The following is a list of the 454 studies included in the analysis. For each text (complete study) I read, I indicate both the research question(s) addressed or the goal of the study (Table S1), and the variables recorded (Table S2). I use a shorthand for each that is summarized in Tables S1 and S2. For each study, under its individual entry in the list of studies, I list the bone modifying animal(s) studied, whether the animals were wild, housed in an enclosure, or were captive when they modified the bones examined. I also indicate when the identity of a bone modifying animal was inferred rather than observed.

Table S1. Goals of the study.
A. Document osteophagia by the bone modifying species 
B. Establish signature criteria of the bone modifying species 
C. Document how one bone modifying species alters bones/carcass 
D. Determine if modifications by multiple bone modifying species are distinguishable 
E. Introduce a new method to record/analyze modifications 
F. Determine which modifications are anthropogenic and which are natural 
G. Determine disarticulation/consumption sequence 
H. Other (e.g., provide an overview of the state of the art in a particular area)

Table S2. Variables recorded or measured.
P. Other (e.g., taxonomic composition of modified bones, bone fragment size) 
S. Disarticulation (number of articulated joints tallied) 
T. Dispersal and/or spatial distribution of skeletal parts of one or more carcasses 
U. Demography of individual modified animals (ontogenetic age and/sex) 
V. Orientation of long axis of individual skeletal specimens 
W. Kind of damage observed (e.g., gnawed, fractured, digestive etching) 
X. Morphometry of damage or mark 
Y. Number of damaged/modified skeletal parts 
Z. Skeletal part frequencies (e.g., N of humeri, femora, tibiae, etc.) 
Q. Anatomical distribution of damage on bones
R. Frequency of damage marks (e.g., N of tooth marks; not variable Y above)

Table S3. List of References and Data

   
   Goal = C (fortuitous observations)
   
   variable = T

   
   goal = C
   
   variable = W, X, Z

   
   goal = A
   
   variable = P

   
   goal = D
   
   variable = X

polecat (*Mustela putorius*), stoat (*Mustela erminea*), [European] mink (*Mustela lutreola*); Felidae => margay (*Felis wiedi*), feral cat (*Felis catus*) In his 1995 JAS paper, he says he looked at remains of 41 recent predator species all are wild goal = H (accumulation process to determine paleoecology) variable = P (frag intensity, corrosion), Q, Y, Z

goal = C
variable = W, X, Y

goal = D
variable = Z, W, Y, P

8. Aramendi, Julia, Miguel Ángel Maté González, José Yravedra, María Cruz Ortega, Mari Carmen Arriaza, Diego González-Aguilera, Enrique Baquedano, and Manuel Domínguez-Rodrigo. 2017. Discerning Carnivore Agency Through the Three-Dimensional Study of Tooth Pits: Revisiting the Crocodile Feeding Behaviour at FLK-Zinj and FLK NN3 (Olduvai Gorge, Tanzania). *Palaeogeography, Palaeoclimatology, Palaeoecology* 488:93–102. wolf, hyena, jaguar, lion, crocodile (some separation but lots of overlap, but only 20 pits of each) = all captive
goal = B, D, E
variable = X

goal = B, D, G
variable = T, W, Y, Z


goal = D (prey size/taxon is as important a taphonomic influence as predator)
variable W, Z, Y, P, X
Verreaux’s Eagle (*Aquila verreauxii*)  
goal = B, D (prey size/taxon is as important as predator)  
variable = W, X, Y, Z

carnivore = wild  
goal = H  
variable = P

lion (*Panthera leo*) INFERRED = wild  
goal = C  
variable = V, X, P, W, Q, Z

lion, hyena (30 marks by lion, 33 by hyena) LION INFERRED = both wild  
goal = D  
variable = X

harvester termite (*Trinervitermes trinervoides*) = wild  
goal = B  
variable = W, X

= wild  
goal = B  
variable = W, Z, X

\[ \text{goal} = H \]

\[ \text{variable} = T, Z, W \]


\[ \text{goal} = D \ [G, \text{secondarily}] \]

\[ \text{variable} = T \]


\[ \text{goal} = C \]

\[ \text{variable} = W, X, Y, Q, R \]


\[ \text{goal} = A \]

\[ \text{variable} = P \]


\[ \text{goal} = C \]

\[ \text{variable} = Z, T \]


\[ \text{goal} = H \]

\[ \text{variable} = P \text{ (prey composition; fragment size), } Z \]

crowned eagle (*Stephanoaetus coronatus*)
goal = B
variable = X

variable = S, W

goal = C
variable = T, S, W

goal = F
variable = Z

goal = F
variable = Z, Q

goals = F
variable = Z, W

goal = F
variable = X, Q

Processing by Hammerstones and Hyenas: Their Anatomical Patterning and Archaeological Implications. In *Cultural Beginnings*, edited by J. D. Clark, pp. 17–32. Dr. R. Habelt GMBH, Bonn.

people, hyena = --, wild

goal = F

variable = X, Q, Y


variable = W, P (frag type, corrosion), Z, Q, Y also uses data from refs. 33, 35, 36


goal = D

variable = W, Y, Z, P (frag. type, corrosion), Q also uses data from refs. 33, 35, 36, 37, 38, 39, 40, 43, 235


variable = W, P (frag type), Z, Q, Y


variable = W, Y, Q, Z, P (corrosion)


variable = W, Y, Q, Z

of Osteoarchaeology 7:165–171. = wild
goal = C, D
variable = W, Y, Z

goal = C, D
variable = Z, W, Q, Y also uses data from ref. 35

goal = H
variable = Z, X, P (corrosion), Y

goal = C, D
variable = W, Z

goal = C, D
variable = W, Q, X, Y, Z

goal = C
variable = W, Q, X, Y, Z

44. Bonnichsen, Robson. 1973. Some operational aspects of human and animal bone alteration. In Mammalian Osteoarchaeology, by B. Miles Gilbert, pp. 9–24. Missouri Archaeological Society, Columbia, MO. dog (Canis familiaris), Siberian tiger (Panthera tigris), caracal cat (Lynx caracal), north China leopard (Panthera pardus), Siberian lynx (Lynx lynx) = all captive
goal = F
variable = Z, S, P (burial)
   goal = C
   variable = S, P (burial), Z

   goal = H (contamination of archy site; time averaging)
   variable = W, Q (little damage directly attributable to beaver)

