

DataONE 'Alternative' Search Tool UX Test Results
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DataONE conducted a standard usability study of the new DataONE search tool (search.dataone.org) for product development. This report discusses the findings and provides suggestions and recommendations for improvement of the tool.

METHODOLOGY

Testing

Testing was conducted during the DataONE Users Group (DUG) meeting on July 12 and July 13, 2015. Testing took place in a meeting room at the Asilomar Conference Grounds in Pacific Grove, California.

Tests were recorded using MORAE Recorder. This software allowed the researcher to record and analyze the participants as they completed the questionnaire, survey, and tasks. The researcher sat in the room with the participant in order to gather feedback on the search tool. The researcher also prompted the participants for insight on what they were doing and thinking throughout the tasks.

The researcher used a standard methodology, where participants were given tasks and the researcher watched the participants complete the tasks without helping the participant. Participants were asked to verbalize their thoughts regarding the DataONE search tool during the tasks; additionally, they were given a survey at the end of the tasks. The post-task survey asks the participants to evaluate and detail their experience with the website.

Participants

Nine participants completed the testing. The participants were recruited through e-mail and during the opening presentation of the DUG. Interested parties either spoke directly to the UX expert or signed up for a time slot through a Doodle Poll that was included in the e-mail. All the participants were attendees at the DataONE Users Group Meeting.

Participants were given a questionnaire before the tasks where they were asked demographic questions regarding their professional background, areas of study, and their association with DataONE. The following is the demographic information provided in the pre-task questionnaire.

The participants hold a variety of jobs, including data curation librarian, research project manager, Information manager, research data specialist, interim director of California Digital Library, data manager, data archivist, and director of community engagement and outreach for DataONE.

The participants' fields of study included Information Science (4), geography, archaeology, biology, International relations, and ecology.

The participants had a diverse role in DataONE. Four participants were associated with a Member Node, two were chairs of the DUG, two considered themselves to be end users of DataONE, and one was the director of community engagement and outreach.

They all search for data online (Figure 1). They use a wide range of search tools to search for online data, including Google, ICPSR, DataONE, Dataverse, MPC projects, tDAR, OpenGeoportal, MassGIS, figshare, BC-DMO, NODC, LTER, US Census, and National Educational Statistics.



Tasks

Participants were given five tasks in order to observe how they interact with the search tool and to identify any usability or functionality issues they encountered. For descriptions on how participants engaged with each task, please refer to the Task Results section of this paper. The entire usability test can be found in Appendix 1 at the end of this report.

On average, the participants took 34 minutes to complete the test. The test ranged from 19 minutes to 46 minutes. The range in times is a result of individual differences completing the tasks, how much time they spent exploring the tool in task 1, and discussion between researcher and participant.

TASK RESULTS

Task Results

All participants were able to complete each task successfully. Table 1 shows the time it took each participant to complete the task. In task 1 the researcher asked participants to end task after approximately 15 minutes, however a few participants went over the allotted time.

Table 1. Time on Task by Participants (in minutes)

	Task 1	Task 2	Task 3	Task 4	Task 5
P1	4.5	2.1	1.0	2.8	4.4
P2	12.6	8.0	4.1	7.4	9.0
P3	17.4	5.0	2.8	3.5	4.7
P4	3.6	3.8	3.6	2.3	3.7
P5	8.7	1.3	4.8	7.5	8.4
P6	14.4	3.3	10.1	4.2	3.6
P7	7.6	1.7	2.5	2.2	5.3
P8	12.4	1.7	2.8	2.2	5.4
P9	16.4	1.5	6.2	7.2	5.4
Avg.	10.8	3.2	4.2	4.4	5.5

The first task asked participants to “Choose your own adventure. Think about a topic you are interested in and use the data search to find a data set that is relevant to your topic. You may use any of the features of the search tool to complete the task, and feel to play around with the various filters and functions. We would like to get your **first impressions** of the tool.” This task was designed to see how users interact with the tool without any specific instructions or tasks. A couple participants ran into some issues with the tool and had to refresh the browser. This was due to applying and clearing multiple filters repeatedly. At some point the search tool could not keep up with their selection. For instance, one participant had Australia selected on the map but after changing the Member Node filter, the results showed data sets without a geographical region.

The second task asked participants to “Use the filters to find a data set from **Dryad** published in **2008** on **evolution**. Once you have found a data set please press end task.” This task was designed to see how users interact with the filters. This task was designed to see how users interact with the filters and how they layer the filters. Participants had some issues with the time filter. They thought the slider was cumbersome and did not like the idea of clicking arrows to change the date. They also thought it was odd that the time line can go into the future.

The third task asked participants to, “Open the metadata page for the previous data set. Take a few minutes to explore the page. We would like to get your first impressions.” Participants did not all view the same page. Overall, participants liked how the metadata page was laid out.

