Content Interchange and the Invisible Repository

Repository Service Development at The Australian National University

Scott Yeadon

Open Repositories 2007 – San Antonio, Texas (23-26 January)

A Content Interchange Package

- PRESTA – PREMIS Requirements Statement
- APSR Project
- National Library of Australia (lead)
- List of preservation metadata elements
- Supported file formats
- Tools for automated metadata collection
- Gap reports for ANU and UQ
- Preservation event use cases
- Profile for exchanging metadata
- Final Report: http://www.apsr.edu.au/publications/presta/

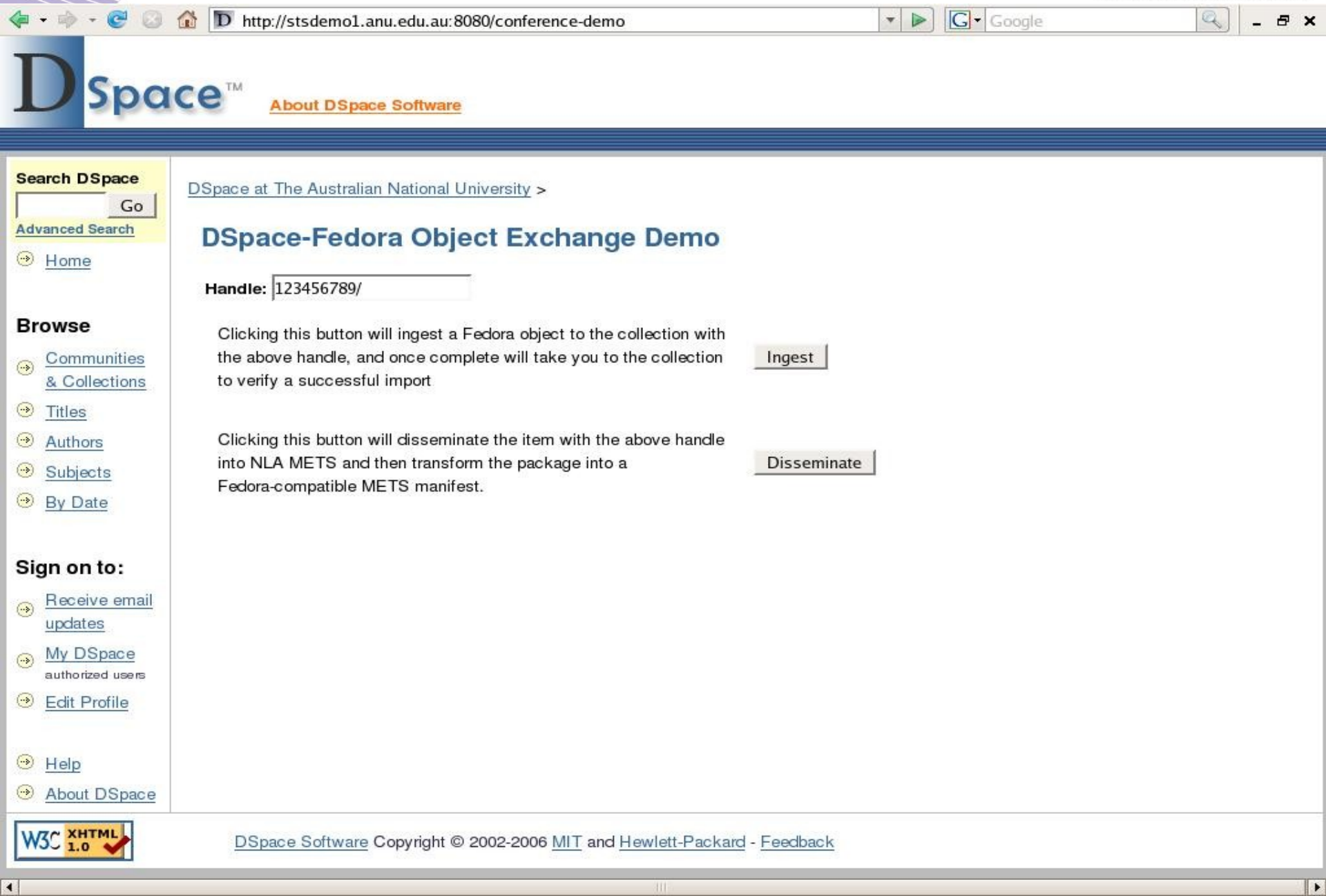
Repository Interoperability

- Common DIP/SIP specification
- Crucial for object sustainability
- What happens when you need to change your repository software
- What happens when the custodian of a set of objects changes
- How to support replication, share or exchange objects across repository platforms
- Repositories cannot support an ingest module for every possible source, or dissemination module for every target

Demo: DSpace to Fedora

- From DSpace Servlet clicking "Disseminate" creates an NLA METS package for the master image and its metadata only
- NLA METS transformed into a Fedora METS package
- Fedora ingests Fedora METS and generates derivatives

Demo: DSpace Servlet for Demo



Demo: DSpace Object to Disseminate

THE AUSTRALIAN NATIONAL UNIVERSITY

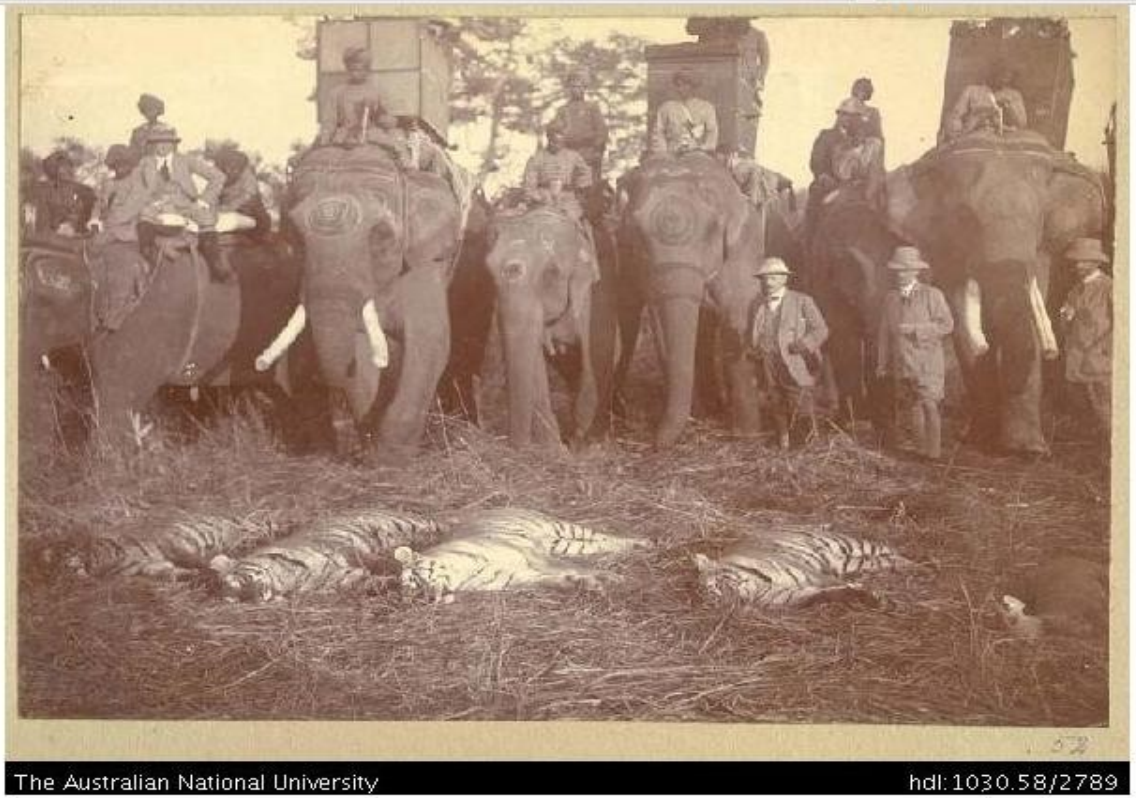
http://stsdemo1.anu.edu.au:8080/handle/123456789/5547

