SYNTHESYS
Synthesis of Systematic Resources

SYNTHESYS Networking Activities

Assessing and Sharing Best Practice

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NATURAL HISTORY MUSEUM

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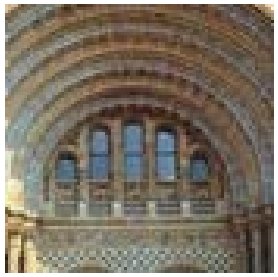
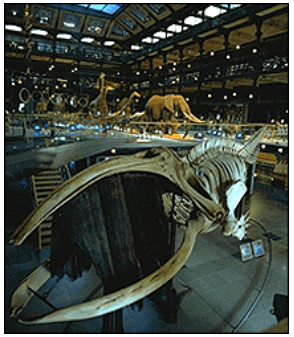
- 20 significant NH collections in EU
- Europe has half of the World's biological collections
- 80% of the described species from all parts of the World
- Vast infrastructure supporting research

NHMs and Botanic Gardens of Europe





Natural history collections as a large scale facility c.f. CERN, LSA

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EU Integrated Infrastructure Initiative (I3)

SYNTHESYS Framework VI (S1)
- €13 Million 2004-2009

SYNTHESYS Framework VII (S2)
- € 7.2Million 2009-2013

- Access (S1 and S2)
- Network Activities NAs (S1 and S2)
- Joint Research Activities (S2 Only)

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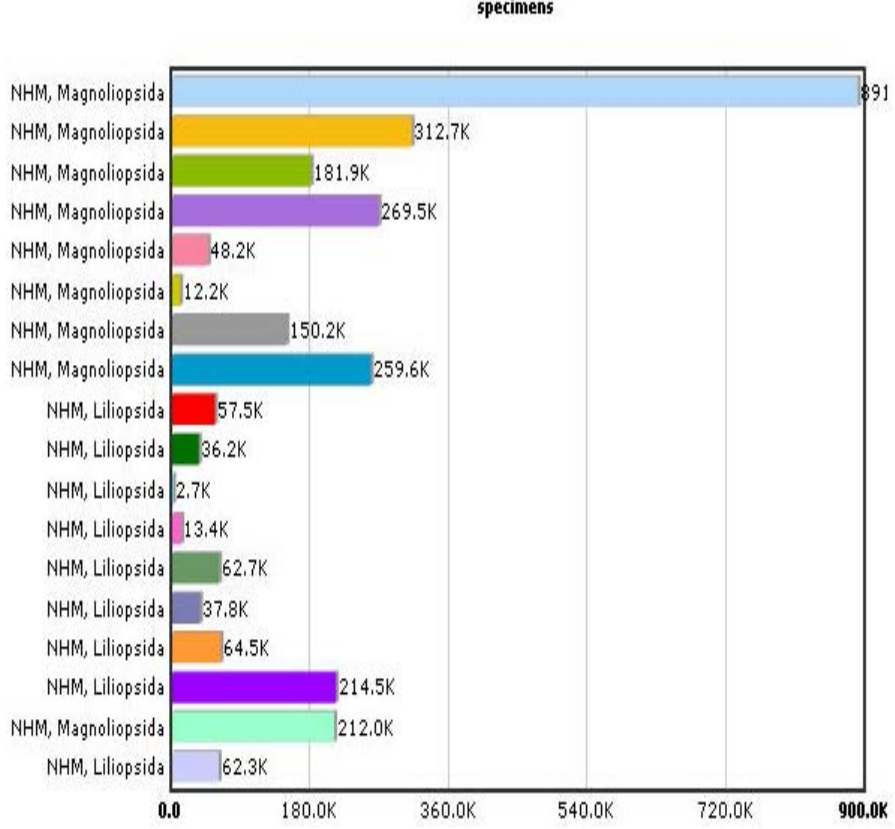
Access

