### **Open Context:**

A Participatory Way to Publish Field and Collections Data



Community based data sharing and tagging

Developed by the Alexandria Archive Institure, a California 501(c)(3) nonprofit organization

### Eric Kansa Alexandria Archive Institute



# Open Context: What is it for?



### Small / Field Science

- Few standard / widely applied recording or terminological systems
- Rich and varied content (tabular / analytic data, media, narratives)
- Limited budgets, limited technical support / infrastructure

### Challenges

- Data preservation
- Data access and reuse
- Data integration and synthesis

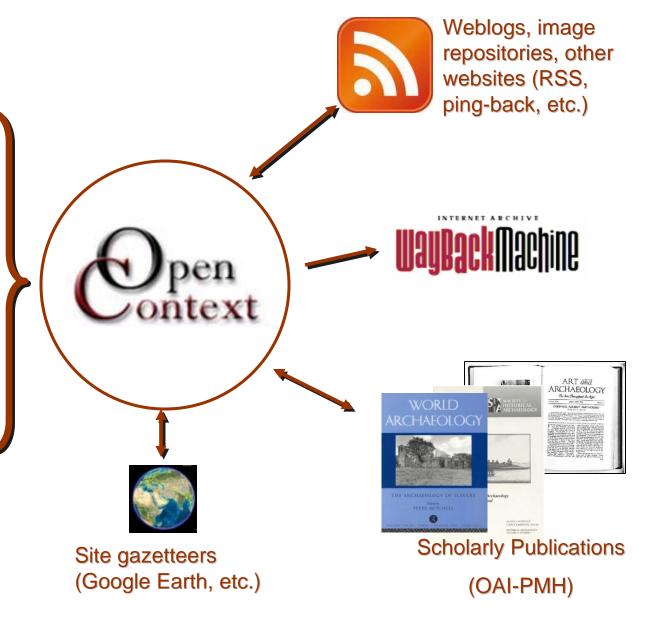
# Open Context: What is it for?



**Material Collections** 



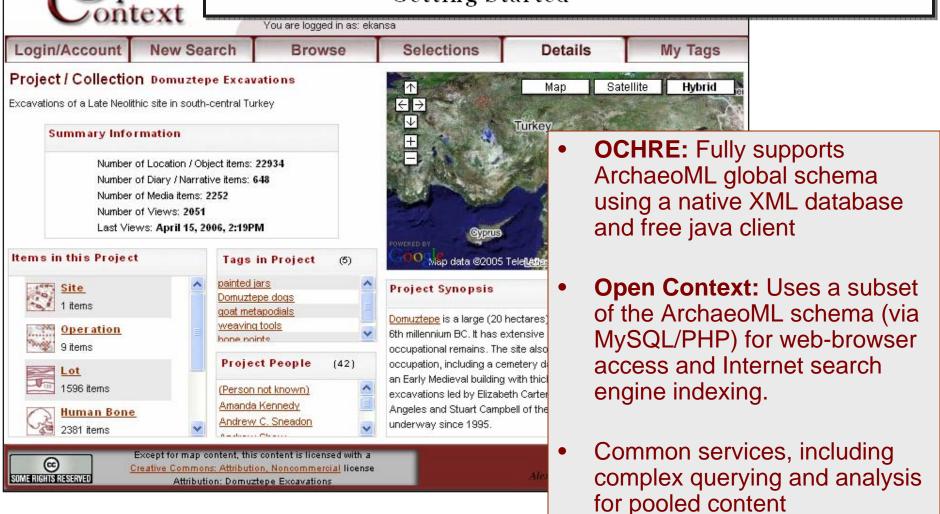
Field Research Data







Getting Started



for pooled content

# Why MySQL and PHP?



#### Open Context: Summary of the Public Tag "goat metapodials"

Related Tags. Items tagged as "goat metapodials" have no other tags assigned to the The tag "goat metapodials" was used publicly on 1 occasion ...

www.opencontext.org/database/tag\_view.php?item=4eeba2a2236255889f1b203ff31952a

- Cached - Similar pages

#### Open Context: New Search with Public Tags

goat metapodials, Read about · Use, weaving tools, Read about · Use, bone of about · Use. Harvard foxes, Read about · Use ...

www.opencontext.org/database/tags\_newsel.php - 17k - <u>Cached - Signar pages</u>
\_\_ar pages

#### Improved separation of Neolitric wetapodials of Sheep Svis) and ...

Improved separation of Neolithic **Metapodials** of Sheep(Ovis) and **goats**(Capra) from Ar Candide cave, Liguria, Italy. P ROWLEY-CONWY ...

cat.inist.fr/?aModele=afficheN&cpsidt=2460357 - Similar pages

#### [PDF] The fauna

File Format: PDF/Adobe Acrobat - View as HTML

worked bone utilized the sheep/goat metapodials. The, group 3 pits revealed large nur of broken horn, cores while group 9 contained many skull and ...

ads.ahds.ac.uk/catalogue/adsdata/cbaresrep/pdf/057/05706001.pdf - Similar pages

- Open technologies
   (important for data longevity and migration)
- Ubiquitous & accessible:
   Drives many dynamic content websites, relatively simple standard technology.
   "Bleeding edge" difficult for our target community.
- Easy accessibility to Search Engines: Increasingly important research tools (Harley 2006)
- Easy integration of Open Source Tools (RSS-feeds, ping-back, etc.)