& Collections
Titles
Authors
Subjects
By Date

Sign on to:

Receive email updates
My DSpace
authorized users
Edit Profile

Help
About DSpace



http://www.anu.edu.au/legal/copyrit.html

Title: Hunters inspect four dead tigers and a deer

Date Created: 6-Jan-2004

Publisher: Australian National University

Description: George V's elephant and howdah are on the left. There were a total of 39 tigers killed during this hunt.

URI: http://hdl.handle.net/123456789/5547

Appears in Collections: Disseminate

Demo: DSpace Object in Fedora

THE AUSTRALIAN NATIONAL UNIVERSITY

http://fez-demo.anu.edu.au/view.php?pid=ANU:11

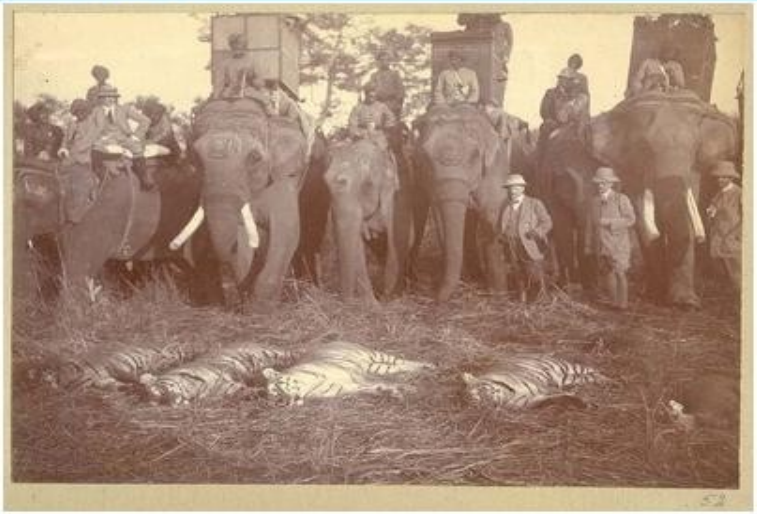
View Image: ***Hunters inspect four dead tigers and a deer***

Workflows: ...

Collection: Demonstration Testing Collection

Title	Hunters inspect four dead tigers and a deer
Creator(s)	Unknown
Research Fields, Courses and Disciplines	
Description	George V's elephant and howdah are on the left. There were a total of 39 tigers killed during this hunt.
Publisher	Australian National University
Date	
Format	Original images scanned at 72-100 dpi and saved in .jpg format 95113 bytes 55881 bytes 5716 bytes image/jpeg image/jpeg image/jpeg
Source	His Imperial Majesty's Shoot in Nepalese Terai, page 14 photograph 2
Language	en_AU
Rights	http://www.anu.edu.au/legal/copyrit.html

Datastream Preview



Attached Files

Name	Description	MIMEType	Size	Downloads
n23541612004_14_2.jpg	n23541612004_14_2.jpg	image/jpeg	92.88KB	0

Demo: Fedora to DSpace

- Fedora exports an object (plus derivatives and all metadata) in Fedora METS which is transformed into NLA METS
- From the DSpace Servlet clicking “Ingest” ingests the NLA METS package into DSpace
- DC is mapped to DSpace DC, other metadata is kept in bitstreams with MDTYPE as the bitstream description
- Derivatives are assigned to appropriate DSpace bundles

Demo: Fedora Object to Disseminate

THE AUSTRALIAN NATIONAL UNIVERSITY

http://fez-demo.anu.edu.au/view.php?pid=UQ:2896

Google

Fez Digital Repository

Fez (Login)

Home | Browse Communities | Help

terms Search

View Image: ***Officers going ashore at Lemnos***

Collection: Demonstration Collection

Title	Officers going ashore at Lemnos
Creator(s)	F. H. James Wallace
Research Fields, Courses and Disciplines	430101 History - Australian
Description	Australian military and medical personnel rowing towards Lemnos Island off Gallipoli in late 1915 or early 1916.
Publisher	The University of Queensland, Fryer Library
Date	2006-03-9
Type	photograph
Format	image/tiff
Source	The University of Queensland, Fryer Library
Language	en
Rights	For all enquiries about this work, please contact the Fryer Library, The University of Queensland.

Datastream Preview

Attached Files

Name	Description	MIMEType	Size	Downloads
F831_21_21001u.tif	F831_21_21001u.tif	image/tif	56.68MB	0

Created: Thu, 14 Dec 2006, 15:09:22 UTC Detailed History

Demo: Fedora Object in DSpace

THE AUSTRALIAN NATIONAL UNIVERSITY

http://stsdemo1.anu.edu.au:8080/handle/123456789/6214

- By Date

Sign on to:

- Receive email updates
- My DSpace
  authorized users
- Edit Profile

- Help
- About DSpace

For all enquiries about this work, please contact the Fryer Library, The University of Queensland.

Title: Officers going ashore at Lemnos

Publisher: The University of Queensland, Fryer Library

Description: Australian military and medical personnel rowing towards Lemnos Island off Gallipoli in late 1915 or early 1916.

URI: http://hdl.handle.net/123456789/6214

Appears in Collections: Ingest

Demo: Fedora Metadata as Bitstreams

THE AUSTRALIAN NATIONAL UNIVERSITY

http://stsdemo1.anu.edu.au:8080/tools/edit-item?item_id=5891&submit=Edit...

Primary Bitstream	Name	Source	Description	Format	User Format Description	
	metadata.xml	org.dspace.content.crossv	jhove	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	PREMIS	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	DCHIST	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	FEZMD	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	RDF	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	FEZACML	4 (XML)		Vie Re
	metadata.xml	org.dspace.content.crossv	FEDORA-AUDIT	4 (XML)		Vie Re
	license.txt	license.txt		2 (License)		Vie Re
	preview_F831_21_21001u	preview_F831_21_21001u		11 (JPEG)		Vie Re
	thumbnail_F831_21_2100	thumbnail_F831_21_2100		11 (JPEG)		Vie Re
	web_F831_21_21001u.jpg	web_F831_21_21001u.jpg		11 (JPEG)		Vie Re
	F831_21_21001u.tif	F831_21_21001u.tif		14		Vie

NLA METS SIP/DIP

- Importance of an open standards based interchange model cannot be understated
- Will allow **meaningful** exchange of repository objects
- If widely adopted could provide an exit strategy and means for repositories to share (federate) or exchange materials
- Can provide a specification for external parties preparing materials for deposit
- At a technical resource level, promotes re-usable software (write once, used by many)
- Challenge: Needs to be prescriptive for implementors while at the same time able to support a wide range of use cases

Possible Implementations

- Direct support for NLA METS ingest and disseminate within repository
- Transform layer within repository ingest/disseminate workflow (NLA METS to accepted format or vice versa)
- Institutional contracts to support meaningful deposit/export
- Harvesting model
- JSR170 API coupled with Common Web Services

APSR - 2007

- Release a version 1.0 of NLA SIP/DIP Profile
- Register METS Profile
- Define and publish a set of default content models
- Provide a transform/pre-ingestion framework
- Testing models and use cases with DSpace, Fedora and other partner repositories

The Invisible Repository

Repositories as a back-end service

Case Study: Open Journal Systems

What can my repository do?

