

# **GUIDELINES FOR THE CARE AND CURATION OF HUMAN REMAINS COLLECTIONS AT THE FIELD MUSEUM**

## **Purpose of the document**

These Guidelines provide specific protocols for the continued care and curation of the human remains housed in the Field Museum's collections as required by the Addendum to the Field Museum of Natural History Collections Management Policy, "Curation of and Access to Human Remains" ("Policy Addendum"). Human remains at the Field Museum exist in many different forms of preservation and context, and are housed within the Anthropology, Mammals, and Fossil Mammals Collection Areas. The majority of human remains in the Museum's collections are housed within a single climate- and access-controlled facility, the Human Remains Facility, excepting those remains that are incorporated into objects or those that require specialized storage (such as fluid-preserved remains). While the physical state and storage location of each set of remains varies among the Museum's collections, these Guidelines outline a standard of care, curation, and access to these unique and irreplaceable collections. For more details on specific Collection Area Procedures for the care and curation of human remains, please contact the relevant Collections Administrative Team ("CAT") for the Anthropology, Mammals, or Fossil Mammals Collection Area. Deviations from the standards detailed below may be necessary due to preservation and physical state of the remains, or when requested by descendant communities. To reflect advancements and developments in collections curation and research, this document should be reviewed by Museum staff every five years, and updated as necessary in accordance with the Policy Addendum. These Guidelines and all subsequent revisions are approved by the Vice President of Science and Education.

## **Standards of care for human remains**

### *Handling*

All Field Museum staff and visitors to human remains collections should handle the remains carefully and with respect. Staff and visitors are requested to limit handling and relocation of human remains as much as possible. Relocation of human remains must be recorded and tracked using the Museum's database system and returned to permanent storage as soon as practicably possible following the completion of the research, teaching, or heritage visit.

### *Documentation*

Field Museum staff will ensure that proper documentation of each set of human remains within the collections be completed prior to research, teaching, or heritage visits. Inventories must include the following information:

1. Calculation of the minimum number of individuals (MNI) for each catalog number;
2. Listing of present elements (individuated, if possible);
3. Age and sex estimations of each individual (if possible);
4. Overall description of the preservation/condition of the remains;
5. Legal title and accession documentation;
6. Visual documentation of remains depicting overall preservation condition and elements present.

An example osteological inventory packet is attached to this document (Appendix 1). Please see specific Collection Area Procedures for details regarding access and storage of such documentation, and how research or visit requests for remains lacking the documentation described above will be managed.

### *Housing*

As defined in the Policy Addendum, all human remains at the Museum must be housed within the Human Remains Facility, with the exception of those remains requiring specialized storage, on exhibit, or held within Mammals or Fossil Mammals collections areas and lacking specific cultural affiliation or lineal descendancy. While variation in the preservation and physical state of each set of remains requires flexibility in curation methods, a general standard should be followed:

1. Human remains will be housed within secure areas of the museum, and access to collections should be further restricted to limited staff;
2. Unless on exhibition, human remains should not be readily visible –remains should be protected from particulates and restricted from view through the use of boxes and drawers within storage cabinets or similarly discrete methods;
3. When possible, human remains should be separated from non-human materials (unless those materials as identified as associated funerary objects) and housed as individuals;

4. Remains will be stabilized and housed using conservation-approved materials (i.e., acid-free boxes, tissue paper, alcohol) which help to maintain conditions of the remains and minimize handling;

Please reference the specific Collection Area Procedures for further details on area-specific housing standards.

### **Digital Data and Access**

Documentation of human remains (including catalog cards, osteological inventories, and relevant photographs, radiographic images, 3D scans and renderings, researcher data, etc.) should be uploaded and recorded in the Museum's database. All human remains records within the database (both catalog and multimedia) must be listed under the Human Remains department security option, which provides additional protection through limited access to these records under specifically-assigned user groups. Assignment to these user-groups will be determined and maintained by the relevant collections area CATs. Unless approved by the relevant CAT, records must be restricted from public view on both the inter- and intranet.

