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This project describes the creation of a form for the purpose of capturing author-generated metadata and allowing individuals to submit botanical images to the UNC Plant Information Center (PIC). A study of current metadata forms was conducted and based on these forms, a prototype of a form was created. A small-scale usability study was conducted with the PIC Advisory Committee and the feedback was utilized to enhance the template. Proposed future considerations and development suggestions are provided.

Headings:

Metadata

Author-generated Metadata

Input Form

Usability

**DEVELOPMENT OF AN INPUT FORM TO CAPTURE AUTHOR-
GENERATED METADATA FOR A BOTANICAL IMAGE
COLLECTION**

By

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Introduction

The Internet has experienced explosive growth over the past few years. According to a recent survey conducted by the Internet Software Consortium (ISC), the number of hosts identified in the Domain Name Service increased to around 80 million in 2000 from 1.3 million in 1993. There have also been studies that attempt to estimate the number of pages available on the web. In a 1998 study based on the number of pages indexed by major search engines such as Alta Vista, Hotbot, and Northern Light, Lawrence and Giles provided an estimate that the size of the indexable Web at that time was 320 million pages. Lawrence and Giles also conducted a follow-up study in 1999 which showed a huge increase in this number and led to a new estimate of 800 million pages as of February 1999.

While this explosive growth of the information available via the web has positive implications, such as greater accessibility, the added volume introduces issues such as speed of access and overwhelming as well as frustrating information searches. There is a definite need for improving access methods to all of these documents so that users may make the most of this valuable information. The effective use of metadata is often proposed as a possible way to improve retrieval precision and recall on the Internet. Metadata is defined as “data about data” and is used to describe digitized and non-digitized resources. With the growth of the Web, various technological protocols, such as HTML (Hypertext Markup Language) and XML (eXtensible Markup Language), and

initiatives, such as the Dublin Core Metadata Initiative (DCMI), have developed that allow for metadata to be embedded in Web resources. According to Ercegovac, three overall patterns have evolved in relation to metadata since the mid-1990's, which are as follows:

- Overlapping attributes among national metadata standards that evolved in different professional traditions (e.g., Machine-Readable Cataloging (MARC); Federal Geographic Data Committee (FGDC));
- Metadata structures have become more flexible and scalable (e.g., the Dublin Core); and
- Adoption of a common formal language to support different applications (e.g., Standard Generalized Markup Language (SGML); XML in applications such as Encoded Archival Description (EAD) and Text Encoding Initiative (TEI).

In addition to these trends, there seems to be an even more recent trend toward the capture and use of author-generated metadata. While in the past, most metadata has been created only by librarians, information scientists, webmasters, or technical personnel responsible for web site maintenance, this is changing with more web sites allowing individuals to submit their images, papers, URL's, etc. For example, at <http://www.yahoo.com> you can suggest a web site that is currently not listed in the Yahoo directory. In order to submit your site or another site you must complete a form by providing basic metadata such as Title, URL, and a Description of the site. Another example which demonstrates the use of strictly "author-generated" metadata, is the submission procedure required by the Linux Software Archive at the University of North Carolina Metalab, <http://metalab.unc.edu/pub/Linux/>. The Linux Software Archive is a contributor-run collection and when someone submits software they must also submit certain metadata fields about the software. One positive aspect of this approach is that the author or creator, having created or compiled the software they are describing, knows the most about the item being submitted and can provide the best description. Coming up

with a simple input form that will assist the author in creating standard metadata is, however, a challenge.

This Master's Project was part of an initiative to allow students and the general public to contribute images of botanical specimens, and corresponding metadata, to the UNC Plant Information Center (UNC/PIC). PIC is a partnership of the North Carolina Botanical Garden, the UNC Herbarium, the UNC School of Information and Library Science, the McDougle Middle School, and the Orange County Public Library. PIC's overall goal is to "serve as a scientific learning center to a wide range of students" and uses a series of metadata schemas to facilitate this goal (Greenberg, 2001).

