DAACS Cataloging Manual: Faunal

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The DAACS Faunal Manual documents how zooarchaeological artifacts are cataloged in the DAACS PostgreSQL database. This manual is one of sixteen DAACS Cataloging Manuals. Each manual documents a specific module of the DAACS database, and they provide protocols for using each module. In addition to defining each data field (meta data), the manuals describe how data should be entered into data field, provide guidance on artifact identification, and give examples of how artifacts should be cataloged.

The DAACS database was developed in 2000 by Jillian Galle and Fraser Neiman, in collaboration with members of the DAACS Steering Committee. Jillian Galle, Fraser Neiman, and DAACS Staff, including Leslie Cooper, Lynsey Bates, Lindsay Bloch, Elizabeth Bollwerk, Jesse Sawyer, and Beatrix Arendt, led the development of cataloging protocols. In addition to DAACS staff and steering committee members, Monticello current and former Archaeology Department staff, Jennifer Aultman, Sara Bon-Harper, Derek Wheeler, Donald Gaylord, Karen Smith, and Nick Bon-Harper also contributed to the development of cataloging protocols. Jennifer Aultman and Katherine Grillo produced the initial versions of these DAACS manuals in 2003. They have been continuously revised by DAACS staff in the intervening years.

This manual was substantially revised for the introduction of the Bronze, Silver, and Gold cataloging tiers in 2022, and in preparation for the new website launch in 2024. These revisions were made by Galle, Bloch, Bollwerk, and by DAACS analysts Iris Puryear, Allison Mueller, and Cate Garcia.

Convoy a web design and graphic design company based in Charlottesville, Virginia, initially programmed the DAACS database in SQLServer (2001-2013). The University of Virginia's Institute for Advanced Technology in the Humanities (IATH) built and currently maintains the PostgreSQL version of the DAACS database (2014-present). Convoy also designed the original DAACS website (2004), and has since redesigned the website twice (2014, 2024).

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1. THE DAACS DATABASE

The DAACS database was designed by Galle and Neiman in 2001, with direct input from the DAACS Steering Committee and collaborating institutions. The large relational database is programmed in PostgreSQL and comprises over 200 related tables. This structure instantiates the protocols and standards outlined in the DAACS manuals. The database is linked to a Ruby-on-Rails web-based interface, which allows DAACS Research Consortium (DRC) members to access the database through a web browser with a login from anywhere with an internet connection. For a detailed summary of the DAACS database and history of DAACS, please see Galle, Bollwerk, and Neiman 2019.

In 2018, a major grant from the National Endowment for the Humanities' Digital Humanities Division provided funds to develop a tiered cataloging interface that would allow DRC users to engage with the database on a variety of levels while retaining the data standards and integrity built into the original system. This new interface, with its Bronze, Silver, and Gold tiers, went live in March 2022. This project was a collaboration between DAACS, The University of Virginia's Institute for Advanced Technology in the Humanities, and Convoy.

2. ABOUT THE FAUNAL MODULE

The DAACS Faunal Module was developed in conjunction with Dr. Joanne Bowen, Mr. Greg Brown, and Mr. Steve Atkins of the Colonial Williamsburg Foundation based on Colonial Williamsburg's CWBONE program. For many years, faunal data presented via the DAACS website was generated exclusively by Dr. Bowen, Mr. Brown, Mr. Atkins, and Ms. Dessa Lightfoot of Colonial Williamsburg's Zooarchaeology Laboratory. Their assistance with the DAACS Faunal Module was invaluable.

This document provides basic explanations for fields in the Faunal Module. For many fields, a simple list of the available authority terms is presented. For those fields where the number of authority terms is large (some fields have hundreds of possible values), individual terms are not listed in this document. Rather, a general explanation for the field is given. Where applicable, publications that present standard faunal analysis coding systems used in these tables are referenced.

To date, most of the faunal data presented via the DAACS website have been generated by Mr. Steve Atkins, Dr. Joanne Bowen, Mr. Greg Brown, and Ms. Dessa Lightfoot, zooarchaeologists at Colonial Williamsburg's Zooarchaeology Laboratory. Zooarchaeologists Susan Andrews Trevarthen and Elizabeth Reitz have also contributed data to DAACS (Hermitage and South Carolina sites respectively). DAACS is currently working with Dr. Kitty Emery and Dr. Nicole Fuller (FLMNH), Dr. Diane Wallman (University of South Florida) and Dr. Barnet Pavão-Zuckerman (University of Maryland) for specialist faunal analysis.

