

Supplementary Material: Value lists used

Demography

Age at Death Categories	
Preterm	0- 36 gestational weeks
Perinatal	36-40 gestation weeks
Infant	Birth-2 years
Child	2-12 years
Adolescent	12-18 years
Adult	18+ years
Young Adult	18-35 years
Middle Adult	35-50 years
Older Adult	50+ years
Adolescent+	12+ years
Subadult	<18 years
Child or younger	<12 years
Indeterminate	Unable to estimate age at death due to taphonomic damage or size of the fragments

Sex Estimation	
Female	Exhibiting a full suite of morphological and/or metric traits consistent with female sex.
Female Possible	Exhibiting an incomplete suite of traits of morphological and/or metric traits consistent with female sex. Sex estimation is less secure with this designation.
Ambiguous	Exhibiting a mosaic of traits. Important for a designation of ambiguous is that traits can be scored (recorded) but either a) contain a mixture of male and female traits or b) score consistently in the middle of the spectrum.
Male Possible	Exhibiting an incomplete suite of traits of morphological and/or metric traits consistent with male sex. Sex estimation is less secure with this designation.
Male	Exhibiting a full suite of morphological and/or metric traits consistent with male sex.
Indeterminate	An estimation of sex cannot be made based on the available element(s). The traits cannot be scored, and so sex cannot be estimated.
Not Applicable	Designation given to individuals for whom it is not appropriate to estimate sex, i.e., infants, children, and younger adolescents.

Taphonomy

Carnivore Marks		
Chew	Any tooth marks, further differentiated below. This designation should be used if the nature of the tooth marks cannot be further distinguished.	Reitz and Wing (2008)
Gnaw	Marks made to “remove bits of soft tissue and to increase intake of calcium”. Commonly caused by canids, weasels, raccoons, cats, artiodactyls, squirrels, mice and rats. Gnawing tends to leave irregular grooves and pit-like indentations	Reitz and Wing (2008:133: 133-134)
Furrow	Subset of Gnawing. Produced by rodents, manifests as short, parallel furrows created during gnawing.	Reitz and Wing (2008: 134)
Puncture	Sharp, relatively rounded perforations of at least one table of bone produced by canine teeth	Reitz and Wing (2008: 133)

Signs of Human-induced or Intentional Processing: Cut marks and scrapemarks

The recording of cut marks and orientation, as well as scrape marks are based on the designations used in the Animas La Plata project, though derived from other works:

Cut marks: “clean incisions with V-shaped cross sections. True cut marks should be discontinuous or uncomfortable on the bone surface where the topography is uneven, because inflexible tool edges skip over minor depressions when applied to bone surfaces.” (Haynes and Stanford 1984: 266)

Scrapemarks: “Scrape marks are produced by drawing an implement across the bone surface in a direction roughly perpendicular to the long axis of the edge, creating a dense series of usually superficial parallel striations across a broad area of bone... Scrape marks are of the same approximate length, depth, are parallel in orientation, and are not confined to a main groove” (Shipman 1981: 369)

Cut Marks

Presence	Should be recorded as present/absent/ns	
N	1	Single identifiable cut mark visible
	2-5	Cluster of 2-5 cut marks are visible
	6-10	6-10 cut marks are visible
	10+	More than 10 cut marks are visible
Orientation	AP	Anterior-posterior orientation
	Circumferential	Roughly circumferential to the superior portion of the cranial vault
	ML	Medial-lateral orientation
	Indeterminate	Orientation of cutmarks cannot be determined due to fragmentation, taphonomic damage, etc.
	Other	All other orientations, should be explained in memo field

Dental Recording

Dental Presence ¹	1	Present, not in occlusion
	2	Present, development completed, in occlusion
	3	Missing, no associated alveolar bone
	4	Missing, antemortem loss
	5	Missing, postmortem loss
	6	Missing, congenital absence
	7	Present, damage renders measurement impossible
	8	Present, unobservable
Dental Development ¹	Ci	Initial cusp formation
	Cco	Coalescence of cusps
	Coc	Cusp outline complete
	Cr ^{1/2}	Crown ¹ / ₂ complete
	Cr ^{3/4}	Crown ³ / ₄ complete
	Crc	Crown complete
	Ri	Initial root formation
	Cli	Initial root cleft formation
	R ^{1/4}	Root length ¹ / ₄ complete
	R ^{1/2}	Root length ¹ / ₂ complete
	R ^{3/4}	Root length ³ / ₄ complete
	Rc	Root length complete
	A ^{1/2}	Root apex ¹ / ₂ closed
	Ac	Root apex closed
	NS	Not scored