Literature Review

While there is evidence that some research has been done in the area of using input forms, research specifically on the design of input forms for the purpose of capturing metadata seems to be somewhat limited. In 1998, Walter Stine conducted a research project comparing the advantages of using a form fill-in interface to capture data as opposed to a dialogue interface for capturing data. The form fill-in interface represents paper forms on the computer screen and the dialogue interface is characterized by an interview or conversational style of interaction. The factors compared during this study were the ease of learning, understanding of language, level of frustration, enjoyment using the system, and perceived confidence in their ability to use the system. While this study did not show a significant difference in regards to the above factors, the study did show the form fill-in interface to be more effective than the dialogue interface in terms of efficiency and error reduction especially for repetitive data entry tasks.

There has also been research on creating input or data-entry forms that will be used as substitutes for paper forms. An advantage of this method is to help users to position data correctly, know what data needs to be entered, and minimize errors (Preece, 1994). Schneiderman (1992) provides guidelines that may be applied when creating an input form based on a paper form. Some of these are as follows:

- Meaningful title: avoid computer terminology
- Comprehensible instructions: use familiar language, be brief
- Visually appealing layout of the form: pay attention to the spacing of entry fields; ensure that the screen and form match in layout
- Familiar field labels: use common terms
- Completion signal: make it clear to users what action they should take to signify that they have finished form completion

Constantine and Lockwood (1999) discuss interfaces in general, but also make some points that are important related to forms. They state that if the main focus of the interface is to record data from the user, then the user interface should facilitate the input process. The origin of information is important as it affects the way users will interact with the interface. According to Constantine and Lockwood, if information originates in the thoughts of the user, the interface needs to help users to quickly capture ideas and thoughts and make it easy for the person to change direction and revise their input. In other words, the form should be easy to use and flexible.

An increasing number of interface design studies have been conducted as it becomes more apparent how difficult it can be to find information on the Web. Since the PIC project is web-based this area needed to be explored also. Levi, M. D., & Conrad, F. G. (1996) conducted a case study of the Bureau of Labor Statistics (BLS) web site. As the site was likely to become a major point of contact between users and the Bureau of Labor Statistics, the user interface needed to be evaluated for usability or ease of use. The

method chosen by the BLS was a heuristic evaluation which according to Nielsen is easy, fast, and usually cheaper than other methods. Two groups participated in this evaluation. The first group was made up of User Interface experts and the second group was made up of developers who had worked on the prototype. This evaluation involved browsing the BLS and looking for possible usability problems. These problems were then tied to a specific heuristic that the participant believed it violated. The heuristics reviewed were as follows: 1) speak the user's language; 2) consistency; 3) minimize the users' memory load; 4) flexibility and efficiency of use; 5) aesthetic and minimalist design; 6) chunking; 7) progressive levels of detail; and 8) navigational feedback. This study showed that the UI experts seemed to be more concerned with the broader issues such as consistency and clutter while the developers noticed such items as the missing links and inconsistent granularity. Since both areas are important to web design, it might be helpful to provide developers with a list of usability principles and/or a style guide before development begins.

Several guidelines about web design are available and these guidelines can prove helpful during the design of web interfaces and forms. In Nielsen's *Writing for the Web*, he discusses some of the major issues that need to be considered when developing interfaces and writing for the web. Nielsen's states that 79% of users scan a page instead of reading word-for-word, reading from the screen is 25% slower than from paper and web content should have 50% less word count than its paper equivalent. Some of the guidelines Nielsen suggests to accommodate for these differences are: 1) Limit scrolling; 2) Working With a Designer; 3) Highlight keywords; 4) Move detailed info to secondary pages; 5) Avoid Web terminology such as "Click here"; and 6) Editorial Review of Web

Pages: Fresh eyes and skilled editing improve your work. According to this article, applying these guidelines to white papers has shown an increase in subjective satisfaction of 37% and an increase in overall usability of 159%.