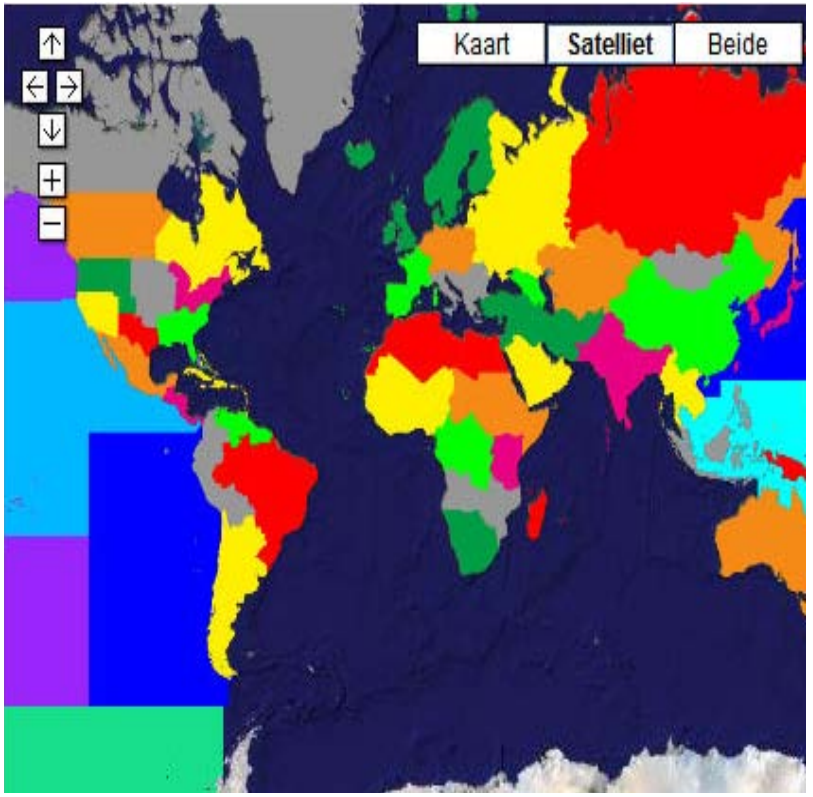
User access to collections

- Provides travel and subsistence to work on collections and facilities across consortium
- Awarded 29,992 User days to 2,071 Users
- Applications received from 36 European Countries

NA Complementarity (S1)

Analysis of spread of collections in European institutions





NA – Sharing Data (S!)

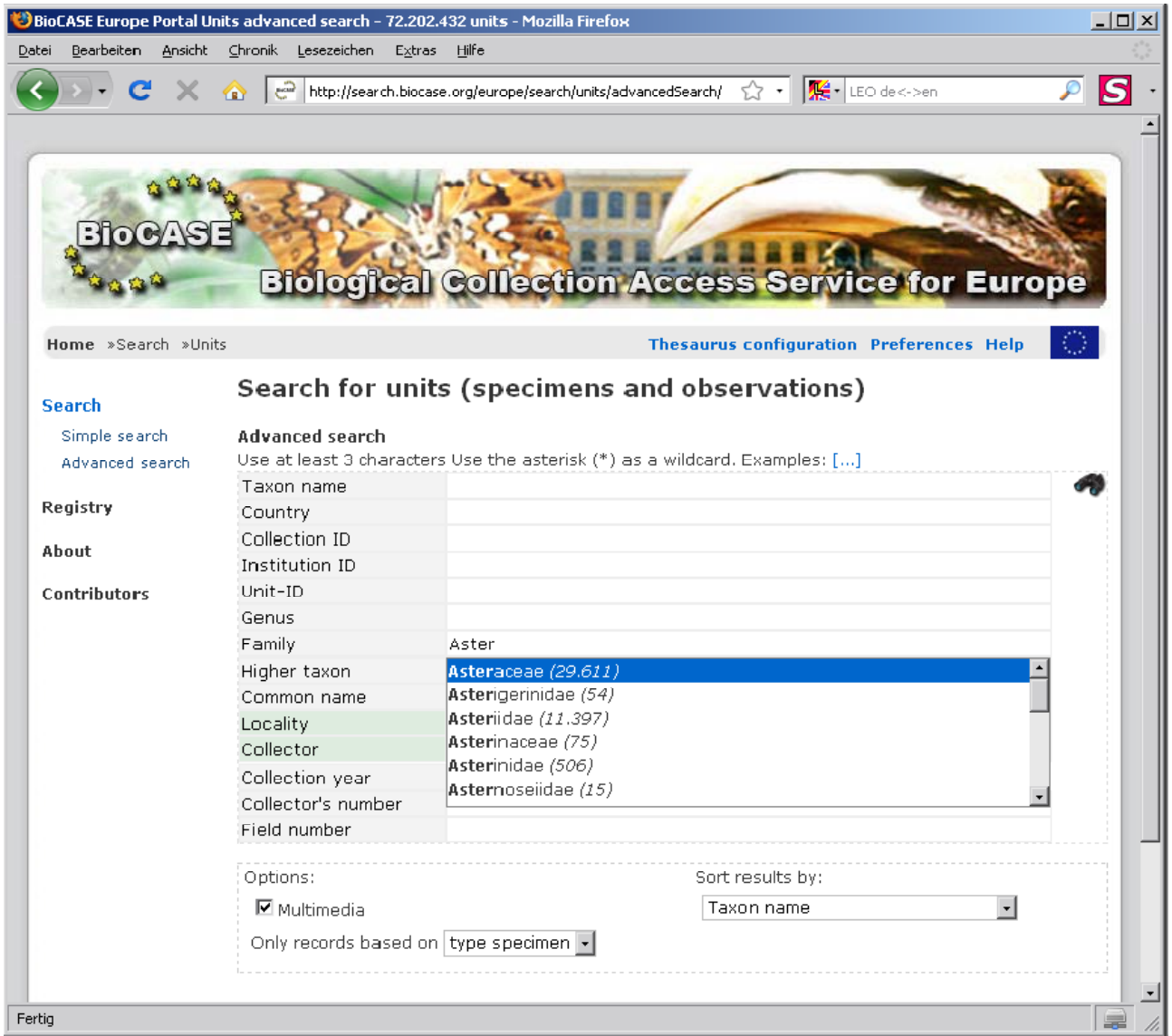
Providing the infrastructure to share data across the community

