Final Report
Audience Segmentation Report & Data Summary

Encyclopedia of Life

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Prepared by:

Kate Haley Goldman
Claudia Figueiredo
Angie Ong

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Executive Summary

ILI has been working with the EOL team for the last nine months, researching the EOL audiences in order to provide the team with in-depth information on the EOL users and their needs. We have completed two phases of data collection and present this report as a compliment to the EOL Interim Report I. The earlier report contained detailed data about areas for continued growth and improvement. As the EOL team has developed a strategy for improving the site, our focus has shifted.

As the initial data collection in Phase One happened during the launch and subsequent high amount of media coverage, we were concerned that this data might not be as representative of the typical EOL user in the first year as we would have wished. Therefore, after communication with the EOL team, we completed a second phase of collecting user data to gain insight into what might be perhaps the more typical user. The second phase of data collection was completed over the summer of 2008, after the initial media attention had subsided. (Although EOL still had a presence in the media, it was not to the same extent.) By reviewing data from these two sets, the EOL team can gain a sense of their audience and their needs and, in light of that information, strategize how to best achieve the goals laid out for the EOL project.

Due to the complex sampling issues involved with evaluating an online resource such as EOL, we can not simply combine the samples, even using weighting statistical techniques. Instead, we need to review each sample separately, as a snapshot of EOL audiences within a particular context. The first snapshot, data collected during initial launch, is strongly populated by a casual and curious science-interested visitor. We feel that this particular view of EOL might be useful in thinking about how EOL will be used two to three years from now. As EOL becomes more relied upon for authoritative information about organisms, we predict the amount of "casual" visitors, visitors who are science-interested but not amateur or professional scientists, will increase. This snapshot then provides insights into the user of the future.

The second snapshot more accurately characterizes the current user. These users were slightly older (72% were 30 or older, as opposed to the first phase where 57% were 30 years or older.) and more likely to be from the United States. In the second phase, nearly 70% of the users were from the U.S., as opposed to nearly 48% in the first phase. These visitors were more strongly connected to science fields, either as professional scientists and community members, or as hobbyist. The media was still the prime place individuals find out about EOL; search engine referrals are growing. Users were definitely returning to the site. While they were strongly interested in having more material on EOL, these individuals were generally not frustrated and were already repeat visitors. They were highly likely to return and recommend EOL to their colleagues and friends. Within the second phase of data collection, scientists and hobbyists were the largest numbers of users. Of all the users, teachers were the population to strongly state they will need more functionality (and content) before they are able to fully use the site. Individuals, both hobbyists and professionals were interested in contributing

photographs, but non-scientists were wary of contributing other content, as they felt an expertise level higher than their own would be a more appropriate contributor.

During both periods of data collection, users indicated that they would recommend EOL to their colleagues and friends and were highly likely to return and. EOL users were excited and supportive of the site, and stated their admiration.   Their comments often expressed excitement and encouragement. Nonetheless, users provided a long list of improvements needed for site. Many of those improvements were detailed in the Interim Report ILI provided the team. We are aware that the EOL team has implemented solution strategies for most of these recommendations, but we include those recommendations here again as a reference point. The top 6 recommendations were as follows:

Top Six Recommendations from the Interim Report
1. Simplify the home page. Make it more visionary and more visually compelling.
2. Add more content, including images, videos and audio.
3. Improve the searching mechanism and clarify search results.
4. Rethink the classification tree.
5. Develop a plan on how to package or modify content for both K-16 and general audiences.
6. Address the issue of identification keys.

 A condensed table of those and more current suggestions can be found on pages 32-33 (Table 13). These same basic recommendations remain today, although EOL has made significant strides in the area of content, as thousand of species pages, including those of charismatic mega-fauna, have been added. The home page and the additional content, especially images and video, are critical pieces to the more casual users.

As the EOL team is well aware, there is great diversity the audience motivations for visiting EOL, and consequently, the different audiences need different navigational structures. For all audiences, refining the search capabilities to better sort and present results and to correct for misspellings remains an important issue to address in the coming months.

As casual browsers and members of the general public increasingly make use of the site, creative ways of enabling browsing and exploration will become more necessary. Visitors in this category want to be taken someplace amazing, and while the scientific level of the text may prove too complex for them at times, the pictures and video will be the primary focus of their attention.   For websites with such a wide range of audiences, it is a struggle to maintain a clean, understandable design while allowing multiple points of entry for the visitors. This balance of the quick search and the satisfying browse is difficult to achieve. The EOL team will need to continue to explore and test with its users ways to facilitate a meaningful browsing experience.

Related to the browsing experience is the use of visualizations on the EOL site. Throughout both phases of testing, individuals were intrigued but ultimately frustrated by the classification tree, both as visualization and as a navigational tool. Multiple visitors

mentioned that once the classification visualization was improved, it should serve as a central browsing tool. This idea encompasses two interests of the visitors. First, they seek ways to understand the connections between organisms within the EOL site. Secondly, it is through the visual display of those connections that they wish to navigate. While both of these ideas were a part of the original classification visual concept, these ideas remain important to EOL users as the site evolves. As Hans Rosling discusses in his 2006 TED talk, both access to data already generated and the ability to organize and visualize this data are lacking in our information age. As EOL evolves, both the organization and the visualization of that content will continue to of central concern to the users.

During the development of strategies and solutions to these issues, we would recommend that the EOL remain connected to the range of users. As the EOL team is in a significant development phase within the next six months, we recommend working with users once a concepts and prototypes for the next release are much further developed. Once the EOL team has the fundamentals of the next release developed, we strongly recommend working with an established usability lab to test for usability issues, as well as to sample users to gain understanding of user perspective and context on the new developments. In the meantime, we recommend the development of user personas to help the EOL team with a user perspective during the next stages. Personas used as part of a user-centered design process for online or software application. They are profiles of a particular user type that help the design team understand the needs and motivations of that user. In the case of EOL, the team should develop personas of each of the main audience types. We believe the user of personas during the development process and the combination of usability studies with user feedback will ultimately make for a stronger and more effective EOL site.

I. Report Background & Overview

The Encyclopedia of Life (EOL) project is immense in both scope and importance. The Institute for Learning Innovation (ILI), a leader in the field of informal science learning for more than 20 years, has been contracted by the EOL team to provide an audience segmentation and analysis plan, as well as usability and comprehension testing. Before and after EOL's initial launch at the TED conference in February 2008, ILI gathered data on user reaction, interests, and use of the EOL site. This report represents a summary of all the data we have gathered since January 2008.

II. Methodology

We have employed a multi-method and multi-phase approach towards gathering data for the EOL project. A multi-method approach is especially critical as a user perspective is difficult to obtain for an online resource with no physical connection to the users. As web-based surveys can have sampling issues which may bias the results, we felt it was necessary to use multiple approaches to provide a balanced user view. During Phase

One, data were gathered using 1) *interviews* of families and general museum-goers, teachers and other educators and scientists, 2) a *focus group* of citizen scientists, 3) a *web-based survey* of the people visiting the EOL site. These data are presented in full at the EOL Interim Report I (April 2008) and will occasionally be mentioned in this report. During Phase Two, data were gathered using 1) *interviews* with aquarium visitors and docents, 2) *remote interviews* with general users of the website, and 3) a *web-based survey* of general visitors of the EOL site. Table 1 summarizes the methods used in both phases.

