

Request for Comment

Guidelines for LTER Website Design and Content

TO: LTER Science Council, LTER Information Managers. LTER Education and Outreach Managers, Environmental Data Initiative

DATE: March 22, 2018

FROM: LTER Web Guidelines Working Group

RE: Request for comment on updated website guidelines

Web Guidelines Working Group

Chairs:

- Mary Martin (HBR)
- Marty Downs (NCO)

Members:

- Mike Gooseff (MCM)
- Jill Haukos (KNZ)
- John Porter (VCR)
- Kristen Vanderbilt (FCE)
- Mark Watkins (CAP)
- Yang Xia (KNZ)

Background:

The guidelines for the websites of individual LTER sites were last updated in 2009. Web technology, Network organization, and data management practices have changed substantially since then. These proposed new guidelines aim to reflect those changes and incorporate perspectives from the PI, education, communication, and information management communities.

Implementation:

1. Distribute request for comments: **March 22, 2018**
2. Accepting comments through: **May 1, 2018**
Email comments to downs@nceas.ucsb.edu and mary.martin@unh.edu or comment directly on [googledoc](https://docs.google.com/document/d/2DO8PEW) (<http://bit.ly/2DO8PEW>)
3. LTER Executive Board votes on revised guidelines: **May 15, 2018**
4. Upon approval, the Network Communications Office will post guidelines to LTERNET website and distribute to website managers and site PIs.

Proposed new Guidelines (begin document):

Guidelines for LTER Website Design and Content

March 2018

Websites are now the primary way that external stakeholders learn about a site's research, education, personnel, and other activities. At the same time, they provide critical information for investigators associated with an LTER site or those interested in becoming involved. The Network has a strong interest in ensuring that both these goals are met in ways that offer website visitors a consistent, engaging experience, while also leaving enough flexibility to allow LTER sites to accommodate the needs of their academic institutions and agency partners.

These LTER Network recommendations are intended to improve access to site information, to credit NSF funding, and to emphasize LTER Network membership, as well as improving the overall quality and usability of LTER Network websites.

Guidelines for LTER Website Design and Content were [first established in 2009](#) and are referenced in the [Guidelines for LTER Information Management Systems](#). LTER sites use these guidelines for informal self-assessment and planning, redesigning existing web pages, and developing new web pages. National Science Foundation reviewers may also refer to these general guidelines in formal reviews of LTER sites. This version was updated in 2017-2018 by a committee of information managers, PIs and communications managers.

The Working Group's recommendations cover three areas of website content and design:

1. LTER Network branding, content licensing, and NSF funding acknowledgement (requirements)
2. Consistent approaches to navigation and access to key information (recommendations)
3. General recommendations for developing content that is accessible and appealing to the audiences that are highest priority for your site (suggestions)

LTER Network Identity (required)

1. Display a link to the LTER Network Homepage (<http://www.lternet.edu/>) and the following text on the home page: "This site is a member of the U.S. LTER Network." Where feasible, use the LTER Network logo to demonstrate Network affiliation. Logos can be found under [Network Graphics](#) at the quick links menu on the LTERNET website.
2. Display a link to the LTER site portal (<http://www.lternet.edu/sites/>), which allows quick access to basic information (including profiles and homepages) of all the LTER sites.
3. The LTER network domain, lternet.edu, Domain Naming System (DNS) alias (<https://3-letter-site-acronym.lternet.edu>) may be used to reach a site's homepage in

addition to the local URL. Please let the Network Communications Office know when you set up a new site so we can update the alias.

NSF funding acknowledgement (required)

Include the following disclaimer on your website's footer, typically after the licensing statement:

This material is based upon work supported by the [National Science Foundation](#) under [list current grant number and dates.] Any opinions, findings, conclusions, or recommendations expressed in the material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Content Licensing and Credit Recommendations

In the spirit of open access to taxpayer-funded information, Creative Commons licensing is preferred whenever possible. It provides clarity for potential users and a clear pathway to acknowledge creators.