<sup>&</sup>lt;sup>2</sup> Diane Harley, Sarah Earl-Novell, Jennifer Arter, Shannon Lawrence, and C. Judson King, Jr. "The Influence of Academic Values on Scholarly Publication and Communication Practices", Research & Occasional Paper Series: CSHE.13.06 <a href="http://cshe.berkeley.edu/publications/docs/ROP.Harley.AcademicValues.13.06.pdf">http://cshe.berkeley.edu/publications/docs/ROP.Harley.AcademicValues.13.06.pdf</a>.



#### Community-based data sharing and tagging

Developed by the Alexandria Archive Institute

General Info

Content

**Policies Participate**  Help

**BROWSE Open Context** 

Welcome to Open Context, a free, open access resource for the electronic publication of primary field research from archaeology and related disciplines. Open Context provides an integrated framework for users to search, explore, analyze, compare and tag items from diverse field projects and collections.





To begin immediately, click on "Explore Open Context", or on one of the projects and collections mapped above. Or, browse around this web site to learn more about how Open Context works.

- Instructions on how to search the Open Context database
- Information about contributing data to Open Context
- Guidelines for tagging your search results for other users to view
- Details on the legal terms and conditions of using Open Context

#### News and Features

AAI Facilitates Open Access Expert Panel Discussions for the Preserve

### **Current Applications:**

- Field archaeology
- Museum collections
- (3) Geo-archaeology (soil micro-morphology)
- (4) Public health

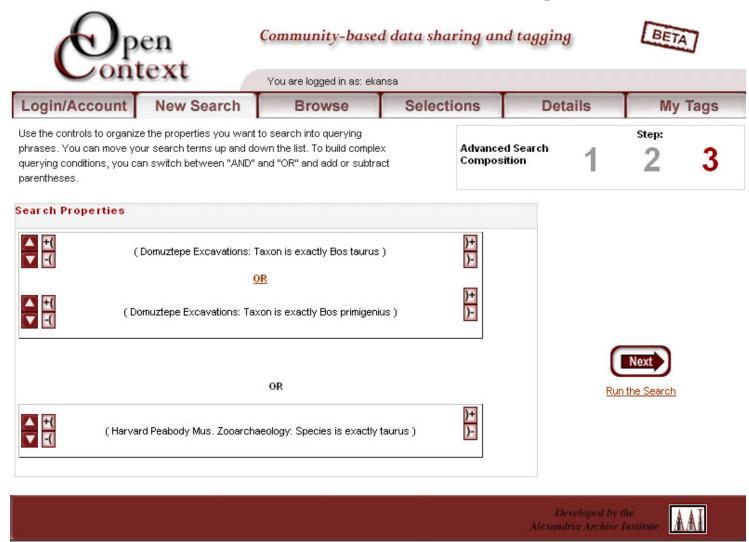
#### In the works....

- (1) CRM "contract" archaeology
- Collections with custom "branding" (Egyptology, small museums)
- **Testing research** impact with ADS



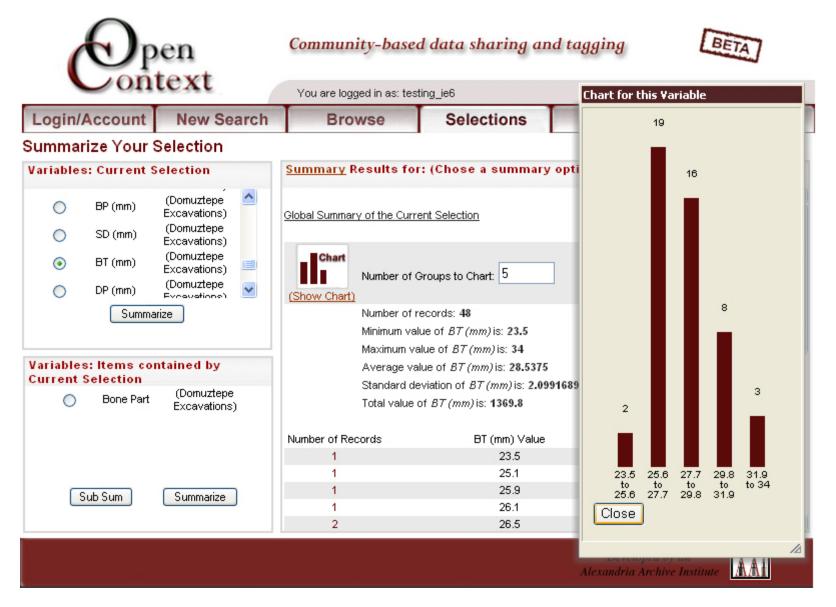
Unless otherwise stated, this work is licensed under a Creative Commons Attribu