The fourth task, “Use the map to find a data set located in **Australia on the Great Barrier Reef.**” This task was designed to see how users interact with the map and how they apply filters while using the map. This task was designed to see how users interact with the map and how they use the map alongside the filters. Overall people did not have issues interacting with the map and the filters. **Participants, in general, struggled to clear all the filters. They would often leave the location filter on without realizing it because 1) the filter is below the fold and not visible 2) they touched the map and activated a location filter without realizing they had selected somewhere.**

The fifth task asked participants to view a couple of screenshots of the new provenance features of the search. Participants viewed a screen shot of search results that included the provenance icon; then they viewed an example of a metadata page with provenance (<https://search.test.dataone.org/#view/urn:uuid:bf71c38b-22b2-469e-8983-734ec0ab19cb>). The fifth task was designed to get their general impressions of the new provenance features. Overall, participants liked how provenance was displayed. They thought a hover-over would clear up any confusion about what the icon on the search results meant. They did not think on first glance the provenance icon was recognizable, but they thought it would make sense as they used the search regularly. They did not have any better ideas of how to represent provenance.

They liked how provenance was displayed on the metadata page. The arrows and the display on the left and right of the main data file were understandable. Participants expressed that provenance is something that is helpful but not something they would necessary want when they were first searching for data. They wanted a way to save the results so that they could return later and view provenance as needed.

Survey Results

The post-task survey asked participants to evaluate their experience using and interacting with the DataONE search tool. The participants were given four statements to rank based upon a pre-defined scale. The scale ranged from 1-5, a score of 1 indicated the participant strongly disagreed with the statement and 5 indicated the participant strongly agreed with the statement (Table 2). Nine participants answered each question and could only answer once per question.

Questions:

- 1: I thought the site was complex.
- 2: I thought the site was easy to use.

- 3: I thought the site was professional and appealing.
- 4: Other users would learn how to quickly use the site.
- 5: I felt confident using the site.

Table 2. Ranking of Statements by Participant

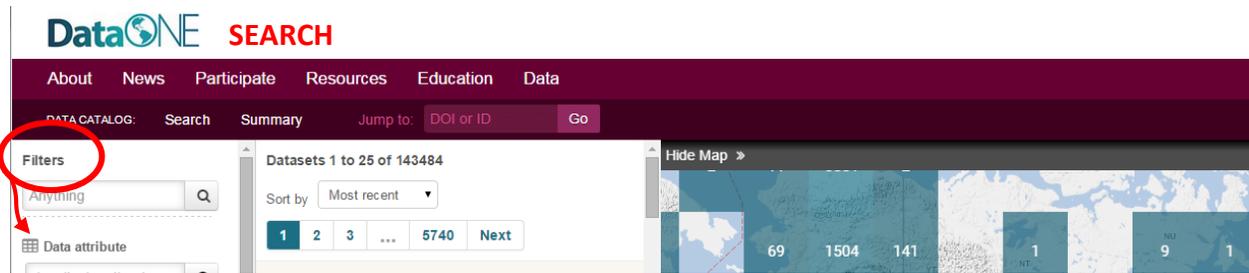
	Site was complex	Easy to use	Professional and appealing	Confident using site
P1	2	3	5	4
P2	2	3	4	3
P3	3	4	5	5
P4	5	2	3	2
P5	2	3	5	4
P6	2	4	5	4
P7	4	3	4	2
P8	3	4	4	4
P9	4	2	4	3
Avg.	3.0	3.1	4.3	3.4

Overall the participants thought users would quickly learn to use the tool and felt confident using the site. They thought the site was complex, but they expressed that they considered that a positive trait.

In addition, participants were asked four follow-up questions. They were asked if their initial impressions change after using the tool; what they liked best and least about the tool; and for final comments. Participants seemed to like the overall design and aesthetic of the new search tool and they liked the map search feature. Participants had some issues with the filters. They thought a basic keyword search bar needed to be added or made more obvious. They also had issues with the number of filters, how they worked together, and the amount of scrolling required. The complete answers to the questions can be found in the Appendix 2 at the end of this report.

USABILITY ISSUES

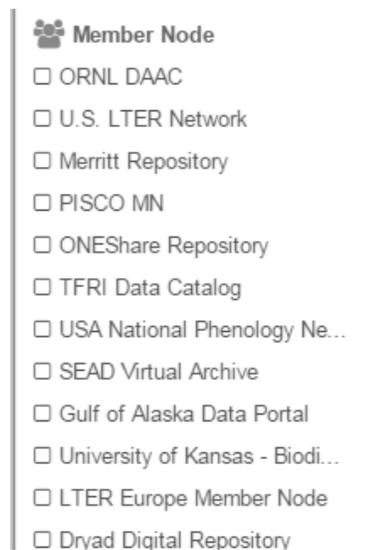
Lack of Clear Search Bar



Issue: Four of the nine participants expected to see a search bar on the page. One participant, for example, thought the researcher had started the test in the middle of a search. Those participants clicked on the “search” button in the upper left corner and spent several seconds figuring out where to start.