- Archiving is important, repositories are important but...
- They are special-purpose software for preserving and facilitating access to digital objects
- They are not content management software, e-portfolios, business workflow tools, reporting packages, image cataloging tools, etc etc
- There is plenty of software out there in the real world that does support these activities and supports them well
- This is the software that is and should be used for these purposes
- We need to integrate with other key institutional software, not assume its role or re-invent the wheel via add-ons

Why can't it do everything?

- Software packages (including repositories) will come and go
- Institutions, faculties, individuals all have software preferences (contracts, user community preferences)
- There are often different software packages supporting the same function
- Embedding non-repository functionality within a repository will reduce choice and increase maintenance and is unlikely to be best of breed
- monolithic nightmare

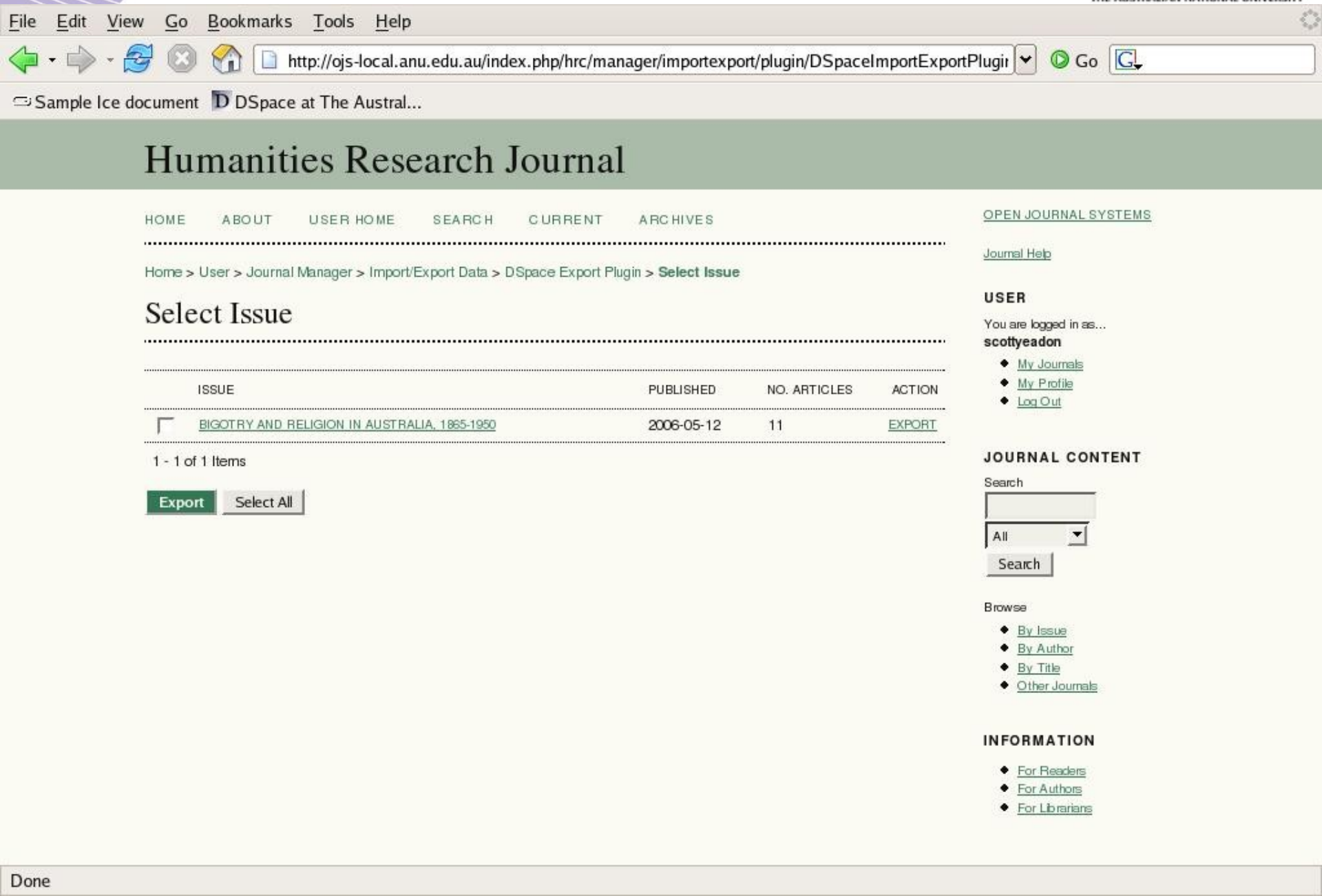
Case Study: OJS

- OJS combines workflow, content management and publishing
- ANU has an XML conversion facility
- ANU has a repository
- Don't have journal workflow or content management so...
- OJS for workflow and content management
- DSpace for archiving
- Manakin/Cocoon for Publishing

Demo

- DSpace export plugin for OJS provides DSpace servlet with URL
- DSpace servlet pulls OJS Native format across for ingestion
- DSpace OJS Packager plugin processes native OJS and creates a DSpace object
- Packager also creates a simple RDF journal manifest to maintain article order
- Manakin used to generate a published version of journal

Demo (Export Issue to DSpace)



Demo (OJS Native format)