Model language (other licenses may be used, depending on the needs of the site, but some indication of ownership and accessibility is required):

Except where otherwise noted, material may be re-used under a [Creative Commons BY-SA 4.0](#) license.

Content Recommendations

The website of an LTER site is its most consistently visible face. Day-in and day-out, it tells visitors what the priorities of the site are—both through the nature of the content and how it is organized. At initial site set-up and at least every few years, the site's principal investigators or executive team should weigh in on a few key questions that will allow the people responsible for generating content and maintaining the website to make day-to-day decisions that are consistent with the site's priorities.

1. What external audiences are most important to reach? Some audiences to consider:
 - a. Potential students or collaborators
 - b. Educators -- both local and national
 - c. Neighbors -- with concerns about, or interests in, site operations
 - d. Partners -- depending on the site, these might include NGOs or government agencies

- e. Funders -- NSF and also university administrators or foundations
2. What information do our investigators need to do their work? To collaborate effectively?
3. What do web site visitors want to know about the LTER site?
4. What is important for them to know about the LTER site?
5. What kind of a relationship do we want to have with website visitors? Is there an action we would like them to take after visiting the website?
6. How can we make information easy to access for site researchers without detracting from the experience of external visitors?

After reviewing a survey of web managers, PIs, and LTER websites, the web guidelines committee suggests the following broad content categories will be useful for most sites, although the organization and needs of individual sites should always take priority.

- **About**

Generally, the “about” section focuses on the way a site is organized and funded. It’s also a good location for content that is primarily interesting to internal audiences.

- Brief description of the site, its history, funding, and the relationship with any partners (USDA, NOAA, University, non-profit) or its location within a university structure.
- Site contact information, including how to contact the main administrative staff at the site, including the mailing address, fax number, etc.
- Searchable listing of LTER-affiliated personnel (at some sites, this resides on the main menu)
- The “About” section is a good location for a sexual harassment policy, reporting procedure, or statement of community values. The LTER Network Executive Board is in the process of making specific recommendations on how to develop and communicate these items. When completed, a link will be added.
- Additional suggestions:
 - Brief description of the LTER program and the importance of long-term research
 - Information about facilities, how to visit
 - Newsletter subscriptions
 - Resources for site personnel
 - Grant documents
 - Site calendar
 - Employment opportunities

- **Research**

This section is often the most extensive and includes information about the research foci of the current LTER project and its evolution. Pay particular attention to research that requires long-term observation and experimentation. Common sub-categories include:

- Descriptions of major research areas for your LTER site. These can be organized in a way that communicates your site's research most effectively, but some reference or link to the [5 core research themes](#) of the LTER Network can help in describing how the Network facilitates cross-cutting science.
- Key findings or transformational science. These may be drawn from a site's proposal or renewal, but they usually should be rewritten for a more general audience.
- The current conceptual model or the evolution of conceptual models, if they offer insight into research findings.
- Descriptions of major ecosystem-scale experiments can be very helpful for researchers seeking to collaborate or synthesize. (See, for example, <https://lter.kbs.msu.edu/research/long-term-experiments/>)
- Description of information management practices or link to data section with description.
- "Publications" and "data" have traditionally been top-level menu items for LTER sites. Depending on the nature of a site's key audiences and the demand for space on the main menu, the website manager may choose to keep them on the main menu or to display them under "research." One advantage of moving data under research is that it makes clear that data management is an integral part of the research endeavor.
- Additional suggestions, depending on resources and capacity:
 - Research news, nuggets and accomplishments
 - Complementary grants
 - Research-focused newsletters, RSS web feeds, etc.
 - Site bibliography, including peer reviewed articles, theses, dissertations, abstracts, book chapters, technical reports and others. Link to publicly-available full-text where possible (open access, research gate, or pre-print versions). Do not link to online pdfs unless you have permission to do so.
 - Progress reports and proposals, including documents that are downloadable.
 - How to conduct research at the site. This section often includes maps of sites and experiments, administrative protocols for proposing new research, and links to field site policies. If your site has a sexual

harassment policy, reporting procedure, or statement of community values, in your “About” section, linking to it from site-use policies allows visitors to find and access it more easily.