# **Complex Querying**

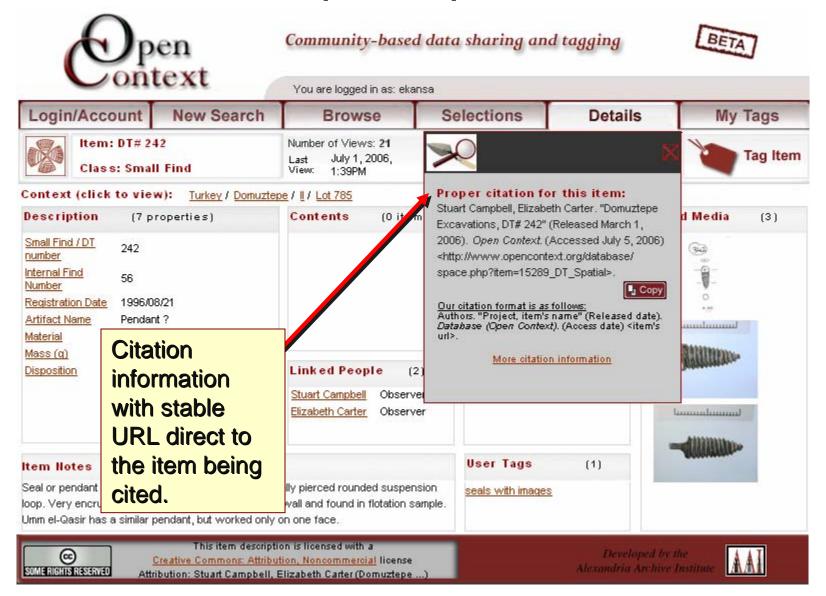


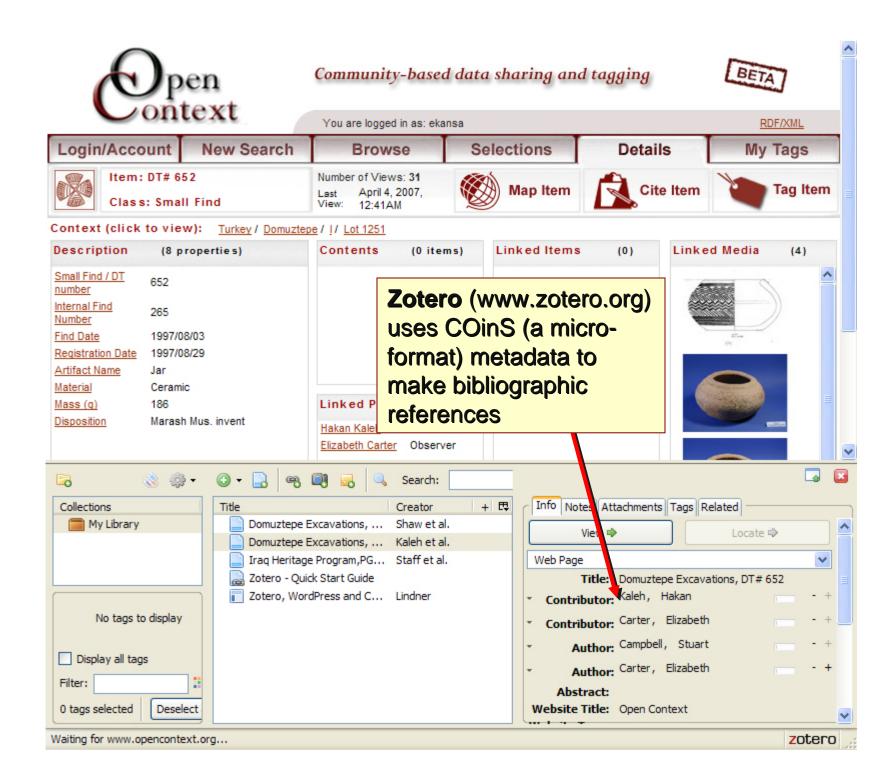
 Data from multiple projects can be queried (with Boolean algebra), and results pooled together

