

Sus arvernensis (Suidae, Mammalia) from the
early Villafranchian of Villafranca d'Asti (northern Italy):
a revision of the largest sample of a key suid species

Alessio IANNUCCI

A. Iannucci, Department of Geosciences, Section of Terrestrial Palaeoclimatology, Eberhard-Karls-University Tübingen, Sigwartstrasse 10, D-72076 Tübingen, Germany; Dipartimento di Scienze della Terra (PaleoFactory lab.), Sapienza Università di Roma, Piazzale Aldo Moro 5, I-00185 Roma, Italy; alessio.iannucci@mnf.uni-tuebingen.de

Supplementary Online Material
BSPI 63 (-) - 2024

Specimen ID	Anatomical element	Preserved portion	Side	Year	Illustration
NMB V.J. 1.	Maxillary	Fragment with P3-M3	Right	1953	Pl. 3, fig. 2
NMB V.J. 2.	Maxillary	Fragment with P4-M3	Left	1953	Pl. 3, fig. 5
NMB V.J. 3.	Maxillary	Fragment with P4-M2	Right	1953	Pl. 3, fig. 4
NMB V.J. 4.	M3	Fragment	Left	1953	Pl. 7, fig. 4
NMB V.J. 5.	M3	Crown fragment	Left	1953	Pl. 7, fig. 6
NMB V.J. 6.	M1	Complete	Right	1953	Pl. 7, fig. 2
NMB V.J. 7.	M1	Complete	Left	1953	No
NMB V.J. 8.	dP4	Complete crown	Right	1953	Pl. 7, fig. 1
NMB V.J. 9.	P4	Complete crown	Right	1953	Pl. 6, fig. 12
NMB V.J. 10.	P3	Fragment	Right	1953	No
NMB V.J. 11.	I2	Complete	Right	1953	Pl. 5, fig. 4
NMB V.J. 12.	CM	Fragment	Left	1953	Pl. 5, fig. 9
NMB V.J. 13.	CM	Fragment	Right	1953	No
NMB V.J. 14.	CM	Fragment	Left	1953	Pl. 5, fig. 5
NMB V.J. 15.	CM	Fragment	–	1953	No
NMB V.J. 16.	CM	Fragment	–	1953	Pl. 5, fig. 8
NMB V.J. 17.	Mandible	Fragment with p3-p4 and fragmented m1-m3	Left	1953	Pl. 4, fig. 1
NMB V.J. 18.	P2	Complete crown	Right	1953	Pl. 6, fig. 4
NMB V.J. 19.	P3	Complete crown	Right	1953	Pl. 6, fig. 7
NMB V.J. 20.	P2	Complete crown	Left	1953	No
NMB V.J. 21.	P1	Complete crown	Right	1953	Pl. 6, fig. 1
NMB V.J. 22.	P1	Almost complete	Right	1953	Pl. 6, fig. 2
NMB V.J. 23.	Radius	Diaphysis and proximal epiphysis	Right	1953	No
NMB V.J. 144.	Cranium and mandible	Palatal portion and almost complete mandible	–	1954	Pl. 1, figs. 1-3
NMB V.J. 145.	Mandible	Almost complete	–	1954	Pl. 4, fig. 3
NMB V.J. 146.	Maxillary	Fragment with P1-M3	Left	1954	Pl. 2, figs. 1-5
NMB V.J. 147.	Maxillary	Several fragments, with CM and P1	Left	1954	Pl. 3, fig. 1; Pl. 5, fig. 8
NMB V.J. 148.	CM	Almost complete	Right	1954	Pl. 5, fig. 6
NMB V.J. 149.	M3	Complete, in mandible fragment	Right	1954	Pl. 7, fig. 5
NMB V.J. 150.	M3	Complete crown	Right	1954	Pl. 7, fig. 7
NMB V.J. 151.	Maxillary	Fragment with M2-M3	Right	1954	Pl. 3, fig. 3
NMB V.J. 152.-154., 156.	M1 and M2	Complete crowns, isolated but associated	–	1954	Pl. 3, fig. 6
NMB V.J. 155.	M1	Complete crown	Right	1954	Pl. 7, fig. 3
NMB V.J. 157.	P4	Fragment	Right	1954	No
NMB V.J. 158.	P3	Almost complete	Left	1954	Pl. 6, fig. 8
NMB V.J. 159.	P4	Complete crown	Right	1954	Pl. 6, fig. 11
NMB V.J. 160.	P4	Complete crown	Left	1954	No

