
# Case Studies from the National Biological Information Infrastructure and the NASA Goddard Library

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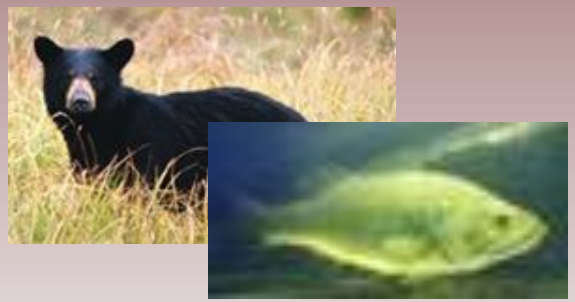
# Case Study Questions

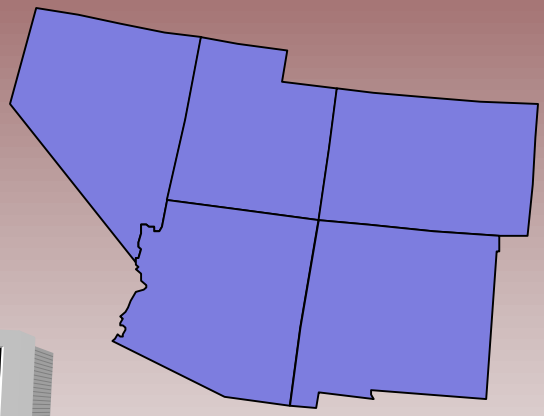
- ***How can the Dublin Core and knowledge organization systems be used in a heterogeneous project-based environment that also needs to preserve consistency for federated searching?***
- ***How can knowledge organization systems link local digital repositories to organization-wide efforts?***
- ***What is the framework for supporting an environment where projects are continuously added, thereby changing the metadata and vocabulary needs?***

# Case #1: The NBII

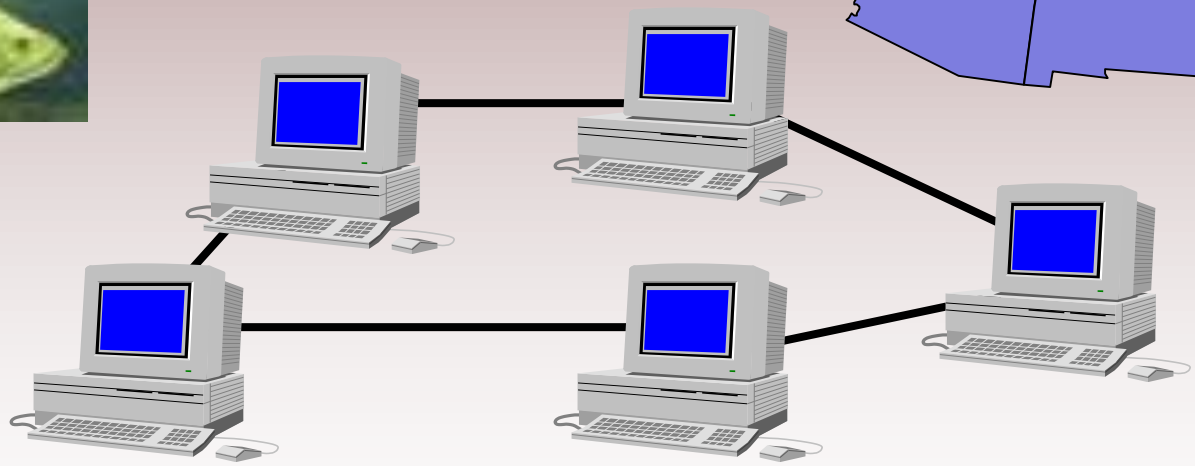
The NBII is an electronic gateway to biological data and information maintained by federal, state, and local government agencies; private sector organizations; and other partners around the nation and the world.