47. Borrero, Luis A., Fabiana M. Martin, and Francisco J. Prevosti. 20--. Taphonomy and the Role of *Pumas (Puma concolor)* in the Formation of the Archaeological Record. *Quaternary International* 466B:157–164. = wild
   goal = F
   variable = T, W, X

48. Bountalis, Alexandra C. 2012. Cave Usage and the Implications of Multiple Taphonomic Agents on a Faunal Assemblage. Master of Science thesis, University of the Witwatersrand, Johannesburg. *summarizes work of others: leopard (Panthera pardus), brown hyaena (Parahyaena brunnea), honey badger or ratel (Melivora capensis), warthog (Phacochoerus africanus), porcupine (Hystrix afericaeaustralis), large spotted genet (Genetta tigrina), black-backed jackal (Canis mesomelas) = all wild*
   goal = D
   variable = P


   goal = A
   variable = P

   goal = F
   variable = Z

by Anna K. Behrensmeyer and Andrew P. Hill, pp. 107–130. University of Chicago Press, Chicago. **African porcupine (Hystrix aferce-ustralis), spotted hyena (Crocuta crocuta), leopard (Panthera pardus), people = captive & wild porcupine goal = F**

variable = P (prey comp., frag. size), Z, W, Y

53. Brain, C. K. 1981. *The Hunters or the Hunted? An Introduction to African Cave Taphonomy*. University of Chicago Press, Chicago. **spotted hyena (Crocuta crocuta), brown hyena (Hyaena brunnea), striped hyena (Hyaena hyaena), leopard (Panthera pardus), Verreaux black eagle (Aquila verreauxi), porcupine (Hystrix afercaeaustalis), spotted eagle owl (Bubo africanus), cape eagle owl (Bubo capensis), giant eagle owl (Bubo lacteus), barn owl (Tyto alba) = all wild, except leopard both captive & wild**

goal = F

variable = W, Z, P (prey comp., frag. size)


**INFERRED = wild**

goal = F

variable = Z


goal = D, G

variable = T, X, Y, Z


goal = C

variable = W, X


goal = F

variable = W, X, Q

goal = H
variable = P (intensity of damage to carcass, sort of goal G)

goal = C
variable = P (prey comp), U, Z, W (use data lumped from multiple authors)

goal = F
variable = P (prey comp; diaphysis circumference), W, Y

goal = C, F
variable = Z, S, T, W, X

62. Burke, Chrissina C. 2013. Neotaphonomic Analysis of the Feeding Behaviors and Modification Marks Produced by North American Carnivores. Journal of Taphonomy 11:1–20. wolf (Canis lupus), coyote (Canis latrans), mountain lion (Puma concolor), bobcat (Lynx rufus), grizzly bear (Ursus arctos), black bear (Ursus americanus) = all captive
goal = F, C
variable = Z, S, T, W, X

goal =
variable =
goal = C
variable = P (corrosion)

goal = D
variable = X, Y

goal = F, H
variable = T


goal = C, D
variable = Z, W, P (corrosion, fragmentation, frag size, prey comp)
also use data from refs. 5, 100, 278

goal = H
variable = Z, W

goal = F
variable = Z, P (whole bone to frag ratio)

goal = F

variable = X, P (prey size)


goal = C

variable = P (observed gnawing)


goal = D

variable = Z, Y also use data from ref. 163


goal = H (not all identified)

variable = W


goal = D

variable = W, X, R


= both captive

goal = D

variable = Z, P (corrosion), W, Y


goal = C

variable = Z, P (corrosion), W, Y


goal = C
variable = Z, W, P (corrosion, fragmentation pattern)


goal = D, E

variable = W, Y, P (corrosion)

goal = H

variable = W

goal = F

variable = T

82. Croft, Shannon, and Claire Havens. 2008. Taphonomic Signatures of Bald Eagles (*Haliaeetus leucocephalus*) on Avian Prey Bones from Boundary Bay, British Columbia, Canada. unpublished manuscript (on line) = wild

goal = C

variable = W, Y

goal = C

variable = P (density of bones), Z, W, Y

goal = H

variable = Z [mostly interested in weathering and inter-regional diffs with Africa] minimal data

goal = F
variable = P (prey comp), W, Y, Q
also use data from ref. 176

goal = F
variable = U, Z

goal = D
variable = P (skeletonization), W

goal = C
variable = X, Q

goal = C, D
variable = Z, Y, T

goal = C
variable = T

goal = C
variable = W

goal = H
variable = Z, P (chemical change, corrosion), Q

goal = H (to recognize predation)
variable = P (digestive corrosion of incisors)

94. David, Bruno. 1983. To Pick a Bone: Differentiating Between Cultural and Dingo-Accumulated Bone Debris—The Case of Walkunder Arch Cave. Thesis, Australian National University, Canberra. **(Canis lupus dingo)** Title only

goal = H
variable = P (prey comp; corrosion), Z, W, Y

96. Delaney-Rivera, C., T. W. Plummer, J. A. Hodgson, F. Forrest, F. Hertel, and J. S. Oliver. 2009. Pits and Pitfalls: Taxonomic Variability and Patterning in Tooth Mark Dimensions. Journal of Archaeological Science 36:2597–2608. **American alligator (Alligator mississippiensis), opossum (Didelphis virginiana), red fox (Vulpes vulpes), coyote (Canis latrans), dog (Canis familiaris), striped skunk (Mephitis mephitis), South American coati (Nasua nasua), raccoon (Procyon lotor), ocelot (Leopardus pardalis), bobcat (Lynx rufus), serval (Leptailurus serval), caracal (Caracal caracal), puma (Felis concolor), tiger (Panthera tigris), African lion (Panthera leo), spotted hyena (Crocuta crocuta) = all captive**
goal = D
variable = X, Q, P (predator body mass influence)
also use data from refs. 112, 388