THE AUSTRALIAN NATIONAL UNIVERSITY

File Edit View


```
<?xml version="1.0"?>
<issue published="true" current="true"><title>Bigotry and Religion in Australia,
1865-1950</title><volume>12</volume><number>1</number><year>2005</year><date_published>2006-05-12</date_publish
locale="">Contributors</title><abbrev locale="">EDT</abbrev><article><title>List of
Contributors</title><abstract></abstract><date_published>2006-05-12</date_published><author
primary_contact="true"><firstname>Journal</firstname><lastname>Manager</lastname><email>scott.yeadon@anu.edu.au
filename="hrc-contrib.pdf" encoding="base64"
mime_type="application/pdf">JVBERiOxLjMKJeLjz9MKOCAwIG9iago8PC9MZW5ndGggOSAwIFIKLOZpbHRlciAvRmxhdGVEZWNvZGUKPj4
locale="">Introduction</title><abbrev
locale="">EDT</abbrev><article><title>Introduction</title><abstract></abstract><date_published>2006-05-12</date_
primary_contact="true"><firstname>Journal</firstname><lastname>Editor</lastname><email>scott.yeadon@anu.edu.au<
filename="hrc-ch01.pdf" encoding="base64"
mime_type="application/pdf">JVBERiOxLjMKJeLjz9MKOSAwIG9iago8PC9MZW5ndGggMTAgMCBSCi9GaWxOZXIgLOZsYXRlRGVjb2RlCj4
locale="">Double Jeopardy</title><abbrev locale="">ART</abbrev><article><title>Double Jeopardy: Catholic and
Irish</title><abstract>The term &#x2018;Anglo-Celtic&#x2019; is commonly applied, especially by persons to
which neither ethnicity applies, to describe the predominant present character of Australia&#x2019;s
population. It is a grossly misleading, false and patronising contemporary convenience, one crassly
present-oriented. Its use removes from consciousness and recognition a major conflict fundamental to any
comprehension, not only of Australian history but of our present core culture. Mainstream contemporary
Australia is not to be predicated as some sort of static, immutable monolith. It evolved, and evolves, under
tension and stress, the product of two centuries of innumerable complex human transactions, accommodations,
competing value systems, grudging concessions, tolerated diversities, all within sensed or instinctive social
limits. And all under the umbrella of the development of the Western cultural tradition&#x2014;the rule of
law, political democracy and individual freedom, the secular state, toleration of diversity, economic
capitalism, change and modernity.</abstract><date_published>2006-05-12</date_published><author
primary_contact="true"><firstname>Patrick</firstname><lastname>O'Farrell</lastname><email>scott.yeadon@anu.edu.
filename="hrc-ch03.pdf" encoding="base64"
mime_type="application/pdf">JVBERiOxLjMKJeLjz9MKOSAwIG9iago8PC9MZW5ndGggMTAgMCBSCi9GaWxOZXIgLOZsYXRlRGVjb2RlCj4
locale="">Interpreting Aboriginal Religion</title><abbrev locale="">ART</abbrev><article><title>Interpreting
Aboriginal religion: From nineteenth-century evolutionism to Durkheimian sociology</title><abstract>I begin
this paper with what may seem an unlikely starting point: the cordial relationship of the scientific polymath
Herbert Spencer and the Liberal politician W. E. Gladstone. In the late 1870s and early 1880s, Spencer
flattered the then-prime minister extravagantly, telling him that his Liberal Party programme was nothing less
than the realisation of the ethical system that Spencer believed to be scientifically based.i And though the
```

Demo (Journal in DSpace)

THE AUSTRALIAN NATIONAL UNIVERSITY

File Edit View Go Bookmarks Tools Help

http://stsdemo1.anu.edu.au:8080/handle/123456789/5556/browse-title

Sample Ice document DSpace at The Austral...

Sign on to:

- Receive email updates
- My DSpace authorized users
- Edit Profile
- Help
- About DSpace

Issue Date	Title	Author(s)
12-May-2006	A 'region of indecency and pruriency': Religious conflict, female communities and health care in colonial New South Wales	*Godden, Judith*
12-May-2006	A 'successful experiment' no more? The intensification of religious bigotry in eastern Australia, 1865–1885	*Campbell, Malcolm*
12-May-2006	Double Jeopardy: Catholic and Irish	*O'Farrell, Patrick*
12-May-2006	Interpreting Aboriginal religion: From nineteenth-century evolutionism to Durkheimian sociology	*Kuklick, Henrika*
12-May-2006	Introduction	*Editor, Journal*
4-Dec-2006	Journal Manifest	-
12-May-2006	List of Contributors	*Manager, Journal*
12-May-2006	Mutual conversion? the Methodist Church and the Yolŋu, with particular reference to Yirrkala	*Morphy, Howard*
12-May-2006	Religion Matters: The Experience of Syrian/Lebanese Christians in Australia from the 1880s to 1947	*Monsour, Anne*
12-May-2006	Taking Away Joss: Chinese Religion and the Wesleyan Mission in Castlemaine, 1868	*Penny, Benjamin*

Done

Demo (Journal Manifest Item)

THE AUSTRALIAN NATIONAL UNIVERSITY

File Edit View Go Bookmarks Tools Help

http://stsdemo1.anu.edu.au:8080/bitstream/123456789/5764/1/manifest.xml

Go

Sample Ice document DSpace at The Austral...

This XML file does not appear to have any style information associated with it. The document tree is shown below.


```
- <rdf:RDF>
  - <rdf:Description rdf:about="http://stsdemo1.anu.edu.au:8080/handle/123456789/5556">
    - <rdf:Seq>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5753"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5754"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5755"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5756"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5757"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5758"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5759"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5760"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5761"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5762"/>
        <rdf:li rdf:resource="http://stsdemo1.anu.edu.au:8080/handle/123456789/5763"/>
      </rdf:Seq>
    </rdf:Description>
  </rdf:RDF>
```


Done

Demo (Manakin)