The Faunal Module has two interfaces developed for catalogers with varying levels of training in faunal analysis. The **Non-Specialist** interface is designed for catalogers who have basic or no prior training in faunal analysis. This interface allows catalogers to record basic information about faunal artifacts using categories that are broad but still analytically useful. The **Specialist** interface is designed for use by trained zooarchaeologists, and it includes many more data fields that capture detailed information about faunal artifacts. This manual presents cataloging protocols and field descriptions for the Non-Specialist and Specialist interfaces. The following table shows the fields included in the two interfaces:

2.1. Comparison of Fields in the Non-Specialist and Specialist Interfaces

Tab	Non-Specialist	Specialist
Main	Artifact Count	Artifact Count
		Reliability
	Taxon Name	Taxon Name
	Element Name	Element Name
		Symmetry
		NISP
	Weight	Weight
		Location
		Descriptor
		Relative Size
		Fusion
		Sex
		Chew Type
		Chewing Location
		Fresh Break?
		Identifier
	Date Identified	Date Identified
	Notes	Notes

Tooth Information		Tooth Type
		Tooth Wear
Condition		Disease or Trauma?
		Weathered?
		Burned?
		Condition
Butcher and Cut		Number of Marks
		Butcher Method
		Butcher Location
		Butcher Direction
		Cut Type
		Cut Location
		Cut Direction
Measurements		Measuring Description
		Measurement
		Accuracy?

3. Non-Specialist Faunal Cataloging Protocols

3.1. Non-Specialist Overview

The Non-Specialist interface is intended to be accessible to catalogers who do not have extensive experience in faunal analysis. The interface includes a small number of fields that capture basic information about taxon and element type. The options for each field are limited to those that can be reliably identified by a non-specialist. Although the Non-Specialist interface excludes some detailed information, it is well-suited for projects for which zooarchaeological analysis is not a high priority, such as those with resource constraints or limited faunal assemblages. Project managers and analysts should consider the analytical and practical tradeoffs of cataloging with the Non-Specialist interface, and collaborate with the DAACS Project Director on the level at which an assemblage will be analyzed.

3.2. Non-Specialist Batching Protocols

At the Non-Specialist level, faunal elements can be batched together if they share the same Taxon Name and Element Name. The following examples illustrate cases in which elements may or may not be batched:

- Four crab claws may be batched together.
- Three mammal teeth may be batched together, even if they may not belong to the same species of mammal.
- Two bird bones for which the element is unidentifiable may be batched, even if they appear to be different elements.
- Twenty unidentifiable elements with unidentifiable taxa may be batched.
- A mammal vertebra and a fish vertebra may *not* be batched.
- A reptile mandible and an unidentified reptile bone may *not* be batched.

3.3. Descriptions of Non-Specialist Fields

3.3.1. Artifact Count

Numeric Field

Record the number of individual artifacts being cataloged.

3.3.2. Taxon Name

Controlled Vocabulary Field

This field is a combination of the Latin taxon name followed by the English taxon name. At the Non-Specialist level, faunal artifacts are assigned to broad taxonomic categories. Choose **ONLY** from the following list of taxa:

"Class Amphibia, Amphibian"
"Class Aves, Bird"
"Class Crustacea, Crustacean"

"Class Mammalia, Mammal"
"Class Osteichthyes, Bony Fish"
"Class Reptilia, Reptile"
"Subphylum Vertebrata, Other Vertebrate"

Note: Subphylum Vertebrata is the broadest category, including all animals with skeletons. Use this option when a bone cannot be identified to a specific class.

3.3.3. Element Name

Controlled Vocabulary Field

Choose from the following list of elements. We highly recommend selecting Unidentified when uncertain about element type.

"Antler"
"Baculum"
"Claw"
"Cranium"
"Mandible"
"Maxilla"
"Rib"
"Scale"
"Scapula"
"Tooth"
"Vertebra"
"Unidentified"

3.3.4. Weight

Numeric Field

Record the weight of the element or batch of elements in grams.