Due to the complex sampling issues involved with evaluating an online resource such as EOL, we can not simply combine the samples, even using weighting statistical techniques. Instead, we need to review each sample separately, as a snapshot of EOL audiences within a particular context. The first snapshot, data collected during initial launch, is strongly populated by a casual and curious science-interested visitor. This snapshot represents EOL users during a period of strong media coverage. In addition, we feel that this particular view of EOL might be useful in thinking about how EOL will be used two to three years from now. As EOL becomes more relied upon for authoritative information about organisms, we predict the amount of "casual" visitors, visitors who are science-interested but not amateur or professional scientists, will increase. This snapshot then provides insights into the user of the future.

Interviews

During Phase One, saturation of responses was reached, meaning that individuals were reiterating common themes, and were not presenting new reactions or concerns about the site. In order to verify if different patterns might exist in the Second Phase, ILI researchers interviewed both visitors and staff members of aquariums. Since fish are the organisms that mostly populate the website currently, people who visit and volunteer in aquariums might have different reactions and impressions of the site. In this Phase, ILI researchers conducted interviews with 5 families and individuals visiting the National Aquarium in Baltimore on June 15th and 13 staff members of the New England Aquarium on June 24th, during six group interviews.

As in Phase One, a think-aloud protocol methodology was employed in both sets of interviews. Think-aloud protocols are a qualitative methodology used in usability and other technology-based evaluations. In our study, users were asked to explore a site or a prototype of a site, complete a task, or search for a particular type of information. While they are doing so, users were asked to openly share their thoughts and reactions with a researcher. The researcher records the 'stream-of-consciousness' discussion without interfering and without providing guidance or interpretation. We did not give extensive explanations of the EOL site, its goals, origins and timelines, but instead let these individuals encounter the site much as they would if they were visiting on their own. This method is especially helpful in answering questions of design, function and navigation, and can result in guidelines on how to make the site more effective. Following the think-aloud exercise we performed a semi-structured interview focusing on capturing the user's expectations of EOL and their suggestions.

Table 1: **Summary of Research Methods in Phases One and Two**

Method	Respondent Type	Number of Respondents	Period	Information Sought
Phase One				
Interviews	Families/general museum-goers, teachers/ educators, and scientists	40	February 17th to 26th, 2008	Reactions and concerns about the EOL site
Focus groups	Citizen scientists	1 (11 participants)	February 26th, 2008	Reactions and concerns about the EOL site
Web-based survey	General visitor of the EOL site	2,415	February 25th to March 24th, 2008	Reactions and concerns about the EOL site
Phase Two				
Interviews	Aquarium visitors and docents	18	June 15th and 24th	Reactions and concerns about the EOL site
Remote interviews	General visitor of the EOL site	50	July 10th to 21st	Motivation to use the site, current and future uses
Web-based survey	General visitor of the EOL site	61	July 21st to 28th	Motivation to use the site, current and future uses

Remote Interviews

In order to collect in-depth data from visitors of the site, ILI researchers conducted 50 remote interviews from July 10th to 21st. While remote interviews may suffer from some of the same sampling issues that web-based surveys do, they allow us to collect very detailed information on the users. While this type of information can be collected in person, prompting a visitor to go to the EOL site creates a very different sample than interviewing the visitors who are already using the site. We were pleased that this method was able to add additional richness to the data collection we felt we were unable to collect in another way.

Unlike in the other methods used before and that focused on assessing the EOL site functionalities, the remote interviews and the Phase Two web-survey (described next) focused primarily on visitors' motivation to use the site, how they have used the site, and how they plan to use it. Visitors were recruited using a remote monitoring javascript code. This code invited to complete a phone interview, every 5th visitor of the EOL site, during their 3rd page view and after a 5 second delay. A US $20.00 coupon for Amazon.com was offered as incentive, to be paid after the completion of the interview.

Web-based Survey

As mentioned before, Phase Two web-based survey focused on EOL site users' motivation to use the site, as well as current and future uses. ILI researchers developed this survey to closely match the information gathered by the remote interviews. Data were collected from 61 visitors, from July 21st to 28th, 2008. As with the Phase One web-based survey, respondents were recruited in three ways. First, the survey automatically appeared to every fifth EOL user on their third page view. This provided a random sample as well as ensured users had a chance to view different parts of the EOL site, before being solicited for their feedback. Secondly, there were two links to the survey from the home page, one at the top menu and another within the "Help Us" section on the lower left-hand side of the page.   Since the menu list persisted throughout the site (along with the rest of the menu links) individuals could, if they chose, access the survey at any point. Third, a hot link to the survey was included an EOL newsletter distributed to a wide group of interested individuals.

III. Sample Description

General Demographics

Most of the findings presented in this report are based on data from the web-survey (n=61) combined with data from the remote interviews (n=50). Since no demographic differences were found between them, they are reported together throughout the report. Data collected through the think-aloud interviews were mostly about site functionality (not the focus of this report) and will be presented in Section VII.

In the same way as in Phase One, respondents were overwhelming male. Of the 108 individuals who responded to the question about gender, 73 or 67% were male (Figure 1). While the methodology (i.e., use of web-based survey or interview) could be biased, it appears that currently EOL visitors are more likely to be male.

Figure 1:   **Respondents by Gender**
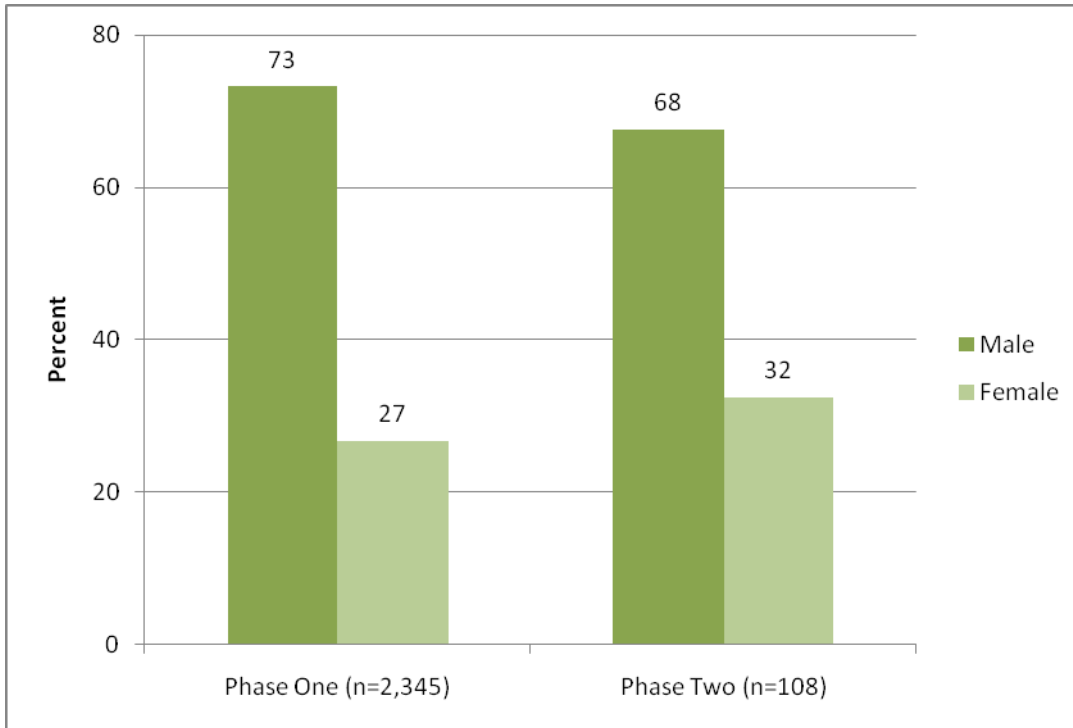
Forty percent of respondents were between ages 30-49, followed by 25% between ages 50-65. About 23% were between ages 19-29 and 5% were younger than 18. Compared with Phase One, respondents in Phase Two were generally older. Seventy-two percent of respondents in Phase Two were 30 years or older, compared to 56% in Phase One. While again, the methodology may bias the results, it appears that the current EOL audience is not primarily young adults.[1]

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[1] While we did collect data on younger individuals through the web survey, we specifically did not perform telephone interviews of those individuals under 18, due the permissions required.