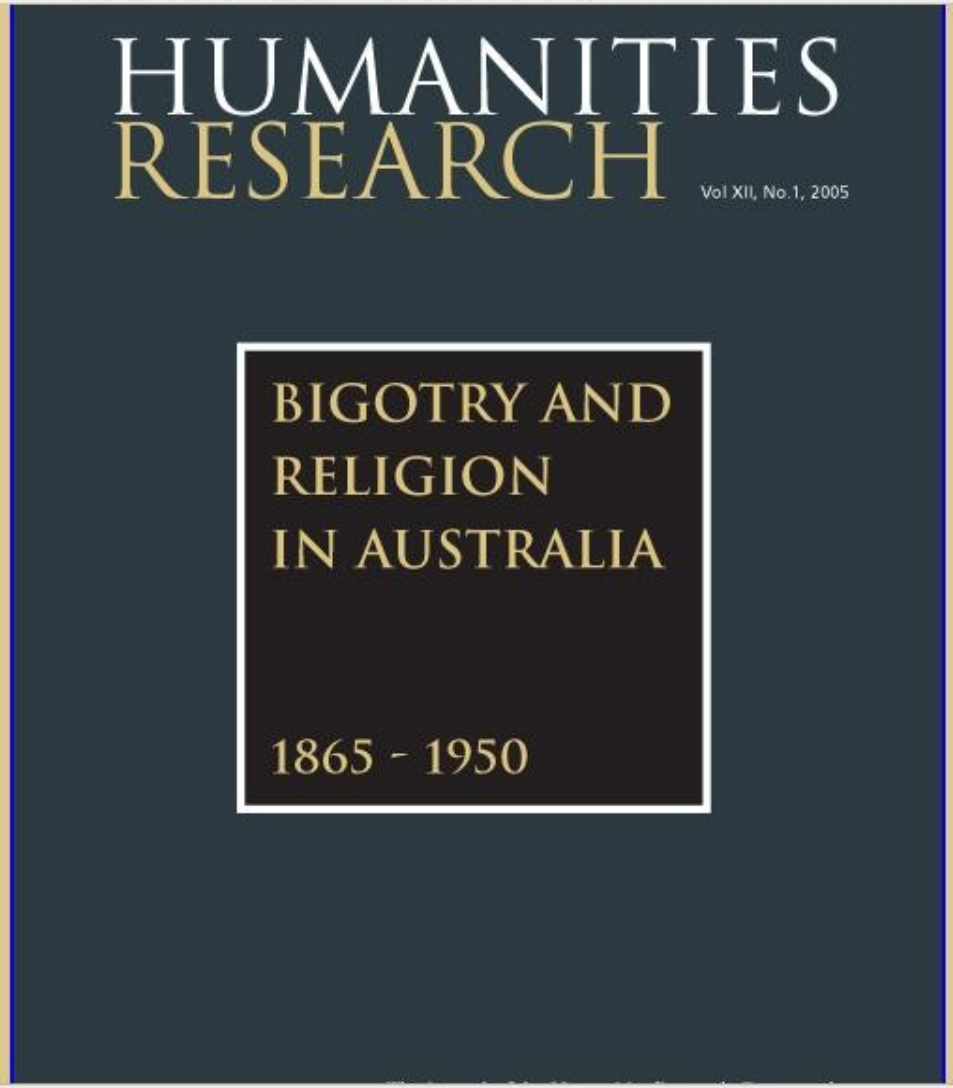
THE AUSTRALIAN NATIONAL UNIVERSITY

File Edit View Go Bookmarks Tools Help

http://stsdemo1.anu.edu.au:8080/dspace-xmlui/handle/123456789/5556

Go

Sample Ice document DSpace at The Austral...



Done

Demo (Manakin)

THE AUSTRALIAN NATIONAL UNIVERSITY

File Edit View Go Bookmarks Tools Help

http://stsdemo1.anu.edu.au:8080/dspace-xmlui/handle/123456789/5556/browse-title

Go

Sample Ice document DSpace at The Austral...

HUMANITIES RESEARCH Vol XII, No.1, 2005

BIGOTRY AND RELIGION IN AUSTRALIA

Table of Contents

List of Contributors

Introduction

Double Jeopardy: Catholic and Irish

Interpreting Aboriginal religion: From nineteenth-century evolutionism to Durkheimian sociology

The love song of Alfred J Dyer: early days of Church Mission Society missions to the Aborigines of Arnhem Land

Mutual conversion? the Methodist Church and the Yolŋu, with particular reference to Yirrkala

Was it ever so? Anti-Semitism in Australia 1860–1950?

A 'successful experiment' no more? The intensification of religious bigotry in eastern Australia, 1865–1885

A 'region of indecency and pruriency': Religious conflict, female communities and health care in colonial New South Wales

Religion Matters: The Experience of Syrian/Lebanese Christians in Australia from the 1880s to 1947

Done

APSR - 2007

- Journal content model mapped to NLA METS SIP/DIP
- Implement repository Ingester/Disseminator
- Develop Manakin template
- Deploy at APSR partner institutions

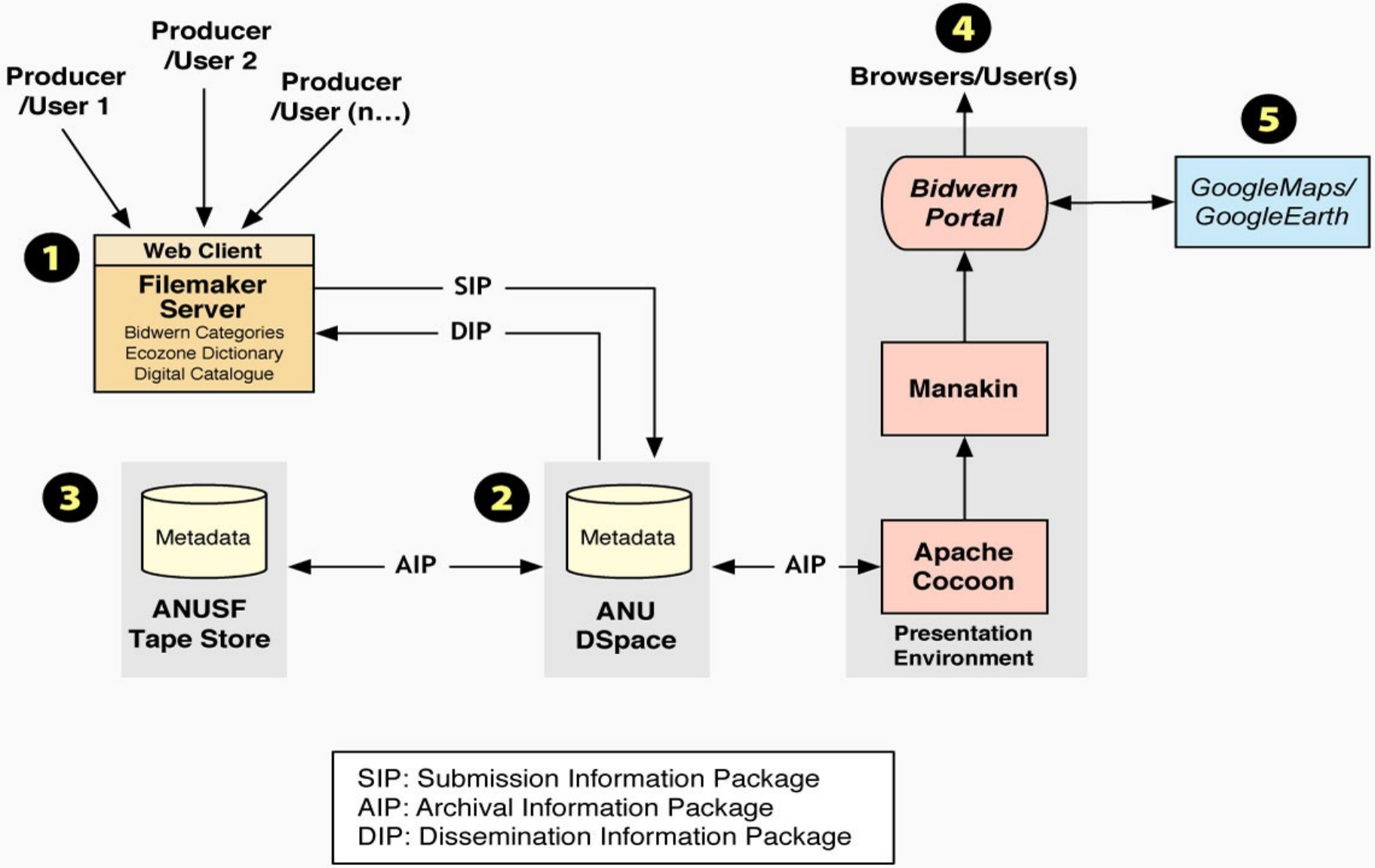
The Bidwern Project

Bidwern is a word from the Bininj Gun-wok language of the western Arnhem Land meaning 'many fingers'.

It refers to new technologies, tools, and so on.