- **Education/Learning/Engagement**

(The appropriate title for this section may be different, depending on the nature of the activities.)

The nature of the education and outreach programs varies among sites, with some sites relying entirely on the NSF-funded Schoolyard LTER supplements and others building extensive partnerships. Where a partner organization conducts the majority of a site’s outreach program, it may make sense to simply link to that organization’s content. In such cases, please bear in mind that such external links can be confusing to site visitors if there is no explanation of the nature of the relationship.

When a site maintains its own education content, it typically includes the following types of information:

- Descriptions of educational activities, such as field trip opportunities or after-school activities.
- REU and RET opportunities and products
- Schoolyard LTER books (ideally including a link to the [whole series on lternet website](#) and any associated curriculum materials).
- Citizen science programs and other science outreach activities, such as Science Cafés.
- Art-and-Science activities. The [Ecological Reflections](#) website (produced via a Network Office working group) is still live and maintains a variety of useful content as of 2017. Consider linking to it.
- Downloadable resources for teachers and students, such as classroom activities, data literacy resources, and curriculum guides
- Education news, nuggets and accomplishments
- Education or outreach focused newsletters or social media

- **Data**

Data that is collected with LTER funds must be made publicly available. The 2017 [LTER Network data policy](#) states:

“Data and information derived from publicly funded research in the U.S. LTER Network, totally or partially from LTER funds from NSF, Institutional Cost-Share, or Partner Agency or Institution where a formal memorandum of understanding with LTER has been established, are made available in a community accepted data repository (e.g., LTER

Repository, EDI Repository, Arctic Data Center, BCO-DMO) with as few restrictions as possible, on a nondiscriminatory basis. LTER Network scientists should make every effort to release data in a timely fashion and with attention to accurate and complete metadata.”

Neither NSF nor LTER Network policy requires a site to post their data on their website in addition to public repositories, but many groups of investigators find it to be a convenience.

Whether or not a site chooses to maintain a local data catalog, the data section of the website should include:

- A brief description of the scope and type of data collected at a site. This description should work together with a data catalog, if one exists, helping visitors to determine whether to invest in exploring the catalog. The core research themes may provide a useful organizing principle:
 1. primary production
 2. organic matter
 3. disturbance
 4. inorganic nutrients
 5. populations
- Information about where and how to best access a site’s data and metadata.
- Data access and documentation policy and practices for the LTER site
- Link to the [Network’s data access policy](#)
- Contact information for the site’s data manager
- Network resources, including the [Environmental Data Initiative](#)
- In addition, some sites may want to offer links to data training opportunities for students and faculty.

● **Publications**

For some sites, this is key information for primary audiences and so resides on the main menu. At other sites it is more of a resource for internal audiences and so resides on the “about” menu or other handy, but less-prominent, location. Either way, website managers should take a few key factors into consideration in its display.

- Maintaining the bibliography can be labor intensive. Make maximum possible use of modern reference managers such as EndNote and Zotero to maintain consistency and minimize busy-work.
- The Network has been inconsistent in defining “LTER” publications, which have included research funded through the NSF grant, research conducted at an LTER

site, or research using LTER data. Where possible, the committee recommends differentiating these types of publications in the bibliography.

- Going forward, the LTER Network Communications Office will be keeping the Network publications list in Zotero. Site publications can be added to the Network list by sharing a Zotero library or forwarding a RIS file to downs@nceas.ucsb.edu.
 - **Beginning with 2017 publications**, please include the following tags: LTER-supported; LTER-data; LTER-site to differentiate publications that are associated with the LTER in different ways.

- **Conservation/Policy/Engagement**

This category is the most variable depending on the site and associated activities. Some sites are purely research-focused and may choose not to display this category. Others have extensive partnerships which channel LTER science into resource management decisions.

Where policy-relevant research is happening within the LTER, communicators should stick to describing the research and results and avoid espousing specific policy positions. Where partner organizations engage in policy-related activities, it may be useful to link to content displayed on the website of the partner organization. See, for example, [Science Policy Exchange](#) or [Hubbard Brook Foundation](#).