Figure 2: **Respondents by Age**
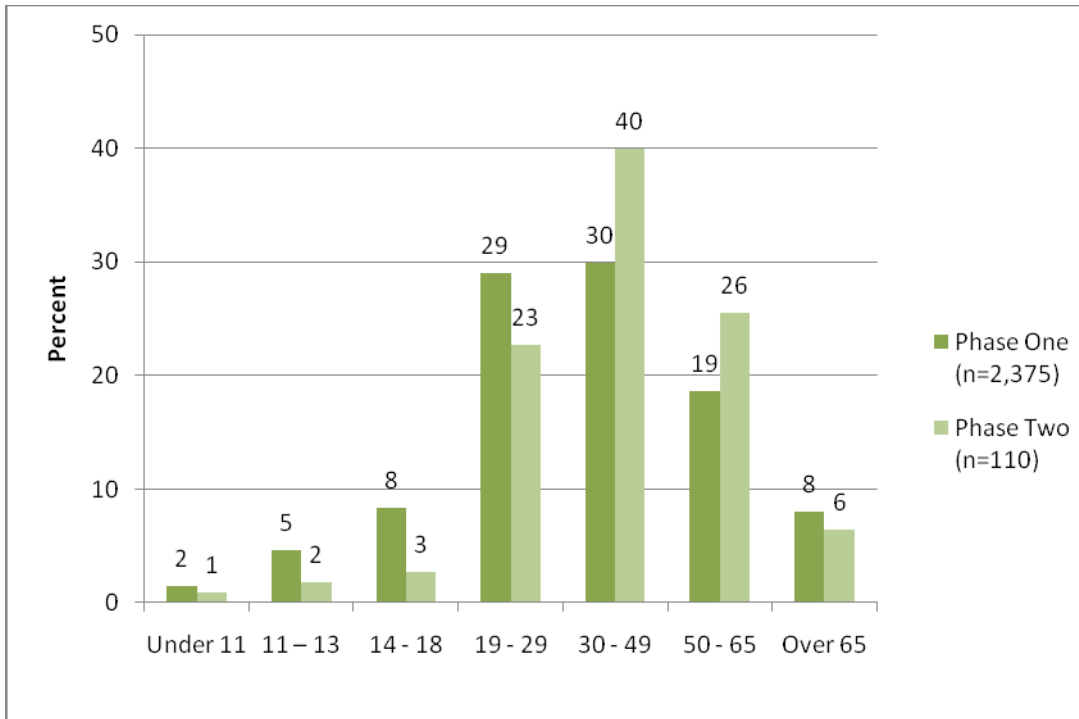
Similar to Phase One, the United States, Canada, India, and the United Kingdom were the top four countries where respondents live. However, a greater percentage of Phase Two respondents reside in the United States (70%), than compared with Phase One (48%).

Figure 3:   **Respondents by Residence**
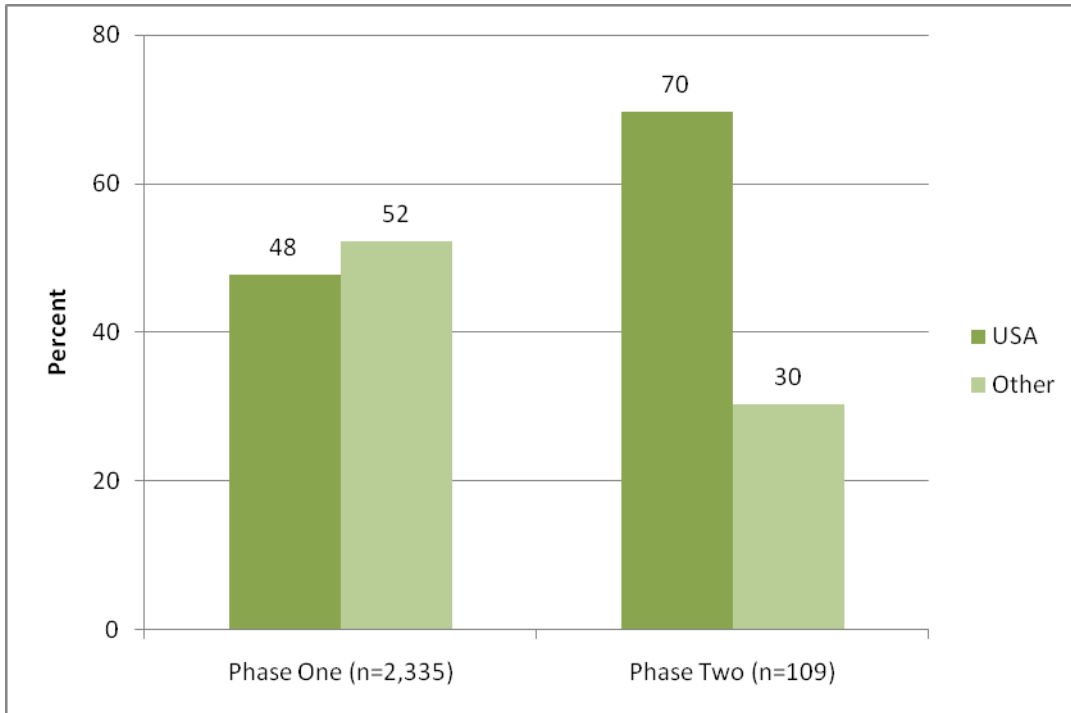
In summary, while our data from phase two shows similiarities to the data collected in Phase One (respondents were morely likely to be male, from the US and over 30), visitors in Phase Two were even more likely to be over 30 and from the US.

Table 2:   **Summary of Demographics during Phase One (Web-based Survey) and Phase Two (Remote Interviews and Web-based Survey)**

Method	Phase One	Phase Two
Sex	(n=2,345)	(n=108)
Male	73.2%	67.6%
Female	26.8%	32.4%
Age	(n=2,375)	(n=110)
Under 11	1.5%	0.9%
11 – 13	4.6%	1.8%
14 - 18	8.4%	2.7%
19 - 29	29.0%	22.7%
30 - 49	29.9%	40.0%
50 - 65	18.6%	25.5%
Over 65	8.0%	6.4%
Residence	(n=2,335)	(n=109)
USA	47.7%	69.7%
Other	52.3%	30.3%

Table 3: **Top Countries of Residence during Phases One and Two**

What country do you live in?	Number of Respondents	Percentage of Respondents
Phase One	(n=2,335)	
United States of America	1113	47.7%
Canada	210	9.0%
United Kingdom of Great Britain and Northern Ireland	203	8.7%
India	63	2.7%
Australia	61	2.6%
France	53	2.3%
Spain	45	1.9%
Portugal	39	1.7%
Germany	36	1.5%
Brazil	30	1.3%
Mexico	28	1.2%
Greece	24	1.0%
The Netherlands	23	1.0%
Phase Two	(n=109)	
United States of America	76	69.7%
Canada	13	11.9%
India	4	3.7%
United Kingdom of Great Britain and Northern Ireland	3	2.8%
Netherlands	2	1.8%
Australia	1	0.9%
Chile	1	0.9%
Costa Rica	1	0.9%
Finland	1	0.9%
France	1	0.9%
Germany	1	0.9%
Ireland	1	0.9%
Israel	1	0.9%
Italy	1	0.9%
Japan	1	0.9%
Trinidad and Tobago	1	0.9%

IV. Audience Segments

Following the model developed during Phase One, audience segments were created based on visitors' self-identification with a series of roles. Respondents had the option of selecting more than one role. As mentioned in Phase One, while not as direct, this form of questioning is more useful than forcing people to identify themselves with only *one* particular role and is more representative of the multifaceted nature of self-identity. For example, an individual may be a trained scientist, but visiting the site during our survey period in a more general way such as searching for an organism they heard discussed on a television or radio program.