### **Access Requests and Requirements**

As outlined in the Policy Addendum, all requests to visit the human remains collections (either for research, teaching, or cultural heritage purposes) should be vetted with consideration to the continued stability and care of the remains. More specific protocols are outlined in the Collection Area Procedures. All collection areas request that visitors notify the appropriate CAT of an interest in viewing or working with human remains. Requests involving destructive/invasive analysis of the remains must include the researcher's CV and a robust scientific research proposal. Invasive analysis research proposals should address the following criteria:

1. Explanation of scope of research project with a detailed research design;
2. Review of similar human remains from other institutions and rationale of use of Field Museum human remains collections rather than other collections;
3. Description of proposed research methods and evidence of validity of proposed methods and procedures (literature review, pilot studies, etc.);

4. If invasive sampling is proposed, the researcher must also address the following:
  - a. Justification of proposed sampling procedures, including requirements for number of samples, sample size needed, which osteological element(s) to be sampled, and location on each element;
  - b. Identification of who will perform sample extraction, if not the researcher requesting access, and a copy of that professional's qualifications to conduct the destructive sampling;
  - c. Consideration of the preservation of unexpended sample materials or resulting solutions (ie., duplicate thin sections, powder or ground samples, intact segments of bone, and remnant DNA and solution) for ultimate return to the Museum collections;
  - d. A discussion of why non-invasive or non-destructive techniques cannot be used to adequately address the research questions.
  - e. Additional factors to be considered include: the overall rarity of the requested collection or individual; whether the knowledge to be gained outweighs the loss of material; the potential cultural significance of the remains; and the scientific potential of the proposed research;
5. Explanation of how resulting data will be protected, stored, and used by the researcher;
6. Description of how research will be disseminated;
7. Estimated timeline of project completion, with acknowledgement of time frame in which Museum will receive unexpended materials and copies of all resulting analytical data and publications.

All information, data, and publications resulting from research projects involving Museum human remains collections should be provided to the relevant CAT within the time frame and manner detailed in the applicable Collection Area Procedures.

### **Loans**

All potential loans of human remains collections (including outgoing samples from invasive analyses) will be determined and managed by the collections area CATs. Loans of human remains should not exceed one year, unless otherwise agreed upon by the CAT. Please reference the relevant Collections Area Procedures document for collections area-specific direction.

### **Acquisitions and Accessions**

All acquisitions and accessions to the human remains collections shall be made in accordance with the Policy (see Policy Section IV), the Criteria for Acquisitions, Accessions and Deaccessions (see Appendix A of the Policy), and the applicable Collection Area Procedures.

### **Deaccessions**

All deaccessions to the human remains collections shall be made in accordance with the Policy (see Policy Section V), the Criteria for Acquisitions, Accessions and Deaccessions (see Appendix A of the Policy), and the applicable Collection Area Procedures. In the instance that human remains are proposed for deaccession outside of repatriation purposes, the VP should be notified, and appropriate means of disposal should be researched and considered by the appropriate CAT.

### **Exhibition**

As outlined in the Policy Addendum, public display of human remains should follow careful consideration of the circumstances of each individual display. Any public display of human remains at the Field Museum must provide a material contribution to the educational mission of the Museum. Remains will only be displayed when culturally appropriate (as decided by the relevant CAT/s), and will be supported by detailed information about the individual to contextualize the display. Signs should be posted outside of exhibitions notifying the general public and visitors to the museum of the presence and/or public display of human remains in that area. If appropriate, similar signs should be placed outside of storage rooms, work, and laboratory spaces housing human remains. Museum staff may request prior consultation with and input from descendant communities regarding the display of culturally affiliated remains.

### **Ethical Considerations**

If collections requested for public viewing or research are considered culturally affiliated under the Native American Graves Protection and Repatriation Act (NAGPRA), permission for access to the remains must be obtained from the affiliated Native American tribe/s. This permission must be provided by a tribal or similar authority and submitted on Tribal or otherwise official letterhead. For those remains that are listed as culturally unidentifiable (CUI) or not covered under NAGPRA,

researchers and visitors will be asked to seek prior approval from potentially affiliated groups when possible. The Museum requests collaboration between researchers and descendant communities, and will preference projects in which research is conducted by, or in direct communication and request of, members of descendant communities. Whenever possible the Museum will work with the researcher/visitor to identify these appropriate groups.