3.3.5. Date Identified

Date Field

Select the date when the identification was made. If the faunal analysis was conducted prior to the actual date of cataloging, be sure to record this.

3.3.6. Notes

Open Text Field

Some catalogers with experience in faunal analysis may be able to identify more specific taxa, elements, evidence of butchery, etc. Use the Notes field to record any additional information that is not captured by the Non-Specialist data fields.

4. Specialist Faunal Cataloging Protocols

4.1. Specialist Overview

The Specialist interface is intended for use by trained zooarchaeological analysts. The interface includes many data fields that allow catalogers to capture fine-grained data about faunal assemblages, such as size measurements, tooth wear, cut and butcher marks, etc. However, cataloging with this level of analytical detail can be time-consuming and may not be necessary to meet the goals of a project. Project managers and analysts should consider the analytical and practical tradeoffs of cataloging with the Specialist interface.

4.2. Specialist Batching Protocols

Due to the highly variable needs and limitations of zooarchaeological analyses, DAACS does not prescribe universal batching protocols for faunal elements. Batching protocols should be determined on a project-by-project basis by project managers and faunal analysts based on their analytical goals and available resources. Site-specific batching protocols must be formally documented and submitted to DAACS for approval prior to the start of the project.

Project managers and analysts may also decide to not record certain attributes included in the Specialist interface, or to only record them only for certain elements. In these cases, care should be taken to ensure that protocols are well-documented and followed consistently throughout a project. The following protocols may be used as a general guideline:

1. Incomplete elements and elements that cannot be identified to a taxon of Order or lower can be batched by shared attributes. Attributes that are not taken into account for batching should be recorded as “Not Recorded.”
2. Complete elements for which Taxon Name and Element Name can be reliably identified should be cataloged individually, with as many attributes recorded as possible.
3. Measurements should also be recorded for complete, identifiable elements when possible.
4. Attributes that are diagnostic of age (Fusion, Tooth Type, etc.) should be recorded when possible.
5. Elements with evidence of butchering or cutting should be cataloged individually so that these marks can be recorded.

4.3. Descriptions of Specialist Fields

4.3.1. Main Tab

4.3.1.1. Artifact Count

Numeric Field

Record the number of individual artifacts.

4.3.1.2. Reliability

Controlled Vocabulary Field

This field allows the cataloger to record the degree of certainty for an identification. If the taxon and element identifications are certain, select “Yes.” If a faunal element is somewhat ambiguous but bears significant resemblance to the recorded identification, select “cf.” If the element is unidentified, choose “N/R.”

4.3.1.3 Taxon Name

Controlled Vocabulary Field

Record the taxonomic classification of the element. This field includes taxa at various levels of specificity, from phylum to species. Choose the most specific taxon to which the element can be identified.

4.3.1.4. Element Name

Controlled Vocabulary Field

Record the type of faunal element. This field includes options to identify certain elements at various levels of specificity. For example, a given tooth could be identified as “Tooth,” “Molar,” “Lower molar,” or “Lower molar 1.” Take care to select the most specific element name possible from the list.

4.3.1.5. Symmetry

Controlled Vocabulary Field

Choose “Left,” “Right,” or “Axial” (centerline of body) if the element can be sided. Otherwise, enter “Indeterminate.” If the element is not part of a skeleton (e.g., a fish scale), use “Not Applicable .

4.3.1.6. NISP

Numeric Field

Record the number of identified specimens. This number will almost always be the same as Artifact Count, unless elements can be mended.

4.3.1.7. Weight

Numeric Field

Record weight of the element or batch of elements in grams.

4.3.1.8. Location

Controlled Vocabulary Field

If the element is complete, choose "Complete." If the element is incomplete, record which fraction is present. The applicable options will depend on the type of element.

4.3.1.9. Descriptor

Controlled Vocabulary Field

This field records the presence of diagnostic features on specific elements, such as particular processes, tuberosities, etc. The Descriptor is written as a combination of the Element Name and Descriptor (e.g., "Fibula: Head"). Type the element name into the Descriptor field to find the authority terms associated with that element. If multiple terms are applicable, select the most salient one. Additional descriptors may be recorded in the Notes field.