Recommendation: There does not necessarily need to be a search bar, but there are a couple of options to help users who expect a search bar. **Branding the page with “Search”,** for example naming it DataONE Search in the upper left corner, could help designate the page as a search tool. **Additionally moving the “Filters” title below the anything filter could help users navigate the page.**

Organization of Member Node Filter



Issue: It is unclear how the Member Nodes are organized in the filter drop-down. Especially as the number of Member Nodes grows this list could become unwieldy.

Recommendation: **Users will have an easier time navigating the list if the Member Nodes are alphabetized.** Additionally, this list might eventually do better as a search box with auto-fill. Users will have a hard time scrolling through a list of 50+ Member Nodes.

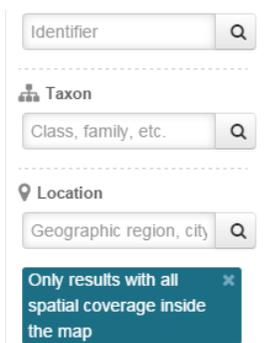
Color of “Clear all filters”



Issue: Participants had a hard time seeing the “clear all filters”, especially older participants. There might not be enough contrast between the maroon color of the navigation bar and the red of the filter.

Recommendation: Consider using the same blue/turquoise as the other filters for the “clear all filter”

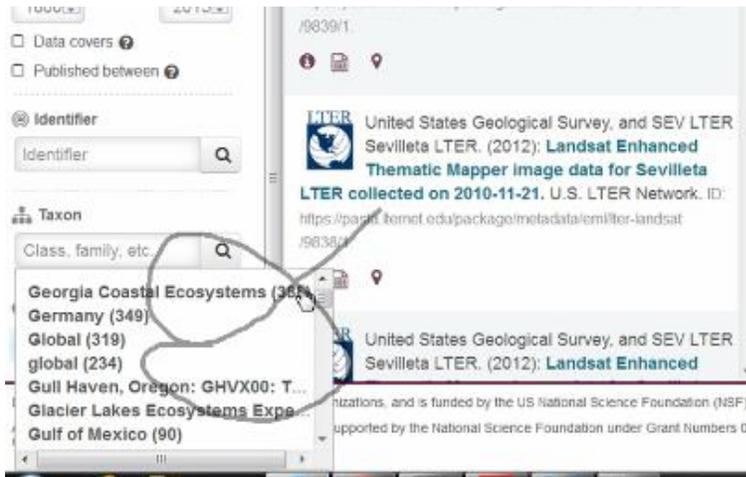
Location of the location filter



Issue: Participants had a hard time clearing the location filter. Four of the nine participants struggled to complete a task because they did not realize that they had a location filter applied.

Recommendation: Consider moving all the applied filter notifications to the top of the column.

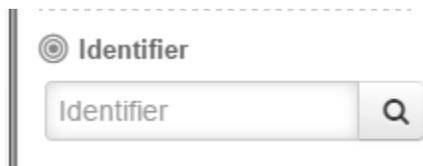
Autofill on the Location Filter



Issue: the auto-fill for location filter opens on top of the filter. Note: the image came from a screen shot during a test and the wiggly line is from mouse movement)

Recommendation: Move the autofill so it does not block the filter.

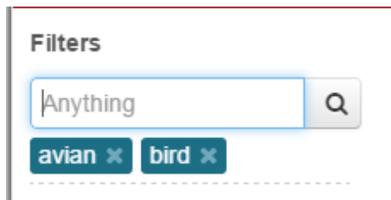
Lack of description of Identifier



Issue: Participants were unsure what was considered an Identifier.

Recommendation: In the search field change Identifier to "DOI or ID"; similar to what is in the "jump to" box.

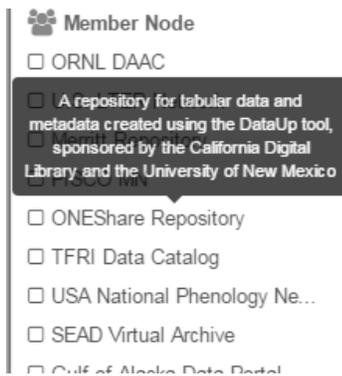
Lack of an “OR” filter option



Issue: One participant mentioned that she would like an OR function to accurately perform her searches. She mentioned that when she researched birds, data files would use the keyword avian or birds and she would need to search for data files that mention avian OR birds. In this search tool there is no OR function. Once you apply one filter the next filter is applied on top of the first one. As a result the participant would not be able to perform one search and get all the applicable data sets.