goal = C
variable = P (prey comp), W, Y, Q, R, X, Z

98. Demo, Caroline, Edison Rogério Cansi, Cecília Kosmann, and José Roberto Pujol-Luz. 2013. Vultures and Other Scavenger Vertebrates Associated with Man-Sized Pig Carcasses: A Perspective in Forensic Taphonomy. Zoologia 30:574–576. **American black vulture (Coragyps atratus), turkey vulture (Cathartes aura), king vulture**
(Sarcoramphus papa), southern caracara (Caracara plancus), ocelot (Leopardus pardalis) = all wild
goal = C
variable = T, Z (but minimal data)

goal = C
variable = P (prey comp), Z, Y

goal = C
variable = P (corrosion), Z

goal = D, E
variable = P (prey comp; corrosion), Z, W

goal = C
variable = P (prey comp), lots of qualitative description

goal = C
variable = Z

goal = C
variables = W

goal = C
variable = W, Y, Z

goal = D
variable = Z, P (fragmentation pattern)

goal = C, F
variable = Q, W, Y

goal = H (carnivore interaction)
variable = P (carnivore time at kill)

goal = C
variable = W, Q, R

goal = D
variables = W, Q, Y also use data from refs. 152, 209, 452

goal = C
variable = Z, R, Q, W, P (element completeness)
use data from lots of others

\[
\text{goal} = D \\
\text{variable} = X
\]

113. Domínguez-Rodrigo, Manuel, José Yravedra, Elia Organista, Agness Gidna, Jean-Baptiste Fourvel, and Enrique Baquedano. 2015. A New Methodological Approach to the Taphonomic Study of Paleontological and Archaeological Faunal Assemblages: A Preliminary Case Study from Olduvai Gorge (Tanzania). *Journal of Archaeological Science* 59:35–53. lion (wild, captive), jaguar, spotted hyena *(n of bones fed to each various from ~30 to ~60) = wild & captive, captive, captive*

\[
\text{goal} = E \\
\text{variable} = Z, W, Y
\]


\[
\text{goal} = C \\
\text{variable} = Z, W, Y
\]


\[
\text{goal} = C \\
\text{variable} = W, X, T, Q, R
\]


\[
\text{goal} = C \\
\text{variable} = \text{minimal data, qualitative & subjective}
\]


\[
\text{goal} = D \\
\text{variable} = X
\]
goal = C, D
variable = X

goal = H
variable = X

goal = C
variable = Z, P (frag size; prey comp), W, Y, Q

goal = F
variable = W, X, Y, Q

goal = C
variable = Z, W

goal = C
variable = Z

goal = C
variable = P (prey comp), Z, U
goal = C
variable = P (frag size), Y, Q, W, Z

goal = C, H
variable = P (prey comp, frag size), Y, Q

goal = H (influence of change in predator abundance)
variable = Z, W, P (influence of carcass size)

goal = H (influence of carnivore competition)
variable = Z

goal = C
variable = P, V (egg shell orientation)


neotropical otter (Lontra longicaudis), Andean hog-nosed skunk (Conepatus chinga)
goal = D
variable = P (corrosion)  use data from refs. 5, 132, others

132. Fernández-Jalvo, Yolanda, Peter Andrews, C. Denys, C. Sese, E. Stoetzel, D. Marín Monfort, and D. Pesquero. 2016. Taphonomy for Taxonomists: Implications of Predation in Small Mammal Studies. *Quaternary Science Reviews* 139:138–157. barn owl (Tyto alba), great horned owl (Bubo virginianus), Eurasian eagle owl (Bubo bubo), Verreaux’s eagle owl (Bubo lacteus), spotted eagle owl (*Bubo africanus*), great grey owl (Strix nebulosa), tawny owl (Strix aluco), little owl (Athene noctua), short-eared owl (Asio flammeus), long-eared owl (Asio otus), snowy owl (Nyctea scandiaca), common kestrel (Falco tinnunculus), southern crested caracara (Caracara plancus), black-winged kite (Elanus caeruleus), white-tailed kite (Elanus leucurus), Spanish imperial eagle (Aquila adalberti), hen harrier (Circus cyaneus), western marsh harrier (Circus aeruginosus), common genet (Genetta genetta), serval (Felis serval), caracal (Felis caracal), cat (Felis cattus), puma (Puma concolor), black-backed jackal (Canis mesomelas), white-tailed mongoose (Ichneumia albicauda), bat-eared fox (Otocyon megalotis), Iberian lynx (Lynx pardinus), red fox (Vulpes vulpes), arctic fox (Alopex lagopus), South American grey fox (Pseudalopex griseus), European pine marten (Martes martes), Molina’s hog-nosed skunk (Conepatus chinga)
goal = D, E
variable = P (corrosion)

goal = C
variable = X, Q

goal = H (influence of env where carcass is)
variable = T, Z, W, S

goal = F
variable = T, Z

American alligator (*Alligator mississippiensis*), spectacled caiman (*Caiman crocodilus*) = both captive  
goal = C  
variable = P (corrosion)

carnivore, rodent  
goal = C  
variable = W, X

= wild  
goal = C  
variable = Z

spotted hyena (*Crocuta crocuta*), brown hyena (*Parahyaena brunnea*), striped hyena (*Hyaena hyaena*) = all wild  
[notes lots of interanalyst variability in variables studied]  
goal = D  
variable = P (prey comp, frag size), Z, W, Y, X

spotted hyena (*Crocuta crocuta*), striped hyena (*Hyaena hyaena*) = show contingent nature of bone destruction  
goal = H (influence of prey availability)  
variable = Z, Y, Q, P (corrosion)