# NBII Node Structure





- Regional
- Thematic



- Infrastructure

# DC METADATA KOS

**GLOBAL**

**World Data Centers (WDC),**
**Global Biodiversity Information Facility (GBIF),**
**Clearinghouse Mechanism (CHM)**

**REGIONAL**

**Pacific Biodiversity Information Forum (PBIF),**
**The Inter-American Biodiversity Information Network (IABIN)**

**NATIONAL**

**NBII (US), CBIN (Canada),**
**ERIN (Australia)**

**LOCAL**

**State Heritage Programs,**
**GAP Analysis,**
**County Park Information**

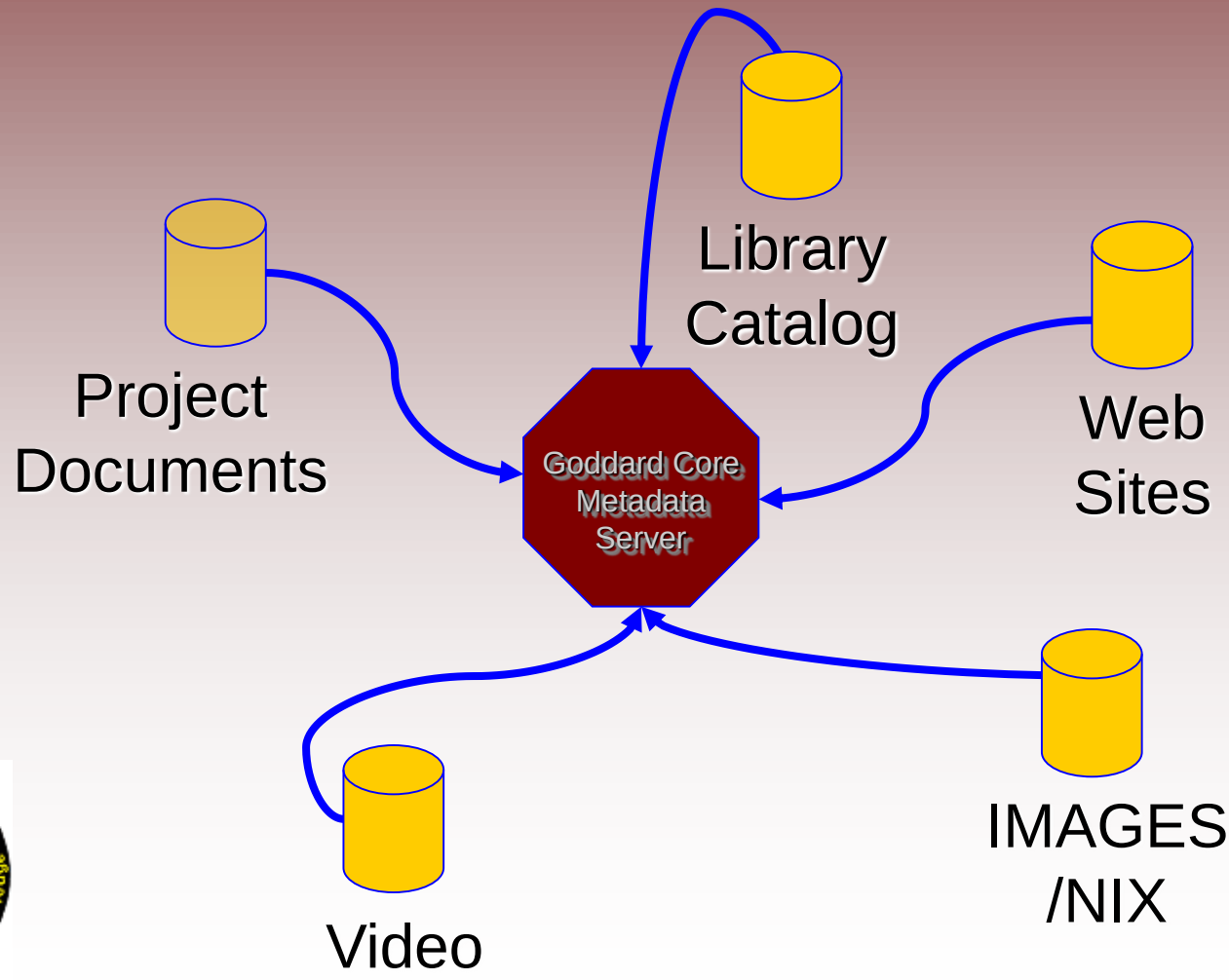
The Goddard Library
Gateway to a Universe of Knowledge

nbii National Biological Information Infrastructure
USGS science for a changing world


# Case #2: NASA Goddard Library

- In the post-Columbia era, concern about sharing lessons learned
- But… over 150 projects in Goddard's Projects Directory; approximately 30 more added each year
- Different project library systems with different metadata schemes
- Library's Digital Asset System was developed to provide a metadata catalog and a single search interface

# Goddard's Digital Asset System

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# Lessons Learned from Case Studies

- **Metadata schemes and knowledge organization systems are necessary**
  - **Core metadata element set**
  - **Base taxonomy or controlled vocabulary**
- A framework for addressing the needs of individual projects or nodes
- Tools for mapping
- A “central” organization to sustain a culture of interoperability


# NBII's Use of Metadata

- NBII has standardized on the Biological Data Profile extension to the FGDC standard
- Use Dublin Core for web sites, documents and presentations
- Regional, national and international partners may have their own metadata element sets
- Need for collaboration with new partners in other disciplines who may already have their own element sets


# NBII's Use of KOS

- Biocomplexity Thesaurus
  - Web sites
  - Journal articles and other materials in the Biocomplexity Database
- Integrated Taxonomic Information System (ITIS) used to control terms for biological organism names


# Goddard's Use of Metadata

- Developed the Goddard Core Metadata Element Set based on qualified Dublin Core
- Used to bring various digital objects together
- Map from Project Library metadata to the Goddard Core
- Expect to use Goddard Core with OAI in the future


# Goddard's Use of KOS

- Use the NASA-Wide Taxonomy
- Add specific taxonomy for each project
- Map the specific taxonomy to the NASA-Wide Taxonomy
- Develop specific pick lists for some elements such as content type and audience