Recommend: While this is just one example, this may be an issue for other users. It may be worthwhile to examine ways of adding the OR Boolean function to the search.

Hover-over Member Nodes



Issue: While participants liked the information provided in the hover-over on Member Nodes filter, they thought the bubble appeared too quickly and made the list hard to navigate. Users tend to use the mouse when scanning a list and the hover-over made scanning difficult.

Recommendation: Put a slight delay on how long the user hovers over a Member Node before the bubble appears.

Font Size of Title on Metadata Page

BACK TO SEARCH | Search | Metadata

Pigeault, Romain, Vézilier, Julien, Cornet, Stéphane, Zélé, Flore, Nicot, Antoine, Perret, Philippe, Gandon, Sylvain, and Rivero, Ana. (2015): **Data from: Avian malaria: a new lease of life for an old experimental model to study the evolutionary ecology of Plasmodium.** Dryad Digital Repository. ID: <http://dx.doi.org/10.5061/dryad.35hs3?ver=2015-07-10T14:51:07.403-04:00>.

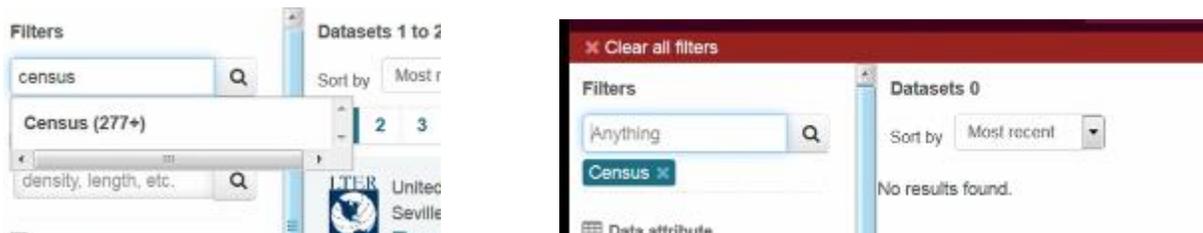


Files in this dataset		
Name	File type	Size
Metadata: Data from: Avian malaria: a new lease of life for an old	http://datadryad.org/profile/v3.1	3 Download

Issue: Four participants mentioned that the title on the metadata page seemed too large. Due to the size of the title it takes more scrolling to view other useful information. This issue was especially noticeable in titles with multiple authors.

Recommendation: Decrease the font size of the title.

Incorrect autofill



The left screenshot shows a search interface with a search bar containing 'census'. Below the search bar, an autofill suggestion 'Census (277+)' is displayed. The right screenshot shows the search results for 'Census' with 'No results found'.

Issue: One participant searched for census in the anything filter. An auto-fill of “Census (277+)” came up and she clicked on it but then received zero results. If she entered “census” without the autofill she received 3494 results.

Recommendation: Review the information that is creating the autofill.

Pressing enter to use filter

Filters

Issue: Three of the participants had a hard time knowing when a filter was selected. They would type a word into the “anything filter” without pressing “enter” but assume the filter was selected. Part of what confused the participants is the member node, years, and data files filters are applied without pressing enter.

Recommendation: It may be helpful to keep the autofill box open until they press enter (like Google). When the box disappears it gives the assumption that the search term has been accepted.

File names in metadata page

Files in this dataset			
Name	File type	Size	
 Metadata: LEDAPS corrected Landsat Enhanced Thematic Mapper image data for Central Arizona - Phoenix LTER collected on 2011-05-21	.xml (EML)	25 KB	Download 
 https://pasta.lternet.edu/package/report/eml/iter-landsat-ledaps/1782/1	text/xml	16 KB	Download 
 https://pasta.lternet.edu/package/data/eml/iter-landsat-ledaps/1782/1/2da28c74c1ae1b9f79652b4a0673e24c	application/octet-stream	443 MB	Download 

Issue: Participants thought the file names on the metadata page were un-descriptive and not useful.

Recommendation: Create more descriptive titles for the files (if able). On search.test.dataone.org this issue seems to be resolved 

Visualization of geographic region

Geographic Region	
Site	Covering the Central Arizona - Phoenix LTER site
South Bound Coord	32.20619
North Bound Coord	34.12707
West Bound Coord	-112.30025
East Bound Coord	-109.707344

Issue: Participants preferred an image of the geographic region. The coordinates were unhelpful.



Recommendation: Use images of the geographical coordinates.