These interface studies and guidelines provide valuable information, although they do not address the particular type of interface issues related to capturing author-generated metadata which is directly related to this project. This area, capturing author-generated metadata, is possibly the newest and least explored area of those covered in this section. There are, however, some projects that have begun to look at issues related to the capture of metadata. One such project was the CAMEL (Collection and Management of Electronic Links) project at Oregon State University. This project was designed to “explore using metadata as well as other tools to reduce the need to manually create records for electronic resources.” (Banerjee 2000) The final project report discusses many of the challenges that were encountered during CAMEL development. Some of these are as follows:

- Convincing faculty to submit resources to the CAMEL database – user involvement
- Convincing faculty to use standardized metadata
- Determine what metadata to capture so that it would be most useful
- Maintenance Issues – Due to the fact that CAMEL is a collection of digital resources, problems caused by deletion, moving, renaming, and changing of resources.

The CAMEL project shows that while there are technical issues when implementing an application of this sort, there are also other factors that need to be considered such as user interface issues and user education issues. The CAMEL project will be discussed in more detail later in this paper.

As is evident from the literature, there has been research on form and interface design, although research specifically related to the design of a form or template for the purpose to capture metadata seems to be lacking. There is a need to investigate how projects like the Botanical Pride project can facilitate the capture of accurate and consistent metadata and contribute to a successful operation of a collection of digital images. This topic was investigated during this research project.

Objectives

As mentioned in the introduction, this Master's Project was part of an initiative to allow students and the general public to contribute images of botanical specimens, and corresponding metadata, to the UNC Plant Information Center (UNC/PIC). Specifically, the project was designed to accomplish the following goals:

1. Identify and review issues related to designing a form to capture author-generated metadata; and
2. Design an easy-to-use form to capture author-generated metadata, and implement this form.

The resulting interactive module, called "Botanical Pride", will be incorporated into the PIC web site. The PIC project uses metadata to enhance searching of their site. Botanists and other persons knowledgeable in the areas of botany and/or metadata have provided most of the previously collected metadata underlying PIC. *Botanical pride* differs from the other parts of PIC in that the metadata and botanical images will not be entered by experts. Thus the key factor in designing the *Botanical pride* form was that it be easy to use.

Methodology

The primary method used for this project was to conduct a case study of selected input forms. These input forms were selected because they: 1) are currently being or were designed to be used for the purpose of capturing metadata by individuals who are not experts in metadata; and 2) are designed to capture metadata based on the Dublin Core elements. For a list of the Dublin Core elements, see Appendix A.

Form evaluation was based on three cases: 1. The Collection and Management of Electronic Links (CAMEL) Form, 2. The Nordic Dublin Core Metadata Template, and 3. The Social Science Information Gateway (SOSIG) Form. Screenshots of these forms are available in Appendix B.

The first of these forms, the CAMEL input form was designed to provide faculty members at Oregon State University with a formal mechanism for recommending web-based resources. The second form, the Dublin Core Metadata Template was created as part of the Nordic Metadata Project at Helsinki University. There are actually two versions of this template: 1) a short and simple template that consists of only prompting for input of six of the 15 Dublin Core elements, and 2) a full version that consists of input fields for all Dublin Core elements. The short version was evaluated as part of this study. The last form that was reviewed for this project was the form used to add resources to the Social Science Information Gateway which is part of the United Kingdom Resource Discovery Network. This form allows users to submit URL's to the web site that they think will be of value to their colleagues and provide various information, or metadata, about their source.

Since there were no studies specifically looking at what makes a good entry form for capturing metadata, a set of criteria was developed based on form criteria discussed in the literature review and items specific to metadata. The forms discussed above were evaluated by reviewing the following features:

- Familiar field labels: use common terms
- Flexibility – ability to add multiple values for each or some elements
- Help available
- Meaningful title: avoid computer terminology
- Number of elements of metadata captured
- Optional fields marked
- Order of metadata fields
- Specific elements captured
- Visible space and boundaries for data-entry fields

In addition to the case study discussed above, a prototype of the *Botanical Pride* metadata form was tested via a small-scale usability study involving the PIC Advisory Board. During a regularly scheduled committee meeting, members were given a paper version of the *Botanical Pride* metadata form along with the guidelines for filling out the form. The members had been asked, prior to the meeting, to bring an image that they could describe for the testing of the form. The Advisory Board members used the form in order to describe their botanical images, and completed a feedback questionnaire about the form and guidelines provided.