¹ Recorded along the lines of Buikstra and Ubelaker (1994)

Pathology Recording: Cranium

All traits	Presence	Should be recorded as Present/Absent/NS	
CO (score left and right sides independently)	Healing	Unhealed	Lesion shows no signs of healing, active lesions
		Healing	Lesion shows some signs of filling in porosity, no longer active
		Healed	Lesion has a healed appearance, not to say that no residual porosity is present, but the porosity has an old, established appearance
	Extent	Minimal	Less than 10% of the total surface is affected
		Moderate	10-30% of the total surface is affected
		Extensive	Greater than 30% of the total surface is affected
PH	Healing	Unhealed	Lesion shows no signs of healing, active lesions
		Healing	Lesion shows some signs of filling in porosity, no longer active
		Healed	Lesion has a healed appearance, not to say that no residual porosity is present, but the porosity has an old, established appearance
	Distribution	Entire Vault	PH extends over the majority of the cranial vault
		Superior Vault	PH is present clustered around the superior portion of the cranial vault, focused around the sagittal suture
		Posterior Vault	PH is present clustered around the posterior cranial vault, focused around the lambdoid suture, lambda and occipital squama (not to be confused with normal supra-nion porosity)
		Forehead	PH is present, clustered on the frontal squama and along coronal suture
		Indet.	Overall distribution cannot be determined due to fragmentation or taphonomic damage. Visible locations should be noted in memo field.

Pathology Recording: Long Bones

Location	Shaft, all surfaces	All surfaces of the diaphysis are affected.
	Shaft, anterior surface	Anterior surface of the diaphysis alone is affected.
	Shaft, posterior surface	Posterior surface of the diaphysis alone is affected.
	Shaft, lateral surface	Lateral surface of the diaphysis alone is affected.
	Shaft, medial surface	Medial surface of the diaphysis alone is affected.
	Shaft, multiple surfaces	Multiple surfaces of the diaphysis are affected. More than one diaphyseal surface is affected, but not all are.
	Proximal metaphysis	Proximal metaphysis alone is affected.
	Distal metaphysis	Distal metaphysis alone is affected.
	Proximal epiphysis	Proximal epiphysis alone is affected.
	Distal epiphysis	Distal epiphysis alone is affected.
	Shaft and metaphyses	Both the diaphysis and metaphyses are affected.
Extent	Minimal	Less than 10% the location is affected.
	Moderate	10-30% of the location is affected.
	Extensive	More than 30% of the location is affected.
Healing ¹	Unhealed	Active periosteal deposition, no signs of healing
	Healing	Some evidence of incorporation of periosteal bone into the lamellar bone
	Healed	Periosteal bone is integrated into the lamellar bone, no signs of active deposition

¹ Chronic processes should be noted in the memo field.

Pathology Recording: Os Coxa

Location	Flat surfaces	The flat surfaces of the ilium
	Ischium	All surfaces of the ischium
	Pubis	All surfaces of the pubis
	GSN	Pathological changes specific to the bony surface around the GSN
Extent	Minimal	Less than 10% the location is affected.
	Moderate	10-30% of the location is affected.
	Extensive	More than 30% of the location is affected.
Healing ¹	Unhealed	Active periosteal deposition, no signs of healing
	Healing	Some evidence of incorporation of periosteal bone into the lamellar bone
	Healed	Periosteal bone is integrated into the lamellar bone, no signs of active deposition

¹ Chronic processes should be noted in the memo field.

Trauma Recording: Cranium¹

Location ^{2, 3}	MR	Right Malar
	ML	Left Malar
	BRR	Right brow ridge, extending from the zygomatic process to the supraorbital foramen/notch
	BRM	Midline brow ridge area, extending from the left supraorbital foramen/notch to the right supraorbital foramen/notch. Superior border of this region is the superior extent of the visible browridge extension (where this meets the squama).
	BRL	Left brow ridge, extending from the zygomatic process to the supraorbital foramen/notch. Superior border of this region is the superior extent of the visible browridge extension (where this meets the squama).
	FSR	Right frontal squama, extending superiorly from the inferior border with BRR from the right supraorbital foramen/notch to the coronal suture.
	FSM	Midline frontal squama, extending from right supraorbital foramen/notch to the left supraorbital foramen/notch superiorly from the border with BRM to the coronal suture.
	FSL	Left frontal squama, extending superiorly from the inferior border with LRR from the right supraorbital foramen/notch to the coronal suture.
	SR	The visible external surface of the greater wing of the right sphenoid.
	SL	The visible external surface of the greater wing of the left sphenoid.
	PAR	The anterior portion of the right parietal, anterior to obellion.
	PAL	The anterior portion of the left parietal, anterior to obellion.
	PPR	The posterior portion of the right parietal, posterior to obellion.
	PPL	The posterior portion of the left parietal, posterior to obellion.
	TSR	Right temporal squama.
	TSL	Left temporal squama.
	TZR	Right Temporal zygomatic process, defined as the mandibular fossa and the zygomatic process extending from the mandibular fossa.
	TZL	Left Temporal zygomatic process, defined as the mandibular fossa and the zygomatic process extending from the mandibular fossa.
	TMR	Right Temporal Mastoid region, extending from the external auditory meatus to include the mastoid process.
	TML	Left Temporal Mastoid region, extending from the external auditory meatus to include the mastoid process.
OS	Occipital Squama, extending from where the superior nuchal line meets the squama to the lambdoid suture	
OBR	Right Occipital Base. Area encompassing the superior nuchal, on the right side. Includes inferior nuchal line, pars lateralis, and the right margin of the foramen magnum.	