Approved: DATE

H. Thorsten Lumbsch, Vice President, Science & Education

**APPENDIX 1: EXAMPLE OF OSTEOLOGICAL INVENTORY FORMS FOR FIELD  
MUSEUM HUMAN REMAINS**





Field Museum Catalogue # \_\_\_\_\_ / \_\_\_\_\_  
Storage # \_\_\_\_\_  
Specimen Label \_\_\_\_\_

Initials \_\_\_\_\_  
Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Dental Inventory:** (Presence, Development; Wear based on Buikstra and Ubelaker 1994 Standards)

Tooth	Presence	Development	Wear	Caries (P/A)	Abscess (P/A)	Hypoplasia (P/A)	Winging (P/A)	Shoveling (P/A)
RM <sup>3</sup>	_____	_____	_____	_____	_____	_____		
RM <sup>2</sup>	_____	_____	_____	_____	_____	_____		
RM <sup>1</sup>	_____	_____	_____	_____	_____	_____		
RP <sup>4</sup>	_____	_____	_____	_____	_____	_____		
RP <sup>3</sup>	_____	_____	_____	_____	_____	_____		
RC <sup>1</sup>	_____	_____	_____	_____	_____	_____		
RI <sup>2</sup>	_____	_____	_____	_____	_____	_____		_____
RI <sup>1</sup>	_____	_____	_____	_____	_____	_____	_____	_____
LI <sup>1</sup>	_____	_____	_____	_____	_____	_____	_____	_____
LI <sup>2</sup>	_____	_____	_____	_____	_____	_____		_____
LC <sup>1</sup>	_____	_____	_____	_____	_____	_____		
LP <sup>3</sup>	_____	_____	_____	_____	_____	_____		
LP <sup>4</sup>	_____	_____	_____	_____	_____	_____		
LM <sup>1</sup>	_____	_____	_____	_____	_____	_____		
LM <sup>2</sup>	_____	_____	_____	_____	_____	_____		
LM <sup>3</sup>	_____	_____	_____	_____	_____	_____		
RM <sub>3</sub>	_____	_____	_____	_____	_____	_____		
RM <sub>2</sub>	_____	_____	_____	_____	_____	_____		
RM <sub>1</sub>	_____	_____	_____	_____	_____	_____		
RP <sub>4</sub>	_____	_____	_____	_____	_____	_____		
RP <sub>3</sub>	_____	_____	_____	_____	_____	_____		
RC <sub>1</sub>	_____	_____	_____	_____	_____	_____		
RI <sub>2</sub>	_____	_____	_____	_____	_____	_____		_____
RI <sub>1</sub>	_____	_____	_____	_____	_____	_____		_____
LI <sub>1</sub>	_____	_____	_____	_____	_____	_____		_____
LI <sub>2</sub>	_____	_____	_____	_____	_____	_____		_____
LC <sub>1</sub>	_____	_____	_____	_____	_____	_____		
LP <sub>3</sub>	_____	_____	_____	_____	_____	_____		
LP <sub>4</sub>	_____	_____	_____	_____	_____	_____		
LM <sub>1</sub>	_____	_____	_____	_____	_____	_____		
LM <sub>2</sub>	_____	_____	_____	_____	_____	_____		
LM <sub>3</sub>	_____	_____	_____	_____	_____	_____		
drm <sup>2</sup>	_____	_____	_____	_____	_____	_____		
drm <sup>1</sup>	_____	_____	_____	_____	_____	_____		
drc <sup>1</sup>	_____	_____	_____	_____	_____	_____		
dri <sup>2</sup>	_____	_____	_____	_____	_____	_____		_____
dri <sup>1</sup>	_____	_____	_____	_____	_____	_____	_____	_____
dli <sup>1</sup>	_____	_____	_____	_____	_____	_____	_____	_____
dli <sup>2</sup>	_____	_____	_____	_____	_____	_____		_____
dlc <sup>1</sup>	_____	_____	_____	_____	_____	_____		
dln <sup>1</sup>	_____	_____	_____	_____	_____	_____		
dln <sup>2</sup>	_____	_____	_____	_____	_____	_____		
drm <sub>2</sub>	_____	_____	_____	_____	_____	_____		
drm <sub>1</sub>	_____	_____	_____	_____	_____	_____		
drc <sub>1</sub>	_____	_____	_____	_____	_____	_____		
dri <sub>2</sub>	_____	_____	_____	_____	_____	_____		_____
dri <sub>1</sub>	_____	_____	_____	_____	_____	_____		_____
dli <sub>1</sub>	_____	_____	_____	_____	_____	_____		_____
dli <sub>2</sub>	_____	_____	_____	_____	_____	_____		_____
dlc <sub>1</sub>	_____	_____	_____	_____	_____	_____		
dln <sub>1</sub>	_____	_____	_____	_____	_____	_____		
dln <sub>2</sub>	_____	_____	_____	_____	_____	_____		