Following a similar procedure as in Phase One, respondents were grouped into audience segments. Based on information obtained in both Phases, two changes were made to the segmentation: 1) the extension of K-12 Community to K-16, and 2) the addition of "science professionals." The audience segments were then based on the following combinations:

- *Informal Learners*
  - People who indicate they have a "general interest" in science and marked no other category
- *K-16 Community*
  - People who indicated they are "K-16 teachers"
  - People who indicated they are "students" and noted they were under the age of 18
- *Hobbyists*
  - People who indicated they were "nature or science hobbyist"
  - People who indicated they were involved in "citizen science projects"
- *Scientific Community*
  - People who indicated they were a "scientific researcher" or in a "science faculty"
  - People who indicated they are "students" and were above 19 years-old
  - Less people who indicate they are "K-16 teachers".
- *Science Professionals (non-academic)*
  - People who indicated they were a "informal educator" and/or a "professional environmentalist / conservationist"

As can be seen in Table 4 below, there has been a shift in the audience segments from Phase One and Phase Two. Whereas in Phase One most of the visitors were informal learners (35%) or hobbyists (35%), in Phase Two most visitors of the site were members of the science community (30%), hobbyists (26%), or science professionals (19%). This shift toward a more specialized audience was expected due to the intense mass media that occurred around Phase One, when the site was first launched. Without this focus towards

the general public, it was expected that a more specialized audience would be visiting the site.

This segmentation provided the framework for further analysis. Appendix 1 presents information such as audience response and needs by segment. The slide format provides a quick way to scan across segments and compare criteria.

Table 4:   **Audience Segments by Sample Proportion**

Audience Segments	Phase One	Phase Two
General interest in nature, the environment or science (including watching TV shows, reading related news, etc.)	35%	8%
Nature or science hobbyist (bird-watcher, scuba-diver, aquarist, etc.) or Project or program participant (community programs, volunteering, docent, citizen science projects, etc.)	35%	26%
K-16 Community (teachers and students)	17%	13%
Science faculty and/or scientific researcher (excluding K-16 teachers)	13%	30%
Science professionals (informal science educators and professional environmentalist / conservationist)	--	19%

V.   Audience Segments and Their Current Interaction with the Site

During Phase Two, researchers focused on obtaining information about the EOL users, instead of their reactions to the site, which was the focus during Phase Two. In this section, we describe the how respondents found out about the site and the major reasons why they visited it.

Prior Visits to the EOL Site

Most visitors (68%) had been to the EOL site before the day they answered the remote interview or web-based survey (Table 5). Most of the visitors who had been to the site before were members of the scientific community (33%) or hobbyists (28%). We believe this is due to the media stories and announcements of EOL were strongly disseminated in science-related outlets.

Table 5:   **Distribution of Audience Segments by Prior Site Visit (Phase Two – Web-based Survey and Remote Interviews)**

Audience Segments	Visited Before (n=72)	Did not Visit Before (n=34)
Informal Learners	9.7%	5.9%
K-16 Community	9.7%	20.6%
Hobbyists	27.8%	26.5%
Scientific Community	33.3%	26.5%

Science Professionals	19.4%	20.6%
Total	**67.9%**	**32.1%**

Why Did Visitors Come to the EOL Site Today?

In order to move forward in the development of the EOL site, the EOL team requires insight into the motivations of the site users. These motivations are at times related and at times separate from the identity of the user. For instance, scientists may be on the site to satisfy the gardening questions while a scuba diver may be there with serious research interests.

Most visitors came to the EOL site out of curiosity to learn about species (36%).

> *"I wanted to find out if it had Hagfish and to look at the taxonomic system. I'm interested in looking at Taxonomy and the systems, how animals are related. I'm looking forward to having more species fleshed out."*

> *"I'm involved in a state program, volunteers, that promotes environmental stewardship, education, and outreach; assists with training. So, it was checking out the site to see what's there and how it could inform my training program. As part of the program, they tell us about websites that contain information and I trust that information. If EO Wilson endorses it, I trust the info."*

Some respondents indicated that they had heard about the site and wanted to check out what it was (15%). And others, who had been to the site before, wanted to check out if updates had been made (9%); most of them show disappointment, although are excited about the project.

> *'[I'm a] big fan of EO Wilson, and I was reading an article on the New York Times, that had a link to EOL website."*

> *"I was interested to see how far along it was. I was disappointed because there is a lot of stuff not there."*

Some respondents indicated being curious about a specific species they came across and were looking for information about that species (12%).

> *"I knew I was going to look up the Madagascar Palm, but there wasn't any information on it. I had seen one at Target last night and I use to have one that was 10 feet tall."*

> *"I was looking for a few animals. I saw a copperhead [snake] on my front porch the other day so I looked that up and I will look up a few more later."*

Open-ended responses to the question "why are you visited today" were coded into response categories. The results are represented into Table 6 below.

Table 6: **Reasons Why Visitors Came to the EOL Site by Audience Segments (Phase Two – Web-based Survey and Remote Interviews)**

	Informal Learners	K-16 Comm	Hobby.	Science Comm	Science Profess	Total	
	n=9	n=14	n=29	n=32	n=21	n=110	%
To look up species out of curiosity; to learn more about species; as a reference source	44%	50%	31%	34%	29%	**40**	**36%**
Relatively new to site, just to check out what it is about	22%	7%	10%	16%	24%	**17**	**15%**
To identify or find out more about a species one comes across	0%	14%	13%	16%	10%	**13**	**12%**
To revisit the site and check if it has been updated	0%	7%	17%	6%	10%	**10**	**9%**
As a source of information to prepare classes and materials; as a resource to teach about species	0%	21%	3%	0%	15%	**7**	**7%**
To look at pictures and images; to use images in presentations	11%	0%	7%	3%	5%	**5**	**5%**
As a source of information for non-academic, science-related work	0%	0%	0%	3%	24%	**6**	**5%**
No specific purpose, just to browse	0%	0%	7%	6%	10%	**6**	**5%**
For academic research	0%	7%	0%	9%	0%	**4**	**4%**
It's my homepage	0%	0%	3%	3%	5%	**3**	**3%**
As a parent or grandparent to show animals and plants to my children, help with school projects	0%	0%	3%	3%	0%	**2**	**2%**
Other	33%	0%	7%	13%	5%	**11**	**10%**

How Did Visitors Hear About EOL?

When visitors were asked where they had heard about the Encyclopedia of Life, about half (57%) stated they were informed via the media. Another 16% responded they had followed a link from another website. Nearly 8% came from a recommendation of a friend, family member or colleague. These responses were very similar to Phase One responses. A larger percentage of respondents found the link on a search engine, such as Google (11%). Interestingly, nearly one-third (27%) of the visitors mentioned E.O. Wilson as part of their reason for visiting the site, from either reading or seeing something about him and a mention of EOL. (While the data collection at that time overlapped with the publication of an article on E.O. Wilson in the New York Times, not all of the references to Wilson related to that particular article.) Some respondents were clearly very familiar with Wilson's work, such as this visitor who was asked why she came to the site:

> *"I've always had lots of respect for EO Wilson and his work with the ants."*

Others remembered being impressed with Wilson, even if they did not recall him as clearly

> *"I saw something on a Sunday morning show on ABC about the man who started it. I can't remember his name.* [When was this?] *About a month ago.* [and after you saw the show, you visited the site?] *I found the link and I sent it to a bunch of people. We were all eager to see it succeed."*

Table 7 depicts a comparison by Phase of how individuals heard about EOL. During both phases, the media was the primary method of hearing about the site.