[experimental wolf gnawing] = enclosure  
goal = D  
variable = X, Q, W  
also uses data from ref. 310
goal = C
variable = T, P (frag size)

goal = C
variable = Z

goal = H (post mortem interval, skeletonization)
variable = T

146. Garvey, Jillian. 1999. Taphonomic Analysis of the Small Vertebrate Fauna from the Archaeological Site Derwent River Shelter 7 (DRS7), Tasmania. Honors thesis, Departments of Zoology and Archaeology, La Trobe University, Melbourne. **Barn owl** (*Tyto alba*), **boobook owl** (*Ninox boobook*), **Tasmanian masked owl** (*Tyto novaehollandiae castanops*) = all captive
goal = D
variable = Z, W, P (frag types)

goal = C, D
variable = T, W, X

goal = C, D
variable = W, X

**Goal** = develop signature criteria
**Variables** = skeletal part frequencies, N broken, N digested


Title only


goal = H (compare wild to captive)
variable = W, Q, Y, R, P (ratio of marks per specimen)


goal = H (defleshing completeness)
variable = W, X, Q, Y, P (prey size)


goal = H (compare wild to captive)
variable = Y, R


goal = C, D
variable = Z, W, Y

also uses data from ref. 5

**DATA from elsewhere**  
TITLE only

**South American grey fox = wild**  
goal = B, C  
variable = Z, W, Y, P (corrosion)

**Caribou (Rangifer tarandus) = wild**  
goal = F  
variable = W, X

**Captive**  
goal = C  
variable = Z, W

**Wild**  
goal = C  
variable = P (prey comp, corrosion), Z, W

**Wild**  
goal = C  
variable = P (prey comp), Z, W, Y

**Geoffrey’s cat (Leopardus geoffroyi), Pampas fox (Lycalopex gymnocercus) = both are both wild and captive**  
goal = H (movement)  
variable = Z, W, Y, Q

**Title only**
   wild goal = H (disarticulation sequence & postmortem interval)  
   variable = P, Z

   wild goal = C  
   variable = W, X

   Title only

   goal = H  
   variable = S

   goal = C  
   variable = P (skeletonization)

   goal = F  
   variable = Z, P (prey comp), W, Y

crocuta), lion (Panthera leo), jaguar (Panthera onca), tiger (Panthera tigris) 22 species of captive animals (he says 23, but two subspecies of brown bear) = all captive
goal = D, F, H (wild vs captive?)
variable = W, X, P (gnawing sequence) [minimal quantitative data, not even bone frequencies]

goal = C
variable = W, X, Q, Z (qualitative, ordinal scale)

171. Haynes, Gary. 1983. A Guide for Differentiating Mammalian Carnivore Taxa Responsible for Gnaw Damage to herbivore limb bones. Paleobiology 9:164–172. wolf (Canis lupus), Malay sun bear (Helarctos malayanus), spectacled bear (Tremarctos ornatus), grizzly/brown bear (Ursus arctos), black bear (Ursus americanus), polar bear (Ursus maritimus), spotted hyaena (Crocuta crocuta), lion (Panthera leo),
tiger (Panthera tigris), jaguar (Panthera onca) = all captive
goal = D
variable = P (sequence of bone damage), W, X

goal = H
variable = U, W

goal = F
variable = W (minimal quantitative data)

goal = C
variable = Z, P (prey comp)

goal = D
variable = P

\[
\text{spotted hyena (Crocuta crocuta)} = \text{wild}
\]

\[
goal = C
\]

\[
variable = Q, W, X \text{ (no quantitative data here or any of his publications)}
\]


\[
\text{spotted hyena (Crocuta crocuta)} = \text{wild}
\]

\[
goal = C
\]

\[
variable = Q, W, X
\]


\[
\text{spotted hyena (Crocuta crocuta)}
\]

\[
goal = H \text{ (minimally relevant)}
\]

\[
variable = P \text{ (problems of inference)}
\]


\[
\text{spotted hyena (Crocuta crocuta)} = \text{wild}
\]

\[
goal = C
\]

\[
variable = P \text{ (prey comp), S, W (qualitative, ordinal scale)}
\]


\[
\text{Raptors} = \text{wild}
\]

\[
goal = C
\]

\[
variable = T, Z, W
\]


\[
\text{bushy-tailed woodrat (Neotoma cinerea)} = \text{wild}
\]

\[
goal = D
\]

\[
variable = Z, W, P \text{ (frag size)}
\]


\[
\text{northern harrier (Circus cyaneus), barn owl (Tyto alba)} = \text{both wild}
\]

\[
goal = F
\]

\[
variable = W, P \text{ (cylinders), Z}
\]


\[
\text{great horned owl (Bubo virginianus)} = \text{wild}
\]

\[
goal = C, F
\]
variable = Z, U, W, Y

   goal = C, D
   variable = Z, P (corrosion), W

   goal = F
   variable = P (frag size; corrosion), W, Z

   goal = C, D
   variable = Z, W, Y, Q, P (skeletal part richness & evenness)

   goal = C
   variable = W, P (frag size, prey comp), T

   goal = D, F
   variable = p (corrosion, frag size)


   goal = C
   variable = W, Q, Y

*striped hyena, spotted hyena = both wild goal = C_\text{variable = Z, W, Q (no quantitative data)}* also use data from ref. 416


*dog = -- goal = F_\text{variable = Z, P (influence of carcass size)}*


*goal = F_\text{variable = Z, P (influence of carcass size)}*


*Title only*


*spotted hyena, brown hyena, African porcupine = all wild goal = C_\text{variable = Z}*


*Title only*


*carnivore = wild goal = F_\text{variable = P (prey comp; mortality profile), Z, W, Y}*