4.3.1.10. Relative Size

Controlled Vocabulary Field

Record the approximate size and age of the individual to which the element belonged: "Small and Immature," "Adult Size," "Small Adult Size," or "Large Adult Size." If this information is not estimable, select "Indeterminate." If comparative specimens, such as an institutional type collection, are used to determine relative size, record this information in the Notes field.

4.3.1.11. Fusion

Controlled Vocabulary Field

Record the degree of epiphyseal fusion, if applicable. There are two sets of options for this field, depending on the element:

For a bone with only one epiphysis (e.g., scapula, metapodial, phalanx, etc.):

"Fused"
"Fusing"
"Unfused"
"Indeterminate"

For a bone with two epiphyses (e.g., humerus, radius, femur, etc.):

"Proximal fused, distal fused"
"Proximal fused, distal fusing"
"Proximal fused, distal unfused"
"Proximal fused, distal indeterminate"
"Proximal fusing, distal fused"
"Proximal fusing, distal fusing"
"Proximal fusing, distal unfused"
"Proximal fusing, distal intermediate"

"Proximal unfused, distal fused"
"Proximal unfused, distal fusing"
"Proximal unfused, distal unfused"
"Proximal unfused, distal indeterminate"
"Proximal indeterminate, distal fused"
"Proximal indeterminate, distal fusing"
"Proximal indeterminate, distal unfused"
"Indeterminate"

For bones with no epiphyses and all non-bone elements, choose "Not Applicable."

4.3.1.12. Sex

Controlled Vocabulary Field

Record the sex of the individual to which the element belonged, if possible: "F" or "M." If sex cannot be identified, choose "I" for indeterminate.

4.3.1.13. Chew Type

Controlled Vocabulary Field

If a bone has evidence of chewing, identify the chewer: "Carnivore," "Human," or "Rodent." If more than one type of chewing is present (e.g., both carnivore and rodent), select "Multiple." If chewing is definitely present but the chewer cannot be identified, select "Indeterminate." If the marks are likely chewing but cannot be definitively identified, select "Possibly." If there is no chewing, select "Not Applicable."

Note: These protocols were formally established in May 2024. Prior to this, these terms may have been used differently by various analysts.

4.3.1.14. Chewing Location

Controlled Vocabulary Field

If chewing evidence is present, record its location on the bone:

"Anterior end of fragment"
"Both ends of fragment"
"Central part of fragment"
"Distal end of fragment"
"Posterior end of fragment"
"Proximal end of fragment"
"Indeterminate"

If multiple terms are applicable, select the most salient one. Additional descriptors may be recorded in the Notes field. If there is no evidence of chewing, choose "Not Applicable."

4.3.1.15. Fresh Break?

Controlled Vocabulary Field

Indicate whether a fresh break is present: “Yes,” “No,” or “Probably.” If the element is complete, select “No.”

4.3.1.16. Identifier

Controlled Vocabulary Field

Record the name or initials of the analyst who made the identification.

4.3.1.17. Date Identified

Date Field

Select the date when the identification was made. If the faunal analysis was conducted prior to the actual date of cataloging, be sure to record this.

4.3.1.18. Notes

Open Text Field

Use this field to record any additional information about the element or the identification process.

4.3.2. Tooth Information Tab

4.3.2.1. Tooth Type

Controlled Vocabulary Field

If the element is a tooth, choose “Adult,” “Deciduous,” or “Indeterminate.” For non-tooth elements, choose “Not Applicable.”

4.3.2.2. Tooth Wear

Controlled Vocabulary Field

This field records degree of eruption and amount of wear if erupted. Tooth Wear authority terms are broken into four groups: Bovid Mandibular Teeth, Bovid Maxillary Teeth, Equids, and All Other Animals. The terms are listed in the format “Group: Wear Type” (e.g., “Bovid Maxillary Teeth: Early wear,” “All Others: Worn to root”). Note that there are four terms for Bovid Mandibular Teeth that specifically reference stages of Payne’s (1973) tooth eruption chart. Please refer to Payne (1973) directly for descriptions of these stages:

“Bovid Mandibular Teeth: See Payne 1973 #78”
“Bovid Mandibular Teeth: See Payne 1973 #79”
“Bovid Mandibular Teeth: See Payne 1973 #80”
“Bovid Mandibular Teeth: See Payne 1973 #81”

For non-tooth elements, choose “N/A.”