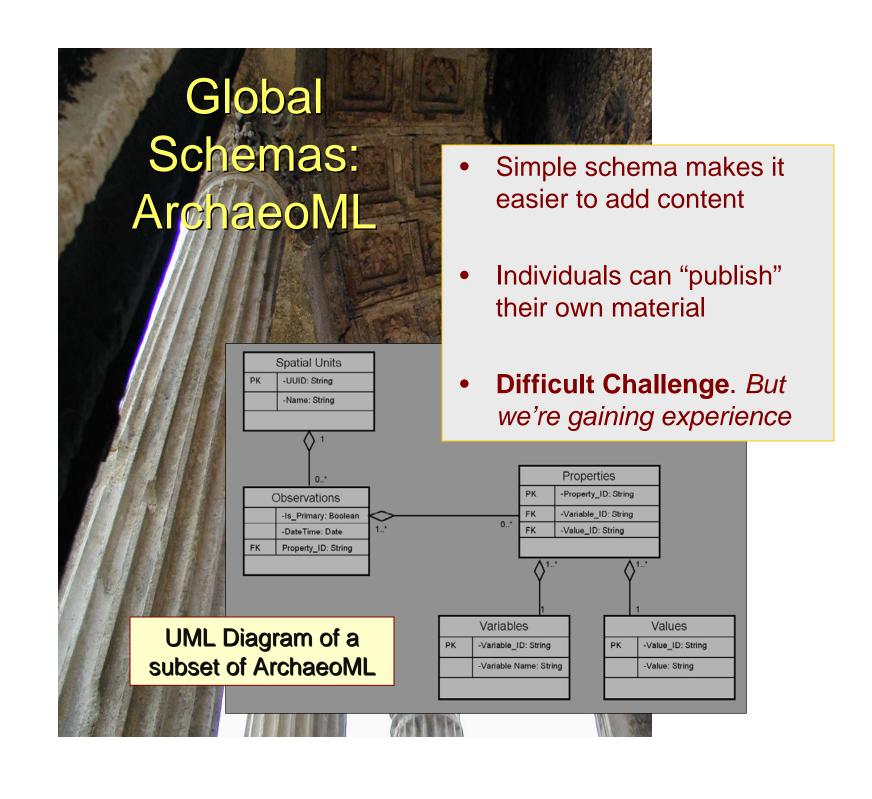
# **Summary Statistics**



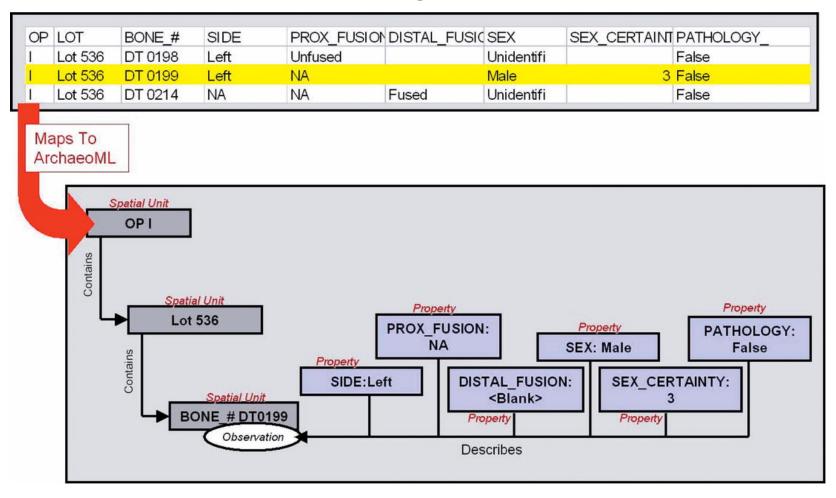
# Ownership in Open Context







# Schema Mapping into ArchaeoML



- Web-based importer now in testing (and we're looking for feedback!).
  - Simple, fast, can be performed by a non-expert data contributor
  - Individuals can upload their own data, map them into ArchaeoML and submit for review and publishing





mport



You are logged in as: testing\_ie6

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

#### Your Projects to Publish:

With this service, you can publish your research Context and OCHRE systems. First create a new an existing project that you want to add to. Then table to continue the import process.

#### Step 1: Select a Project

Penelope's main unit of publication is a 'pro can have data from one or more uploaded to publishing you need to create a new project

Create a New Project

You are importing the following file:

### You have chosen to import data into a new project. Please create a title for

your project before you choose a file to upload.

Afridar Zooarchaeology

Add Project

Create a New Project

Cancel

Create a New Project

Developed by the Alexandria Archive Institute

14







You are logged in as: ekansa

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

Open Context requires all content it contains to carry a Creative Commons license. These copyright licenses allow legal sharing and re-use of content in Open Context and beyond. All Creative Commons licenses require attribution. Future copies and works based on your content must clearly attribute and cite you for your contribution. Please select a license for your uploaded file. (The license will also apply to media identified in this table.)

You are importing the following file:

Filename

Number of Rows

Number of Columns

Contexts.xls

306

12

#### Select a Creative Commons License

Do you want to permit commercial uses?

Yes (Recommended)

- This choice reduces barriers to future publication, making wider citation more likely, and increasing the impact of your contribution

No

Do you want to allow others to create and share modified/adapted versions of your content?

- Yes (Recommended)
- Yes, but only if people share-alike Future works must also carry this same license

Allow only exact copies of my work to be shared

Select License

Result: Your License Selection

You chose to license your work with a:

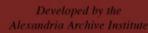
Creative Commons Attribution-Noncommercial 3.0 License



















You are logged in as: ekansa

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

In the area below, select one or more fields from your table to classify. Then use the buttons to the right to assign a classification.

Step	1: Select Field(s)			
ID	Field Name	d Name Field Type		
1	Site	Location	or Object	
2	Lic#	Property	Property	
3	Area	Location	Location or Object	
4	Square	Property		
5	Locus	Location	or Object	
6	Basket	Location	or Object	
7	Context	Property		
8	Bone#	Location	or Object	
9	MNI			
10	Species			
11	Element			
<			>	

You are importing the foll	owing file:	
Filename	Number of Rows	Number of Columns
oc_afridar_marina.xls	629	35

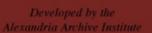




Help Classify















You are logged in as: testing ie6

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

Icons, simple classifications, and additional annotations help make it easier for others You are importing the following file: to browse and use your data. Select a field in the area below and choose the hest Number of fitting icon and classification. You also have additional options. Add notes or keywords to items Columns makes your data easier for others to navigate and use. You makes 35 Notes and other supplemental information can help make your dataset keywords to further describe items in a field. easier to find and understand. Step 1: Select Field Step 2: Choo Add a note for items in the field "Basket". Field Name Bask A basket is an arbitrary Site Notes: subdivision of a contextually-Area Anin defined locus. 5 Locus "Basket Basket Cancel Add Note 2507" Bone# Scul Potte Undo 345", "Bone: 346", "Bone: 302" Create New Class Bone

