Yang, M., Sun, Z. & Shao, J. Research on Faunal Remains from the 2012~ 2013 Season Excavation at the Shimao Site in Shenmu, Shaanxi (in Chinese) <i>Archaeology and Cultural Relics</i> 4, 109-121 (2016).
Huoshiliang	火石梁	4150-3900	Shaanxi, Yulin	Hu, S., Zhang, P. & Yuan, M. A study on the faunal remains from the Huoshiliang site in Yulin, Shaanxi (in Chinese) <i>Acta Anthropologica Sinica</i> 27(3), 232-248 (2008).
Xinzhai	新砦	4050-3900	Henan, Xinmi	Aurora Center for the Study of Ancient Civilizations, Peking University & Zhengzhou Institute of Cultural Relics and Archaeology <i>Xinzhai site in Xinmi: Report on archaeological excavations in 1999 and 2000</i> (in Chinese) Cultural Relics Press, Beijing (2008).
Meishan	煤山	3900-3600	Henan, Linru	You, Y., Yuan, G., Zhao, Y. & Jing, S. Research of faunal remains from Meishan site in Linru County, Henan Province (in Chinese) <i>Cultural Relics in Southern China</i> 3, 165-176 (2017).
Huadizui	花地嘴	3850-3750	Henan, Gongyi	Liu, Y. <i>Research of faunal remains from Huadizui site in Gongyi, Henan</i> (in Chinese) Master thesis, Graduate School of Chinese Academy of Social Sciences, (2014).
Xinzhai	新砦	3850-3750	Henan, Xinmi	Aurora Center for the Study of Ancient Civilizations, Peking University & Zhengzhou Institute of Cultural Relics and Archaeology <i>Xinzhai site in Xinmi: Report on archaeological excavations in 1999 and 2000</i> (in Chinese) Cultural Relics Press, Beijing (2008).
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Yinjiacheng	尹家城	3800-3450	Shandong, Jinling	Department of History, Shandong University <i>Sishui Yinjiacheng</i> (in Chinese) (Cultural Relics Press, 1990).
Xinzhai	新砦	3750	Henan, Xinmi	Aurora Center for the Study of Ancient Civilizations, Peking University & Zhengzhou Institute of Cultural Relics and Archaeology <i>Xinzhai site in Xinmi: Report on archaeological excavations in 1999 and 2000</i> (in Chinese) Cultural Relics Press, Beijing (2008).
Erlitou	二里头	3705-3635	Henan, Yanshi	Yang, J. <i>The zooarchaeological research of Erlitou site in Yanshi, Henan</i> (in Chinese) Master thesis, Graduate School of Chinese Academy of Social Sciences, (2006).
Erlitou	二里头	3635-3565	Henan, Yanshi	Yang, J. <i>The zooarchaeological research of Erlitou site in Yanshi, Henan</i> (in Chinese) Master thesis, Graduate School of Chinese Academy of Social Sciences, (2006).
Erlitou	二里头	3565-3530	Henan, Yanshi	Yang, J. <i>The zooarchaeological research of Erlitou site in Yanshi, Henan</i> (in Chinese) Master thesis, Graduate School of Chinese Academy of Social Sciences, (2006).
Xujianian	徐家碾墓地	3150-3050	Gansu, Zhuanglang	Institute of Archaeology, Chinese Academy of Social Sciences <i>The Siwa Culture Cemetery at Xujianian: Excavation Report on Xujianian in Zhuanglang County</i> (in Chinese) (Science Press, 2006).
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Daxinzhuang	大辛庄	3600-3000	Shandong, Jinan	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology (V)</i> (in Chinese) (Science Press, 2010).
Tangshan	唐山	3600-3000	Shandong, Huantai	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology (V)</i> (in Chinese) (Science Press, 2010).
Qianbu	前埠	3600-3000	Shandong, Huantai	Institute of Cultural Heritage of Shandong University <i>East Asia Archaeology (V)</i> (in Chinese) (Science Press, 2010).
Zaolinhetan	枣林河滩	3600-3000	Shaanxi, Xunyi	Li, Y., Chen, T., Liu, H. & Dou, H. A study of the pre-Zhou subsistence economy in the ancient bin area using faunal remains from the site of Zaolinhetan in Xunyi, Shaanxi Province (in Chinese) <i>Archaeological History of China</i> 38(4), 33-42 (2019).
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Yinxu Xiaomintun	殷墟小屯	3300-3000	Henan, Anyang	Li, Z. <i>The Study on faunal remains from Anyang, the capital site of late Shang</i> (in Chinese) Ph.D. thesis, Graduate School of Chinese Academy of Social Sciences, (2009).
Yinxu Baijiafen	殷墟白家坟	3300-3000	Henan, Anyang	Li, Z. <i>The Study on faunal remains from Anyang, the capital site of late Shang</i> (in Chinese) Ph.D. thesis, Graduate School of Chinese Academy of Social Sciences, (2009).
Yinxu Dasikong	殷墟大司空	3300-3000	Henan, Anyang	Wang, H. <i>The study on faunal remains from Dasikong site, Anyang, in 2016</i> (in Chinese) Master thesis, Shandong University, (2019)