Results of Study of Existing Forms

The analysis of these forms revealed that each form has both similar and unique features and they were compared in an effort to create a form that would pull together the best features from each of these forms.

Table 1 (below) shows the results of the evaluation of basic form features of each of these forms. Each form was given ratings of Yes, No, or Limited for Flexibility and Help and a Yes or No rating for Meaningful Title and Optional Fields Marked.

Table 1. Forms Evaluation: Comparison of Features Available.

	Forms Evaluated		
Feature	CAMEL	NORDIC	SOSIG
Flexibility Y-Yes N-No L-Limited	L	Y	N * On the help page it says separate keywords with commas
Help available Y-Yes N - No L - Limited	L	Y	Y
Meaningful title Y-Yes N-No	N	Y	Y
Optional fields marked Y-Yes N-No	Y	N	N * On the help page told required fields, but not on main form

Table 2 (on following page) shows the results of the evaluation of the forms as to number of metadata fields captured, which metadata fields the form captures, and in what order.

Table 2. Forms Evaluation: Comparison of Metadata Specific Criteria.

Feature	Forms Evaluated		
	CAMEL	NORDIC	SOSIG
Number of elements of metadata captured	6	7	8
Specific elements captured and order of elements	Title, Author, Description, URL, Resource Type, Keywords	Title, Creator, Subject:Keywords, Type, Identifier:URL, Identifier, Language	Name, Description, Keywords, Subject, Country, Language, URL

The review of the field labels on the forms showed that most of the labels were clear except for possibly “keywords” on the CAMEL and SOSIG forms. On the NORDIC form, since those labels were directly from the Dublin Core Elements, if a person was not familiar with the Dublin Core, they might be confused as to what is supposed to be entered into the fields, but help is also provided.

Also, some of the spacing in the fields, “Visible space for data-entry fields”, did not seem very helpful in guiding users as to the amount of information that should be entered into the form fields. On the CAMEL form, the space for URL does not appear to be long enough for most URL lengths and on the NORDIC form, all of the fields were the same size if they weren’t dropdown lists. This was also the case with the SOSIG form with all of the text fields being the same size.

Major Strengths of Each Form

Camel

The CAMEL form is a short form that captures just a few elements and appears to be easy-to-use. The required fields are clearly marked so that individuals entering data will know which data that they will need to provide.

Nordic

The major strength of the Nordic form is its flexibility. Users are allowed to enter multiple values of almost all of the items.

SOSIG

The SOSIG form is short, simple, and visually appealing. There is also a controlled vocabulary list for the “Subject” area field, which should provide some guidance during completion of the form.

Major Limitations of Each Form

Camel

The CAMEL form is not very appealing visually and seems a little rough. This may be because the CAMEL project was simply a pilot study to determine the amount of use and type of information that could be captured with such a form.

Nordic

This form seems to be directed at individuals who are very familiar with the Dublin Core elements and if some of the field labels were modified slightly the ease-of-use could be increased considerably. If this were utilized in an organization, there might be some minimum requirements set up also.

SOSIG

The SOSIG form does not provide a lot of help for users on the “Add a New Resource” page. Also, there is no mention of the entry page as to which fields are required and which are optional.

Prototype Development

After evaluating the input forms discussed above, a prototype of the *Botanical Pride* metadata form was developed. It was decided that since simplicity was of utmost importance, the form should include a limited number of elements. The following are the metadata items that were decided on:

1. Coverage - geographic location of item
2. Creator - person submitting item
3. Date - date of image
4. Description - textual description of the content of the resource
5. Keywords – terms that describe image
6. Title - name given to the resource by the person submitting item

Each of the forms that were reviewed provided some type of assistance to the metadata authors, and it was decided that for the *Botanical Pride* form a “Guidelines” page would be created to provide users with examples of what types of information should be entered in the form fields. Also, each form field label would be linked to the area of the “Guidelines” page containing a more detailed description of that particular field.