NMB V.J. 161.	P3	Complete crown	Right	1954	No
NMB V.J. 162.	P4	Complete crown	Right	1954	No
NMB V.J. 163.-164.	I1	Complete, isolated but associated	–	1954	Pl. 5, fig. 1
NMB V.J. 165.	I1	Complete crown	Right	1954	Pl. 5, fig. 2
NMB V.J. 166.	I2	Complete	Left	1954	Pl. 5, fig. 3
NMB V.J. 167.	I1	Crown fragment	Left	1954	No
NMB V.J. 168.	m3	Complete crown	Left	1954	Pl. 8, fig. 9
NMB V.J. 169.	m2	Complete crown and mesiobuccal root	Right	1954	Pl. 8, fig. 8
NMB V.J. 170.	m1	Complete crown	Right	1954	Pl. 8, fig. 7
NMB V.J. 171.	m3	Crown fragment	Right	1954	Pl. 8, fig. 10
NMB V.J. 172.	p3	Complete crown	Left	1954	Pl. 8, fig. 4
NMB V.J. 173.	p4	Complete crown	Right	1954	Pl. 8, fig. 6
NMB V.J. 174.	P3	Complete crown	Left	1954	Pl. 6, fig. 9
NMB V.J. 175.	P3	Complete crown	Right	1954	Pl. 6, fig. 10
NMB V.J. 176.	p3	Complete crown	Right	1954	Pl. 8, fig. 5
NMB V.J. 177.	P2	Complete crown	Right	1954	Pl. 6, fig. 5
NMB V.J. 178.	p1	Complete crown and distal root	Right	1954	Pl. 8, fig. 1
NMB V.J. 179.	P2	Complete crown	Left	1954	Pl. 6, fig. 6
NMB V.J. 180.	P1	Almost complete	Right	1954	Pl. 6, fig. 3
NMB V.J. 181.	p1	Complete crown	Left	1954	Pl. 8, fig. 2
NMB V.J. 182.	p2	Complete crown	Left	1954	Pl. 8, fig. 3
NMB V.J. 183.	P2	Complete crown	Right	1954	No
NMB V.J. 184.	cm	Almost complete	Right	1954	Pl. 4, fig. 2
NMB V.J. 185.	Metatarsal III	Complete	Left	1954	No
NMB V.J. 186.	Metatarsals II-V	Complete III and IV, distal fragments of II and V	Left	1954	Pl. 10, fig. 2
NMB V.J. 187.	Phalanx I (digit III/IV)	Complete	–	1954	No
NMB V.J. 188.	Phalanx I (digit III/IV)	Almost complete	–	1954	No
NMB V.J. 189.	Phalanx I (digit III/IV)	Complete	–	1954	No
NMB V.J. 190.	Phalanx I (digit III/IV)	Complete	–	1954	Pl. 10, fig. 3
NMB V.J. 191.	Phalanx I (digit II/V)	Complete	–	1954	No
NMB V.J. 192.	Phalanx I (digit II/V)	Complete	–	1954	No
NMB V.J. 193.	Metacarpals II-V	Proximal fragments of III and IV, distal fragments of II and V	Left	1954	No
NMB V.J. 194.	Metatarsals III-IV	Fragments	–	1954	No
NMB V.J. 195.	Humerus	Fragmented diaphysis and distal epiphysis	Right	1954	Pl. 9, fig. 1
NMB V.J. 196.	Ulna	Diaphysis and fragmented proximal portion	Left	1954	Pl. 9, fig. 2
NMB V.J. 197.	Ulna	Fragmented proximal portion	Right	1954	Pl. 9, fig. 3
NMB V.J. 198.	Radius	Almost complete	Left	1954	No
NMB V.J. 199.	Radius	Almost complete	Right	1954	Pl. 9, fig. 4