	OBL	Left Occipital Base. Area encompassing the superior nuchal, on the left side. Includes inferior nuchal line, pars lateralis, and the left margin of the foramen magnum.
Type ⁴	LeFort Fracture (subtype unknown)	Fractures separating the upper palate of the maxilla from the rest of the maxilla, caused by direct blows. It is difficult to distinguish the different types in commingled remains but recording LeFort fractures indicates the presence of interpersonal trauma. This terminology is used here to indicate the separation of the maxilla from the rest of the facial bone. Rogers (1992)
	Tripod Fracture	Separation of the Malar at the zygomatic arch, the zygomaticofrontal suture, and the inferior orbital rim medial to the zygomaticomaxillar suture. Usually result from blows over the malar eminence.
	Depressed (non-penetrating)	Depressed fractures that do not breach the internal table. These may present as areas of buckling, but there is no perforation of the inner table.
	Depressed (penetrating)	Depressed fractures with complete penetration of the inner table of the skull.
	Mandibular-Symphysis	Fractures of the mandible occurring at the mandibular symphysis.
	Mandibular-Body	Fractures of the mandible occurring along the body of the mandible. Side and location in relation to the mental foramen should be noted.
	Mandibular-Condyle	Fractures of the mandible occurring on the ascending ramus and/or mandibular condyle. Specific location should be noted.
	Nasal	Fractures of the nasal bones, location and whether the fracture is bilateral should be noted.
	Orbital margin	Fractures of the orbital margin, fine location should be noted (superior, medial, lateral, or inferior margin) as well as the location in relation to bony landmarks.
Healing	Unhealed	Perimortem injury, no signs of healing or bony reaction are present.
	Healing	Antemortem injury, signs of healing present in the form of increased porosity, vascularization, additive bone.
	Healed	Healed antemortem injury, lesion will likely retain a depressed appearance, but porosity will have an established look with no signs of active deposition of bone within or around lesion.
Length	Measurement taken along the longest axis of the lesion, taken in mm. Sliding caliper, record to at least .00	
Breadth	Measurement taken transverse to the length at the widest point, taken in mm. Sliding caliper, record to at least .00	
Depth	Measurement taken at the deepest point of the lesion in depressed fractures. Taken with either a depth gauge the depth function on a standard sliding caliper. Taken in mm, record to at least .00	

¹ The database provides space for three distinct traumas to be recorded. Any additional traumas should be recorded in the memo section using all the same traits

² In cases where traumas extend across multiple zones, the primary zone (where the majority of the lesion occurs) should be recorded with an explanation of additional zones involved in the memo field.

³ For fractures/traumas occurring in zones not described here, the location should be noted in the memo field.

⁴ These are typical fractures that can be recorded, but this is by no means a complete list of clinical fracture types that can be recorded for crania.