Feedback from PIC Advisory Committee

In an effort to get some feedback on the design of the initial prototype, a small-scale informal usability study was performed involving members of the PIC Advisory Board. The advisory board consists of individuals from the University of North Carolina School of Information and Library Science (SILS), the McDougle Middle School in Chapel Hill, NC, Orange County Public Library, the North Carolina Botanical Gardens, and the UNC Herbarium.

A total of ten forms and feedback questionnaires were completed and analyzed. A copy of the initial “Add a Resource” form is in Appendix C and a copy of the feedback questionnaire can be found in Appendix D.

The feedback questionnaire consisted of five simple questions. The responses to the feedback questions are discussed in this section. Table 2 (below) shows the answers to the first two questions, which were actually two-part questions in which the first part of the question required a yes or no answer.

Table 2. Answers to first two feedback questions.

Question	Answers		
	Yes	No	No Answer
1. Did you think that the information that the form captures (e.g. Name, Description, Keywords, etc.) about your image is sufficient?	3	4	3
2. Did you find anything on the Guidelines page unclear?	5	3	2

These results show that the majority of individuals thought there wasn't enough information being captured by the form. The second part of the first question asked for

suggestions of elements that should be added to the form if the answer to the first part of the question was no. Some of the suggested additions included the following:

- Time of day of photo/image
- Season of year
- How is plant propagated?
- Growing site (shade, full sun, etc.)
- More examples
- Add teacher and amateur photographer to botanical affiliation list
- Field for common name and scientific name

Also, a majority of individuals responded that they found the guidelines unclear.

This appeared to be another area that was in need of improvement. Some of the responses indicated that people were unclear about what types of information to provide in the “Description” field, and some of the terminology used such as “Resource”, “Keywords”, and “Metadata”. Preliminary analysis of data shows, however, that the metadata captured was actually quite acceptable. The responses also indicated a need for more examples of the types of information to provide.

In addition to these specifically asked about areas, the questionnaire included three other open-ended items that were designed to allow the participants to give feedback about what they liked best about the *Botanical Pride* “Add a Resource” form, what they liked least about the *Botanical Pride* “Add a Resource” form, and other comments and/or suggestions.

Responses to what individuals liked best were very encouraging as they showed a positive response to the overall project. Some of the specific comments included statements such as:

- “easy, some opportunity for extra comments”
- “It is a very good idea, especially as it provides a cyber-collection of local specimens which are actually at disparate locations.”
- “The sense of participation will excite the user.”

The responses to what the individuals liked least about the form included items such as:

- unclear vocabulary
- incomplete list for the botanical affiliation list items
- uncertainty about the amount of information to submit for image.

The third feedback item resulted in several additional suggestions for improvements. Some of these are as follows:

- term Resource is unclear – possibly use photo or image
- don’t use term “metadata” on Guidelines page
- add place for the “story behind the picture” and/or “What’s interesting about the image?”

Form Revisions

Based on the feedback that was received, it seemed like there were two major areas of the *Botanical Pride* “Add a Resource” form that were in need of improvement. These

areas were help and/or examples, and terminology. To address these problem areas, the following changes were made:

- 1) The term “Metadata” was replaced with “Information”
- 2) The form title was changed from “Add a Resource” to “Add an Image”
- 3) The term “Resource” was changed to “Image” wherever it appeared on the template and the “Guidelines” pages.
- 4) More examples were added to the “Guidelines” page to reflect some of the items that the Advisory Board members felt were lacking. Several of the additional items mentioned could be included as part of the “Description” entry and that simply needed to be clarified in the “Guidelines” page.

Screenshots of the revised *Botanical Pride* metadata form and “Guidelines” form can be found in Appendix C.

Future Considerations

Certain items may need to be considered as the project becomes integrated into the PIC site. One of these is the approval of images. The initial idea behind the *Botanical Pride* module was to encourage contributions from students and others with an interest in botany in an effort to increase their feelings of involvement in the project and enhance learning opportunities. With this being said, initially there will be no restrictions on the number of entries by one individual. There may however, at some point, arise the need to review the types of images being submitted and implement some restrictions and monitoring policies.