Comments:

Specimen Label

Date      /      /     

Epiphyseal Fusion	Stage	Age
Clavicle—medial	_____	(16-30yrs)
Humerus— head	_____	(16-20, 13-17yrs)
—trochlea	_____	(12-17, 11-15yrs)
—lat. epicon.	_____	(12-14yrs)
—med. epicon.	_____	(12-17, 13-15yrs)
Radius—proximal	_____	(14-17, 11.5-13yrs)
—distal	_____	(16-20, 14-17yrs)
Ulna — proximal	_____	(13-16, 12-14yrs)
— distal	_____	(17-20, 15-17yrs)
Ischium-Pubis	_____	(5-8yrs)
Ischial tuberosity	_____	(16-18yrs)
Iliac crest	_____	(17-23yrs)
Femur—head	_____	(14-19, 12-16yrs)
—gt. trochanter	_____	(16-18, 14-16yrs)
— distal	_____	(16-20, 14-18yrs)
Tibia—proximal	_____	(15-19, 13-17yrs)
— distal	_____	(15-18, 14-16yrs)
Fibula—proximal	_____	(15-20, 12-17yrs)
— distal	_____	15-18, 12-15yrs)

	<u>Stage</u>	<u>Age</u>
Cerv—sp	_____	(2yrs)
—sp-body	_____	(3-4yrs)
Thor—sp	_____	(1-2yrs)
—sp-body	_____	(3-5yrs)
Lum—sp	_____	(1yr)
—sp-body	_____	(2-3yrs)
Sacrum		
—Alae-cent	_____	(2-5yrs)
—Post lam.	_____	(7-15yrs)
—S1-S2	_____	(25+yrs)
—S2-S3	_____	(12-18yrs)
—S3-S4	_____	(~12yrs)
—S4-S5	_____	(~12yrs)

Dental age \_\_\_\_\_  
(see Dentition Form)

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Estimated Age

<u>PELVIS</u>	Phase	Age
Todd	_____	_____
Suchey-Brooks	_____	_____
Auricular surface	_____	_____

	Phase	Age
Mandible wear	_____	_____
Maxilla wear	_____	_____

Midlambdoid	_____	
Lambda	_____	
Obelion	_____	
Ant. Sagittal	_____	
Bregma	_____	
Midcoronal	_____	
Pterion	_____	Age _____
Sphenofrontal	_____	
Inf. Sphenotemporal	_____	
Sup. Sphenotemporal	_____	Age _____

<b>Estimated Age</b>	<b>Estimated Age</b>
0-1	0-1
2-3	2-3
4-5	4-5
6-7	6-7
8-9	8-9
10-11	10-11
12-13	12-13
14-15	14-15
16-17	16-17
18-19	18-19
20-21	20-21
22-23	22-23
24-25	24-25
26-27	26-27
28-29	28-29
30-31	30-31
32-33	32-33
34-35	34-35
36-37	36-37
38-39	38-39
40-41	40-41
42-43	42-43
44-45	44-45
46-47	46-47
48-49	48-49
50-51	50-51
52-53	52-53
54-55	54-55
56-57	56-57
58-59	58-59
60-61	60-61
62-63	62-63
64-65	64-65
66-67	66-67
68-69	68-69
70-71	70-71
72-73	72-73
74-75	74-75
76-77	76-77
78-79	78-79
80-81	80-81
82-83	82-83
84-85	84-85
86-87	86-87
88-89	88-89
90-91	90-91
92-93	92-93
94-95	94-95
96-97	96-97
98-99	98-99
100+	100+

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1 = female      2 = possibly female      3 = ambiguous      4 = possibly male      5 = male

<b><u>SKULL</u></b>	
Nuchal crest	_____
Mastoid process	_____
Supraorbital margin	_____
Glabella	_____
Mental eminence	_____