*lion INFERRED = wild goal = C_\text{variable = P, U (prey comp)}*

199. Hutson, Jarod M., Chrissina C. Burke, and Gary Haynes. 2013. Osteophagia and Bone Modifications by *Giraffe* and Other Large Ungulates. *Journal of Archaeological Science*
40:4139–4149. giraffe (Giraffa camelopardalis), camel (Camelus dromedarius), cow (Bos taurus) = wild, wild, --
goal = C
variable = W, X also use data from ref. 172

goal = C
variable = W, Q, Z

goal = C, A
variable = W


goal = C
variable = P (corrosion), Z

204. Jones, Audra L. 2011. Animal Scavengers as Agents of Decomposition: The Postmortem Succession of Louisiana Wildlife. Master of Arts thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge. coyote (Canis latrans), opossum (Didelphis marsupialis), turkey vulture (Cathartes aura) = all enclosure
goal = H (skeletonization; which species scavenge and in what order)
variable = T

goal = C
variable = Z, W, Q, X, Y, T

goal = A
variable = P (no real data)
goal = H (how prey availability influences digestibility)
variable = P

goal = F
variable = T, W, Q


goal = C
variable = P (prey comp), Z, Q also use data from ref. 397

goal = C, F
variable = U, Z, W, Q, P (prey comp)

goal = C
variable = X


goal = C
variable = T, W

scavenger = W
goal = H
variable = T

eastern grey squirrel (Sciurus carolinensis), brown rat (Rattus norvegicus)= enclosure, enclosure
goal = H (influence of fresh vs dry bone)
variable = W


barn owl pellets, great horned owl pellets, coyote scat = all wild
goal = D
variable = Z, P (corrosion), W, Q

variable = T, V, Z, P (prey comp), X, W, Y

goal = A
variable = P (merely document chewing)


goal = C
variable = P (prey comp), Z, W
224. Kuhn, Brian F. 2006. The Collecting Behaviour and Taphonomic Signatures of Hyaeinids. Doctoral dissertation, University of Pretoria, Pretoria, South Africa. spotted hyena (Crocuta crocuta), brown hyena (Parahyaena brunnea), striped hyena (Hyaena hyaena) = all wild
goal = D, F
variable = W, Y, R, P (frag size), Z also uses data from ref. 398, 399


goal = H
variable = P (prey comp), Z

227. Kuhn, Brian F., Lee R. Berger, and John D. Skinner. 2009. Variation in tooth mark frequencies on long bones from the assemblage of all three extant bone-collecting hyaeinids. Journal of Archaeological Science 36:297–307. spotted hyena (Crocuta crocuta), striped hyena (Hyaena hyaena), brown hyena (Parahyaena brunnea) = all wild
goal = H (influence of frag size and density on tooth mark)
variable = X, Y also use data from ref. 126

goal = D
variable = Z, P, U (prey comp), Q, R also use data from ref. 398, 399

goal = H
variable = W

230. Kusmer, Karla D. 1986. Microvertebrate Taphonomy in Archaeological Sites: An Examination of Owl Deposition and the Taphonomy of Small Mammals from Sentinel Cave, Oregon. Master of Arts thesis, Department of Archaeology, Simon Fraser University, Burnaby, British Columbia. THESIS (have) barn owl (Tyto alba), great horned owl (Bubo virginianus), short-eared owl (Asio flammeus) = all wild
goal = C, F
variable = Z, W, P (corrosion)

goal = C, D
variable = Z, W, Y

goal =
variable = P (prey comp)

goal = C
variable = P (prey comp), W, Y, Q, Z, T

goal = C
variable = Z, P (prey comp)

goal = C, D, F
variable = Z, W, P (corrosion), Q, Y

goal = F
variable = W, Q, Y

\[ \text{goal} = H \]
\[ \text{variable} = P \text{ (skeletal completeness by prey size)}, Z, W, Y \]


\[ \text{goal} = C \]
\[ \text{variable} = Z, P \text{ (corrosion)}, Y \]


\[ \text{goal} = C, B \]
\[ \text{variable} = P \text{ (corrosion)}, Z \]


\[ \text{goal} = H \text{ (what is diet)} \]
\[ \text{variable} = P \text{ (prey comp)}, Z, W \]


\[ \text{goal} = C \]
\[ \text{variable} = P \text{ (no real data)} \]


\[ \text{goal} = B, C \]
\[ \text{variable} = Z, W, Q, P, U \text{ (corrosion; prey comp)} \]

also use data from refs. 243, 244, 245, 247, 249, 250, 251, 370

243. Lloveras, Lluís, Marta Moreno-Garcia, and Jordi Nadal. 2008. Taphonomic Study of Leporid Remains accumulated by the *Spanish Imperial Eagle* (*Aquila adalberti*). *Geobios* 41:91–100. = wild

\[ \text{goal} = B, C \]
\[ \text{variable} = W, P \text{ (corrosion)}, Z \]

also use data from refs. 182, 183, 184, 385

goal = B, C
variable = W, Z, P (frag size, corrosion), Q
also use data from refs. 182, 183, 184, 385

goal = B, C
variable = P (corrosion, frag size), Z, W, Q

goal = F
variable = P (corrosion, frag size), Z, W, Q also use data from refs. 243, 244, 245

goal = C
variable = Z, W, P (frag types; corrosion), Y

goal = C, B
variable = Z, P (corrosion), W, Q

goal = C
variable = P (corrosion, prey comp), W, Z, Q

goal = C
variable = P (prey comp; corrosion), R, Q, Y

captive goal = C, D
variable = Z, W, P (corrosion), R, Q, Y

both wild goal = C
variable = Z, W, P (prey comp; corrosion), Q, R


wild goal = B, C
variable = P (prey comp, corrosion), W, Z, Q, R
compares to *Athene cunicularia* (ref. 305), *Strix aluco*, *Strix nebulosa*, *Tyto alba* (ref. 5), *Bubo virginianus* (ref. 154); *Bubo virginianus* (ref. 302); also ref. 252


wild goal = C
variable = Z, W, P (corrosion), Q


INFERRED: striped hyena (*Hyena hyena*), wild boar (*Sus scrofa*), golden jackal (*Canis aureus*), dog (*Canis lupus familiaris*), red fox (*Vulpes vulpes*) = all wild

wild goal = F
variable = Z, T, P (skeletonization rate)