There is also the issue of whether for display purposes, the PIC site should maintain, or request two versions of the images being submitted (the original image and a thumbnail version of the image). Having the thumbnail version would create a more uniform display of images, but may mean more work for the personnel responsible for the maintenance of the PIC site.

Future Developments

This application is the initial phase of a much larger project within the PIC project. There have been discussions of creating a “gallery” of different images which would be submitted by groups such as the Gourd Society of North Carolina <http://www.twincreek.com/gourds/> and the Daffodil Society.

Conclusion

This research is important because it provides valuable information to persons interested in using web input forms to capture metadata from individuals about submissions to their web sites. By designing a simple, easy-to-use metadata entry form, more accurate and consistent metadata may be captured thus improving searching performance. Many factors are important to consider when creating such a form and some of these include: 1) including examples; 2) not using terms that are unfamiliar to users; 3) include detailed help; and 4) label fields in a meaningful way.

With the ever-increasing amount of documents available on the Internet, there is a need for efficient tools to aid in the searching of these documents. There is a lot of potentially valuable information for research and personal use. The Internet can be used

to share information among groups with similar interests, but in order to do this in the most efficient manner, close attention should be paid to the capture and use of metadata in order to improve searching performance.

References

Banerjee, Kyle (2000). Challenges of Using Metadata in a Library Setting: the Collection and Management of Electronic Links (CAMEL) Project at Oregon State University. Library Collections, Acquisitions, & Technical Services, 24, 217-227.

Constantine, L. L., & Lockwood, L. A. D. (1999). Software for Use: A Practical Guide to the Models and Methods of Usage-Centered Design. New York: ACM Press.

Ercegovic, Zorana. (1999). Introduction. Journal of the American Society for Information Science, 50(13), 1165-1168.

Greenberg, J. (in press, accepted Jan., 2001). Metadata Applications for the Plant Information Center (PIC) – A Web-based Scientific Learning Center. Interactive Learning Environments [33 manuscript pages.]

IDS (2000). Internet Domain. <http://www.isc.org/ds/>.

Lawrence, S., & Giles, C. L. (1998). Searching the World Wide Web, Science, 280(3), 98-100.

Lawrence, S., & Giles, C. L. (1999). Accessibility of information on the web, Nature, 400, 107-109.

Levi, M. D., & Conrad, F. G. (1996). A heuristic evaluation of a World Wide Web prototype. Interactions, 3(4), 50-61.

Nielsen, J. (1998). Writing for the Web. <http://www.sun.com/980713/webwriting/>

Preece, Jenny; Rogers, Yvonne; Sharp, Helen; Benyon, David; Holland, Simon; Carey, Tom. Human-Computer Interaction. Wokingham, England: Addison-Wesley, 1994.

Schneiderman B. (1992). Designing the User Interface: Strategies for Effective Human-Computer Interaction, 2nd edn. Reading, MA: Addison-Wesley.

Stein, W. (1990). A Comparison of the Effect of Two Interface Styles on System Efficiency, Error Production, and User Satisfaction. A Master's paper, University of North Carolina, Chapel Hill, North Carolina.

APPENDIX A
Dublin Core Elements

The following Dublin Core element descriptions are from the Dublin Core Metadata Initiative site at <http://dublincore.org/>.