Purpose

- ARC-funded research project (2005-2006)
- Provide researchers in the field the capability to prepare materials for submission to an institutional repository
- Provide access to these materials in a useful form for indigenous communities, researchers and the general public
- Support long-term preservation of these materials

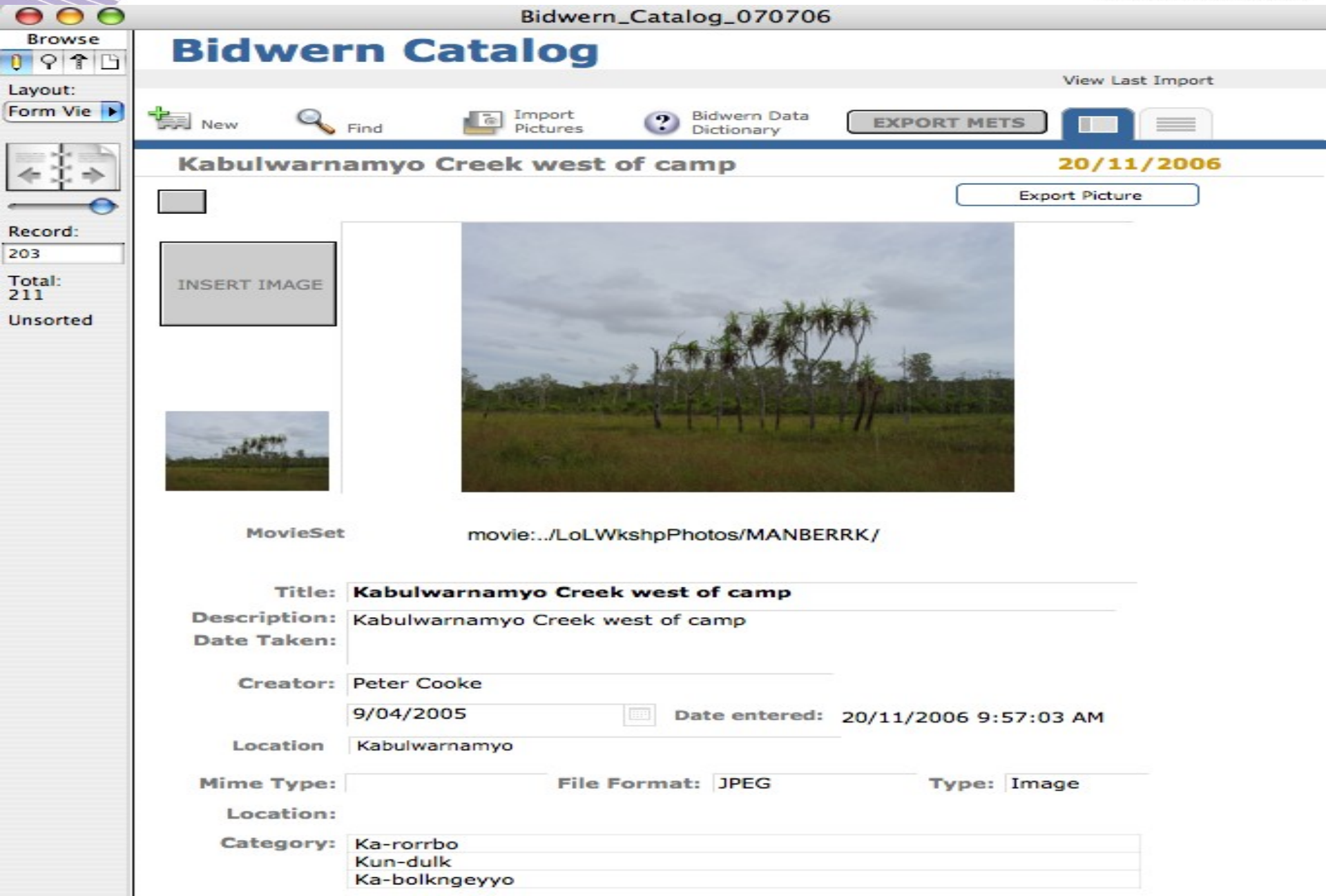

Producer /User 1
Producer /User 2
Producer /User (n...)
1
Web Client
Filemaker Server
Bidwern Categories
Ecozone Dictionary
Digital Catalogue
SIP
DIP
3
Metadata
ANUSF Tape Store
AIP
2
Metadata
ANU DSpace
AIP
Apache Cocoon
Manakin
Bidwern Portal
Presentation Environment
4
Browsers/User(s)
5
GoogleMaps/ GoogleEarth
SIP: Submission Information Package
AIP: Archival Information Package
DIP: Dissemination Information Package

Support for Researchers

- Researchers continue to use their software of choice, in this case FileMaker Pro
- ANU developed a script to export FileMaker materials (images, video, etc) to DSpace METS profile (a standard DSpace ingest format)
- The METS files are zipped up and submitted to the repository (e-mail, direct transfer, CD, etc)
- As soon as materials are in the repository they become available on-line

FileMaker Pro METS export

THE AUSTRALIAN NATIONAL UNIVERSITY



Bidwern Collections

- Manakin (the DSpace XML user interface layer) in conjunction with Google Earth and Google Maps provides a cohesive view of the research materials in a way useful to key project stakeholders
- DSpace will support the long-term preservation of the digital research objects

Home Page

THE AUSTRALIAN NATIONAL UNIVERSITY

Bidwern - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://dspace-dev.anu.edu.au/dspace-xmlui/handle/1030.58/19507/

Go

Demetrius at The Aust...

Google Search PageRank Check AutoLink AutoFill Subscribe Options

Wizz RSS 2.1.5 Feed Search Help etc. Options etc. Watch List Weather

Demetrius at The Australian Nation... | Bidwern

Bidwern

Managing Multi-formated Digital Data Across Disciplines on the Western Arnhem Land Plateau

- Baleh kabolkyime
- An-djewk, Kun-ngol, Kun-kurra
- Yimngen
- Bidyikarme!
- Njaleken?

Ecoterms | Places | google Earth | Search

Bidwern is the name of an ARC eResearch Project funded through 2005-6 that will develop processes and tools to manage digital data associated with multidisciplinary projects in remote locations in Northern Australia.

A pilot project will use a selection of visual and audio data created by social and environmental scientists working with Indigenous communities on a major land management project across the western Arnhem Land Plateau.

The key innovations of the research will be to develop new methods for cataloging and preparing digital data for uploading to the DSpace digital repository at the Australian National University. Once in the repository, the data will be preserved for long term access by researchers and Indigenous communities in the western Arnhem Land Plateau.

A wide range of stakeholders, including researchers, the general public and remote communities, will benefit from the outcomes of the research.

- Bidwern Project >

The Australian National University - CRICOS Provider Number: 00120C

DSpace Software Copyright © 2002-2005 MIT and Hewlett-Packard -Feedback

Done

Ecoterms (1)

THE AUSTRALIAN NATIONAL UNIVERSITY

Bidwern - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

anu.edu.au/dspace-xmlui/handle/1030.58/19507/simple-search?query=subject:Ka-warddewardde

Demetrius at The Aust...

Search PageRank Check AutoLink AutoFill Subscribe Options

Wizz RSS 2.1.5 Feed Search Help etc. Options etc. Watch List Weather

Demetrius at The Australian Nation... | Bidwern

Bidwern

Managing Multi-formated Digital Data Across Disciplines on the Western Arnhem Land Plateau

- Baleh kabolkyime
- An-djewk, Kun-ngol, Kun-kurra
- Yimngen
- Bidyikarme!
- Njaleken?