Title only

Lyman: ANT research

\[ \text{goal} = \text{C} \]
\[ \text{variable} = \text{P} \text{ (frag size)} \]


\[ \text{goal} = \text{H} \]
\[ \text{variable} = \text{Z, W, Y, Q} \]


\[ \text{goal} = \text{H} \]
\[ \text{variable} = \text{W} \]


- stoat (*Mustela ermine*), feral cat (*Felis catus*), ferret (*Mustela furo*) = \text{wild}

\[ \text{goal} = \text{D} \]
\[ \text{variable} = \text{X, Q} \]


\[ \text{Goal} = \text{H} \text{ (describe what she observed)} \]
\[ \text{Variable} = \text{Z} \text{ (no effort to distinguish which scavenger did what)} \]


\[ \text{goal} = \text{H} \]
\[ \text{variable} = \text{Z, W, (fragment vs complete)} \]


\[ \text{goal} = \text{F} \]
variable = W, X, Y, V

goal = H
variable = P (corrosion), Z, Q, W also use data from ref. 125, 368, 415

goal = C
variable = T, P (end vs shaft movement)

goal = H (influence of broken vs intact)
variable = Z

goal = C
variable = Z, P (influence of intact vs broken)

goal = C
variable = P (prey comp), Z

goal =
variable = Z, P (prey comp)

goal = F
variable = P (prey comp; corrosion), Z, Y, W

272. Marshall, Brendan. 1985. Taphonomic Studies into Owl-Pellet Bone and Its Implications for the Archaeology of Cave and Rock-Shelter Site. BA Honours thesis, Department of Archaeology, La Trobe University, Melbourne.  Title only

goal = D
variable = Z, W, Y, Q

goal = B, C
variable = Z, P (frag size, prey comp, corrosion), W

goal = C
variable = Z, Y, P (frag size), S, Q, R

goal = C
variable = W, X

goal = variable = W, Z, P (corrosion), Q also uses data from ref. 5

goal = variable = P (corrosion), Z also uses data from ref. 5

owl (*Asio otus*), kestrel (*Falco tinnunculus*), buzzard (*Buteo buteo*) = all wild
variable = Q, W, P (corrosion)

goal = C
variable = Z

goal = C
variable = W, Q also uses data from ref. 282, 382

goal = B, C
variable = Z, P (prey comp; frag size), U, W

goal = A
variable = X, W

goal = H
variable = P (minimal qualitative data)

goal = D, F
variable = P (corrosion; fragmentation indices; prey comp), Z, W also use data from refs. 5, 302, 305

bones from wolf dens = wild  
goal = H (habitat influences on taph)  
variable = Z, W, Y, Q  


wolf (Canis lupus), coyote (Canis latrans), spotted hyena (Crocuta crocuta), striped hyena (Hyaena hyaena), tiger (Panthera tigris), lion (Panthera leo) = all captive  
goal = H (who did it)  
variable = W, X, Q  


brown hyaena (Hyaena brunnea), spotted hyena (Crocuta crocuta) = both wild  
goal = D  
variable = P (prey comp)  


tiger quoll/northern spot-tailed quoll (Dasyurus maculatus), eastern quoll (Dasyurus viverrinus), northern quoll (Dasyurus hallucatus) = captive & wild, captive, wild  
goal = B, F  
variable = P (frag size), W, Y, X, Z  


striped hyaena (Hyaena hyaena) = wild  
goal = C  
variable = P (prey comp), U, W, Y, Z  


Current Anthropology 36:520–524.  

South American red fox (Dusicyon culpaeus), South American grey fox (Dusicyon griseus)=both wild  
goal = C  
variable = Z  

goal = C, F  
variable = U, Z, W, Y, Q
goal = H
variable = P (prey comp)

goal = F
variable = P

goal = H (influence of site context)
variable = P (den context)

goal = overview

goal = overview

goal = C
variable = W, Q

goal = C
variable = P (corrosion), Z, W

300. Montalvo, Claudia I., Fernando J. Fernández, Maximiliano A. Galmes, Miguel A. Santillán, and Joaquín Cereghetti. 2016. Crowned Solitary Eagle (Buteogallus

**wild**
goal = D, F
variable = Z, W, Q


**wild**
goal = C
variable = Z, W, Y, P (prey comp; corrosion)


**wild**
goal = C
variable = Z, W, Y, P (corrosion) also use data from refs. 5, 154


**wild**
goal = C
variable = Z, P (prey comp, corrosion), W


**wild**
goal = C
variable = P (corrosion, prey comp), W, Z

goal = C
variable = Z, W, P (corrosion) also use data from ref. 5

goal = D
variable = Z, P (corrosion, prey comp), Y
goal = C
variable = P (corrosion), Z, W, Q, Y also use data from refs. 5, 299, 303, 304

goal = D, H
variable = W, Q


goal = D, H
variable = Z

goal = H (measured tooth dimensions)
variable = P (inter-canine distance)

goal = F, D
variable = X


goal = D
variable = P (influence of broken or intact bone); W, X, Q, Y

goal = D
variable = P (influence of broken or intact bone)

goal = D, C
variable = Z, Q, Y, W


317. Njau, J. K. 2006. The Relevance of Crocodiles to Oldowan Hominin Paleoecology at Olduvai Gorge, Tanzania. Doctoral dissertation, Rutgers, the State University of New Jersey, New Brunswick. Assumed to be relevant title only

goal = C
variable = W, X, Y, R

goal = C
variable = X also use data in ref. 317

320. Northwood, Caroline. 1990. A Taphonomic Analysis of *Sacrophilus harrisii* in Australian Archaeological Sites. BA Honours thesis, Department of Archaeology, La Trobe University, Melbourne. Tasmanian devil (*Sacrophilus harrisii*), eastern quoll (*Dasyurus viverrinus*), spotted-tailed quoll (*Dasyurus harrisii*) = all captive
goal = C, D
variable = P (frag size; corrosion), Z, Q, W
**goal = H (identity of scavengers)**  
**variable = P (season of scavenging)**