Element Descriptions

1. Title
Label: Title
The name given to the resource, usually by the Creator or Publisher..
2. Author or Creator
Label: Creator
The person or organization primarily responsible for creating the intellectual content of the resource. For example, authors in the case of written documents, artists, photographers, or illustrators in the case of visual resources.
3. Subject and Keywords
Label: Subject
The topic of the resource. Typically, subject will be expressed as keywords or phrases that describe the subject or content of the resource. The use of controlled vocabularies and formal classification schemas is encouraged.
4. Description
Label: Description
A textual description of the content of the resource, including abstracts in the case of document-like objects or content descriptions in the case of visual resources.
5. Publisher
Label: Publisher
The entity responsible for making the resource available in its present form, such as a publishing house, a university department, or a corporate entity.
6. Other Contributor
Label: Contributor
A person or organization not specified in a Creator element who has made significant intellectual contributions to the resource but whose contribution is secondary to any person or organization specified in a Creator element (for example, editor, transcriber, and illustrator).
7. Date
Label: Date
A date associated with the creation or availability of the resource. Recommended best practice is defined in a profile of ISO 8601 (<http://www.w3.org/TR/NOTE-datetime>) that includes (among others) dates of the forms YYYY and YYYY-MM-DD. In this scheme, the date 1994-11-05 corresponds to November 5, 1994.
8. Resource Type
Label: Type
The category of the resource, such as home page, novel, poem, working paper, technical report, essay, dictionary. For the sake of interoperability, Type should be selected from an enumerated list that is under development in the workshop series.
9. Format
Label: Format
The data format and, optionally, dimensions (e.g., size, duration) of the resource. The format is used to identify the software and possibly hardware that might be needed to display or operate the resource. For the sake of interoperability, the format should be selected from an enumerated list that is currently under development in the workshop series.

10. Resource Identifier

Label: Identifier

A string or number used to uniquely identify the resource. Examples for networked resources include URLs and URNs (when implemented). Other globally-unique identifiers, such as International Standard Book Numbers (ISBN) or other formal names would also be candidates for this element.

11. Source

Label: Source

Information about a second resource from which the present resource is derived. While it is generally recommended that elements contain information about the present resource only, this element may contain metadata for the second resource when it is considered important for discovery of the present resource.

12. Language

Label: Language

The language of the intellectual content of the resource. Recommended best practice is defined in RFC 1766 <http://info.internet.isi.edu/in-notes/rfc/files/rfc1766.txt>

13. Relation

Label: Relation

An identifier of a second resource and its relationship to the present resource. This element is used to express linkages among related resources. For the sake of interoperability, relationships should be selected from an enumerated list that is currently under development in the workshop series.

14. Coverage

Label: Coverage

The spatial and/or temporal characteristics of the intellectual content of the resource. Spatial coverage refers to a physical region (e.g., celestial sector) using place names or coordinates (e.g., longitude and latitude). Temporal coverage refers to what the resource is about rather than when it was created or made available (the latter belonging in the Date element). Temporal coverage is typically specified using named time periods (e.g., Neolithic) or the same date/time format (<http://www.w3.org/TR/NOTE-datetime>) as recommended for the Date element.

15. Rights Management

Label: Rights


A rights management statement, an identifier that links to a rights management statement, or an identifier that links to a service providing information about rights management for the resource.

APPENDIX B
Metadata Forms Reviewed

Form 1 – CAMEL – Collection and Management of Electronic Links

Enter Resources Into the CAMEL Database - Microsoft Internet Explorer

Address <http://ozulbiap.ort.edu/camel/submit.cfm> Go



The Valley Library
CAMEL *Collection And Management of Electronic Links*

*** Indicates required field**

Title*

Author(s)
 List each author on a separate line

Description*

URL of Resource*

Resource Type*
 Text / HTML / PDF
 Database

Check all that apply

Start 11:50 AM


Form 2 – Dublin Core Metadata - <http://www.lub.lu.se/cgi-bin/nmdc.pl>

Dublin Core Metadata Template - Microsoft Internet Explorer

Address: <http://www.lub.lu.se/cgi-bin/nmdc.pl?lang=en&saveinfo=on&single=1>

Dublin Core Metadata Template

This service is provided by the "[Nordic Metadata Project](#)" in order to ensure good support for the creation of Dublin Core metadata to the Nordic "Net-publisher" community.