#### Optional Tools:

Select a field, then one of the options to the right Label items with Field Name Label items with New Text Add Notes or Comments



Developed by the Alexandria Archive Institute





Last





You are logged in as: testing\_ie6

About

1. Start

2. Data Setup

Child:

Area

Locus

3. Review

4. Edit

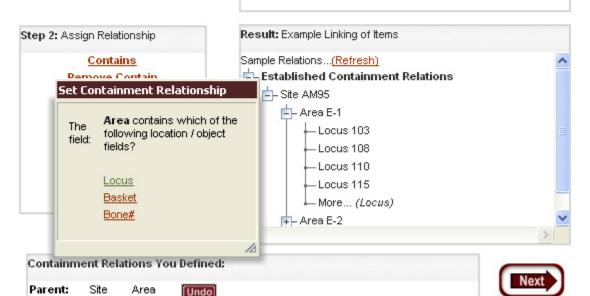
5. Publish

Defining spatial containment relationships makes your data easier for others to navigate and use. Select a field in the area below to describe how items in this field link with items in other fields.

You are importing the following file:

Filename Number of Rows Columns
oc\_afridar\_marina.xls 629 35





Developed by the









You are logged in as: ekansa

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

Defining spatial containment relationships makes your data easier for others to navigate and use. Select a field in the area below to describe how items in this field link with items in other fields.

Child: Established

Filename Rows 85

You are importing the following file:

Number of

Columns

Number of

Step 1: Select Field

Field Name

Context A

Context B











Edit

Item

(Edit this)

You are logged in as: ekansa

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

#### Project: Burrow House, Cottam

You may now explore and edit data uploaded to your project. Once you are satisfied that your contribution is properly organized and complete, you can finalize publication of your project.



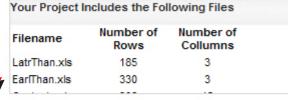
Penelope can import multiple related tables, linking results from complex, multispecialist teams!

+-Context 4279 (View) +-Context 4148 (View) +-Context 4092 (View)

Undo Import of Undo ast Table

Import new table to

Get ArchaeoML XML



#### Detail View:





(This item currently has no notes.)

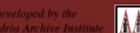
#### Item Links & Relationships (3)

Above Context 4148 Below Context 4052 Fill of Context 4053

Linked People (1)

Deine into Audion / Annius Lutino District





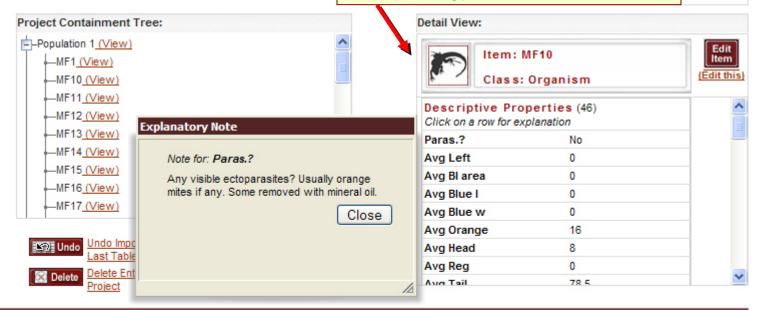


You may now explore and edit data uploaded to your project. Once you are satisfied that your contribution is properly organized and complete, you can finalize publication of your project.

schema can support a wide variety of field-science datasets (Example: Lizard

Highly generalized / abstracted ArchaeoML global ıblish morphology)

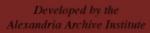
PENELOPE



Submit

to Publi









PENELOPE data publisher



ıblish

You are logged in as: testing\_

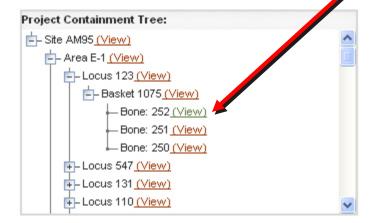
About

1. Start

2. Data Setup

#### Project: Afridar Zooarchaeology

You may now explore and edit data uploaded to your project. Once you are satisfied that your contribution is properly organized and complete, you can finalize publication of your project.



Undo Import of Last Table

Delete Entir

Add Add

Import new table to project



Items with no explicit georeferencing inherit spatial coordinates through containment relations

oc\_afridar\_marina.xls 629 **35** 



Developed by the Alexandria Archive Institute









You are logged in as: ekansa

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

#### Project: Burrow House Farm

You may now edit information in your on the right to update or edit individual

Item Context: Cottam / COT89F

#### Item Description:



Item: Find: 100

Class: Small Fin

#### Descriptive Properties:

find_id	H11	
artefact	brick/l	
Туре	?	
total	5	
material	fired o	
potfab	NA	
wtgms	149	

Geo-Reference Map:

Geo-Reference this Item

Click on the marker to view information about this item's geo-referencing. You can change the location of this item by clicking on the edit button (below).