4.3.3. Condition Tab

4.3.3.1. Disease or Trauma?

Controlled Vocabulary Field

Record any evidence of disease or trauma during the individual's life: "Yes," "No," or "Probably." Additional information about the type of disease/trauma and its location on the specimen can be recorded in the Notes field.

4.3.3.2. Weathered?

Controlled Vocabulary Field

Record the presence of weathering on the element: "Yes," "No," or "Probably." Weathering is defined as wear from non-cultural taphonomic processes, such as root etching, water erosion, or sun bleaching. Additional information about the type of weathering and its location on the specimen can be recorded in the Notes field.

4.3.3.3. Burned?

Controlled Vocabulary Field

Record evidence of burning: "Yes," "No," or "Probably." Additional information about the degree of burning and its location on the specimen can be recorded in the Notes field.

4.3.3.4. Condition?

Controlled Vocabulary Field

Record any curational modifications to the specimen. Select "Mended" if fragments have been physically mended together, "Poor" if the conservation is in poor condition (e.g., failing mends), and "Conserved" for all other types of conservation.

4.3.4. Butcher and Cut Information Tab

For each field below, record "Not Applicable" for elements without evidence of butchering and/or cutting.

4.3.4.1. Number of Marks

Numeric Field

Record the total number of butcher/cut marks observed. Leave this field blank for elements without evidence of butchering or cutting.

4.3.4.2. Butcher Method

Controlled Vocabulary Field

For elements with evidence of butchering, record the implement/method used, if identifiable. If the element has multiple types of butcher marks, select the most prevalent or salient type and record the others in the Notes field.

"Axed"
"Axed, probably"

"Hacked"
"Hacked, probably"
"Sawed"
"Sawed, probably"
"Indeterminate"

4.3.4.3. Butcher Location

Controlled Vocabulary Field

Record the location of the butcher mark or marks.

"Anterior end of fragment"
"Both ends of fragment"
"Central part of fragment"
"Distal end of fragment"
"Posterior end of fragment"
"Proximal end of fragment"
"Indeterminate"

4.[illegible].4. Butcher Direction

Controlled Vocabulary Field

Record the direction of the butcher mark or marks.

"Diagonal"
"Longitudinal"
"Parallel to one another"
"Perpendicular to one another"
"Random"
"Transverse"

4.3.4.5. Cut Type

Controlled Vocabulary Field

For elements with evidence of cutting, record the implement/method used, if identifiable. If the element has multiple types of cut marks, select the most prevalent or salient option and record the others in the Notes field.

"Cut"
"Cut, probable"
"Hack"
"Hack, probable"
"Knife cut"
"Knife cut, probable"
"Sawn"
"Possibly Sawn"
"Indeterminate"

4.3.4.6. Cut Location

Controlled Vocabulary Field

Record the location of the cut mark or marks.

"Anterior end of fragment"
"Both ends of fragment"
"Central part of fragment"
"Distal end of fragment"
"Indeterminate"
"Posterior end of fragment"
"Proximal end of fragment"
"Indeterminate"

4.3.4.7. Cut Direction

Controlled Vocabulary Field

Record the direction of the cut mark or marks.

"Diagonal" (Diagonal Direction Indeterminate)
"DLR" (Diagonal Left Right)
"DRL" (Diagonal Right Left)
"Longitudinal"
"Parallel to one another"
"Perpendicular to one another"
"Random"
"Transverse"
"Other"

4.3.5. Measurement Tab

The Measurement tab allows catalogers to record multiple measurements, depending on the type of element and its condition. Select "+ Add Measurement" to add as many lines as needed. Only record complete measurements.

4.3.5.1. Measuring Description

Controlled Vocabulary Field

Record the specific points at which measurements of an element were taken. This field uses standard codes from von den Driesch (1976). Please reference this guide for the complete list and definitions of these codes.

4.3.5.2. Measurement

Numeric Field

Record the measurement in millimeters.

4.3.5.3. Accuracy?

Controlled Vocabulary Field

This field was part of Colonial Williamsburg's database. Its definition and use are ambiguous and DAACS is in the process of revising how this field is used.

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