SYNTHESYS/BioCASE & GeoCASE portals launched

http://search.biocase.org/europe

http://search.biocase.org/geocase

- Helpdesks for entering data via portal and error checking
- Significant number of GBIF records attributed to these portals and helpdesk
- Created data standards


BioCASE Europe Portal Units advanced search – 72.202.432 units - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe
http://search.biocase.org/europe/search/units/advancedSearch/
LEO de<->en
BioCASE
Biological Collection Access Service for Europe
Home »Search »Units
Thesaurus configuration Preferences Help
Search
Simple search
Advanced search
Registry
About
Contributors
Search for units (specimens and observations)
Advanced search
Use at least 3 characters Use the asterisk (*) as a wildcard. Examples: [...]
Taxon name
Country
Collection ID
Institution ID
Unit-ID
Genus
Family
Higher taxon
Common name
Locality
Collector
Collection year
Collector's number
Field number
Aster
Asteraceae (29.611)
Asterigerinidae (54)
Asteriidae (11.397)
Asterinaceae (75)
Asterinidae (506)
Asternoseiidae (15)
Options:
Multimedia
Only records based on type specimen
Sort results by:
Taxon name
Fertig

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Data standards (S2)

Providing tools to help populate databases

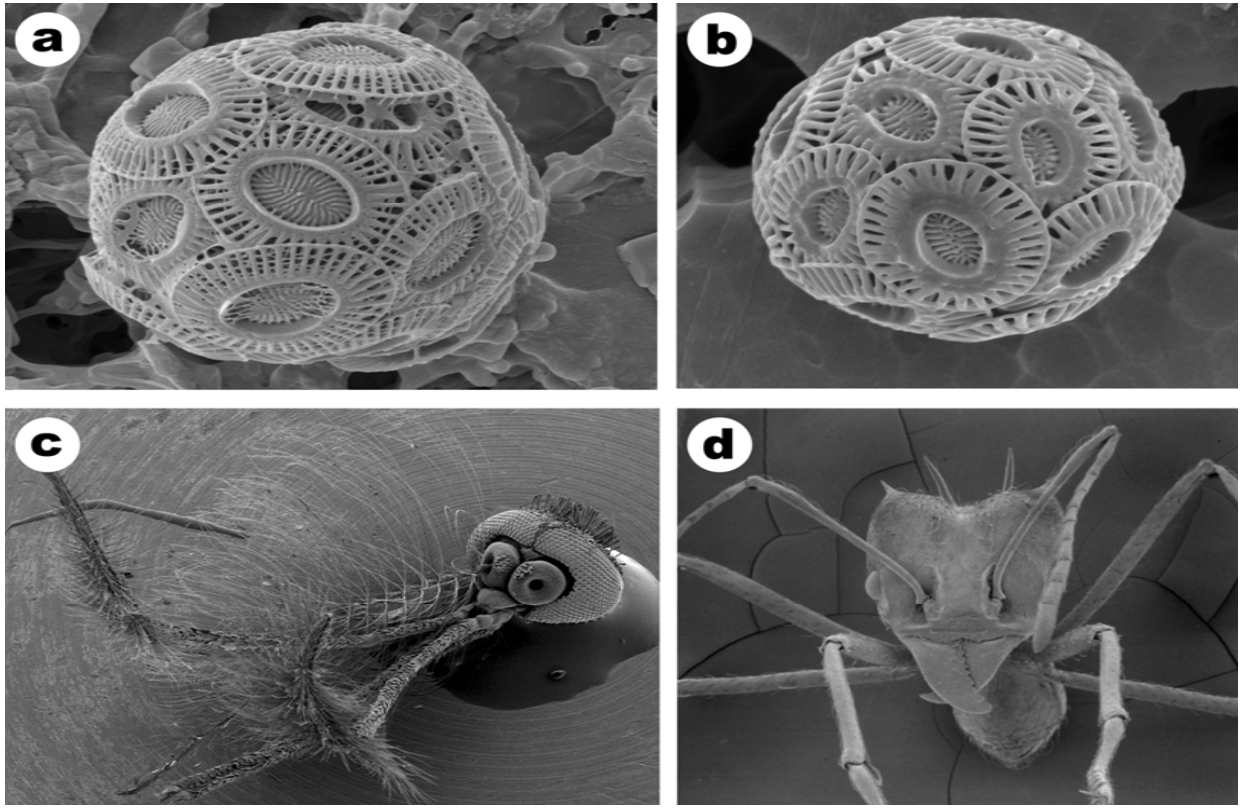
- Mobilisation of specimen information
  - Automated data capture
  - Improved annotation mechanisms
- Implementation of standards across the ERA
  - Helpdesk function
  - Metadata on European collections
- Specialised access
  - Development of specialist user interfaces