Long Bone Fractures

Fractures		
Type	Spiral	“a fracture that propagates around the bone shaft at a 45-degree angle in the same direction of the applied torque” (Wedel and Galloway 2014: 36)
	Depressed	Generally resulting from blunt force trauma, these are caused by trauma that extends past the yield point, causing a permanent shape change in the affected bone. It takes on a cratered appearance (Wedel and Galloway 2014).
	Bending	Bending/Bow/Plastic deformation. These fractures are incomplete fractures in which the force exceeds the yield point but does not extend to the failure point. This indicates a permanent shape change in the affected element (Wedel and Galloway 2014).
Healing	Unhealed	Perimortem Injury, no signs of bony response.
	Healing	At least some signs of bony response, callus formation, increased vascularization, etc.
	Healed	Completed callus, integration of periosteal bone into the cortex.
Edge Shape	DEP	Depressed fracture, cavitation surrounding the impact point.
	SP	Perimortem fracture edge, Spiral fracture (see above for definition)
	FLK	Perimortem fracture edge, Flaking fracture. Consistent with avulsion of a small sliver of bone.
	V	Perimortem fracture edge, V-shaped fracture edge.
	SAW	Perimortem fracture edge, Saw-toothed fracture edge.
	OBL	Perimortem fracture edge, Oblique fracture edge. Fracture edge runs diagonally across the diaphysis, resulting from a combination of angulation and compressive forces of moderate force (Wedel and Galloway 2014: 64)
	LONG	Postmortem fracture edge, Longitudinal fracture edge.
	ST	Postmortem fracture edge, Stepped fracture edge.
	PS	Postmortem fracture edge, Perpendicular transverse smooth fracture edge.
	PI	Postmortem fracture edge, Perpendicular transverse irregular fracture edge.
	Indeterminate	Fracture edge cannot be determined due to taphonomic and/or poor preservation.

Vertebral Identifications

C1 (Atlas)	First cervical vertebra, identified by specific features.
C2 (Axis)	Second cervical vertebra, identified by specific features.
C3-7	Generalized cervical vertebra, identified by general features.
T1	First thoracic vertebra, identified by general features.
T2-10	Generalized upper-middle thoracic vertebra, identified by general features.
T11	11 th thoracic vertebra, identified by general features.
T12	12 th thoracic vertebra, identified by general features.
T Vert (general)	Generalized thoracic vertebra, identified by general features.
L Vert (general)	Generalized lumbar vertebra, identified by general features.
L5	5 th lumbar vertebra, identified by general features.
Sacrum	Sacrum, including all sacral elements whether fused or unfused. Identified by specific and general features.
Coccyx	Coccyx, including all coccygeal elements whether fused or unfused. Identified as a whole element.

Vertebral Locations

Body (multiple surfaces)	Multiple surfaces of the body are affected.
Body (left lateral surface)	Left lateral surface of the body are affected.
Body (right lateral surface)	Right lateral surface of the body is affected.
Lamina	Laminar surfaces
Neural Arch	Neural arch, fused or unfused. Specify left or right in memo field if applicable.
Superior articular surface (both)	Bilateral expression: both left and right superior articular surfaces are affected.
L superior articular facet	Only the left superior articular surface is affected.
R superior articular facet	Only the right superior articular surface is affected.
L inferior articular facet	Only the left inferior articular surface is affected.
R inferior articular facet	Only the right inferior articular surface is affected.
Inferior articular surfaces (both)	Bilateral expression: both left and right inferior articular surfaces are affected.
Articular facets (all)	Bilateral expression of both superior and inferior articular facets.
Spinous Process	Spinous process is affected.

Locational Zones for various elements¹:

Scapula	
SCA1S	Coracoid process, superior (proximal) aspect (attachment sites for <i>Pectoralis Minor</i> , <i>Biceps Coracobrachialis</i> , conoid ligament, trapezoid ligament)
SCA1I	Coracoid process, inferior (distal) aspect (attachment sites for Coraco-Humeral ligament, Subscapularis bursa)
SCA3	Glenoid fossa, including rim (attachment for tendon of long head of <i>Biceps</i> , Glenoid Labrum, Inferior Gleno-humeral ligament, Bursa)
SCA4V	Neck and surrounding surface from the border of glenoid fossa to the construction of the suprascapular notch
SCA4D	Neck and surrounding surface from the border of glenoid fossa to the construction of the suprascapular notch
SCA5V	Inferior tubercle of glenoid, ventral surface
SCA6V	Superior 1/3 portion of scapular blade, ventral surface
SCA6D	Suprapinous fossa
SCA7V	Inferior 2/3 of scapular blade, ventral surface
SCA7D	Infraspinous fossa, exclusive of borders (attachment for <i>Infraspinatus</i>)
SCA8V	Medial border, entire length of ventral surface
SCA8D	Medial border, entire length of dorsal surface
SCA9V	Inferior angle, ventral surface
SCA9D	Inferior angle, dorsal surface
SCA10V	Lateral border, entire length of ventral surface
SCA10D	Lateral border, dorsal inferior surface
SCA11D	Lateral border, dorsal superior surface
SCA12D	Acromial spine, <i>trapezius</i> attachment
SCA13D	Acromial spine, <i>deltoid</i> attachment
Clavicle	
CLA1S	Medial 1/3 of bone, superior surface

¹ Definitions of zones from Stodder and Osterholtz (2010)