Table 7: **How Did You Hear About the Encyclopedia of Life (EOL)?**

Response	Phase One (n=2,415)	Phase Two (n=110)
I read/heard about EOL in the media (newspaper, radio, etc.)	61.5%	56.8%
I followed a link from another web site.	17.8%	16.2%
I was referred by a colleague, friend or family member.	10.0%	8.1%
I found the link on a search engine (Google, Yahoo!, etc.)	4.1%	10.8%
I read about the web site in an EOL newsletter.	1.9%	0.9%
I heard about it from my teacher.	1.5%	0%
I attended/am associated with the Technology Entertainment Design (TED) group.	1.5%	2.7%
Other	1.8%	5.4%

Within Phase Two, we asked visitors how they heard about the site in an open-ended fashion and then coded their responses into the categories represented in Table 8. As is demonstrated below the referral rate for friends, family and colleagues is still relatively low, except among teachers. As mentioned before, hearing or reading about E.O. Wilson in connection with the site was initial introduction for nearly 27% of the Phase Two sample.

Table 8: **How Visitors Heard About the EOL Site by Audience Segments (Phase Two – Web-based Survey and Remote Interviews)**

	Informal Learners	K-16 Comm.	Hobby	Science Comm	Science Profess	Total	
	n=9	n=14	n=29	n=33	n=21	n=110	%
I read, heard about EOL in the media - newspaper, radio, etc	89%	50%	59%	64%	38%	**63**	**57%**
I heard about it through E.O. Wilson	11%	36%	34%	18%	33%	**30**	**27%**
I followed a link from another web site	0%	14%	24%	18%	14%	**18**	**16%**
I found the link on a search engine - Google, Yahoo, etc	11%	7%	7%	12%	19%	**12**	**11%**
I was referred by a colleague, friend or family member	0%	29%	0%	12%	0%	**9**	**8%**
At a professional meeting/ conference or scientific journal/ magazine	0%	0%	10%	3%	10%	**6**	**5%**
List-serve	0%	0%	0%	3%	10%	**4**	**4%**
I attended, am associated with the Technology Entertainment Design -TED - group	0%	0%	0%	3%	5%	**3**	**3%**
I read about the web site in an EOL newsletter	0%	0%	0%	0%	5%	**1**	**1%**
Don't know or don't remember	0%	0%	3%	3%	0%	**2**	**2%**
Other - please specify	0%	7%	7%	3%	10%	**6**	**5%**

VI. Audience Segments and Their Intentions to Interact with the Site

In order to assist the EOL team in prioritize content and functionality needs for further updates o the site, we probed in-depth users current and potential future uses of the site. In this section, we describe participants responded. From their open-ended responses, we coded the data into categorizes, represented in Table 9.

How Do Visitors Intend to Use the Site in the Future?

Visitors will use the site in the future in a similar way they have just used. Most visitors will use the site to look up species out of curiosity (as a reference source) (61%) or to identify a species they come across (15%).

> *"For my own self-interest in various areas of nature. There's a lot of depth there and quality.* [Do you consider yourself interested in nature for professional reasons or as a hobbyist?] *Yes, as a hobbyist and I look at nature through my main hobby of photography. Mainly flowers, birds, looking for the diversity where I can find it in a populated area."*

It's not something I'd do... I'm a retired social worker, will never be involved like a career. It's just for pure enjoyment; just like seeing animals in nature and reading about them."

"I'm a birder so my interest in taxonomy & informative would have me on the site...Most of my birding is done in Equator, so when looking, I need taxonomy. When birding in other countries, you need to go into taxonomy and less into field guides, as the field guides when you line them up country to country don't match up. The species names are different and it's too confusing and not useful. Taxonomic information, broader information is more useful—having the umbrella information is nice."

"Just basically research, how animals move, interact with each other, in order to help design a robot."

"What attracted me to return [today] is that's it's a great website. Seems to be authoritative. I'll use it to look up bugs or other things."

Some of them will also use it to search for information to inform educational practices (formal and informal) (15%).

"As a resource for teaching and gathering materials [He teaches biology/zoology at a university]"

"I'd like to show my student interesting and good website for biology. Also once it's more flashed out, to learn about critters I study (insects, beetle systematic), right now is being developed in the site, as it becomes available will use more of that."

A small number indicated they would serve as a curator or upload photos or content to the site (4%)

"I would volunteer to curate a page."

"Potentially providing data to complete species pages."

While others have more specialized interests, such as this man who intends to use the site as a showcase:

"Personally, as a source of inspiration since I work with projects related to this-how to present information to people. I'm involved in other digitization projects."

Table 9: **Ways Visitors Intend to Use the EOL Site in the Future by Audience Segments (Phase Two – Web-based Survey and Remote Interviews)**

	Informal Learners n=8	K-16 Comm. n=13	Hobby. n=28	Scient. comm. n=30	Science Profess n=21	Total n=104	%
To look up species out of curiosity; to learn more about species; as a reference source	88%	46%	61%	67%	48%	**63**	**61%**
As a source of information to prepare classes and materials; as a resource to teach about species	0%	30%	4%	17%	20%	**15**	**15%**
To identify or find out more about a species one comes across	13%	23%	18%	3%	24%	**15**	**15%**
As a source of information for non-academic, science-related work	0%	0%	4%	7%	24%	**8**	**8%**
To look at pictures and images; to use images in presentations	13%	8%	0%	7%	10%	**6**	**6%**
For academic research	0%	8%	0%	13%	0%	**5**	**5%**
As a parent or grandparent to show animals and plants to my children, help with school projects	13%	0%	4%	7%	0%	**4**	**4%**
To contribute photos or content to the EOL site; To serve as a curator or organizational partner	0%	0%	4%	6%	5%	**4**	**4%**
To revisit the site and check if it has been updated	0%	8%	0%	3%	0%	**2**	**2%**
No specific purpose, just to browse	0%	0%	7%	0%	0%	**2**	**2%**
Not sure	0%	8%	4%	0%	0%	**2**	**2%**
Other	13%	8%	7%	3%	5%	**7**	**7%**

How Likely Are Visitors to Return and Recommend the Site?

Visitors to the site were quite enthusiastic about returning to the site and recommending it to others. (Table 10) This pattern was also present during Phase One.

Table 10: **Summary of Ratings of the EOL Site, During Phase One Web-Based Survey and Phase Two Remote Interview**

Response		Ratings				
		1	2	3	4	5
How likely are you to return to the EOL site?		Definitely Will Not Return				Definitely Will Return
	Phase One	0.9%	1.8%	5.3%	12.6%	79.4%
	Phase Two	0%	0%	5.4%	13.5%	81.1%
How likely are you to recommend EOL to a colleague, friend or family member?		Would Not Recommend				Will Definitely Recommend
	Phase One	1.0%	2.6%	8.3%	18.2%	69.8%
	Phase Two	0%	2.8%	12.8%	11.9%	72.5%

How Likely Are Visitors to Use the Site?