Edit Location



Close





You are logged in as: testing\_ie6

About

1. Start

2. Data Setup

3. Review

4. Edit

5. Publish

Project: Afridar Zooarchaeology

Your Project Includes the Following Files Number of

### Data expressed in ArchaeoML

- Ready for Open Context, OCHRE dissemination
- Interoperability, longevity advantages
- Project's original terminology is maintained

### Data described with high-level metadata

Dublin Core, TimeMap. Can be expressed in RDF, COinS, ArchaeoML (XML), etc.

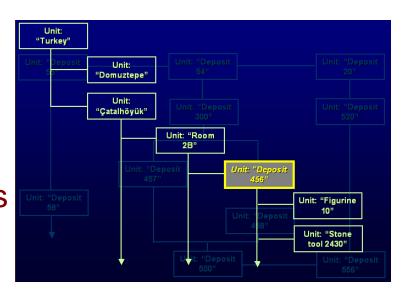
- Data schema mappings recorded
  - Import process saves mapping parameters.
- Internet Archive Accession



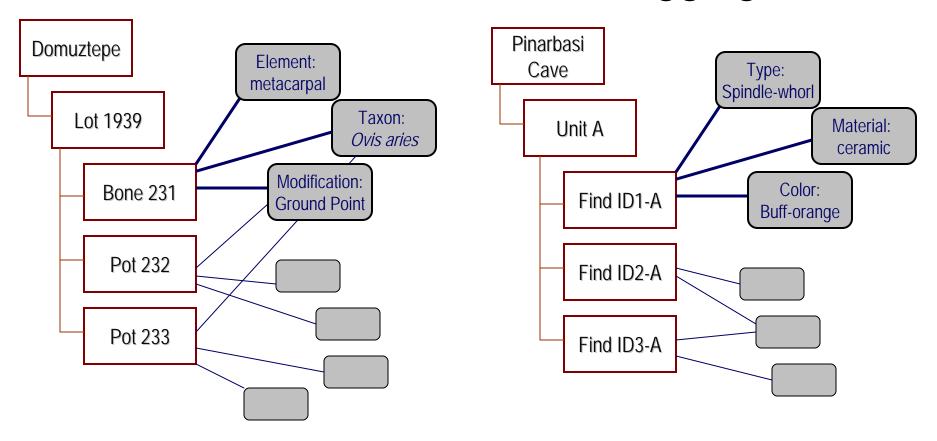
PENELOPE

# Integration at a General Level

- Speed and ease of mapping content into ArchaeoML systems
  - Significant cost reduction if most contributors can do it themselves
  - Important for small, individual or project generated research
- Enables powerful query and analysis across multiple projects
- But NOT very specific.
  - Example: Composing queries still uses each project's local recording system (even though several projects can be queried simultaneously and their results pooled)

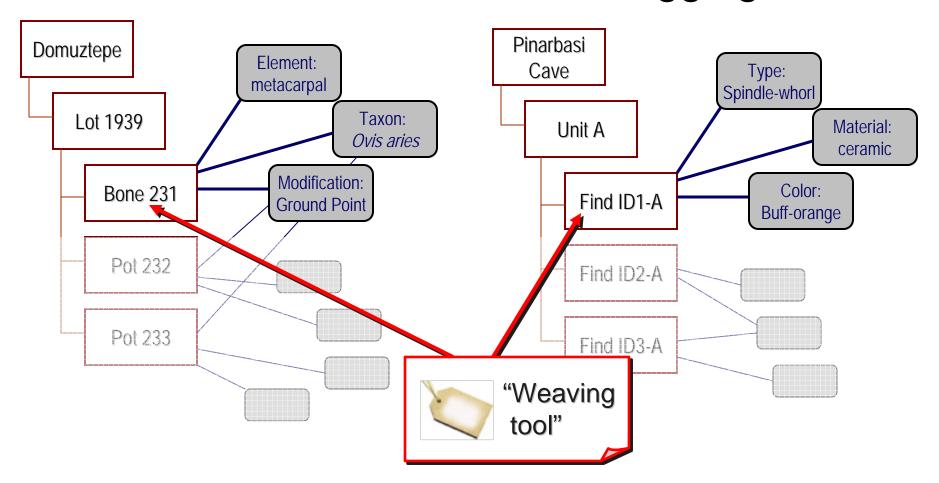


### ArchaeoML lends itself to tagging



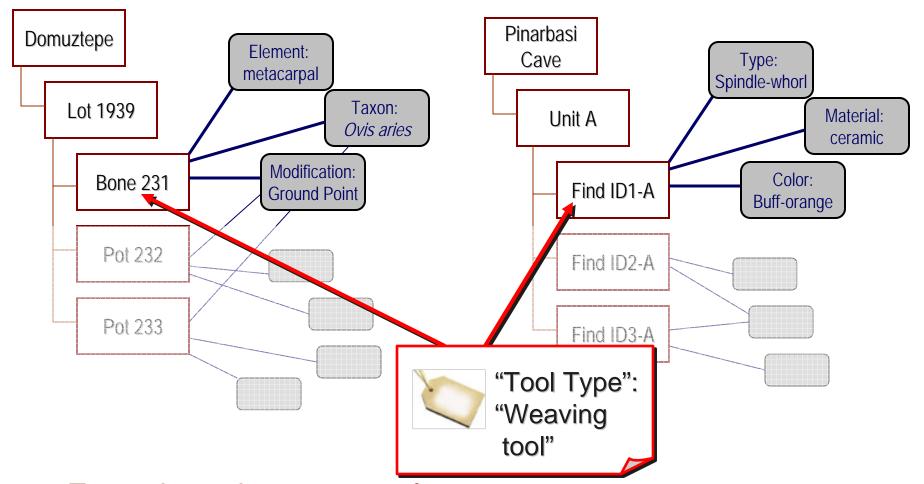
- ArchaeoML essentially describes a network of atomic units and their relationships
  - Units and their links typically derived from source data