NMB V.J. 200.	Metacarpals II-V and unciform	Complete, apart from Metacarpal II (distal fragment)	Right	1954	Pl. 10, fig. 1
NMB V.J. 201.	Ulna	Distal fragment	Right	1954	No
NMB V.J. 202.	Ulna	Distal fragment	Left	1954	No
NMB V.J. 203.	Ulna	Distal fragment	Right	1954	No
NMB V.J. 204.	Pelvis	Fragments	–	1954	No
NMB V.J. 205.	Tibia	Diaphysis and fragmented distal epiphysis	Left	1954	No
NMB V.J. 206.	Tibia	Distal epiphysis	Left	1954	Pl. 9, fig. 5
NMB V.J. 207.	Astragalus	Complete	Left	1954	Pl. 9, fig. 6
NMB V.J. 208.	Astragalus	Complete	Left	1954	No
NMB V.J. 209.	Astragalus	Complete	Left	1954	No
NMB V.J. 210.	Calcaneum	Complete	Left	1954	Pl. 9, fig. 7
NMB V.J. 211.	Calcaneum	Complete	Left	1954	No
NMB V.J. 212.	Calcaneum	Distal fragment	Left	1954	No
NMB V.J. 213.	Cuboid	Fragment	Left	1954	No
NMB V.J. 214.	Cuneiform	Complete	Left	1954	No
NMB V.J. 215.	Scaphoid	Complete	Left	1954	Pl. 9, fig. 8
NMB V.J. 216.	Pyramidal	Complete	Left	1954	No
NMB V.J. 217.	Scaphoid	Almost complete	Right	1954	No
NMB V.J. 218.	Pisiform	Fragment	Left	1954	No
NMB V.J. 219.	Unciform	Fragment	–	1954	No
NMB V.J. 220.	Trapezoid	Complete	Right	1954	No
NMB V.J. 221.	Magnum	Fragment	Right	1954	No
NMB V.J. 222.	Magnum	Almost complete	Right	1954	No
NMB V.J. 223.	Metatarsal III	Distal fragment	Right	1954	No
NMB V.J. 224.	Metapodial (III/IV)	Distal fragment	–	1954	No
NMB V.J. 225.	Metapodial (III/IV)	Distal fragment	–	1954	No
NMB V.J. 226.	Metapodial (II/V)	Distal fragment	–	1954	No
NMB V.J. 227.	Metapodial (III/IV)	Distal fragment	–	1954	No
NMB V.J. 228.	Phalanx II (digit III/IV)	Complete	–	1954	Pl. 10, fig. 4
NMB V.J. 229.	Phalanx II (digit III/IV)	Complete	–	1954	No
NMB V.J. 230.	Phalanx II (digit III/IV)	Complete	–	1954	No
NMB V.J. 231.	Phalanx II (digit II/V)	Fragment	–	1954	No
NMB V.J. 232.	Phalanx II (digit II/V)	Fragment	–	1954	No
NMB V.J. 233.	Phalanx II (digit II/V)	Complete	–	1954	No

Tab. S1 - List of the material of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d'Asti, with anatomical identification, year of catalogue, and reference to the illustration, when applicable.