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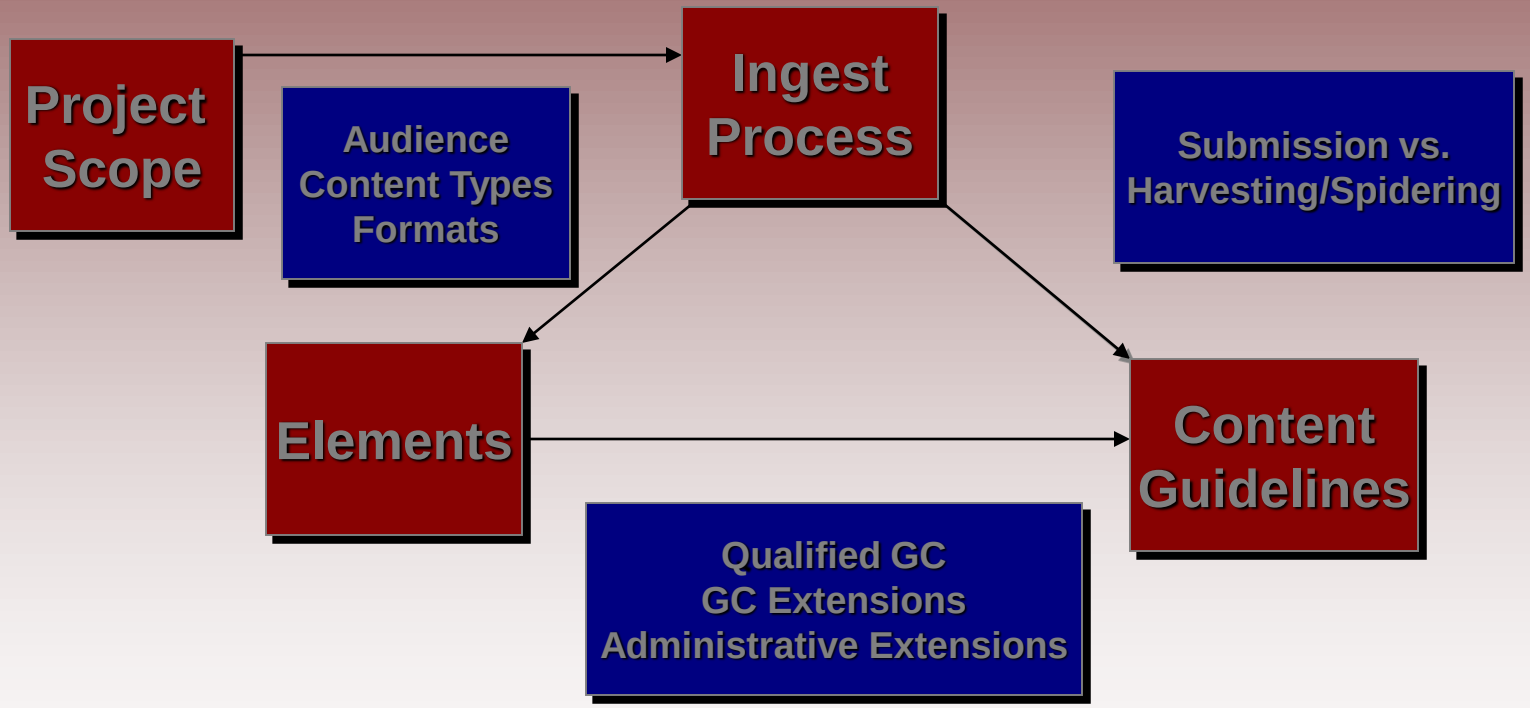
# Framework Components




# Categories of Goddard Core Changes

- Qualifications
  - Subject.Controlled
  - Creator.Contract
- Extensions
  - Administrative
- New Pick Lists
  - Subject.MissionsProjects
  - Subject.Instrument
  - Subject.Competencies
  - Audience
- Constraints to Current Pick Lists
  - Format
  - Content Type


# Landsat Example

- Subject.MissionProject
  - ERTS
  - Landsat 1
  - Landsat …
  - Future Landsat Missions
- Subject.Instrument
  - RBV
  - MSS
  - Follow-on
- Subject.Competencies
  - Applications
    - Agriculture
    - Boreal Forests
  - Spacecraft
    - Attitude
    - Solid State Recorder (SSR)
- Audience
  - Application
  - Education
  - State and Local Government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# Mapping Tools

- Metadata Registry considered key to mapping and organizing across multiple schemes
- Based on ISO 11179 Data Dictionary standard
- Maintain the metadata and KOSs separately but map for interoperability
- XMDR Project (www.xmdr.org) will allow more semantics to be expressed within this structure


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# Supporting Organizations

- NBII has infrastructure nodes and HQ staff to support standards, vocabulary and metadata development and training
- Goddard Library has a Digital Project Group, quarterly Metadata Review Group Meetings and partnerships with other centers, agencies and external projects


# Case Study Questions

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- *How can knowledge organization systems link local digital repositories to organization-wide efforts?*
- *What is the framework for supporting an environment where projects are continuously added, thereby changing the metadata and vocabulary needs?*
- **Core but extensible metadata**
- **Core but extensible KOSs**
- **Tools**
- **Supportive organization structure**


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