1 TITLE of the resource to be described

2 CREATOR (Name of the person or organization primarily responsible for creating the intellectual content)

Creator name

Creator's (Email) address

3 SUBJECT: Keywords (Your own keywords describing the topic of the resource, **one per box**)

8 TYPE (Category of the resource)

Text/Homepage/Organizational

10 IDENTIFIER: URL (Location of the document. Start with http://)

Start 11:53 AM

Form 3**SOSIG – Social Science Information Gateway - http://sosig.ac.uk/new_resource.html.**

The screenshot shows a web browser window titled "SOSIG: Add a New Resource - Microsoft Internet Explorer". The address bar shows the URL "http://sosig.ac.uk/new_resource.html". The page header includes "Social Science Information Gateway" and navigation links for "SOSIG HOME" and "HELP".

The main heading is "Add a New Resource", with a breadcrumb trail: "You are here : [Home](#) > Add New Resource".

On the left side, there is a vertical menu with the following items: "WHAT'S NEW", "ADD RESOURCE", "Correspondents Centre", "MY ACCOUNT", and "GRAPEVINE".

The main content area contains the following text:

If you know of an internet resource that should be added to SOSIG, please fill in the details below. See also [Short Cataloguing Rules](#) for SOSIG.

Please remember that SOSIG is a quality controlled gateway. [Scope Policy](#) and [Selection Criteria](#) describe how resources are selected.

Please provide some details about the resource

Name of resource

Description

Keywords

The Windows taskbar at the bottom shows the Start button, several application icons, and the system tray with the time "11:52 AM".

APPENDIX C
Botanical Pride Prototype Form
and Guidelines Page

Initial Botanical Pride Form

Botanical Pride - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Add a New Botanical Pride Resource
Please provide some details about the resource

*next to a field indicates that it is required. For more detailed help completing this form, see [Guidelines](#). Each item below is also linked to the part of the Guidelines form that pertains to that particular item.

Name of resource *

Description

Keywords

Geographic Location of resource *

Date of resource

Other Comments

Start | [Icons] | 11:41 AM

Initial Botanical Pride Guidelines Page

Botanical Pride - Add a Resource Guidelines - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Guidelines for Describing Resource

The only required metadata fields are "Name" and "Geographic Location". All of the other information is optional but will be very helpful for others viewing and searching for resources.

Name of Resource

The preferred name or title of the resource. This is simply how you would refer to this image and the label you would like to appear under the image.

Description

A description of the resource.

Some guidelines about what you might include:

- a summary of the resource's contents
- what the resource is about
- historical or other important information

Keywords

Keywords describe the content of the resource. The keywords should be separated by commas. For example, a possible entry might be: moss, moss bed, moss bush.

Geographic Location

Where the resource in the image is physically located. You can provide the county, the city, and/or the area in the city. For example, if you didn't know the city, you might just provide the county such as Orange County. If you know the city of the resource you

Start | [Icons] | 4:33 PM

Revised Botanical Pride Form



Add a New Botanical Pride Image

Please tell us about your image.

* Next to a field indicates that it is required. For more detailed help completing this form, see [Guidelines](#). Each item below is also listed in the part of the Guidelines form that pertains to that particular item.

Name of Image*

Description

Keywords

Geographic Location of Image*

Date of Image

Other Comments

Revised Guidelines



Guidelines for Describing Image

The only required fields are "Name" and "Geographic Location". All of the other information is optional but will be very helpful for others viewing and searching for images.

Name of Image
Description
Keywords
Location
Date
Other Comments
Your Name/Email Address

Name of Image

The preferred name or title of the image. This is simply how you would refer to this image and the label you would like to appear under the image.

Description

A description of the image.

Some guidelines about what you might include:

- a summary of the image's contents
- what the image is about
- historical or other important information

Keywords

APPENDIX D
Feedback Questionnaire

Feedback on Botanical Pride Form

1. Did you think that the information that the form captures (e.g., Name, Description, Keywords, etc.) about your image is sufficient?
 ___ Yes ___ No

If No, what items would you suggest adding to form?

2. Did you find anything on the Guidelines page unclear? ___ Yes ___ No
 If Yes, please explain:

3. What do you like best about the *Botanical Pride* Add a Resource form?

4. What do you like least about the *Botanical Pride* Add a Resource form?

5. Please provide any other comments or suggestions.

Thank you for your cooperation.