**goal = C**  
**variable = P (prey comp, frag size), W, Y**  
also use data in ref. 53

**goal = F**  
**variable = W, Q, Y, P (influence of carcass size)**

**goal = H (influence of context)**  
**variable = T, W, Y**

**goal = H (longitudinal in time)**  
**variable = T, Z, Y**

**goal = B, E**  
**variable = Q, W, Z, Y**

**goal = E**  
**variable = Z, Y, Q**  
also use data from ref. 126, 227, 341
goal = D, E
variable = Q, W, Z, Y

goal = H (should not do more actualistic research on animals)
variable = P (not much)

goal = C
variable = Z, P (corrosion, frag size), W


332. Petersen, Ariel T. Leigh. 2013. Modification and Dispersal of Bones in a Multi-Scavenger Environment. Master of Science thesis, Boston University. *thesis (have); coyote, wild pig, turkey vulture (Cathartes aura)= all wild*
goal = D
variable = T

goal = C
variable = Q

goal = F
variable = Z, P, U (prey comp)

hyena (also, brown hyena [Hyaena brunnea], spotted hyena [Crocuta crocuta]) = unclear if wild or captive  
goal = F  
variable = Z, P, U, Q (prey comp)  
also uses data from ref. 53

goal = C  
variable = Z

goal = C  
variable = U, Z, X, Y, Q

goal = C  
variable = U, Z, X, Y, Q

339. Plug, Ina. 1978. Collecting Patterns of Six Species of Vultures (Aves: Accipitridae). Annals of the Transvaal Museum 31(6):51–63. Cape vulture (Gyps coprotheres), white-backed vulture (Gyps africanus), lappet-faced vulture (Torgos tracheliotus), white-headed vulture (Trigonoceps occipitalis), hooded vulture (Necrosyrtes monachus), and Rüppels griffon (Gyps rueppellii) = all wild  
goal = D  
variable = Z, P (frag size)

goal = C  
variable = Z, W, Q, Y

goal = D  
variable = W, X, P (prey carcass size), Q, R
342. Pobiner, Briana. 2008. Paleoecological Information in Predator Tooth Marks. *Journal of Taphonomy* 6:373–397. literature review; she is a bit cynical: p. 384 “much [actualistic] work focuses on the impact of carnivores on site formation processes and skeletal part profiles, as opposed to finding diagnostic criteria that can identify carnivores by their tooth marks. Little cross-taxon comparative work has been done.” but she notes it is becoming more commonplace “as research focus and application”
goal = H (overview)
variable = W, X

goal = C
variable = U, P (prey comp), W, X, Q, Z

goal = C
variable = W, P (corrosion), X also uses data from refs. 164, 170, 348

goal = C
variable = Q, W, X

goal = H (trampling influence)
variable = T, S

goal = C
variable = P (prey comp), W, Z
   goal = C
   variable = P (prey comp, corrosion), W, Y, Z

   goal = C
   variable = Q, W, X, Y, Z

   goal = D
   variable = P (incisor width relative to gnawing mark size)

   Title only

   goal = C
   variable = Z, P (frag size), W, X, Q

   goal = C
   variable = P (meaty vs dry bone), Y, X

   goal = D
   variable = Z

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goal = H (fidelity) variable = P (prey comp)

goal = C variable = W, P, S (disarticulation sequence)

goal = D variable = P

goal = C variable = P (behavior of caching bone)

goal = C, H (how amphibian bones influenced) variable = Z, P (left vs right frequencies)

363. Reynolds, Jesse E., Joe Dortch, and Jane Balme. 2016. *Dingo* Scat-Bone ‘Signature Patterns’: An Actualistic Study and Comparison of Wild and Captive Scat-Bone Assemblages and Interpretation of Bone Fragments from Witchcliffe Rock Shelter, South Western Australia. *Australian Archaeology* 82:218–231. *dingo (Canis lupus dingo) = wild & captive*  
*goal = B*  
*variable = X, W, P (frag size, corrosion)*

*goal = C, D, F*  
*variable = Z, S*  

*goal = H*  
*variable = P (frag size)*

*coyote (*Canis latrans*), turkey vulture, opossum = all wild*  
*goal = H (scattering, disarticulation)*  
*variable = P (seasonality influences), T*  

*goal = C*  
*variable = Z, P (corrosion, prey comp), Q, W, Y*  

*goal = C, H. (ossuary vs nest)*  
*variable = Z, P (corrosion, prey comp), Q, W, Y*  

*goal = H (post mortem interval duration, decay rate)*
variable = P (insect fauna turnover)


goal = C

variable = Z, W, Q, X, P (frag size), Y


goal = C, D

variable = Z, W, P (corrosion, frag size), X also use data from refs. 4, 96, 112, 370


goal = C

variable = Z, W, Y


goal = C

variable = P (prey comp, corrosion, fragmentation), W, Z


goal = C

variable = P (prey comp)


goal = H (interpopulation/intraspecific variability)

variable = W, Z, P (completeness of bones) also use data from refs. 106, 196, 231

goal = C
variable = T, W, Q, Z

also use data from others

\textit{wolf, lion, spotted hyena (Crocuta crocuta) [data from other researchers]}
goal = H (synthesis)
variable = X, Q
also use data from others

goal = H (compare wild to captive)
variable = W, Q, Y, P (by prey size)
also use data from others

goal = C
variable = P (prey size, frag size), Z, W, X, Q, R

goal = F
variable = Z, W

goal = C, F
variable = W, X, Z, P, U, Q (prey comp, frag size, corrosion)

goal = C
variable = Z, W, X, P (prey selectivity)

goal = C
variable = W, P (prey comp), Z

goal = C, B
variable = Z, P (% whole, NISP:MNE), Q, W, Y, R

goal = C
variable = P (prey comp; corrosion), W, Z also use data from ref. 106

goal = F
variable = Z, W, Q


goal = D, F
variable = W, X, P (cortical vs cancellous bone)

goal = C
variable = W, Q, S

goal = C, D, F
variable = Z, W

goal = F
variable = Z, W


goal = F
variable = Z, W, S, P (prey comp)