**PELVIS**

Ventral Arc (P/A)	_____
Subpubic concavity	_____
Ischio-pubic ramus ridge	_____
Gr. sciatic notch width	_____
Preauricular sulcus (P/A)	_____

FM head diameter (F<42.5, M>47.5) ———

HM head diameter (F<43, M>47) ———

Tibia shaft circumference (F<84, M>99) ———

### Estimated Sex

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Field Museum Catalogue # \_\_\_\_\_ / \_\_\_\_\_  
Storage # \_\_\_\_\_  
Specimen Label \_\_\_\_\_

Initials \_\_\_\_\_  
Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Nonmetric Traits:	(Present/Absent/Impossible)	Notes
1. Metopic Suture	_____	_____
2. Supraorbital Notch	_____	_____
3. Supraorbital Foramen	_____	_____
4. Multiple Infraorbital Foramina	_____	_____
5. Zygomatico-facial Foramina	_____	_____
6. Parietal Foramen	_____	_____
7. Sutural Bones	_____	_____
8. Inca Bone	_____	_____
9. Condylar Canal	_____	_____
10. Divided Hypoglossal Canal	_____	_____
11. Flexure of Sup. Sagittal Sulcus	_____	_____
12. Foramen Ovale Incomplete	_____	_____
13. Foramen Spinosum Incomplete	_____	_____
14. Pterygo-spinous Bridge	_____	_____
15. Pterygo-alar Bridge	_____	_____
16. Tympanic Dihiscence	_____	_____
17. Auditory Exostosis	_____	_____
18. Mastoid Foramen	_____	_____
19. Mental Foramen	_____	_____
20. Mandibular Torus	_____	_____
21. Mylohyoid Bridge	_____	_____
22. Atlas Bridging	_____	_____
23. Accessory Transverse Foramina	_____	_____
24. Septal Aperture	_____	_____

Cranial Measurements: (mm)			
1. Maximum Cranial Length	_____	18. Interorbital Breadth	_____
2. Maximum Cranial Breadth	_____	19. Frontal Chord	_____
3. Bizygomatic Diameter	_____	20. Parietal Chord	_____
4. Basion-Bregma Height	_____	21. Occipital Chord	_____
5. Cranial Base Length	_____	22. Foramen Magnum Length	_____
6. Basion-Prosthion Length	_____	23. Foramen Magnum Breadth	_____
7. Maxillo-Alveolar Breadth	_____	24. Mastoid Length	_____
8. Maxillo-Alveolar Length	_____	25. Chin Height	_____
9. Biauricular Breadth	_____	26. Height of Mandibular Body	_____
10. Upper Facial Height	_____	27. Breadth of Mandibular Body	_____
11. Minimum Frontal Breadth	_____	28. Bigonial Width	_____
12. Upper Facial Breadth	_____	29. Bicondylar Breadth	_____
13. Nasal Height	_____	30. Minimum Ramus Breadth	_____
14. Nasal Breadth	_____	31. Maximum Ramus Breadth	_____
15. Orbital Breadth	_____	32. Maximum Ramus Height	_____
16. Orbital Height	_____	33. Mandibular Length	_____
17. Biorbital Breadth	_____	34. Mandibular Angle	_____

Postcranial Measurements: MAX (mm)			Left	Right
	Left	Right		
1. Humerus (length)	_____	_____	5. Femur (length)	_____
2. Radius (length)	_____	_____	6. Femur (50% dia, AP)	_____
3. Ulna (length)	_____	_____	7. Femur (50% dia. ML)	_____
4. Ilium (breadth)	_____	_____	8. Tibia (length)	_____
			9. Fibula (length)	_____

Notes: \_\_\_\_\_

Specimen Label \_\_\_\_\_

Date        /        /       

**Trauma:** \_\_\_\_\_

**Periosteal Reaction (Bone Formation):** \_\_\_\_\_

**Arthritis:** \_\_\_\_\_

	<b>Vertebral Pathology:</b>	Cervical _____	Thoracic _____	Lumbar _____	Sacrum _____	[classify as slight, moderate, severe]
--	-----------------------------	----------------	----------------	--------------	--------------	--