NA – “New collections”

- Assessed status and management of molecular collections in Europe
- Reviewed literature on extraction of DNA from museum collections
- Initiated network of biodiversity molecular collections

NA– Novel analytical methods

- Produced four guides:
  - Applications of CT scanning, MRI and variable pressure SEM
  - Use of software for dealing with CT and MRI data
  - Best practice in preparing specimens for SEM use



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NA Collections management

- Assessed status of collections in Europe
- Trained 43 individuals from 14 countries
- Model disaster plan and guidelines for development
- Standards for collections management
- User base meeting

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NA 2 – Collections management

Quality assessment

- How well are we managing our collections
  - Self assessment tool
- How can we help each other to improve
  - Expert panels/helpdesk
- What training can we provide

NA 2 – Collections management

Quality assessment

Level D	R	Level C	R	Level B	R	Level A	R
Storage systems provide flexible storage, physical support and protection and a secure environment for the specimens stored within them	100	The institution reviews and assesses current storage furniture and future requirements. Has established an acceptable standard for storage furniture required.	60	Implementation of a written cross museum strategy to improve storage furniture for all collections to conservation grade storage cabinets.	0	Rolling programme to review and improve storage furniture used to maintain collections	0
		A conservator or collection care adviser has given advice on the storage of all collections within the last five years.	100	A museum professional (preferably a conservator) regularly advises on the design, construction and	25	Archival Storage meeting WS 5454 or equivalent European standard.	0
		Review of current and future storage requirements for institution undertaken on a 3 yearly basis					

A conservator or collection care adviser has given advice on the storage of all collections within the last five years.