Specimen ID	Tooth	L/Li	Wm/La	Wd/Di	Wt
NMB V.J. 1.	P3	13.7	11.5	12.4	
NMB V.J. 1.	P4	11	15.8		
NMB V.J. 1.	M1	15.3	14.3	16.2	
NMB V.J. 1.	M2	20	18.5	17.8	
NMB V.J. 1.	M3	27.1	20.4	18.3	13.5
NMB V.J. 2.	P4	11.3	15.3		
NMB V.J. 2.	M1	13.5	15.2	15	
NMB V.J. 2.	M2	19.7	18.4	17.9	
NMB V.J. 2.	M3	25.2	19.2	16.7	9.6
NMB V.J. 3.	P4	12.9	16.3		
NMB V.J. 3.	M1	17.4	15.3	16	
NMB V.J. 3.	M2	21.1	19.1	19.7	
NMB V.J. 4.	M3	26.5	–	15.8	12.5
NMB V.J. 5.	M3	–	19.6	16.8	
NMB V.J. 6.	M1	14.2	14.5	14.7	
NMB V.J. 7.	M1	15.3	14.3	14.4	
NMB V.J. 8.	dP4	13.9	11.9	12.7	
NMB V.J. 9.	P4	12.8	16.2		
NMB V.J. 10.	P3	12.4	–	–	
NMB V.J. 11.	I2	15.2	7.1		
NMB V.J. 12.	CM	20.4	14		
NMB V.J. 13.	CM	–	17.2		
NMB V.J. 14.	CM	21.7	16.2		
NMB V.J. 15.	CM	–	–		
NMB V.J. 16.	CM	–	–		
NMB V.J. 17.	p3	12.9	7.1	7.6	
NMB V.J. 17.	p4	14	10.2	9.2	
NMB V.J. 17.	m1	14.2	–	–	
NMB V.J. 17.	m2	18.1	14.6	–	
NMB V.J. 17.	m3	27.8	–	–	–
NMB V.J. 18.	P2	12.4	6.5	7.8	
NMB V.J. 19.	P3	12.4	9.1	10.7	
NMB V.J. 20.	P2	12	6.9	7.5	
NMB V.J. 21.	P1	9.6	4.5		
NMB V.J. 22.	P1	10	4.4		
NMB V.J. 144.	I1	19.2	9.3		
NMB V.J. 144.	CM	23.9	20.9		
NMB V.J. 144.	P2	12	6.2	7.3	
NMB V.J. 144.	P3	12.5	9.3	10	
NMB V.J. 144.	P4	11.4	13.6		
NMB V.J. 144.	M1	14.7	14.1	14.5	
NMB V.J. 144.	M2	20.1	17.7	17.5	

NMB V.J. 144.	M3	27.9	19.4	16.8	11.6
NMB V.J. 144.	i1	6.2	10.7		
NMB V.J. 144.	i2	6.8	11.3		
NMB V.J. 144.	cm	21.9	19.3	15.2	
NMB V.J. 144.	p2	11.1	5	5.2	
NMB V.J. 144.	p3	13.5	6.5	6.4	
NMB V.J. 144.	p4	13.6	9.3	9.5	
NMB V.J. 144.	m1	14.2	11.2	11.6	
NMB V.J. 144.	m2	18.8	14.9	15.2	
NMB V.J. 144.	m3	31.2	16.7	14.6	12.1
NMB V.J. 145.	i1	6.5	11.2		
NMB V.J. 145.	i2	8.1	12.5		
NMB V.J. 145.	cm	18.1	16.7	13.4	
NMB V.J. 145.	p1	7.7	4		
NMB V.J. 145.	p2	11	5	5.4	
NMB V.J. 145.	p3	13	7.3	8	
NMB V.J. 145.	p4	14.1	9.5	10.5	
NMB V.J. 145.	m1	14.7	11.4	10.8	
NMB V.J. 145.	m2	19.7	14.7	14.8	
NMB V.J. 145.	m3	29.7	17.7	14.8	11.1
NMB V.J. 146.	CF ¹	12.9	7		
NMB V.J. 146.	P1	8.6	4.5		
NMB V.J. 146.	P2	12.8	7.4	8.5	
NMB V.J. 146.	P3	12.9	11	12.8	
NMB V.J. 146.	P4	11	16.4		
NMB V.J. 146.	M1	15.7	15.4	15.8	
NMB V.J. 146.	M2	20.6	18.3	18.5	
NMB V.J. 146.	M3	25.2	20.6	18	10.5
NMB V.J. 147.	CM	22.5	16.6		
NMB V.J. 147.	P1	10.6	4.5		
NMB V.J. 148.	CM	19.1	14.7		
NMB V.J. 149.	M3	27.8	19.1	16.5	10.1
NMB V.J. 150.	M3	25.1	17.6	16.4	8.1
NMB V.J. 151.	M2	19	16.5	16.8	
NMB V.J. 151.	M3	24.6	18	16.2	11
NMB V.J. 152.-154., 156.	M1	15.7	13.8	14.3	
NMB V.J. 152.-154., 156.	M2	20.9	17.1	16.7	
NMB V.J. 155.	M1	14.1	12.8	14.7	
NMB V.J. 157.	P4	–	–		
NMB V.J. 158.	P3	12.7	11	11.2	
NMB V.J. 159.	P4	12	14.5		
NMB V.J. 160.	P4	11.5	14.2		
NMB V.J. 161.	P3	13	9.7	10.4	
NMB V.J. 162.	P4	12	14		