	<b>Congenital/Developmental:</b> _____ _____ _____
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	<b>Bone Loss/Porosity:</b>
	Osteoporosis _____ Porotic Hyperostosis _____ Cribra Orbitalia _____ [classify as slight, moderate, severe]

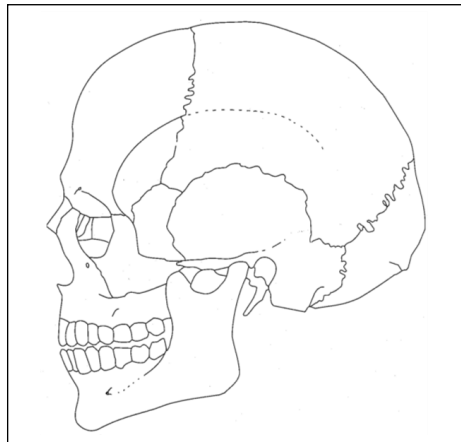
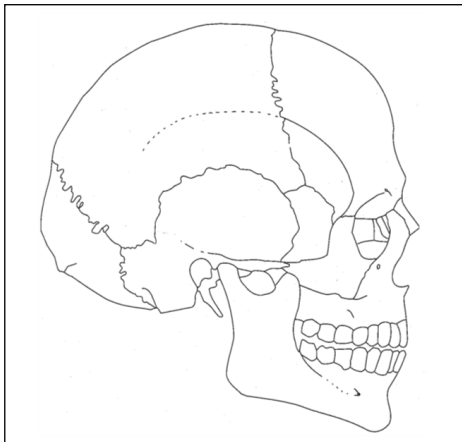
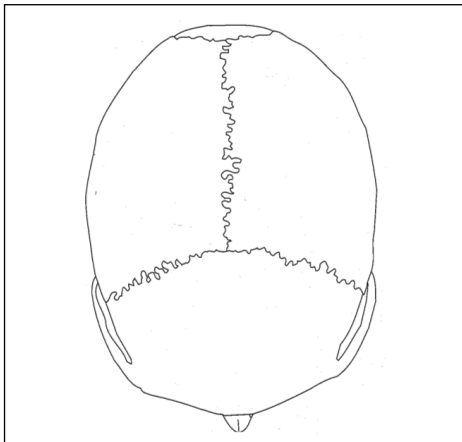
**Other Lesions/Conditions/Notes:** \_\_\_\_\_

Field Museum Catalogue # \_\_\_\_\_ / \_\_\_\_\_  
Storage # \_\_\_\_\_  
Specimen Label \_\_\_\_\_

Initials \_\_\_\_\_  
Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Cultural Modification:**

**Cranial** (outline modified shape and describe):



Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Dental:** (illustrate and describe)



Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Postcranial/Other:** (describe)

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Field Museum Catalogue # \_\_\_\_\_ / \_\_\_\_\_  
Storage # \_\_\_\_\_  
Specimen Label \_\_\_\_\_