Duplication of Data Files on the Metadata Page

Name	File type	Size	
Metadata: Bird Species Commonly Present at Harvard Forest LTER	xml (BML)	11 KB	Download
https://pasta.lternet.edu/package/data/em/imsb-tempbiodev/1111133/4/a9837a52c98047f5cc80952537513a5f	text/csv	9 KB	Download
https://pasta.lternet.edu/package/report/em/imsb-tempbiodev/1111133/4	text/xml	22 KB	Download

General

Title Bird Species Commonly Present at Harvard Forest LTER

ID <https://pasta.lternet.edu/package/metadata/em/imsb-tempbiodev/1111133/4>

Abstract Patterns of biodiversity, such as the increase toward the tropics and the peaked curve during ecological succession, are fundamental phenomena for ecology. Such patterns have multiple, interacting causes, but temperature emerges as a dominant factor across organisms from microbes to trees and mammals, and across terrestrial, marine, and freshwater environments. However, there is little consensus on the underlying mechanisms, even as global temperatures increase and the need to predict their effects becomes more pressing. The purpose of this project is to generate and test theory for how temperature impacts biodiversity through its effect on biochemical processes and metabolic rate. A combination of standardized surveys in the field and controlled experiments in the field and laboratory measure diversity of three taxa – trees, invertebrates, and microbes – and key biogeochemical processes of decomposition in seven forests distributed along a geographic gradient of increasing temperature from cold temperate to warm tropical. This list of bird species at Harvard Forest LTER, Massachusetts, was retrieved from <http://harvardforest.fas.harvard.edu/000/entire/biodiversity/data.xq?d=H033> on 10/17/2013 as part of a macrosystems biodiversity and landscape project supported by the National Science Foundation under Cooperative Agreement DEB#106836.

Pub Date 2013-11-11T00:00:00Z

Keywords

Birds
Species
Harvard Forest
Massachusetts
Macrosystems
Biodiversity
Latitude

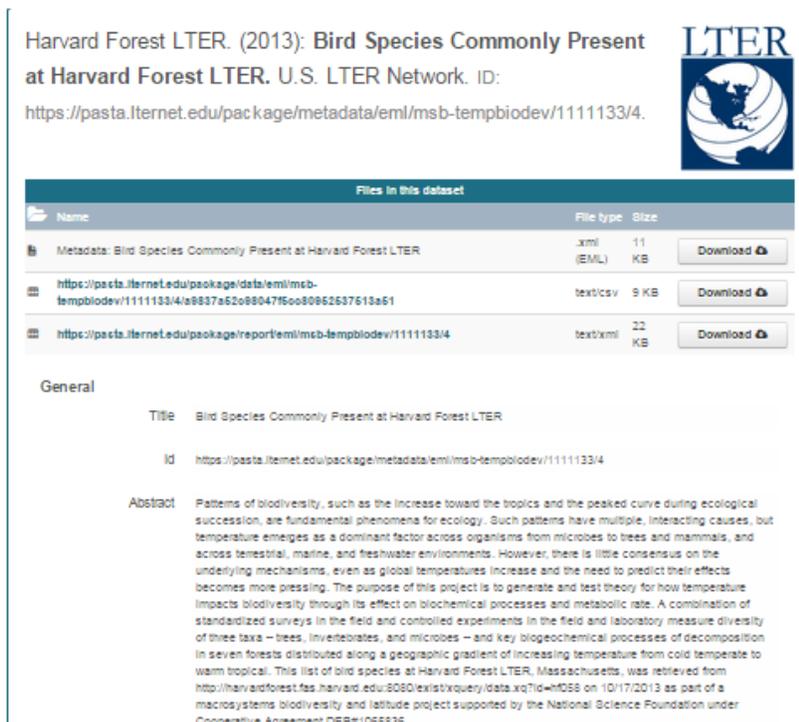
Data Table, Image, and Other Data Details

https://pasta.lternet.edu/package/data/em/imsb-tempbiodev/1111133/4/a9837a52c98047f5cc80952537513a5f	Download
ID https://pasta.lternet.edu/package/data/em/imsb-tempbiodev/1111133/4/a9837a52c98047f5cc80952537513a5f	
Size 9 KB	
Format ID text/csv	
https://pasta.lternet.edu/package/report/em/imsb-tempbiodev/1111133/4	Download
ID https://pasta.lternet.edu/package/report/em/imsb-tempbiodev/1111133/4	

Issue: Some of these issues seem to be addressed in search.test.dataone.org. Participants were unclear why the data tables, images and other data details appeared in the top table and below the general metadata information. At first they were confused as to whether they were different files, and then once they realized they were the same items they thought they were unnecessary and created too much scrolling.