NMB V.J. 163.-164.	I1	16.3	9.2		
NMB V.J. 165.	I1	19.8	8.8		
NMB V.J. 166.	I2	16.3	7		
NMB V.J. 167.	I1	20	–		
NMB V.J. 168.	m3	28.2	15.4	14.6	11.3
NMB V.J. 169.	m2	20.4	14.1	14.4	
NMB V.J. 170.	m1	15.1	11.2	11.3	
NMB V.J. 171.	m3	–	15.5	–	–
NMB V.J. 172.	p3	13.2	6.9	7.8	
NMB V.J. 173.	p4	13.9	9.7	10.1	
NMB V.J. 174.	P3	12.8	9.4	10	
NMB V.J. 175.	P3	13	9.6	10.3	
NMB V.J. 176.	p3	13.2	7	7.7	
NMB V.J. 177.	P2	12.1	6.4	7.5	
NMB V.J. 178.	p1	8.7	3.6		
NMB V.J. 179.	P2	11.9	5.9	6.6	
NMB V.J. 180.	P1	9.8	4.1		
NMB V.J. 181.	p1	8.6	3.7		
NMB V.J. 182.	p2	10.2	4.7	5.2	
NMB V.J. 183.	P2	12.3	5.9	7.3	
NMB V.J. 184.	cm	14.9	12.4	11.9	

Tab. S2 - Dental measurements (in mm) of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d’Asti. Li, La, and Di refer to cm only. For tooth positions for which only the greatest width (W) is taken, this is reported in the Wm column. An en-dash (–) indicates measurements not taken due to incomplete preservation. For abbreviations, see Materials and Methods. ¹Measurements taken at the alveolus.

Specimen ID	C-M3	P1-P4	P2-M3	P2-P4	P3-M3	P4-M2	M1-M2	M1-M3
NMB V.J. 1.					88.1	45.8	33.5	62.9
NMB V.J. 2.								59.9
NMB V.J. 3.						44.7	36.5	
NMB V.J. 144.	123.3		95.6	35.4	83.4	44.4	31.8	60.7
NMB V.J. 146.	128.3	47.1	99.9	37.2	87.3	46.7	33.5	61.8

Tab. S3 - Upper tooth row measurements (in mm) of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d'Asti. For abbreviations, see Materials and Methods.

Specimen ID	ID-m3	ID-MP	HMm1	WMm1	c-m3	p1-p4	p2-m3	p2-p4	m1-m3
NMB V.J. 17.			42.5	24.6 ¹					60.3
NMB V.J. 144.	157.1	62.1	39.9	31.2	141.2		100.7	36	65.1
NMB V.J. 145.	155.6	60.5	45.6	32.6	141.9	55.3	101.2	35	64.1

Tab. S4 - Mandibular measurements (in mm) of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d'Asti. For abbreviations, see Materials and Methods. ¹Taken in front of m2 owing to incomplete preservation.