goal = C
variable = T, P (prey comp), Z

also use data from refs. 106, 219


Title only


goal = F
variable = W


goal = C, H
variable = Z, P (prey comp)


goal = H
variable = P (prey comp)


goal = H (rate of accumulation)
variable = P (prey comp)

goal = \(H\) (rate of accumulation)
variable = \(P\) (prey comp)


goal: Title only [data from elsewhere]
variable: \(W, X\)

goal = \(C\)
variable = \(Z, Q, W, X, Y\)

goal = \(C\)
variable = \(P\) (frag size), \(Z, W, Y\)

goal = \(C\)
variable = \(P\) (corrosion, prey comp), \(Z, W, Y, Q\) also use data from ref. 5

goal = C
variable = P (no quantitative data, qualitative & subjective)


goal = H (post mortem interval)
variable = S, T


goal = C
variable = Z, S, W, Q also uses data from ref. 51


goal = C
variable = Z, S, W, Q also uses data from ref. 51

goal = B, C
variable = P (cooked vs not cooked), W

goal = C
variable = P (outdoor vs indoor context), W

goal = C
variable = Z, P (corrosion, frag size, prey comp) also uses data from refs. 5, 54

415. Stiner, Mary C., Natalie D. Munro, and Montserrat Sanz. 2012. Carcass Damage and Digested Bone from **Mountain Lions** (*Felis concolor*): Implications for Carcass
**goal** = C  
**variable** = P (corrosion, prey comp), W, Y, Z

**Spotted Hyaenas** (*Crocuta crocuta*) = wild  
**goal** = C  
**variable** = W, X

**red deer** (*Cervus elaphus*), **reindeer** (*Rangifer tarandus*) = both wild  
**goal** = C, F  
**variable** = X, W

**Title only**

**raccoon; eastern grey squirrel** (*Sciurus carolinensis*), opossum = all in an enclosure  
**goal** = C  
**variable** = T, P (film scavengers, who ate what)

**goal** = C  
**variable** = W

**common chimpanzee** (*Pan troglodytes*) = wild  
**goal** = C, D (verbal, subjective)  
**variable** = Z, P (frag size, corrosion), W

**Pacific gull** (*Gabianus pacificus*)  
**INFERRED** = wild  
**goal** = C  
**variable** = W (fractured)
   goal = C
   variable = T, Z, W, Y

   goal = D
   variable = Z, W, Y

   goal = D
   variable = Z, W, Y

   goal = H (influence of boiling)
   variable = W, Y

   goal = C
   variable = W, X, Y

   goal = C, D
   variable = Z, W, X, Y
   goal = A
   variable = P (none)

   goal = A
   variable = P (none)


   goal = C
   variable = W (fracture), P (abrasion)

   goal = D, F
   variable = P (frag size, prey comp), W, Y
   also uses data from refs. 106, 149, 186, 273

   goal = C
   variable = T, P (frag size)

   goal = C
   variable = V

   goal = A
   variable = P (none)

\[ \text{goal} = C \]
\[ \text{variable} = W, X \]

\[ \text{goal} = H \]
\[ \text{variables} = P \]

\[ \text{goal} = C \]
\[ \text{variable} = Z, W, X, Q \]

\[ \text{goal} = H \text{ (document taphonomic history)} \]
\[ \text{variable} = S, T, W, Q \]

\[ \text{goal} = C \]
\[ \text{variable} = W, P \text{ (prey comp)} \]

\[ \text{goal} = A \]
\[ \text{variable} = W \]

\[ \text{goal} = C, H \]
\[ \text{variable} = T, P \text{ (minimal data)} \]

\[ \text{goal} = H \text{ (young vs adult owl)} \]
\[ \text{variable} = P \text{ (corrosion)} \]
“presumably mice”, INFERRRED
goal = A
variable = W (doesn’t describe gnawing marks)

446. Worthy, T. H., and R. N. Holdaway. 1996. Taphonomy of Two Holocene
Microvertebrate Deposits, Takaka Hill, Nelson, New Zealand, and Identification of the
Avian Predator Responsible. *Historical Biology* 12:1–24. New Zealand strigid or
laughing owl Sceloglaux albifacies INFERRRED Title only (data from elsewhere)

Masai giraffe (Giraffa camelopardalis tippelskirchi) Title only

An Experimental Study of Vertebrate Scavenging Behavior in a Northwest European
(Corvus corone), buzzard (Buteo buteo), wood mouse (Apodemus sylvaticus),
gray squirrel (Sciurus carolinensis) = all wild
goal = H (who scavenged)
variable = P (photos)

449. Young, Alexandria, Nicholas Márquez-Grant, Richard Stillman, Martin J. Smith, and
Amanda H. Korstjens. 2015. An Investigation of Red Fox (Vulpes vulpes) and Eurasian
Badger (Meles meles) Scavenging, Scattering and Removal of Deer Remains: Forensic
Implications and Applications. *Journal of Forensic Science* 60(S1):S39–S55. red fox
(Vulpes vulpes), Eurasian badger (Meles meles) = both wild
goal = D
variable = P (photos), T

Eurasian badger (Meles meles), domestic dog (Canis familiaris) = wild & captive,
wild & captive, --
goal = D
variable = X, Q, R, W

124. = enclosure
goal = C
variable = P (carcass size), Z, Y, Q, X, W
goal = C
variable = Z, W, X, Q

goal = C
variable = T

454. Yravedra, José, Elena García Vargas, Miguel Ángel Maté González, Julia Aramendi, Juan Francisco Palomeque-González, Javier Vallés-Iriso, Jorge Matesanz-Vicente, Diego González-Aguilera, and Manuel Domínguez-Rodrigo. 2017. The Use of Micro-Photogrammetry and Geometric Morphometrics for Identifying Carnivore Agency in Bone Assemblages. *Journal of Archaeological Science: Reports* 14:106–115. wolf, lion, jaguar, fox, hyena (only some of the lion separable); wild, captive, captive, wild, captive
goal = E, D
variable = X