### ArchaeoML lends itself to tagging



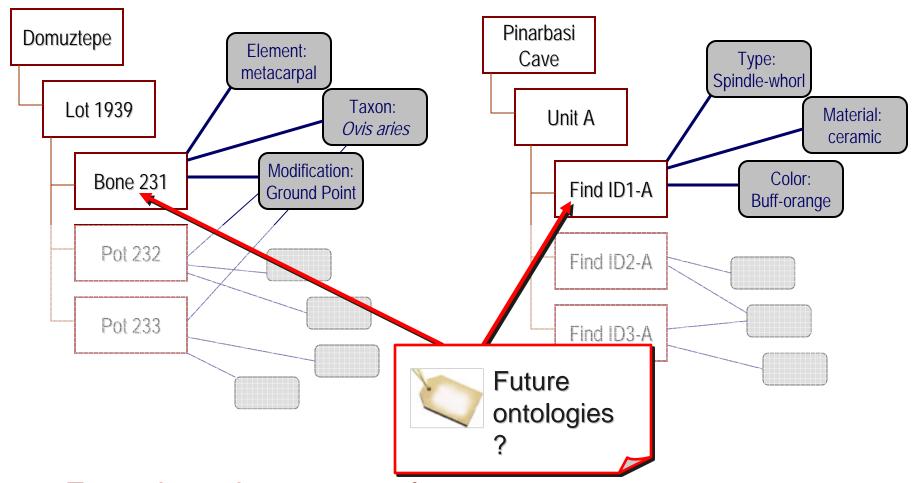
- Tags describe new, user-defined links
  - A short word or phrase can be assigned to 1 item or a whole set of items (esp. a query selection set)
  - Express a meaningful link between items

### **Future Extensions**



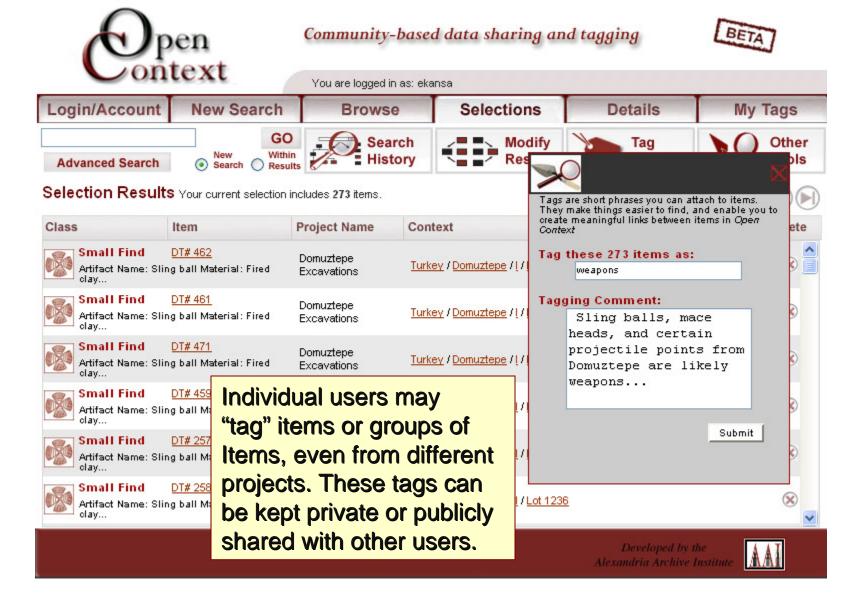
- Extend tagging concept for more structure
  - Users can apply variable/value pairs.
  - Enable users to build databases on others' data, in a community context

