

Metadata standards for ecological survey and reporting

Andrew Cherrill CEnv MIEEM

University of Sunderland

lifechanging



University of
Sunderland

What are metadata?

“the information necessary to understand and effectively use data, including documentation of the data set content, contexts, quality, structure and accessibility”

(Michener 2000)



What are metadata?



Survey methods:

- Why?
- When?
- Where?
- What?
- Who?

What are metadata?



Data quality / access:

- Data descriptors
- Access to 'raw' data
- Precision / Accuracy
- QA methods applied
- Limitations of data

Benefits of metadata

Enhanced ability to assess the reliability of the data and survey report

Justifiable decision-making

Enhanced professional credibility

Gains for biodiversity (and business)



Issues

- 'Raw' data often not included in reports
- Metadata and data become separated
- Data or summary information in original report may be 'recycled' in other documents but without the metadata
- QA metadata reported rarely



Aggravating factors:

- Inherent ambiguities in standard survey methods
- Field surveyor and end-user different
- End-user probably not an ecologist
- Digital format of reports and data enhances risk of separation from metadata



Consequences of poor metadata

Inability to assess the reliability of the data
and survey report

Bad decisions

Reduced professional credibility

Losses for biodiversity (and business)



Metadata costs

- Documentation
- Long-term archiving of data & metadata
- Quality assurance procedures designed into projects and reported e.g.
 - re-sampling during field work
 - statistical assessment of adequacy of sampling effort



Metadata standards

- *ISO 15836:2003 The Dublin Core Metadata Element set*
- *e-Government Metadata Standards (Cabinet Office 2004)*
- *National Biodiversity Network Data Model (Copp 2004)*
- *Non-geospatial metadata for the ecological sciences (Ecological Applications 7: 330-342; Michener *et al.* 1997)*



Metadata standards for ecology

- Background
- Legal issues
- Location / date
- Taxonomy
- Methods
- Quality Assurance
- Limitations
- Version history
- Accessibility

Based on Michener *et al.* 1997



Key questions

Metadata is an integral part of dataset

- How to maintain links between raw data, metadata and reports?
- What are the minimum metadata?
- Need for greater emphasis on QA?
- Do we need metadata standards endorsed by IEEM?

