Topic: Exemplar Fossil Specimen Records, Part II (Working Session)
Date: 2025 July 31
Time: 12 PM Eastern

In Attendance

Roger Burkhalter, Retired Sam Noble Museum, INVP	Alex Lawrence, NMNH	Erica Krimmel
Talia Karim, UCM	Ben Norton	Amanda Millhouse, NMNH
Lindsay Walker, Symbiota	Holly Little, NMNH	
Jess Utrup, YPM	Jessie Nakano, NMNH	
Natalia Lopez Carranza, KUMIP		

Resources

- Paleo Data Working Group Google Folder
- GBIF, Introducing the Darwin Core Data Package
- Overview of Paleo Data Model work - 20250605_paleo-happy-hour_slides
- New DwC-DP terms: https://gbif.github.io/dwc-dp/qrg/index.html#Material

Agenda

- Update from Ben: https://geoapis.io
    - Ask Ben if you want to get registered in the system to start using it
- Continue discussion about fossil types from last week: Fossil_types_review
    - Can we write down working definitions for our fossil type "groups"?
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Action Items

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Notes

- **Reminders from Part I of this convo - 20250717_paleo-happy-hour_notes**

- Although legacy cataloging decisions impact our data mobilization work, for the context of this discussion about fossil types, we are focusing on how we would ideally catalog a specimen.
- Some types of specimens can progress from one group to another depending on their preparation, e.g. an individual organism is subsampled from an already cataloged bulk sample and cataloged on its own.
    - Curatorial decisions, especially those made in legacy cataloging practices, can affect whether or not a given specimen is group 1 or group 2. Specimens may change from Group 1 to Group 2 over time with further processing.
- The scope of what fossil types we are trying to define is "anything cataloged," regardless of preparation. But keeping in mind that what to catalog is a decision different repositories make differently.
- Catalog records for *in situ* specimens are essentially observations, and do not represent a physical object (a material entity) in the way that we typically think of.
- Our conceptual groups essentially represent increasing complexity from Group 1 to Group 3 (see working definitions below)

- **Fossil type group definitions to workshop during Happy Hour:**
    - *These groups are meant to identify different data mobilization needs/pathways.*
    - **Group 1** = A fossil specimen represented by a single catalog record and mostly commonly limited to a single taxon, though multiple individual organisms may be present. Physically, the specimen may consist of one or more discrete objects. Variations of this type of specimen are differentiated by distinguishing features within the specimen, such as morphology, how many organisms are present, and (less commonly) how many taxa these organisms represent.
        - Group 1 specimens may have organism interaction relationships within a single specimen
        - Group 1 specimens may have relationships but they cannot be explicitly stated because individual components (discrete objects or organisms) are not cataloged (the relationships have not yet been parsed out)
    - **Group 2A** = A fossil specimen represented by one or more catalog records and distinguished by its physical (taphonomic?) relationship to another specimen or specimens (of another taxa?). Most commonly, the specimen includes multiple taxa but is a single discrete object.
        - single taxon example could be an assemblage
    - **Group 2B** = A fossil specimen represented by one or more catalog records and distinguished by its biological relationship to another specimen or specimens (of another taxa?). Most commonly, the specimen includes multiple taxa but is a single discrete object.
        - single taxon example could be an assemblage
    - **Group 3** = …variation in stratigraphy

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Ben Update:
Web application (https://geoapis.io) for mineralogy extension needs 2-3 additional specimens added from your network. Invitation for login needed; please contact Ben Norton. Vocabulary and classification systems included as well that you can look up. (https://vocabulary.gswa.kurrawong.ai/v/vocab?page=1&per_page=50)

Talia:
Increasing mobilization of diatom data collections (Fall HH topic proposition)

Fossil_types_review
Group 1: Stand alone records
Group 2: records defined by relationships
    Split into relationships between individuals and within individuals?
Group 3: complex geological information

Part/Counterpart:
- Can be cataloged at two institutions
    - Looks like two occurrences but it's actually one occurrence when it's cataloged separately
        - How common? Historical practice; ~10 at UCM; 4 at Yale
        - Edge case.
- Can also happen with bones and tissues, e.g. proximal at one collection and distal at another
    - Material sample sub-group (prepared in different ways; at different institutions)
- Can involve one or more taxa
- When catalogued together = Group 1
    - Key data point: Preservation
- When catalogued separately= Group
    - Key data point: relationship-material
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Relations of DwC data model:
How can we tease apart when the material/occurence/individual information is what we're referencing in the groups?

- Occurrence==Presence at a specific time and place (can mean collection event or geological context/chronostratigraphy)

- Geologic event equally/more important than the modern collection event.

- Organism Interaction == biological interaction (borings, bite marks, etc.) epibiont(?)

- Organism Interaction =/= physical Co-occurrence on a slab (can be captured by the event)
    - Site association/ *taphonomic association*
- Insert “assertion” but this wont publish out
- Defining relationship types related to the data model
    - On a slab = part of
    - Encrusted barnacle = organism interaction
    - How do we flag these kinds of relationships that should be shared out differently?
    - Using the relationships tables differently than biologic collection–communicating to those using the data bases?

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