CLA1I	Medial 1/3 of bone, inferior surface
CLA2S	Middle 1/3 of bone, superior surface
CLA2I	Middle 1/3 of bone, inferior surface
CLA3S	Acromial 1/3 of bone, superior surface
CLA3I	Acromial 1/3 of bone, inferior surface
Sternum	
STE1	Manubrium, all surfaces
STE2	Body, all surfaces
STE3	Xiphoid, all surface
Os Coxa	
OS1L	Iliac fossa, external surface (attachment for <i>Gluteus Medius, Gluteus Minimus</i>)
OS2L	Iliac Crest, anterior part (attachment for <i>Oblique Internus Abdominis, Oblique Externus Abdominis</i>)
OS3L	Iliac Crest, Posterior Superior and Inferior Iliac Spine (attachments for <i>Latissimus Dorsi, Gluteus Maximus</i>)
OS4L	Greater Sciatic Notch (Transmits Piriformis, converted into foramen by the Sacrospinous Ligament)
OS5L	Acetabulum & adjacent region, posterior part (attachments for <i>Rectus</i> tendon, Articular Capsule, Ligamentum Teres, <i>Gemellus Superior</i>)
OS6L	Ischium (attachments for <i>Obturator Internus, Obturator Externus, Semi-membranosus, Semi-tendinosus, Biceps Femoris, Quadratus Femoris</i>)
OS7L	Pubis (attachments for <i>Obdurator Externus, Adductor magnus, Gracilis, Pectineus, Rectus Abdominis, Pyramidalis, Adductor Longus</i>)
OS8L	Acetabulum & adjacent region, anterior part (attachment for <i>Rectus</i>)
OS9L	Anterior Superior Iliac Spine Iliac Spine to Anterior Inferior Iliac Spine (attachment for <i>Sartorius</i>)
OS1M	Iliac fossa, internal surface (attachment for <i>Iliacus</i>)
OS2M	Iliac Crest, anterior part (attachments for <i>Transversus Abdominis, Quadratus Longissimus</i>)
OS3M	Iliac Crest, Posterior part (attachment for <i>Sacrospinalis</i>)
OS4M	Between Iliac Crest and Auricular Surface (attachment for Sacro-iliac Ligament)
OS5M	Auricular surface
OS6M	Greater Sciatic Notch and retroauricular area
OS7M	Inferior acetabulum, dorsal surface (attachment for <i>Obdurator Internus</i>)
OS8M	ischium (attachment for <i>Levator Ani</i>)
OS9M	Pubis (attachments for <i>Constrictor Urethrae, Transversus Perinei Superficialis, Ischo-cavernosus</i>)
OS10M	Superior Pubis (attachments for Poupart's Ligament, Tendons of <i>Obliquus Internus</i> and <i>Transversus</i>)
OS11M	Inferior Acetabulum, ventral surface (attachments for Transverse Ligament, Ligamentum Teres)
Lat Mult	Multiple zones affected on lateral (external) aspect of the element (indicates that multiple zones are included in the observed changes, individual zones should be listed in notes)
Med Mult	Multiple zones affected on medial (internal) or aspect of the element (indicates that multiple zones are included in the observed changes, individual zones should be listed in notes)
Humerus	
HUM1A	Head and Neck, anterior surface (Articular Capsule, Tendons for Rotator Cuff)
HUM1P	Head and Neck, posterior surface (Articular Capsule)
HUM2A	Greater and Lesser Tuberosities, surgical neck, anterior surface (attachments for <i>Supraspinatus, Subscapularis</i> , tendons for <i>Latissimus Dorsi</i> and <i>Pectoralis Major</i> pass through)
HUM2P	Surgical Neck, Greater Tuberosity, posterior surface (attachment for <i>Infra-spinatus, Teres Minor</i>)