One issue we wished to investigate is whether site visitors felt that they would make immediate use of the site, or whether they would need to wait until the site was populated with more content or functionality. Seventy percent of Phase Two respondents felt they could use the site now (Figure 4) while 20% felt they would wait for more content and 1% felt they would wait for more functionality. These results are very similar to Phase One, where we concluded that it may have been easier for users to envision more species being added than the potential new functions or features that could be added; yet still, users who would wait to use the site were clearly waiting for more content.

Figure 4:   **Will You Make Use of EOL in Its Present Form?**
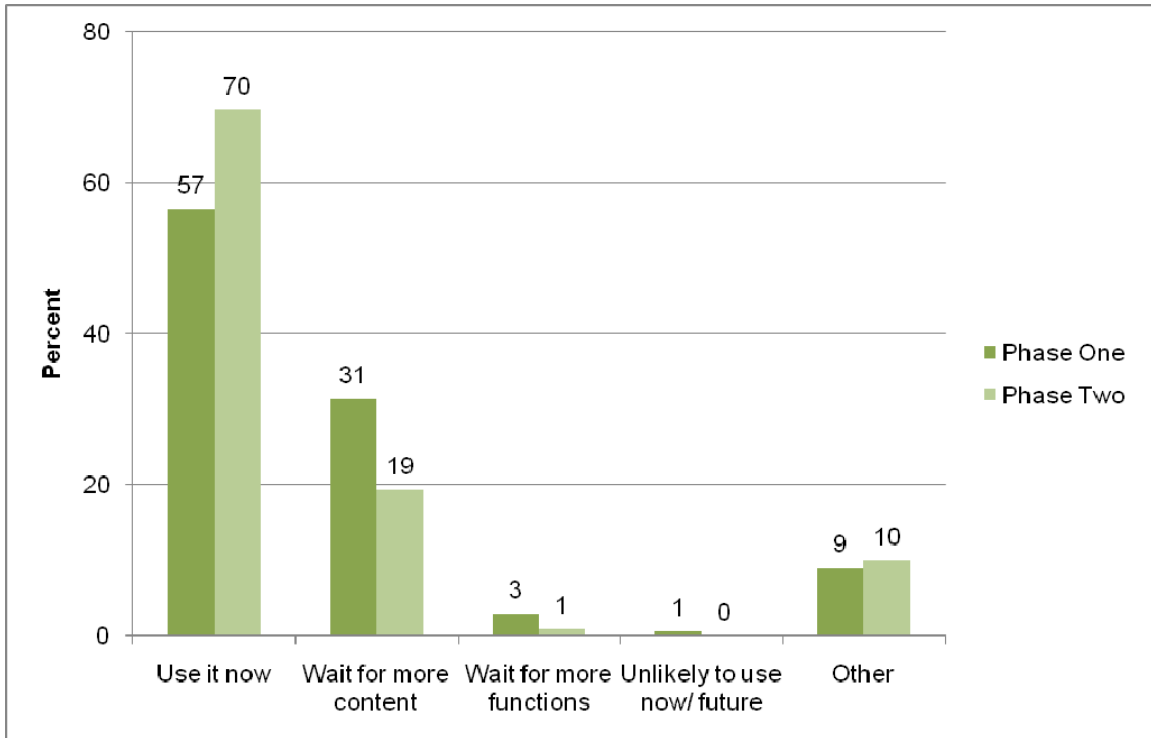
We broke down the responses to this question by audience segment type. (Table 11)   All segments were likely to use the site in its current state. Members of the K-16 Community were the least likely among them (57%) and would wait until the site had more content (36%) or functions (19%). This finding is different from Phase One, in that, during that phase, informal learners and hobbyists were the most likely to use the site in its current state and members of the scientific community were most likely to wait on using the site until it had more content (40.2%).

Table 11:   **Key Ratings by Audience Segment**

Audience Segments		Use it now	Wait for more content	Wait for more functions
Informal Learners	Phase One	58.5%	29.3%	2.4%
	Phase Two	77.8%	22.2%	0%
K – 12 Community	Phase One	51.5%	31.6%	3.5%
	Phase Two	57.1%	35.7%	18.9%
Hobbyists	Phase One	55.9%	33.4%	1.8%
	Phase Two	72.4%	10.3%	0%
Scientific Community	Phase One	49.0%	40.2%	2.9%
	Phase Two	69.9%	18.2%	3%
Science Professionals	Phase Two	71.4%	19.0%	0%
Total	Phase One	**56.5%**	**31.4%**	**2.9%**
	Phase Two	**69.7%**	**19.3%**	**0.9%**

How Interested Are Visitors in Contributing to the EOL Site?

Visitors were asked whether they had uploaded nature or science content or images to a website. Of the 109 respondents, 64% had never done so. Across audience segments, science professionals and members of the scientific community were the ones most experienced in uploading science content/photos (Figure 5).

Figure 5: **Respondents Who Have Uploaded Content or Photos**
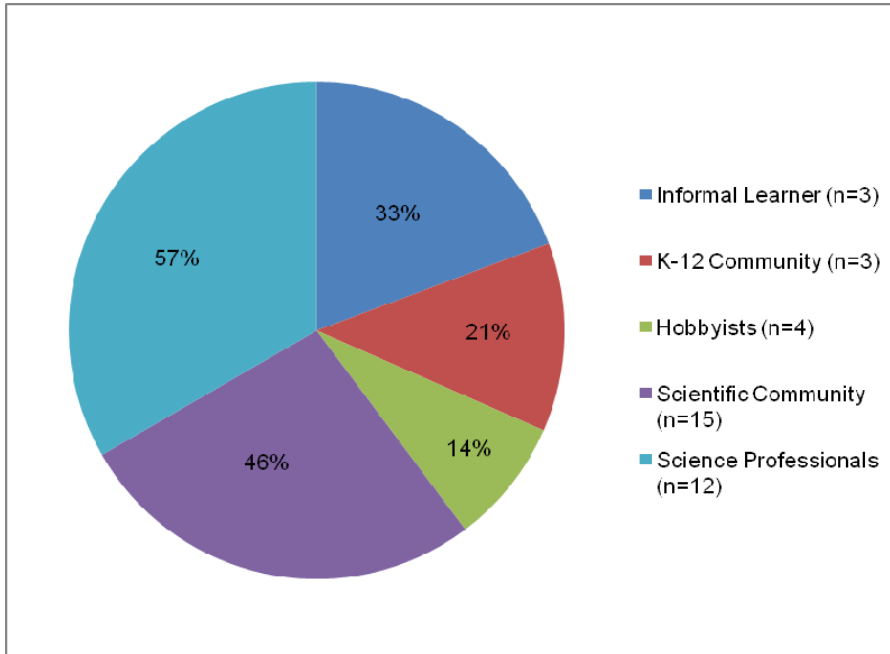
Data for the next sections (contributing photos and content) are reported only for remote interview participants.