Specimen ID	Bone	GL	DAPp	DMLp	DAPd	DMLd
NMB V.J. 23.	Radius	–	17.4	25.9	–	–
NMB V.J. 185.	Metatarsal III	69.1	20	14.2	13.8	15.2
NMB V.J. 186.	Metatarsal III	–	16.4	14.3	14.7	15
NMB V.J. 186.	Metatarsal IV	–	15.5	14.4	15.9	15
NMB V.J. 190.	Phalanx I (digit III/IV)	30.7	15.1	15.4	9.1	13
NMB V.J. 191.	Phalanx I (digit II/V)	19.9	10.4	10.1	6.8	7.6
NMB V.J. 192.	Phalanx I (digit II/V)	20.5	11	10.9	7	7.3
NMB V.J. 193.	Metacarpal III	–	16.1	–	–	–
NMB V.J. 193.	Metacarpal IV	–	16	14	–	–
NMB V.J. 198.	Radius	–	18.1	26	22.4	29.6
NMB V.J. 199.	Radius	144.5	19.6	26.2	22.3	29.9
NMB V.J. 200.	Metacarpal II	–	–	–	12	9
NMB V.J. 200.	Metacarpal III	64.8	16.4	15.6	14.9	15.9
NMB V.J. 200.	Metacarpal IV	64.1	15	13	15.3	14.4
NMB V.J. 200.	Metacarpal V	45.2	8.9	7	13	9.5
NMB V.J. 206.	Tibia	–	–	–	25	25.7
NMB V.J. 207.	Astragalus	36.7				
NMB V.J. 208.	Astragalus	35.7				
NMB V.J. 209.	Astragalus	36.7				
NMB V.J. 210.	Calcaneum	69.7			27.6	
NMB V.J. 211.	Calcaneum	71.6			26.5	
NMB V.J. 223.	Metatarsal III	–	–	–	15	14.3
NMB V.J. 228.	Phalanx II (digit III/IV)	19.4	14.8	13.9		
NMB V.J. 229.	Phalanx II (digit III/IV)	21.7	15.3	14.6		
NMB V.J. 230.	Phalanx II (digit III/IV)	20.7	13.4	12.9		
NMB V.J. 233.	Phalanx II (digit II/V)	10.2	8.1	7.3		

Tab. S5 - Postcranial measurements (in mm) of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d’Asti. For astragali, the column GL reports the greatest length of the lateral side. For calcanei, the column DAPd reports the greatest DAP. An en-dash (–) indicates measurements not taken due to incomplete preservation. For abbreviations, see Materials and Methods.

Specimen ID	Side	Wear stage	Wear group
NMB V.J. 1.	Right	13	3
NMB V.J. 2.	Left	17	4
NMB V.J. 3.	Right	9	1
NMB V.J. 6.	Right	17	4
NMB V.J. 7.	Left	17	4
NMB V.J. 144.	Both	14	3
NMB V.J. 146.	Left	12	2
NMB V.J. 152.-154., 156.	Both	11	2
NMB V.J. 155.	Right	13	3

Tab. S6 - Scoring of wear on first upper molars (M1) of *Sus arvernensis* (Croizet & Jobert, 1828) from Villafranca d'Asti.

logPCA	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
Eigenvalue	0.0212959	0.0048952	0.0010502	0.000796	0.0003719	0.0003142	0.00022	0.00015
% variance	73.198	16.826	3.6098	2.736	1.2784	1.0801	0.75607	0.51562
P2 L	0.20348	0.47353	0.39907	0.46181	-0.21008	0.28358	0.4577	-0.16676
P2 Wd	0.34384	-0.041397	0.49276	0.32716	0.36082	-0.3284	-0.35088	0.41116
P3 L	0.25145	0.49912	-0.5098	0.12228	0.17222	0.41704	-0.42264	0.17494
P3 Wd	0.40592	0.18389	0.35318	-0.55952	-0.25964	0.013032	-0.38238	-0.38707
P4 L	0.34014	0.28616	-0.40835	0.056521	-0.13524	-0.74652	0.21329	-0.10677
P4 W	0.3176	0.043609	0.020965	-0.52662	0.097036	0.1493	0.49276	0.58731
M3 L	0.50077	-0.57491	-0.18845	0.26651	-0.51189	0.19484	-0.052793	0.096918
M3 Wm	0.38083	-0.27717	-0.10293	0.011786	0.66247	0.14178	0.22683	-0.50694