### **Future Extensions**

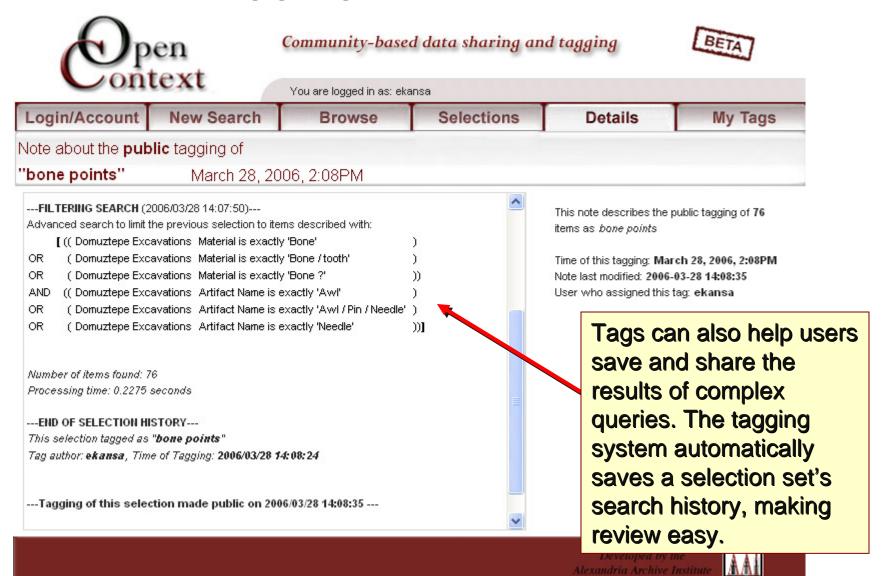


- Extend tagging concept for more structure
  - Users can apply standard thesauri (e.g. Getty Art & Architecture)
  - Users can apply and share more sophisticated and semantically rich ontologies

# Tagging in Open Context



# Tagging in Open Context



# Tagging in Open Context



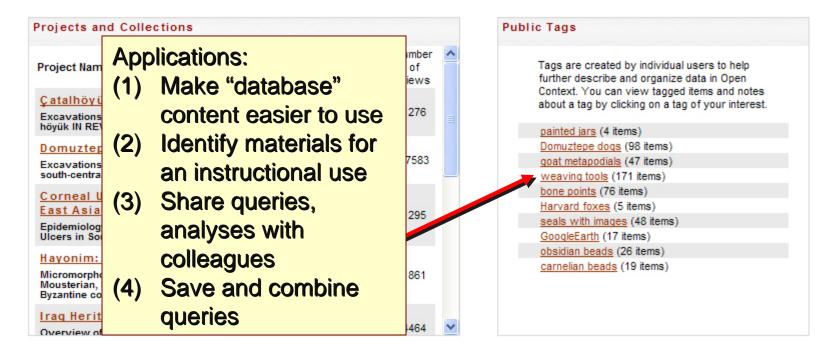
Community-based data sharing and tagging



You are logged in as: ekansa

Login/Account New Search Browse Selections Details My Tags

#### **Browse Open Context**





#### Community-based data sharing and tagging



You are logged in as: ekansa

Login/Account New Search

Browse

Selections

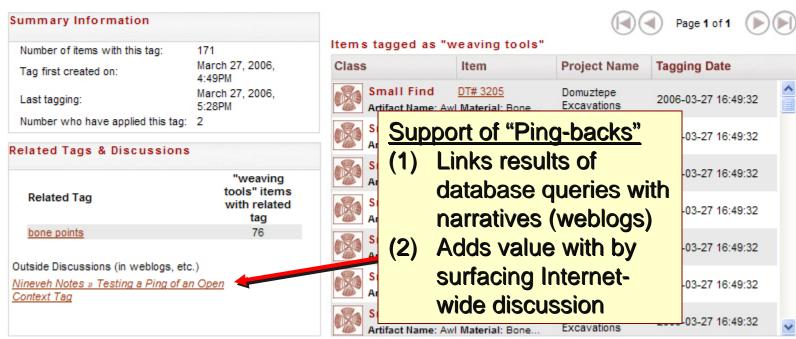
Details

My Tags

#### Public Tag

#### "weaving tools"







This content is licensed with a <u>Creative Commons: Attribution</u> license Attribution: Open Context Users

Developed by the Alexandria Archive Institute



# Applicability for Field Research and Collections?

- We work with communities not accustomed to controlled vocabularies or formal taxonomies
- Folksonomies are easy to use and effective
  - Reduce costs by distributing integration efforts and metadata creation across the community
  - Can be adapted for research, with editorial control & recognition of credentials
  - Can facilitate future ontologies, textmining, data-mining, etc.



Highly-specified ontologies can be difficult and costly to implement in large, diverse, non-expert communities

### **Future Directions**

#### Continued Enhancements

- Revise tagging system to better recognize authorship and to be more structured
- Enable customized "branding", localization, and alternative presentation of content (with iCommons.org)
- More fully integrate Dojo-AJAX in user interface
  - Simple GIS (OpenLayers API)
  - Charts
- Distributed architecture / web services (with UC Berkeley School of Information)

#### Your collaboration !!!

 Open-source development. Need to link with other tools + projects



Photo by "brent" (Found on Flickr July 1, 2006 http://www.flickr.com/photos/bmh4you/84179796/)

# Open Context in a Nutshell

- Makes web data dissemination easy and useful for scholarship
- Incremental approach to data integration
  - Combine more formal (ArchaeoML) with more informal approaches (Folksonomy)
  - Facilitate development of robust standards
- Dynamically links research data with other web tools & infrastructure
  - Open Archives Initiative PMH (working),
     Weblogs, RSS, GoogleEarth (in development), Zotero, etc...



# Special Thanks

IATUL 2007 Conference Organizers

### THE WILLIAM AND FLORA HEWLETT FOUNDATION

Presidio Archaeology: NPS, Golden Gate National Rec. Area





Google, Inc. (Google Grants, in kind services)

**Doris and Donald Fisher** 





JOUKOWSKY FAMILY FOUNDATION



**University of Chicago: OCHRE Project** 







**The Electronic Frontier Foundation** 

**Internet Archive (media repository services)**