- Additional categories, depending on the needs and abilities of the site:
 - Image Gallery
 - Data management tools
 - Communications resources
 - Courses
 - Field and/or lab manuals or protocols required by site personnel
 - Software, analysis, and modeling tools
 - Opportunities for employment or volunteers, etc
 - Calendar

General Web Design Suggestions

Many books are written each year on how to build effective websites. Here, we note a few key considerations for the researcher who may be thrust into the role of communicator.

Tools

Content management systems (such as Wordpress, Drupal, Joomla, etc.) allow people with modest technical skills to participate in maintaining and contributing content. With tagging and content association, they also allow the same content to be displayed in various locations, helping to maintain accurate and up-to-date information and improving search results.

Navigation

Implement a functional and efficient system of menus to facilitate navigation within the site. Where possible, limit the number of main menu categories to five or less, with information that is locally important (but perhaps less important to external audiences) placed in footer links or supplemental menus.

- Menus should use short, straightforward titles that reflect the content that will be displayed.
- Drop-down or mega-menus are particularly helpful in allowing visitors to know what they should expect to find under a given menu.
- Repeat the main navigation menu on most public pages of the website.

Search

The more information a site provides, the harder it can be for a visitor to find the specific information they seek.

- Provide full-site search capabilities within your site.
- Most new visitors will find your site through a search engine. Make it easy for them by following best practices for search engine optimization:
 - Use page titles that include key search terms.
 - Where appropriate, link to other reputable information sources and encourage other sites to link to yours.
 - Use keywords and page summaries for key information.

Language

Writing for the web is different than writing for the page. Employ shorter sentences and shorter paragraphs. Make liberal use of formatting and images to lead site visitors through the site.

Social Media

Whether or not your LTER site has a social media presence, include share buttons to allow visitors to easily share content from your website. If your LTER site uses social media, include prominent links to your accounts. If you have a twitter presence, consider including a live feed or a feed based on a site hashtag.

Responsive Design

In 2016, over half of all web traffic originated from mobile devices. Most modern content management systems use design principles that ensure your site looks good on phones, tablets and desktop with no extra effort on your part. If you are building directly in HTML or PHP, be sure to test on a variety of screen sizes.

Analytics

Even occasional assessment of web traffic data (collected through google analytics or other analytics services) can tell you a great deal about who is visiting your website—where they come from, and how they engage with content. This data is a valuable source of insights to improve how you present information.

Accessibility

Make sure your website is accessible to visitors who use screen readers by using alternative descriptions for images. [Many resources](#) are available for developing websites that are fully accessible to people with disabilities.

References

- **2009 Website Design and Content Guidelines:**
https://lternet.edu/wp-content/uploads/2012/01/LTER_Web_Site_Design_and_Content_Guidelines_V1.1.pdf
- **LTER Network home page:** <https://lternet.edu>
- **LTER Site Profiles:** <https://lternet.edu/site/>
- **LTER Network Graphics:**
<https://lternet.edu/?taxonomy=document-types&term=lter-network-branding>
- **Guidelines for LTER Information Management Systems:**
https://lternet.edu/wp-content/uploads/2018/01/LTER_IMS_Guidelines_V2_1_20180103.pdf
- **LTER Network Data Access Policy:** <https://lternet.edu/policies/data-access>
- **Environmental Data Initiative:** <https://environmentaldatainitiative.org/>
- **Schoolyard Book Series:** <https://lternet.edu/schoolyard-book-series/>
- **Ecological Reflections:** <http://www.ecologicalreflections.com/>
- **Accessibility Resources:**
<https://www.section508.gov/content/build/website-accessibility-improvement>

- **Sample of experiment descriptions:**

<https://lter.kbs.msu.edu/research/long-term-experiments/>**Science Policy Exchange:**

<https://science-policy-exchange.org/>

- **Hubbard Brook Foundation:**

<https://hubbardbrook.org/hubbard-brook-research-foundation>