Initials \_\_\_\_\_  
Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

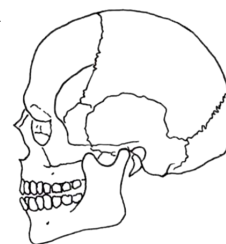
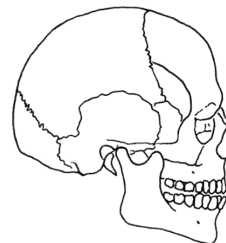
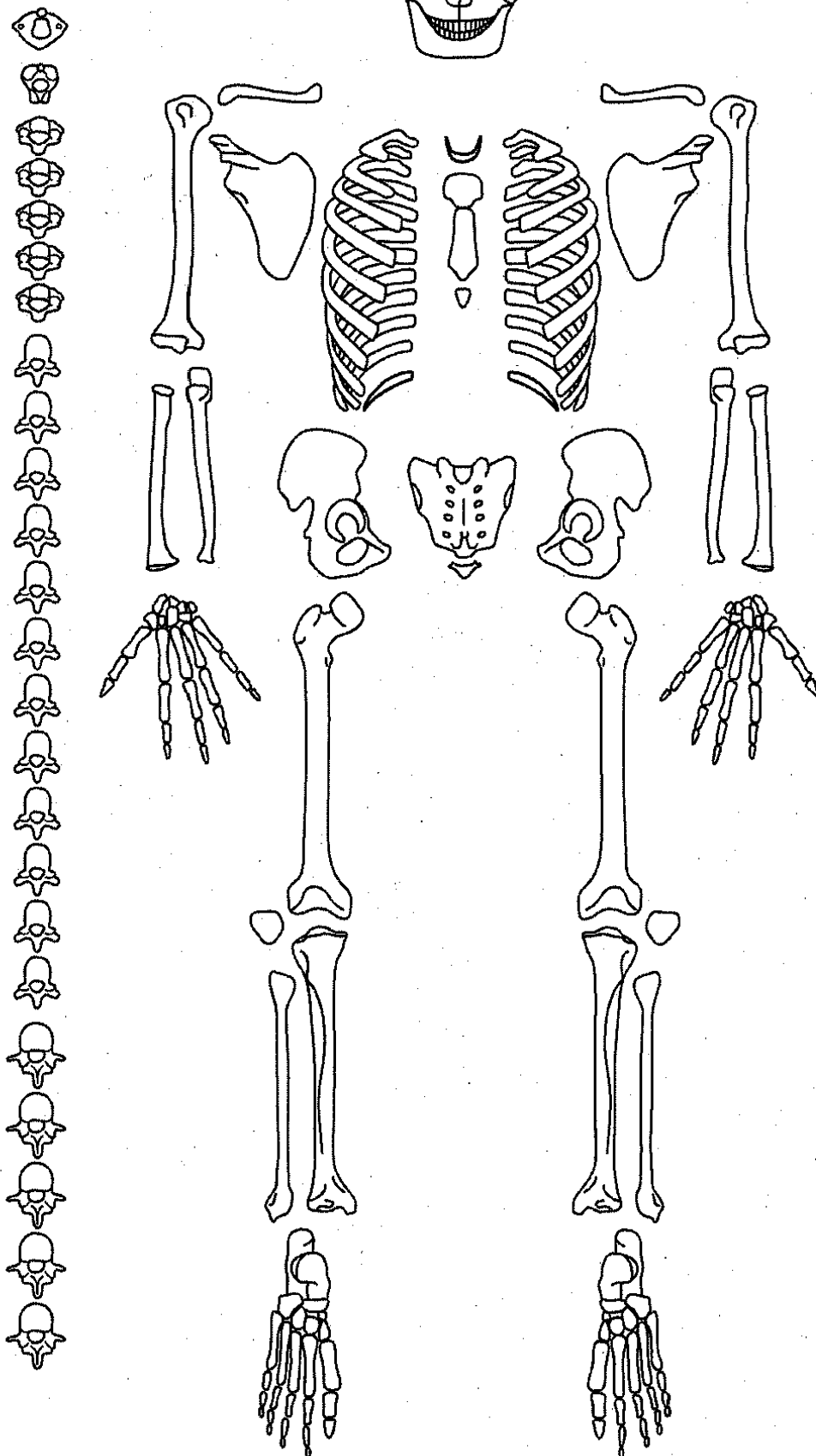
## Skeletal Map:



Indicates fragmentary bone

R

L



Field Museum Catalogue # \_\_\_\_\_ / \_\_\_\_\_

Storage # \_\_\_\_\_

Specimen Label \_\_\_\_\_


Initials \_\_\_\_\_


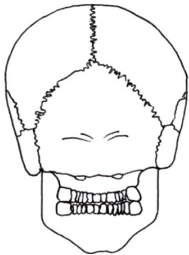
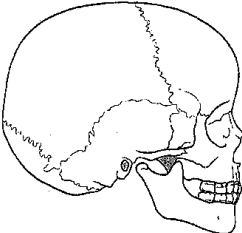
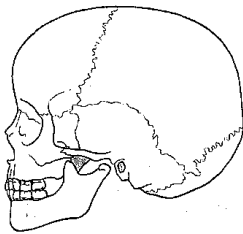
Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Juvenile Skeletal Map:

R

L


Indicates fragmentary bone

R.Rib Hds

L.Rib Hds

Sternal ends

Sternal ends

Hand

MC heads

Phalanges

Metacarpals

Foot

MT heads

Phalanges

Metatarsals

Specimen Label \_\_\_\_\_

Date        /        /



## KEY FOR FMNH OSTEOLOGY INVENTORY FORMS (2018 VERSION)

### Introduction to 2018 Forms

These forms were created in 2018 to document osteological analyses of North American human remains as part of the Field Museum's 2016 IMLS National Leadership Grant. The 2018 version is modeled from previous forms utilized at FMNH, and has a total of 9 pages. Based on the individual situation of each catalogue/specimen number, it may not be necessary to utilize each of the 9 pages. Page numbers and totals should always be recorded at the bottom of each page. In the instance of commingled remains for which a full inventory packet is not feasible, the Commingled and General Overview/Inventory forms should be used.