Tab. S7 - Eigenvalues, percentage of explained variance, and loadings of logPCA of upper tooth measurements. The first two components (jointly 90% of explained variance) are interpreted herein.

gmPCA	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
Eigenvalue	0.0801892	0.0045863	0.0038986	0.0034074	0.0015772	0.0011372	0.0005089	1.95E-05
% variance	84.122	4.8113	4.0898	3.5745	1.6546	1.193	0.53389	0.020457
P2 L	-0.23629	-0.26171	-0.15719	-0.63306	0.27384	0.155	0.45719	0.37705
P2 Wd	0.024832	0.080622	-0.14391	-0.30531	-0.20876	0.0010095	-0.73576	0.54225
P3 L	-0.22545	-0.37094	0.52633	0.24826	0.36573	-0.47213	-0.1248	0.31729
P3 Wd	-0.031513	0.19006	-0.53958	0.34916	-0.17121	-0.49864	0.32739	0.40581
P4 L	-0.086952	-0.26941	0.22434	0.38419	-0.48573	0.54241	0.19266	0.39328
P4 W	-0.008019	0.40283	-0.11564	0.34806	0.66236	0.44292	-0.08263	0.24782
M3 L	0.89945	-0.36784	-0.075192	0.026966	0.16242	-0.002642	0.052207	0.1421
M3 Wm	0.27403	0.61736	0.56308	-0.23021	-0.13159	-0.11847	0.28322	0.24932

Tab. S8 - Eigenvalues, percentage of explained variance, and loadings of gmPCA of upper tooth measurements. The first two components (jointly 88.9% of explained variance) are interpreted herein.

logPCA	PC1	PC2	PC3	PC4	PC5	PC6
Eigenvalue	0.0127884	0.00374037	0.00126383	0.000496115	0.000269006	0.00017763
% variance	68.258	19.964	6.7457	2.648	1.4358	0.9481
p3 L	0.29811	0.6314	0.03899	0.47132	-0.42212	0.33258
p3 Wd	0.37359	-0.15882	0.88344	0.094341	0.048995	-0.20843
p4 L	0.3612	0.53527	-0.18519	-0.092174	0.58066	-0.45062
p4 Wd	0.40443	0.10075	0.029634	-0.81263	-0.18221	0.3631
m3 L	0.53508	-0.36906	-0.3866	0.10371	-0.45518	-0.45835
m3 Wm	0.43728	-0.37848	-0.18272	0.2989	0.49179	0.54859

Tab. S9 - Eigenvalues, percentage of explained variance, and loadings of logPCA of lower tooth measurements. The first two components (jointly 88.2% of explained variance) are interpreted herein.

gmPCA	PC1	PC2	PC3	PC4	PC5	PC6
Eigenvalue	0.043512	0.005727	0.002251	0.001929	0.000873	9.54E-06
% variance	80.13	10.547	4.1462	3.5521	1.6077	0.017565
p3 L	-0.34399	0.38881	0.13684	0.67556	0.33931	0.3745
p3 Wd	0.008289	-0.46324	-0.34064	0.22428	-0.46799	0.63245
p4 L	-0.27524	0.51823	0.30366	-0.45723	-0.47747	0.35558
p4 Wd	-0.02378	0.004269	-0.354	-0.51476	0.62961	0.4612
m3 L	0.83791	0.47702	-0.15361	0.12951	-0.06856	0.15902
m3 Wm	0.32122	-0.37162	0.79001	-0.05005	0.19176	0.30874

Tab. S10 - Eigenvalues, percentage of explained variance, and loadings of gmPCA of lower tooth measurements. The first two components (jointly 90.7% of explained variance) are interpreted herein.