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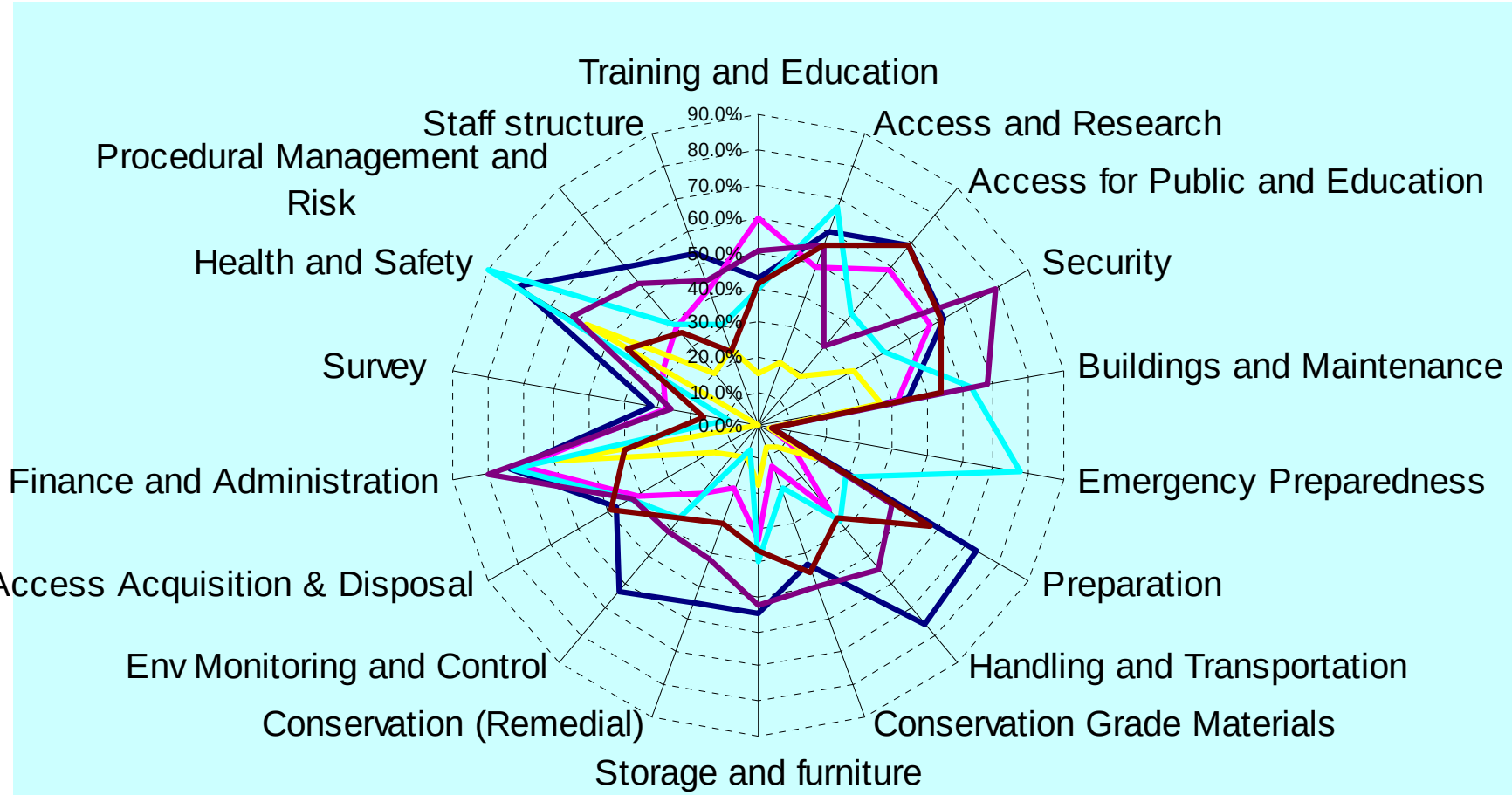
Quality assessment



Dept: Zoology

	Not met	partially met	Fully met	Exceeded	Comment
1. A system is in place for recording any damage to collections	●	○	○	○	
2. Training provided on appropriate preparation methodologies	○	●	○	○	
3.					
4.					
5					

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Collections management - Training

- Raising awareness training
- Surveys identified need for training at middle managerial level
- Courses for European Museum/Herbarium staff
- Raise awareness of current thinking/resources in best practice
- Advanced training in collection management
  - Train European trainers
  - Targeted, modular training courses

Collections management

Performance Indicators

- Provide performance indicators in collection management
  - Relevant PIs for measuring improvement in collection management
  - **Liaise with non-natural history institutions on work practice**

Joint Research Activities

Improving Access to Collections for Molecular studies

- Developing tools for pre- assessment and optimal recovery of DNA
    - e.g. Predicting DNA decay based on environmental history of specimen
- Developing protocols for DNA extraction from botanical and zoological specimens
    - E.g.DNA isolation from muco-polysaccharide rich tissue

In addition….

……..and importantly!

- Changed the way European collections institutions interact
- Created several large networks
- Helped secure additional EU funding

Application Beyond Natural History

Survey Methodology

Assessment of strengths and weaknesses

Training – cascade concept

Expert panels/helpdesks

Data sharing

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www.synthesys.info **synthesys@nhm.ac.uk**

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SYNTHESYS FP VII (S2)

Starts 1st September 2009

Network Activities

- NA2 – Collections standards
  - Training course, performance indicators, self assessment
- NA3 – Information network
  - Specialist tools for data access, helpdesk functions

Access

- Annual Access calls –deadlines every October

SYNTHSEYS JRAs - Improving access to DNA in Museum Specimens

- Predicting DNA decay based on environmental history of specimen
- Screening protocol for non-or minimal destructive analyses to estimate ancient DNA preservation status
- Assessment of minimal sample size for successful DNA extraction
- Optimising DNA extraction from herbarium tissue
- DNA isolation from specimens with muco-polysaccharide rich tissue

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NA 2 – Collections management

- WP Leader: Leo Kriegsman, (Leiden)

Key objectives

- Provide performance indicators in collection management
  - Relevant PIs for measuring improvement in collection management
  - Liaise with non-natural history institutions on work practice
- Quality assessment in collection management
  - Self assessment tool
  - EU set of competencies for collections staff
- Advanced training in collection management
  - Train European trainers
  - Targeted, modular training courses