Recommendation: It looks like a more recent version of the page includes more information in the second set of data files, and there is a “description” button on the top data files table that was not included in the usability test. This should address many of the issues participants found in the search.data.org tool. However, it may be worth moving the second set of data files to  bottom of the metadata pages (and move the rest of the metadata information above the data files).

Location of Abstract on Metadata Page



Harvard Forest LTER. (2013): Bird Species Commonly Present at Harvard Forest LTER. U.S. LTER Network. ID: <https://pasta.lternet.edu/package/metadata/eml/msb-tempbiodev/1111133/4>.

Files in this dataset			
Name	File type	Size	
Metadata: Bird Species Commonly Present at Harvard Forest LTER	.xml (EML)	11 KB	Download
https://pasta.lternet.edu/package/data/eml/msb-tempbiodev/1111133/4/a8837a62098047f6008062637613a61	text/csv	9 KB	Download
https://pasta.lternet.edu/package/report/eml/msb-tempbiodev/1111133/4	text/xml	22 KB	Download

General

Title Bird Species Commonly Present at Harvard Forest LTER

Id <https://pasta.lternet.edu/package/metadata/eml/msb-tempbiodev/1111133/4>

Abstract Patterns of biodiversity, such as the increase toward the tropics and the peaked curve during ecological succession, are fundamental phenomena for ecology. Such patterns have multiple, interacting causes, but temperature emerges as a dominant factor across organisms from microbes to trees and mammals, and across terrestrial, marine, and freshwater environments. However, there is little consensus on the underlying mechanisms, even as global temperatures increase and the need to predict their effects becomes more pressing. The purpose of this project is to generate and test theory for how temperature impacts biodiversity through its effect on biochemical processes and metabolic rate. A combination of standardized surveys in the field and controlled experiments in the field and laboratory measure diversity in seven forests distributed along a geographic gradient of increasing temperature from cold temperate to warm tropical. This list of bird species at Harvard Forest LTER, Massachusetts, was retrieved from <http://harvardforest.fas.harvard.edu/BOD/exist/xyquery/data.xq?Id=H058> on 10/17/2013 as part of a macrosystems biodiversity and latitude project supported by the National Science Foundation under Cooperative Agreement DEB#1065836.

Issue: On the metadata page, participants thought the abstract was more useful than the files table. They thought when they were first searching for data it was more important to read the abstract and determine the usefulness of the data package before viewing the data files. Especially since the title is so large the user often has to scroll to read the abstract.

Recommendation: Decreasing the size of the title may alleviate this issues by moving the abstract above the fold; otherwise consider moving the abstract above the files table on the metadata page.

Back to search vs. search



Issue: Participants were unclear as to the difference between back to search and search on the metadata page. Both buttons took the user to the same page, but because there are two buttons there is the assumption that the buttons perform two different tasks. Participants worried that one button took them to their previous search and one took them to a new search.

Recommendation: Delete one of the search buttons. 

Download in new tab

Files in this dataset			
Name	File type	Size	
 Metadata: Bird Species Commonly Present at HJ Andrews LTER	.xml (EML)	11 KB	Download 
 https://pasta.lternet.edu/package/report/eml/msb-tempbiodev/1111134/6	text/xml	22 KB	Download 
 https://pasta.lternet.edu/package/data/eml/msb-tempbiodev/1111134/6/be0740444f468cc141b313adf5bd144b	text/csv	161 KB	Download 

Issue: Participants preferred the download to open in a new page rather than replace their current view.

Recommendation: Have downloads open in new tab, when applicable 

Different size boxes in provenance display

Accuracy Assessment

Coverage

Method

Data Table

Entity Name Non-EVOS SINs.csv

Download

Description Sample ID numbers that are not funded by EVOSTC, used in R script to isolate EVOS samples

1 derivations

Issue: Three participants noticed the different size boxes in the provenance display. The size of the main box changed depending on whether the data file had derivations or sources. Participants thought the size of the boxes indicated something.

Recommendation: Consider keeping all data file boxes one size.

Special Issue: Dirty Data Example

NCEAS 10941: Gotelli: Synthetic macroecological models of species diversity, National Center for Ecological Analysis and Synthesis, and NatureServe NatureServe. (2008): Digital Distribution Maps of the World's Amphibians. KNB Data Repository. ID: doi:10.5063/AA/nceas.948.1.

knbn

Title Digital Distribution Maps of the World's Amphibians

Id doi:10.5063/AA/nceas.948.1

Abstract Although amphibians perform key roles in their ecosystems and contribute significantly to biodiversity, especially in tropical habitats, they are frequently excluded from conservation analyses because of a lack of information about their conservation status and distribution. To enhance our knowledge about amphibians and their conservation needs, three organizations—the Center for Applied Biodiversity Science of Conservation International, the Species Survival Commission of IUCN–World Conservation Union, and NatureServe—launched the Global Amphibian Assessment (GAA) in 2000. The results, published in 2004, represent the first-ever comprehensive status assessment of the world's 5,743 known amphibian species.