HUM3A	Proximal diaphysis, anterior surface (attachments for <i>Teres major, Pectoralis Major, Latissimus Dorsi</i>)
HUM3P	External head of Triceps and surrounding bone, posterior surface (attachment for lateral head of <i>Triceps</i>)
HUM4A	Muscle attachment site for <i>Deltoid</i>
HUM4P	Shaft medial and distal to the Triceps attachment to the distal metaphysis (attachment for medial head of <i>Triceps</i>)
HUM5A	Shaft distal to Pectoralis Major and medial to <i>Deltoid</i> attachment to distal metaphysis (attachments for <i>Coraco-brachialis, Brachialis, Brachioradialis, Extensor Carpi Radialis Longus</i>)
HUM5P	Medial Epicondyle, posterior surface (attachment for <i>Flexor Carpi Ulnaris</i>)
HUM6A	Medial Epicondyle, anterior surface (attachment for <i>Flexor Carpi Radialis, Palmaris Longus, Flexor Digitorum Sublimis, Flexor Carpi Ulnaris, Pronator Teres</i>)
HUM6P	Lateral Epicondyle, posterior surface (attachment for <i>Anconius</i>)
HUM7A	Lateral Epicondyle, anterior surface (attachments for <i>Extensor Carpi Radialis Brevis, Extensor Digitorum Communis, Extensor Digit Quinti Prop., Extensor Carpi Ulnaris, Supinator</i>)
HUM7P	Articular surfaces (Trochlea and Capitulum), olecranon fossa (Articular Capsule)
HUM8A	Articular surfaces (Trochlea and Capitulum), radial and coronoid fossae (Articular Capsule)
HUM Indet	Element can be identified as humerus, but the zone cannot be identified
Radius	
RAD1A	Radius head, anterior (Articular Capsule, attachments for Annular Ligament, Radial Collateral Ligament)
RAD1P	Radius head, posterior (Articular Capsule, Annular Ligament, attachment for <i>Anconeus</i>)
RAD2A	Radius neck, anterior
RAD2P	Radius neck, posterior
RAD3A	Radial tuberosity and surrounding, anterior surface (Bursa, attachments for <i>Biceps, Supinator</i>)
RAD3P	Radial tuberosity and surrounding, posterior surface (attachment for <i>Supinator</i>)
RAD4A	Shaft: from inferior to tuberosity to the inferior border of <i>extensor pollicis brevis</i> attachment, anterior surface (attachments for <i>Brachio-radialis, Interosseous Membrane, Pronator Quadratus</i>)
RAD4P	Shaft: from inferior to tuberosity to the inferior border of <i>extensor pollicis brevis</i> attachment, posterior surface (attachments for <i>Supinator, Pronator Teres, Abductor Policis Longus, Extensor Pollicis Brevis</i>)
RAD5A	Distal shaft to epiphyseal line, anterior surface (<i>Abductor Pollicis Longus, Extensor Pollicis Brevis</i> overlay but do not attach)
RAD5P	Distal shaft to epiphyseal line, posterior surface (<i>Extensor Carpi Radialis Longus, Extensor Carpi Radialis Brevis, Extensor Pollicis Longus</i> overlay but do not attach)
RAD6A	Distal epiphysis, anterior (Joint Capsule)
RAD6P	Distal epiphysis, posterior (Joint Capsule)
RAD Indet	Element can be identified as radius, but the zone cannot be identified
Ulna	
ULN1A	Semilunar notch, radial notch and coracoid process (Articular Capsule)
ULN1P	Olecranon process, posterior surface (attachments for <i>Triceps, Anconeus</i>)
ULN2A	Ulnar tuberosity and surrounding bone, anterior surface (attachments for <i>Flexor Digitorum Sublimis, Pronator Teres, Brachialis, Flexor digitorum Profundus</i>)
ULN2P	Superior shaft analogous in size with ULN2A, posterior surface (attachments for <i>Anconeus, Flexor Carpi Ulnaris</i>)
ULN3A	Shaft: inferior to the superior portion of <i>pronator quadratus</i> attachment (attachment for <i>Pronator Quadratus</i>)
ULN3P	Shaft: distally to dl edge of <i>flexor digitorum profundis</i> attachment, posterior surface (attachment for <i>Flexor digitorum Profundus, Flexor Carpi Ulnaris, Extensor Indicis</i>)
ULN4A	Distal shaft: from sup portion of <i>pronator quadratus</i> attachment to distal epiphyseal line
ULN4P	Distal shaft: from inferior portion of <i>flexor digitorum profundis</i> attachment to distal epiphyseal line (attachment for <i>Extensor Indicis</i>)