Ecoterms | Places | google Earth | Search

Next Page

Now showing items 1-10 of 39

Sandstone formation, location unknown

Kundjorlomdjorlom

Kundjorlomdjorlom

Anbarram probably 3km N of Kabulwarnamyo

Rock country near Makkalarl

Djamarr

Just below Djamarr on west bank

Kalkbo

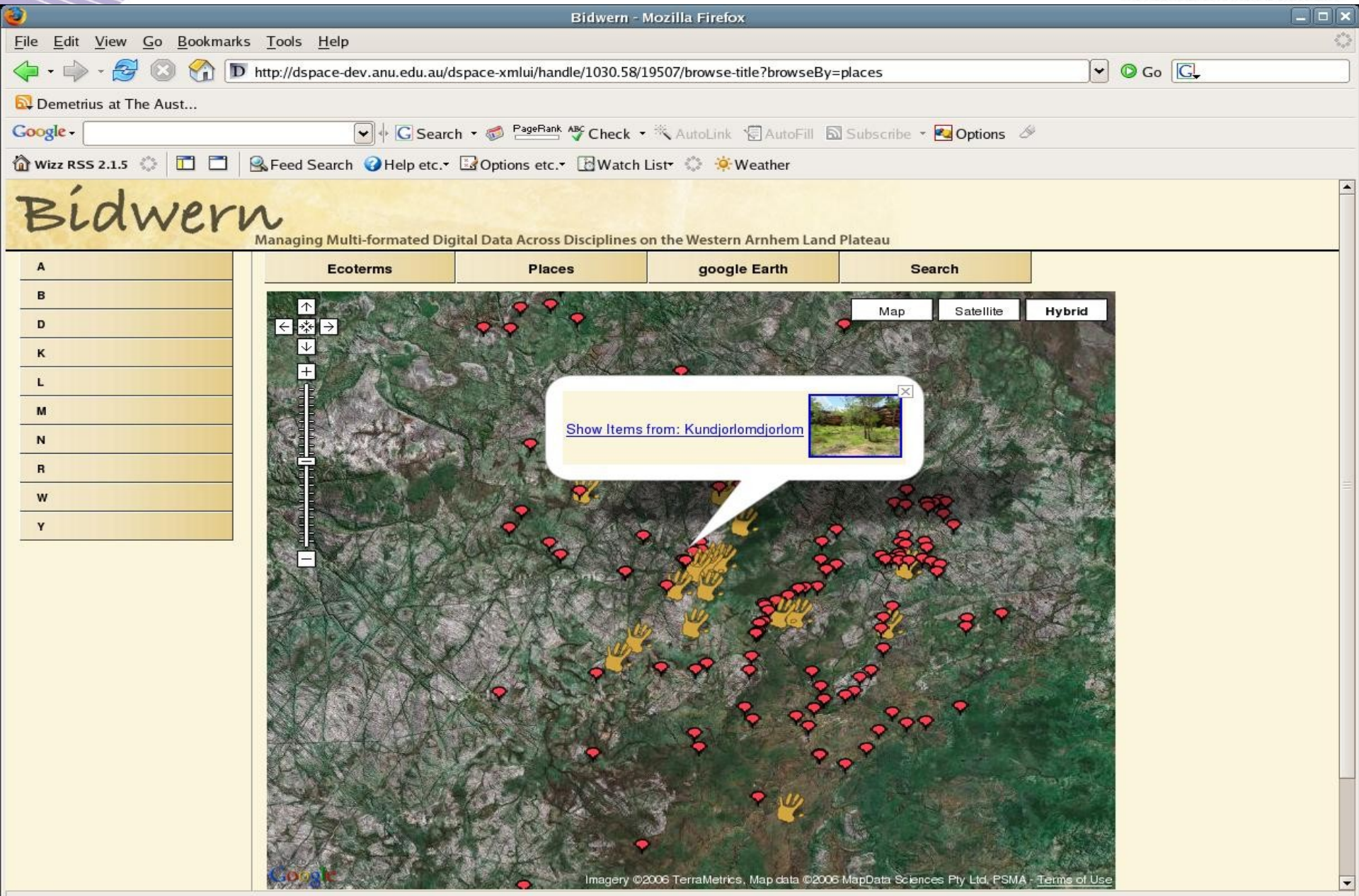
Liverpool around Djamarr (sp?)

Done

Ecoterms (2)

- Provides for browsing by ecoterm (subject)
- In accordance with a documented classification scheme provided by researchers
- Clicking on the Yellow Hand opens a Google Maps window showing the location of the object
- Clicking on the thumbnail will show a preview of the object (suitable for web access)
- Clicking on the title will show more detailed information about the object

Places (1)


Bidwern - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://dspace-dev.anu.edu.au/dspace-xmlui/handle/1030.58/19507/browse-title?browseBy=places
Bidwern
Managing Multi-formated Digital Data Across Disciplines on the Western Arnhem Land Plateau
A
B
D
K
L
M
N
R
W
Y
Ecoterms
Places
google Earth
Search
Map
Satellite
Hybrid
Show Items from: Kundjorlomdjorlom
Imagery ©2006 TerraMetrics, Map data ©2006 MapData Sciences Pty Ltd, PSMA - Terms of Use
Done

Places (2)

- Google Maps used to browse by location
- Red hands indicate no items at this location have been lodged in the repository
- Yellow hands indicate there are one or more items at this location in the repository
- Requires location metadata for the objects to be entered
- Clicking on thumb view or hyperlink shows all objects available for that location

Detailed Item View (1)

THE AUSTRALIAN NATIONAL UNIVERSITY

Bidwern - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://dspace-dev.anu.edu.au/dspace-xmlui/handle/1030.58/19518

Demetrius at The Aust...

Google Search PageRank Check AutoLink AutoFill Subscribe Options

Wizz RSS 2.1.5 Feed Search Help etc. Options etc. Watch List Weather

Bidwern

Managing Multi-formated Digital Data Across Disciplines on the Western Arnhem Land Plateau

- Baleh kabolkyime
- An-djewk, Kun-ngol, Kun-kurra
- Yimngen
- Bidyikarme!
- Njaleken?