Temporal Coverage

Begin Date 1800-01-01T00:00:00Z

End Date 1800-01-01T00:00:00Z

Issue: while not a direct usability issue, I wanted to point out this inconsistent data set we found during testing. The title lists 2008 as the publication date, the abstract lists 2004 as publication date, and the temporal coverage is 1800.

CONCLUSION

Overall, participants liked the user interface of the search tool. They were able to understand the filter names and icons, and they liked the hover-over to provide clarification. They thought the hover-over on the Member Nodes was too sensitive and would prefer a slight delay before the information pops up. Participants had some issues with clearing the filters because all of the filters are not above the fold. Collapsing the filter boxes until selected or moving all the applied filters to the top of the page may help the functionality of the filters and help users remember which filters have been applied.

There were some issues with the functionality of the search when participants repeatedly applied and removed filters. There seemed to be a point where if the participant made too many changes to his search query that the search would not match his search query. For example, one participant had Australia selected on the map yet he received results without a geographical region after he played around with different member nodes and other filters. 

The map was a nice feature for most participants, but the couple of participants who do not regularly search geographically liked that they could hide the map. The participants liked the bounding boxes on the map, but worried about how geographical locations, such as rivers or countries, are represented. Point-based geography works for field offices and data centers but not for other data. A data set that has the geographical coordinates for a wide swath of land (e.g., Brazil) has one pin-point location that would not be very searchable on the map.

The biggest issues that occurred during testing were with the location filter. Since it is below the fold, participants would often have a location selected without realizing it and would try to complete searches and not return any results because of the selected area of the map. Participants also often engaged the map without realizing it because they scrolled and moved the map assuming they were browsing rather than selecting an area. It would help the usability of the tool to make it more obvious when the location filter is applied.

Participants liked the overall design of the metadata page. However, participants thought the title took up too much space on the page. There was a lot of unnecessary scrolling that could be alleviated by decreasing the size of the title and moving the data file boxes below all the metadata information.

Provenance display was well received during testing. Participants liked how provenance was visually represented. They liked the idea of the provenance bubbles including a symbol to represent the type of file (image, R script, text, etc.), which was not included in the usability test, but seems to be included in search.test.dataone.org. The participants thought provenance was not something that was important when you first search for data but something you go back and look at later. They hoped there would be a way to save a search result or other feature built into the tool to help them return to past search queries. They also hoped that as you followed provenance the different data sets would open in new tabs.

APPENDIX 1

Tasks

Directions: Please complete the following tasks. Remember we are testing the site and not you. If at any point you do not feel like you can complete a task simply select “End Task and move to the next one.

Task 1

Choose your own adventure.

Think about a topic you are interested in and use the data search to find a data set that is relevant to your topic. You may use any of the features of the search tool to complete the task, and feel to play around with the various filters and functions. We would like to get your **first impressions** of the tool.

Task 2

Use the filters to find a data set from **Dryad** published in **2008** on **evolution**. Once you have found a data set please press end task.

Task 3

Open the metadata page for the previous data set. Take a few minutes to explore the page. We would like to get your first impressions.

Task 4

Use the map to find a data set located in **Australia** on **the Great Barrier Reef**.

Task 5

Now I'd like to show you a feature we are currently working on. We are in the process of adding provenance features to the search. The goal of the provenance features is to enable users to track the derivation history of data and get a broad view of analyses by showing the inputs and outputs of scientific analysis code. We hope this will improve the reproducibility of these analyses, help scientists find relevant data, and give scientists a better understanding of how derived datasets were created. When a data set has provenance this icon will appear on the search results:

Filters

Anything

Data attribute

density, length, etc.

Data files

Only results with data

Member Node

Multi-scale Synthesis and T...