ULN5A	Distal epiphysis, anterior surface (Articular Capsule, Tendons for <i>Flexor Carpi Ulnaris</i> and <i>Flexor Digitorum Profundus</i> overlay but do not attach)
UNL5P	Distal epiphysis, posterior surface (Articular Capsule)
ULN Indet	Element can be identified as ulna, but the zone cannot be identified
Femur	
FEM01	Head (Femoral Ligament, Acetabular labrum, Iliofemoral and Ischio-femoral ligaments surround but do not attach, synovial capsule surrounds)
FEM02	Neck, the region between the femoral head itself and the trochanters: marked by the intertrochanteric line and crest (Ilio-femoral and Ischio-femoral Ligaments surround but do not attach, synovial capsule surrounds)
FEM03A	Trochanter, Area encompassing the Greater trochanter and intertrochanteric line as well as vastus lateral attachments. Distal boundary is the superior border the vastus intermedius attachment site (attachments for <i>Gluteus Minimus</i> , <i>Vastus Lateralis</i> , <i>Iliopsoas</i> , <i>Vastus Medialis</i>)
FEM03P	Intertrochanteric region, the area between the femoral neck and lower edge of the lesser trochanter (attachments for <i>Gluteus Medius</i> , <i>Quadratus Femoris</i> , <i>Iliopsoas</i> , <i>Vastus Lateralis</i>)
FEM04P	Subtrochanteric Region, extending from the inferior border of the lesser trochanter to the coalescence of muscle attachment sites into the linea aspera (usually near the nutrient foramen) (attachments for <i>Gluteus Maximus</i> , <i>Adductor Magnus</i> , <i>Pectineus</i> , <i>Adductor Longus</i> , <i>Adductor Brevis</i> , <i>Vastus Lateralis</i>)
FEM05A	Shaft, Area between the superior portion of the vastus intermedius attachment (near greater trochanter) and the distal edge of the vastus intermedius attachment, roughly in the same position as the distal ending point of Zone FEM5P (attachments for <i>Vastus Intermedius</i> , <i>Articular</i>)
FEM05P	Shaft, from the end of the Subtrochanteric region inferiorly to the most proximal extension of the popliteal surface at the point where the medial and lateral supracondylar lines become parallel below the linea aspera (attachments for <i>Adductor Brevis</i> , <i>Adductor Magnus</i> , <i>Adductor Longus</i> , <i>Vastus Intermedius</i>)
FEM06A	Distal Metaphysis, Area from end of Shaft to the most proximal point on the patellar articular surface, excluding epicondyles. (Ligament for <i>Quadratus Femoris</i> and Bursa cover but do not attach)
FEM06P	Distal Metaphysis, from the end of the shaft inferiorly to the most proximal point of the articular surfaces (i.e. the popliteal surface), not including the epicondyles (attachments for <i>Vastus Lateralis</i> , <i>Vastus Medialis</i> , <i>Biceps</i> (short head), <i>Plantaris</i> , <i>Gastrocnemius</i> Bursa)
FEM07A	Medial Epicondyle, anterior surface (attachment for <i>Adductor Magnus</i>)
FEM07P	Medial Epicondyle, posterior surface (attachments for <i>Adductor Magnus</i> , <i>Gastrocnemius</i> (medial head))
FEM08A	Lateral Epicondyle, anterior surface
FEM08P	Lateral Epicondyle, posterior surface (attachments for <i>Plantaris</i> , <i>Gastrocnemius</i> (lateral head), <i>Popliteus</i> , <i>Fibular Collateral Ligament</i>)
FEM09A	Patellar Surface, Articular surface for the patella (attachment for Capsular Ligament, Retinacula from <i>Vastus Medialis</i> cover but do not attach)
FEM09P	Medial Condyle, articular surface, Medial Condyle, posterior surface
FEM10P	Lateral Condyle, articular surface, lateral condyle, posterior surface
FEM11P	Intercondylar fossa, non-articular surface between condyles (attachments for Anterior Cruciate Ligament, Posterior Cruciate Ligament, Medial Meniscus Cord, Lateral Meniscus Cord)
Patella	
PAT1	Anterior surface of the patella
PAT2	Posterior surface, including articular surfaces, of the patella
Tibia	
TIB01	Superior articular surface, medial condyle (Medial Meniscus Overlays, Synovial Joint Space)
TIB02	Superior articular surface, lateral condyle (Lateral Meniscus Overlays, Synovial Joint Space)
TIB03	Superior articular surface, anterior intercondylar fossa (Medial Meniscus Ligament, Anterior Cruciate Ligament, Lateral Meniscus Ligament)
TIB04	Superior articular surface, posterior intercondylar fossa (Posterior Cruciate Ligament, Lateral Meniscus Cord)

