



Improving the discoverability of taphonomy collections through collaborative development and systems

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Taphonomy Collections

Comparative materials for scientists to interpret taphonomic evidence preserved in modern and fossil bone assemblages. These collections offer new insights about the past, present, and future.

Taphonomy Collections can include:

Single bones



USNM PAL 725705.
Goat mandible from East Fork River

Skeletons



NMK OT-01. Bushbuck skeleton from leopard kill (image cropped)

Assemblages



USNM PAL 725064.
Owl pellet with various rodent skeletons

Challenge

Current information systems used for managing and sharing specimen data often lack the necessary structures for clearly documenting the associated taphonomic information. In addition, the vocabulary used to describe taphonomic features can be variable between reference textbooks, datasets, researchers, and institutions.

Vocabulary

Requirement: Create a data structure for taphonomic information that isn't available elsewhere

- 1) Develop a consistent list of terms for key taphonomic features⁵
- 2) group terms into classes
- 3) leverage Symbiota's Traits module to structure this vocabulary for data entry.

Features are organized by class. Multiple features may be selected within and across classes.



USNM PAL 724319.
Wildebeest atlas from Hyena Den in Amboseli National Park with notch.

- Trait: Surface Damage**
- Abrasion
 - Cracking
 - Dissolution
 - Exfoliation
 - Flaking
 - Polishing
 - Scrape (multiple)
 - Thinning

- Trait: Distinct Marks**
- Channeling
 - Puncture
 - Chop mark
 - Curation damage
 - Gouge
 - Hole
 - Linear mark U-shape
 - Linear mark V-shape
 - Notch
 - Pit

- Trait: Fracture Features**
- Bone flake
 - Deformation, faulting
 - Flake scar
 - Fracture edge rounding
 - Peeling
 - Spiral Fracture
 - Splitting



NMK OT-28. Cow radius found in Ol Tulelei River bed with linear marks and cracking.

The vocabulary is hierarchical, first listing features by observed modification[↑] and then providing options for possible agents[↓]

- Trait: Weathering Stage**
- WS-0
 - WS-1
 - WS-2
 - WS-3
 - WS-4
 - WS-5
 - WS-Indeterminate
 - WS-Not applicable



NMK OT-34. Bones collected from the same Amboseli National Park zebra skeleton over 15 years. Plains Zebra died in 1975. Image indicates year collected and weathering stage of each bone.

- Trait: Fracture Features**
- Bone flake
 - Carnivore
 - Human
 - Trampling
 - Injury
 - Sediment pressure
 - Deformation, faulting
 - Flake scar
 - Fracture edge rounding
 - Peeling
 - Spiral Fracture
 - Splitting

Requirement: Collaborative curation and data management, including opportunities for shared stewardship of related collections or reconnecting collections digitally

International Taphonomy Reference Collection

Redesigned by the Symbiota Support Hub



Symbiota

- Enables collaborative, community development and management
- Centrally supported, shared portal for multiple collections
- Built-in publishing tools enabling data discoverability of partner collections at different institutions