Staging test for PASTA-GMN

Demo 1 Member Node

MN Demo 2

Creator

First name, last name,

Year

1800 2015

Data covers

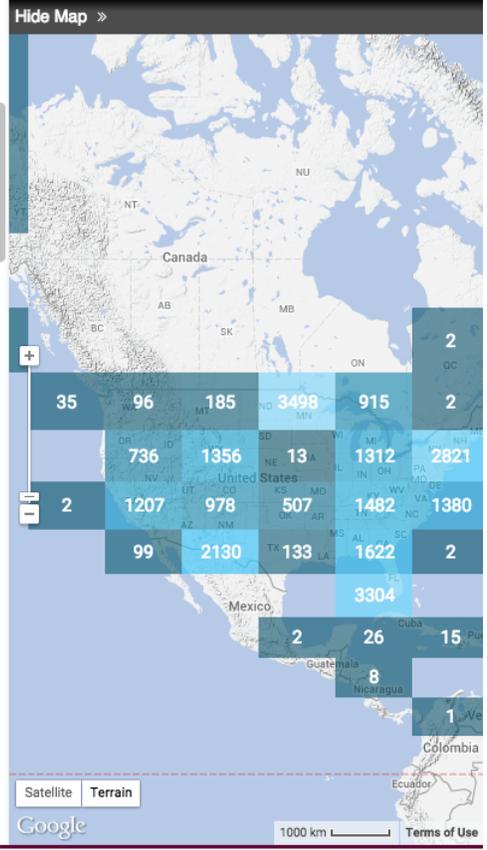
Published between

Identifier

Identifier

Taxon

- kn** David Bouldin. (2015): **Water quality data for Fall Creek (Tompkins County, NY) sampling sites: 1972-1995.** MN Demo 2. ID: urn:uuid:a309980b-c34e-45b2-8315-48f5123b935f.
- kn** Walker. (2015): **Test data set.** MN Demo 2. ID: walker.14.1.
- kn** Mark Carls. (2015): **Hydrocarbon database, Gulf of Alaska.** MN Demo 2. ID: urn:uuid:bf71c38b-22b2-469e-8983-734ec0ab19cb.
- kn** Mark Carls. (2015): **Hydrocarbon database, Gulf of Alaska.** MN Demo 2. ID: urn:uuid:b9c700f7-b3b0-4ab4-b77b-616b6504eb17.
- kn** Mark Carls. (2015): **Hydrocarbon database, Gulf of Alaska.** MN Demo 2. ID: urn:uuid:cf6708f3-554d-4adf-8094-6dda3f8ae7ee.
- kn** Mark Carls. (2015): **Hydrocarbon database, Gulf of Alaska.** MN Demo 2. ID: urn:uuid:e1aa9701-0129-4a23-8b31-84603480705c.



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What are your general impressions? Does the icon make sense?

An example of what a metadata page with provenance looks like is:

<https://search.test.dataone.org/#view/urn:uuid:bf71c38b-22b2-469e-8983-734ec0ab19cb>

What are your general impressions?

APPENDIX 2

Post Task Questionnaire

Now that you've used the tool, did any of your initial impressions change, if so why?

- After having a chance to play with it, it made more sense.
- not that I can articulate
- Finding more data sets than Initially thought I would find
- It was actually more difficult to use than I thought after initially viewing the UI
- Not really. I think it's well designed with a few usability issues.
- It was easier to use than I expected and it responded quickly to searches.
- Expanded the search capabilities but it's unclear if the parameters for searching have expanded (range of structured content in the record as opposed to different ways to access and search the same parameters)
- Impressions didn't change. Some awareness of the tool functionality increased. However, that is always true when playing around with a tool. Not necessarily negative - just part of how I learn.
- No initial impressions

What did you like best about the tool?

- faceted browsing, map search feature
- display of results on a map (though not the specifics of the implementation)
- Map - Graphically displaying the location of the data gave me a visual reference as to its usability and applicability to my research
- The map search interface; also that timeline is included but would like to see it integrated with the map
- The look and feel - very attractive, interesting, worth exploring.
- The number and variety of filters available for searching.
- meh
- More aesthetically pleasing than our current search interface.
- Map browse

What did you like least about the tool?

- Keyword search wasn't obvious (filter). Date range wasn't obvious how it worked.
- sometimes difficult to determine the relationships among items in a data package
- Small delays in filtering response. But this may be due to the Network. Some data did not show up in results unless the map was zoomed completely out and this was not intuitive or something I should assume I needed to do.
- WAY too much going on, especially with filters and the need to scroll down to see them all; some filters seem to be overlapping
- The lack of a clear search box.
- The numbers displayed on the map.

- A lot of assumptions about understanding of the meaning of symbols, colors etc. Couldn't use multiple filters without stepping through them (add, search, add, search). Filter and map based coverage didn't result in the intersect but in the combined coverage.
- The domination of the map view. I would like default to be off and then the option to show it so that you have more space to read the details of the record. People might not know that you can hide it? Perhaps when geo search terms are used then it can pop up (in)?
- Mismatching of some metadata fields with display of results

Final Comments:

- Great search tool. How it helps research collaboration
- Overall I think it's useful and pretty intuitive to use!
- Provenance images are clear (shape rather than color should be used to differentiate input/output types). Not something I'd use in an initial search but as a means of determining quality, or questionable sources at a later point in research.
- The sequential filtering was confusing but that may have been the internet connection. Would like to see a drop down of authors (creators) vs having to start typing. Clear all filters didn't clear the text in a box so I was unsure if that was still being used. Perhaps it should clear all?