TIB05A	Anterior surface, lateral aspect, proximal metaphysis, extending from margin of articular surface distally to the proximal border of the tibial tuberosity (Fibular Collateral Ligament, Ilio-tibial tract, Capsule of the Proximal Tibio-Fibular Joint)
TIB05P	Posterior surface, lateral aspect, proximal metaphysis, extending form margin of the articular surface distally to the proximal border of the tibial tuberosity (Capsule of the Proximal Tibio-Fibular Joint, Posterior Cruciate Ligament)
TIB06A	Anterior surface, medial aspect, proximal metaphysis, extending from margin of articular surface distally to the proximal border of the tibial tuberosity (<i>Sartorius</i> tendon covers but does not attach, Tibial Collateral Ligament)
TIB06P	Posterior surface, lateral aspect, proximal metaphysis, extending form margin of the articular surface distally to the proximal border of the tibial tuberosity (attachment for <i>Semimembranosus</i>)
TIB07A	Anterior surface, tibial tuberosity, extending from the proximal border of the tuberosity distally to the point where the attachments come together to form the anterior crest (attachment for <i>Ligamentum Patellae</i>)
TIB08A	Anterior surface, lateral aspect, proximal shaft, extending from the proximal border of the tuberosity distally to the point where the attachments come together to form the anterior crest. (attachment for <i>Tibialis Anterior</i>)
TIB08P	Posterior surface, popliteal surface, bordered distally by the popliteal line. (attachment for <i>Popliteus</i> , <i>Semimembranosus</i> via <i>Popliteus fascia</i>)
TIB09A	Anterior surface, medial aspect, proximal shaft, extending from the proximal border of the tuberosity distally to the point where the attachments come together to form the anterior crest. (attachment for <i>Gracilis</i> , <i>Semitendinosus</i> , <i>Sartorius</i>)
TIB09P	Posterior surface, attachment site for <i>Flexor digitorum longus</i> . Bordered distally by the edge of this muscle attachment (roughly corresponds to the area on the anterior crest where the anterior crest crosses the midline medially (attachment for <i>Soleus</i> , <i>Tibialis Posterior</i> , <i>Flexor Digitorum Longus</i>)
TIB10A	Anterior surface, shaft, extending from the distal border of TIB7A to the distal metaphysis at the superior border of the fibular notch (attachment for <i>Tibialis Anterior</i>)
TIB10P	Posterior surface, distal shaft, extending from base of TIB6P distally to the curve at the superior border of the fibular notch (<i>Soleus</i> covers but does not attach, <i>Gastrocnemius</i> covers but does not attach, <i>Achilles Tendon</i> covers but does not attach)
TIB11A	Anterior surface, lateral aspect, distal metaphysis including fibular notch, excluding the medial malleolus and distal articular surface. (Numerous extensor tendons cover but do not attach)
TIB11P	Posterior surface, lateral aspect, distal metaphysis including fibular notch, excluding medial malleolus and distal articular surface (attachments for <i>Transverse Tibio-fibular Ligament</i> , <i>Posterior Inferior Tibio-fibular Ligament</i> , <i>Posterior Tibio-fibular Ligament</i>)
TIB12A	Anterior surface, medial aspect, distal metaphysis, medial malleolus, excluding the distal articular surface. (attachment for <i>Deltoid Ligament</i>)
TIB12P	Posterior surface, medial aspect, medial malleolus, excluding distal articular surface (attachments for Tendons for <i>Tibialis Posterior</i> and <i>Flexor Digitorum longus</i> , <i>Deltoid Ligament</i>)
TIB13	Distal articular surface
Fibula	
FIB01L	Fibula, proximal epiphysis, lateral surface (attachments for <i>Biceps Femoris</i> , <i>Fibular Collateral Ligament</i> , <i>Soleus</i> , <i>Popliteus Tendon</i>)
FIB01M	Fibula, proximal epiphysis, articular surface for tibia
FIB02	Shaft, all surfaces (attachments for <i>Soleus</i> , <i>Flexor Hallucis Longus</i> , <i>Peroneus Brevis</i> , <i>Interosseous Membrane</i>)
FIB03L	Fibula, distal epiphysis, lateral surface (attachments for <i>Anterior Inferior Tibio-fibular Ligament</i> , <i>Anterior Talo-Fibular Ligament</i> , <i>Ligaments for Peroneus Brevis</i> and <i>Peroneus Longus</i>)
FIB03M	Fibula, distal epiphysis, articular surface for talus

References Cited:

Buikstra, Jane and D H. Ubelaker

1994 *Standards for Data Collection from Human Skeletal Remains.*

Haynes, G.S. and D. Stanfod

1984 On the possible utilization of Camelops by Early Man in North America. *Quaternary Research* 22:216-230.

Reitz, Elizabeth J. and Elizabeth S. Wing

2008 *Zooarchaeology.* Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Rogers, L.F.

1992 *Radiology of Skeletal Trauma.* 2nd Edition. ed. Churchill Livingstone, NewYork.

Shipman, Pat

1981 Applications of Scanning Electron Microscopy to Taphonomic Problems. *Annals of the New York Academy of Science* 276:357-385.

Stodder, Ann L.W. and Anna J. Osterholtz

2010 Analysis of the Processed Human Remains from the Sacred Ridge Site: Methods and Data Collection Protocol. In *Animas-La Plata Project: XV-Bioarchaeology*, edited by E. M. Perry, A. L. W. Stodder and C. A. Bollong, pp. 243-278, J. Potter, general editor. SWCA Environmental Consultants, Pheonix.

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