Ecoterms | Places | google Earth | Search

Title: Kundjorlomdjorlom

Subject: Ka-warddewardde

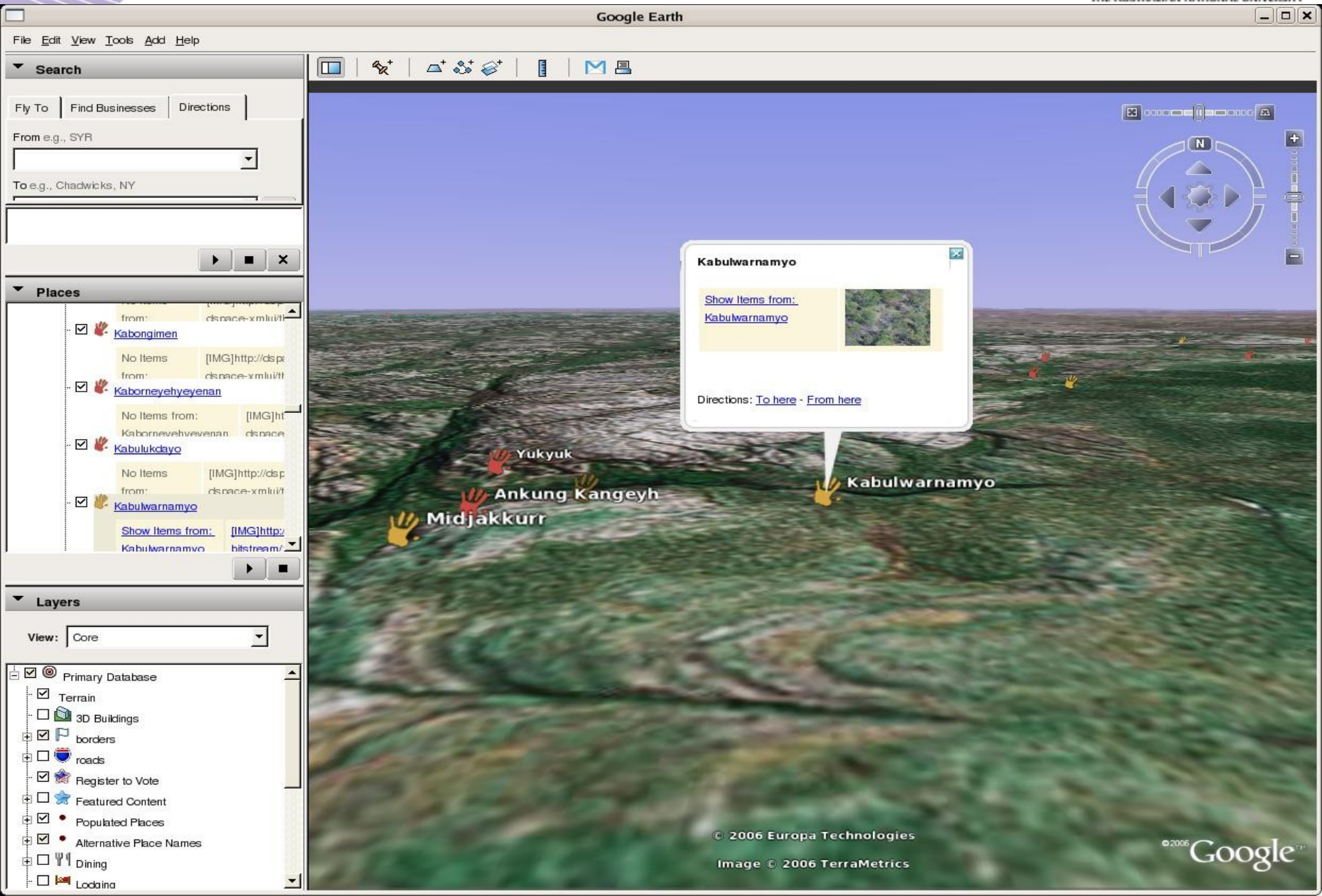
Description: Shelter at Kundjorlomdjorlom where Bardayal camped when young

Done

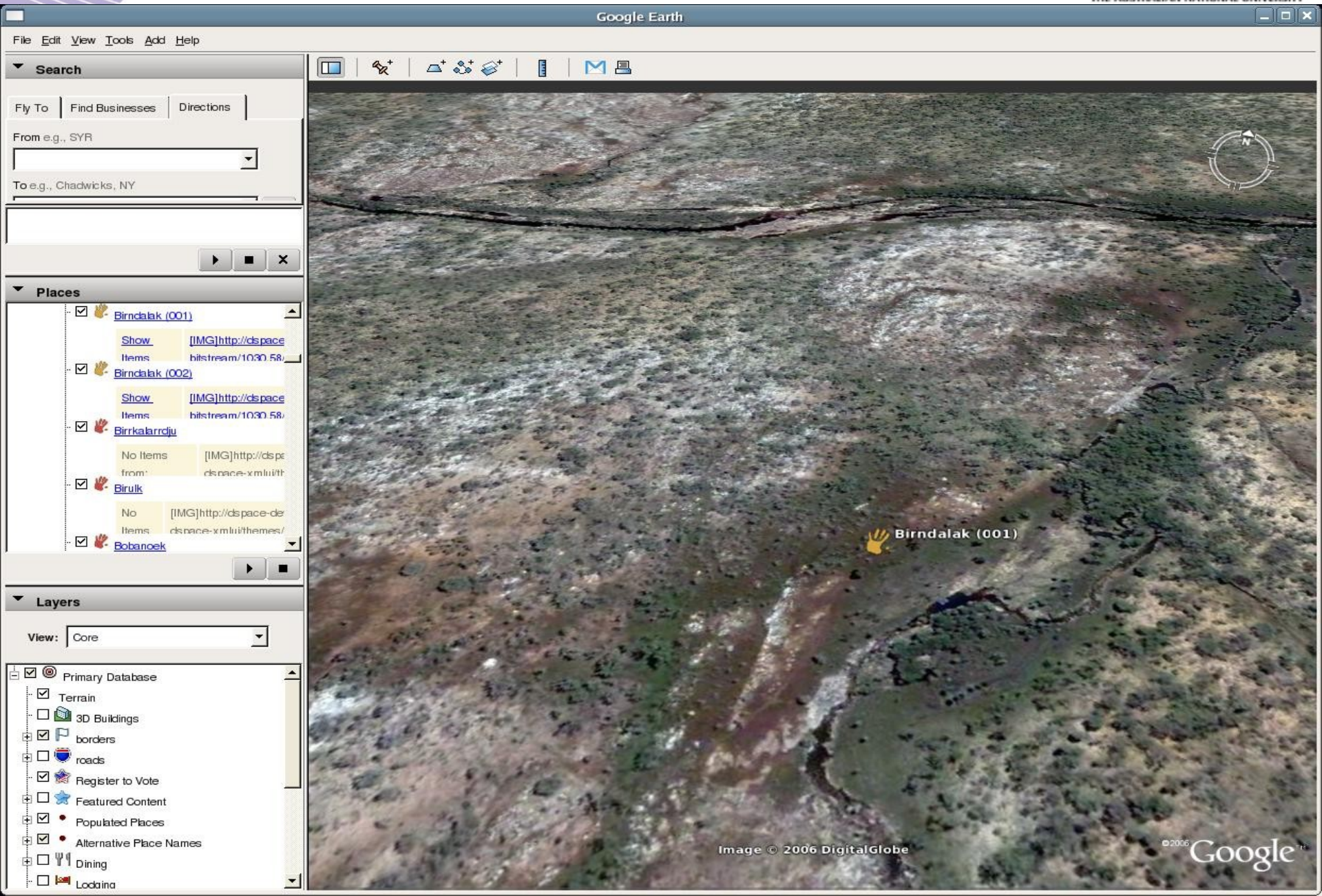
Detailed Item View (2)

- Shows detailed metadata and a preview (for images) for the object
- A Manakin rendering of the DSpace View Item page

Google Earth (1)



Google Earth (2)



Google Earth (3)

- Provides Google Earth functionality for navigating around the area of interest
- Red hands and yellow hands as per Places pages
- Requires Google Earth client to be installed to use

Links

- project site: http://www.anu.edu.au/bidwern/

- demo site: http://dspace-dev.anu.edu.au/dspace-xmlui/handle/1030.58/19507