### General Overview

"MNI" = Minimum Number of Individuals

"A.F.O." = Associated Funerary Object [number of funerary objects associated with individual/s]

"Cond" = Condition [1 = 75% or more of the bone is present, 2 = 25-75% of the bone is present, 3 = 25% or less of the bone is present]

"Path" = Pathology [P = pathological condition is observed, A = there are no visible pathological conditions observed]

"Modification" = Cultural modification [P = modification is present, A = modification is absent, U = modification cannot be determined]

"Age" = Fetus = prior to newborn, Infant = 0-3 years old, Child = 3.1-9.9 years old, Subadult = 10-17.9 years old, Adult [YA = Young adult 18-30 years old, MA = Middle adult 30-50 years old, OA = Old adult 50+ years old]

### Inventory

Condition = [1=75% or more of bone is present, 2 = 25-75% of bone is present, 3 = less than 25% of bone is present]

? = side is unknown

# = count of total elements or fragments

### Dental Inventory

Presence = see Buikstra and Ubelaker (1994), pg. 49, Table 2

Development = see Buikstra and Ubelaker (1994), pg. 50, Figure 23

Wear = an averaged sum per tooth based on Buikstra and Ubelaker (1994), pg. 52, Figure 25; scoring of molar wear follows this same 0-10 scoring system (does not follow scoring system from Scott 1979: 214)

Carries = [P = caries observed on tooth, A = no carries observed on tooth, I = impossible to determine]

Abscess = [P = abscess observed at tooth, A = no abscess observed at tooth, I = impossible to determine]

Hypoplasia = [P = hypoplasia observed on enamel, A = no hypoplasia observed on enamel, I = impossible to determine]

Winging = [P = winging observed, A = winging not observed, I = impossible to determine]

Shoveling = [P = shoveling of incisors observed, A = shoveling of incisors absent, I = impossible to determine]

### Juvenile Age

Stage = [0 = unfused, 1 = in process of fusing, 2 = fusion complete]

Age presented in brackets indicates average age at which fusion is complete in Males / Females

Dental age = see Buikstra and Ubelaker (1994), pg. 51, Figure 24

### Adult Skeletal Age

Pelvis = Phases and ages are guided by published work of Todd, Suchey-Brooks, and Meindl and Lovejoy (see Buikstra and Ubelaker (1994), pgs. 22-32)

Cranial Suture Closure = [0 = open, 1 = minimal closure, 2 = significant closure, 3 = complete closure] see Buikstra and Ubelaker (1994), pgs. 32-38

### Skeletal Sex

1 = female, 2 = possibly female, 3 = ambiguous, 4 = possibly male, 5 = male

### Nonmetric Traits

List of non-metric traits numbered 1-24 have been taken from standards set by Buikstra and Ubelaker (1994), pages 87-92

### Cranial and Postcranial Measurements

List numbered 1-34 have been taken from standards set by Buikstra and Ubelaker (1994), pages 74-84, and comply with those currently used for FORDISC.

List numbered 35-37 are subtense measurements used to record cranial modification. See Buikstra and Ubelaker for descriptions of how specific measurement is taken.

### Pathology

Emphasis is on briefly describing bone changes rather than diagnoses, but categorization of lesion/condition into type or etiology is attempted using categories such as "arthritis".

### Juvenile and Adult Skeletal Maps

Purpose of maps is to provide quick visual reference to the presence and condition of skeletal elements for each catalogue/specimen number. Elements that cannot be confirmed as to location and/or side should still be colored on the map, with a note indicating which determinations cannot be made. Fragmentary elements shall be colored in the general location from which they belong, and illustrated as "fragmentary" with a hashing design.

### Commingled/Isolated Remains

See Buikstra and Ubelaker (1994), pgs. 9-10, and Attachment 2.