Forty-one percent of the remote interview respondents stated they were very interested in contributing photos, and would likely do so; 25% stated they were somewhat interested and might contribute photos. Another 35% indicated they were marginally or definitely not interested in contributing photos. (Figure 6)

Figure 6: **Contributing Photos**
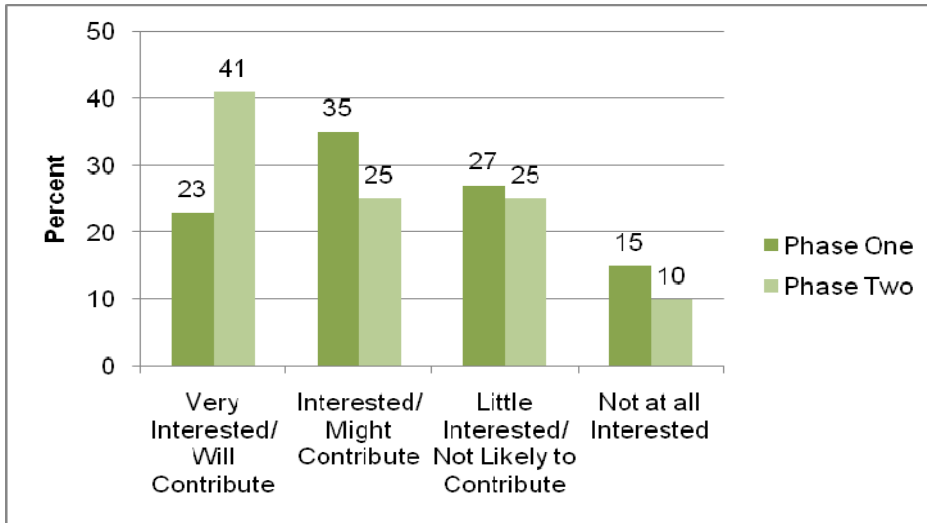
As exemplified by the following quotes, some of the motivations for contributing photos included:

Site needs images
"I think more pictures could help the website, since there are few pictures now."

To help and be a part of the project
"That's a great idea. I go on nature walks and if I take pictures of a plant, I like botany and ornithology-that's birds- and if people can add their own photos, great!"

"Because I enjoy wildlife photography and it would be an honor to have one of my photos used in this site."

Images convey information
"Because it's good to have a public database that people can search; photos are better than description for a lot of things."

"Real pictures may be able to show new information about the habits and nature of life."

As exemplified by the following quotes, some of the issues related to contributing content included:

Control between image and content

"The only problem is what if people start putting the wrong species [in the wrong place]?"

Copyright
"Some photos need permission; some of them are published in other places."

"I would like to keep the rights for the photo. If it was for free distribution [on a site, like EOL is now] then that's ok, I'd give up the rights, but if it was for a fee, not free, then no I wouldn't donate my photos."

Quality of the photo
'If I had a really good photo but there are others out there with probably better content than mine.'

"I doubt I could produce the quality of images/info regarding specimens worthy of inclusion."

"Don't take pictures. If I did I would not [be] a professional or expert."

Interviewees were slightly less interested in contributing other forms of content. Thirty-one percent stated they were very interested in contributing and 25% stated they were somewhat interested and might contribute content. Twenty-nine percent were marginally interested and 15% were completely uninterested (Figure 7).

Figure 7:   **Contributing Content Other than Photos**
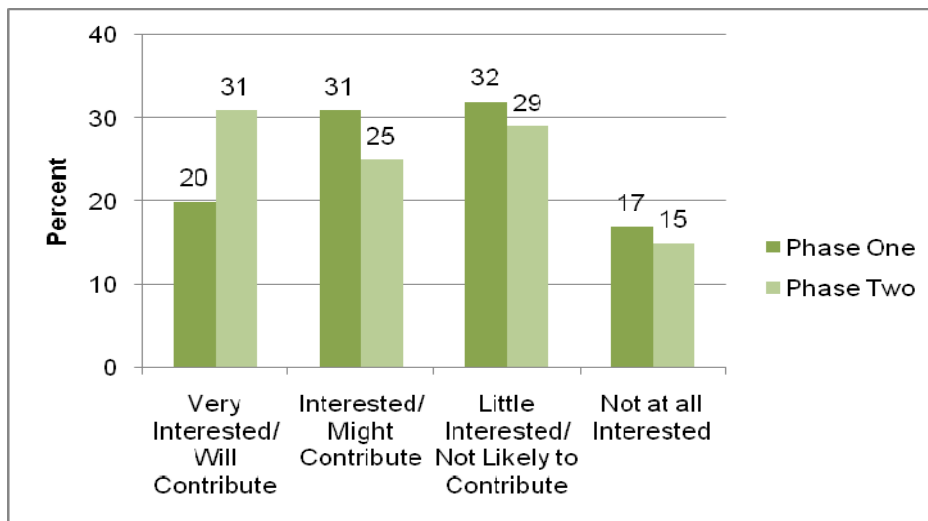
As exemplified by the following quotes, some of the motivations for contributing photos included:

To help and be a part of the project

"To fill vacancies based on my expertise"

"The website is a really good thing, I'd like to contribute if I could."

Importance of sharing the expertise

"If I had images and content would definitely contribute. I think it's important to have [this capability] as a resource and it's also more effective to have that participation. It would make the site better, especially because information will be reviewed. I think I would personally like to be part of that broader goal because I feel this is information that everyone should have access to; it's important to help spread the information that I have access to."

"I appreciate the expertise of the various biologists/professionals that maintain the high quality the EOL is known for."

"Interested in sharing because I have this information and currently not working for an organization, so don't have an outlet for that work. This is a great opportunity for those in the same situation, you can say a great opportunity for amateur naturalists"

As exemplified by the following quotes, the major issue related to contributing content was the lack of expertise, although not having the time was also a major issue.

Quality of the content; having the expertise

"So long as I consider myself an expert. I'd do it if I was sufficiently qualified.

"Probably not, just because it's not my area of expertise"

"Information-wise, it seems that I am too young, and would prefer more scholarly people to do so."

"I'm not an expert enough to be doing that, maybe like a layperson description but that's it. Really a professor or a researcher should be doing it."

Need to be peer-reviewed

"What is the mechanism for contacting each other [curators] if you want to discuss the page?. You need some kind of way to give feedback on the pages. [To monitor their quality by group feedback]"

"I want it to be peer reviewed of course. Look at what happens on Wikipedia. I'm a specialist in trees of the South Pacific and I thought I should pull together a page on each one, I have print articles on that so it wouldn't be so hard. [She wondered who she would contact if she wanted to share her stuff.]"

"I'm concerned about the quality of the information that EOL might accept, it has to be qualified by someone."

VII. Summary of Reactions to the Site

Phase One focused on site visitors' reactions to the site and several measures were used to gather this information (Tables 12 and 13).   Basic ratings about the site were gathered in Phase One and are displayed in Table 12 below for ease of reference.

Table 12:   **Summary of Ratings of the EOL Site, During Phase One Web-Based Survey**

Response	Ratings				
	1	2	3	4	5
How would you rate the look of the site? (visual appeal, fonts, layout, etc.)	Not at all Appealing 1.3%	5.3%	22.8%	43.0%	Very Appealing 27.6%
How would you rate the organization of the site?	Very Confusing 1.8%	7.8%	29.1%	36.6%	Well Organized 24.8%
Is the text of the site easy to understand or is it confusing?	Very Confusing 1.0%	4.7%	16.8%	38.7%	Understand Easily 38.8%
Do you feel the information on the site is accurate and up-to-date or not accurate and not up-to-date?	Not Accurate 1.4%	3.2%	20.2%	41.2%	Very Accurate 34.0%
Is the information presented here relevant or useful to you?	Not Useful at All 1.6%	2 3.3%	3 21.6%	4 36.7%	Very Useful 36.9%
How quickly did the site pages download? (Data from March 5th – March 24th only)	Very Slowly 3.3%	2 6.2%	3 16.1%	4 42.5%	Very Quickly 31.9%
When searching, was it easy or difficult to find what you were looking for?	Very Difficult 4.6%	2 10.1%	3 27.5%	4 32.1%	Very Easy 25.7%
Do you feel you can understand all the options on the species pages?	Not at All 2.0%	2 8.4%	3 27.3%	4 34.2%	Understand Easily 28.0%

The findings regarding changes from Phase One were mostly corroborated during Phase Two's think-aloud interviews and included:

1. **Overall positive reaction**
    Across all methods respondents had very positive reactions to the site and its goals, with some of them clearly understanding the vastness of the scope of the site. Along

these lines, in Phase Two one respondent referred to EOL as the "*ultimate database for species.*"

2. **Frustration with the site's current limitations**
    The current limitations of the site, although understood by individuals who comprehend EOL's larger vision and purpose and that it is still a "*work in progress,*" are still a challenge for many users. These users struggled to figure out what exactly the site was for, what benefit it had for them, and why the content and functions seem so incomplete. Still the home page does not provide information that mitigated their frustration and some would have would have already disengaged if they were they were viewing the site on their own. One respondent articulated this frustration, by stating, "*I don't like when I don't see information on a site that [is suppose to have]. I mean, it's an encyclopedia. It should have more [information].*" Another commented, "*It bothers me that there are not many pictures. Why is that?*" For a more specialized audience, the site still does not have the desired level of information. As a docent stated, "*It looks to me like a middle-school encyclopedia. It has nice overview, images, but not a lot of scientific information. [I would like more content about] physiology and natural history.*"

3. **Issues related to usability**
    During the first web survey, we asked users to rate the site on a set of 5-point usability scales (visual appeal, organization, readability, accuracy, relevance). Overall, site ratings were very positive. Some of the issues that rose, especially during interviews and related to the usability measures, referred to:

    a) Visual appeal: many users concur with the docent who stated that the site "*needs more eye appeal.*" A user pointed out that the mixture of photos and drawings of different sizes and colors made the site looks "*unfinished*" and "*unprofessional*" and that the newsletter layout was a much better one.

    b) Organization: for many respondents the organization of the site only became clear after they had been browsing through it for a while. An initial reaction was usually to say, "*I'm looking for a way to navigate. I can see species [but I] don't see a hierarchy, the classification. Maybe I want to look up a genus, a class. I don't see it.*" Or, "*It's not clear to me what the focus of the site is - If I came to site I wouldn't know where to focus.*" Many of them, during the interviews, would not have spent that much time browsing the site, had they been on their own. "*If [my son] had a paper to write, I would've left if I was not getting the information I was looking for.*"

    c) Readability: language or content was perceived as not appropriate for certain audiences. For example, on the species pages, educators felt that the language was too confusing for students to understand without considerable assistance.

    d) Accuracy and relevance: web survey respondents felt the information was accurate, but during interviews, users indicated that they would have no viable

way of gauging whether the site was accurate; accuracy was assumed due to the reputable nature of the sources and participating institutions, "*It's hard to know if it's accurate, but given the source it should be.*"

4. Issues related to specific site sections

a) The Slider and the Preferences were two features that users found interesting at first, but became very frustrated when they could not understand "*how does it work?*" A recurrent comment about the slider was "*I thought that would make the picture larger. I don't see any changes. This is a little bit annoying.*" Changes in the Preferences resulted in comments such as, "*information for beginners is not a lot different from experts.*"

b) Overall, users wished the site had more images. In general, when looking at complete species pages users "*like that there are multiple images of the animal*" and that photos "*scan quickly*" and allow one to see "*close-ups so you can identify interesting things about the [species].*" However, they become disappointed when the pictures are not there. Some of them pointed out the need for captions to give context to the image, "*There's no captions. What is this bird doing?*"

c) For some users the Classification section, instead of the Table of Content, was used to browse information about the species. After a long time trying to browse the site using the Classification tab, one user finally found the Table of Content, and commented, "*This is good, has a lot of information. It is helpful, but I would have the Table of Content moved to where the Classification is. You assume that because the picture is on the left, you should read what's immediately on the right. That's where your eyes go to.*" The graphic display also featured some challenges on its own, being perceived as "*a strange, weird way to display the classification.*" When a user noticed that you can move the graphic display, he commented, "*This display doesn't make sense. I guess the kingdom is up here. I guess you can move things around so you can see them, but why not make the image larger instead? My Mom wouldn't know how to move this.*"

5. Comparisons with Wikipedia and Google
Some respondents mentioned Wikipedia as a having a good layout of the information, "*They have an index at the top and it's obvious the way [information is displayed].*" Some envision EOL becoming equivalent to Google, in regards to finding information about species. As one respondent mentioned, "*It could became like Google, something you can search. So, you're outside gardening and are bit by a spider you can search about that spider. Or the bug that showed up in your dorm room!*" For students, EOL has an added advantage, because "*We're not allowed to cite Wikipedia or any dot-coms for our papers at school. So we would use this site if it had the same amount of information [as Wikipedia does].*"

Table 13: **Summary of Positive and Negative Reactions to the Website and Urgency in Resolving Them**

Key: **Red=Very Urgent**, **Orange: Somewhat Urgent**, **Blue=Not Urgent**

Website Segments	Positive Reactions	Negative Reactions
Home Page	• appreciation for the pictures • home page was "clean" and "had a good amount of white space" • mixed reactions to the rotating pictures	• **too much text** • needs more graphics • too many fish pictures • **needs bright, colorful photos**
What is EOL		• most people did not read it • not obvious (small, too far down the screen) • overly wordy
New to the Site - Videos	• receptive to the idea of the video tours	• videos are too long • too much focus on challenges and why project is ambitious (better in a FAQ section) • green button was irritating, no obvious function • both videos play at the same time, can't stop them
Searching	• generally not difficult to find the "Search" box	• more prominent "Search" box • more options to search: by geographic region, by organism classification • more intelligent search: allows for misspellings; • too many unrelated hits • search results that can be sorted: by taxonomy, likelihood, geographic region, completeness of page, alphabetically • unclear function of the picture signals
Species Pages – General Comments	• most people understood the main species pages and the functionalities available there • most liked having the common and scientific names visible	• two headers on the species pages unnecessary and use up too much page space • better mechanism for the interrelatedness of life • text was too small • unclear about ICUN status
Specialist Projects	• those who understood the page, appreciated availability of data on the connected sites • those who understood they left the site, appreciated the deep links and the new site opening in a separate window	• unclear for most people • most people did not notice they were leaving the EOL site
Slider	• several individuals experimented with the slider	• most did not realize the slider was designed to change the level of text available • frustrating for many

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Key: Red=Very Urgent, Orange: Somewhat Urgent, Blue=Not Urgent		
Website Segments	**Positive Reactions**	**Negative Reactions**
		• moving the slider caused the page to entirely reload, and moved the user back to the top of the page despite the fact they were currently viewing the middle of the page
Images, Videos, and Audio	• highly interested in the photos, videos and audios clips •	• several people clicked on the central picture, trying to make image larger • Images need captions • frustrated when there were no pictures
Mapping	• intrigued and excited about maps	• many had a hard time finding, even when looking for one • unclear labels and descriptions • many looked at "occurrence overview" expecting to see a distribution map • many tried to "zoom" into the map; other times map was zoomed-in and area portrayed was unclear
Classification	• helpful text-based classification • concept of graphic classification tree was appealing	• text-based classification was difficult to read and confusing • graphic classification tree did not work well • classification tree should be a major navigation method • classification section needs explanation or glossary • individual species pages not selectable from the graphic classification • disconnect between circle size and classification category size
Table of Contents		• language could be challenging for students; needs a glossary (hyperlinked definitions) • text is too small and "grainy"
Relevance		• term "relevance" meant very different things to different individuals
Related and Explore on Species Page		• Proximity between "Explore" and "Related" sections lead people to assume that animals within the Explore section were related to the ones they were viewing

VIII.   Conclusions and Recommendations

Approximately 6 months after initial launch, the Encnlopedia of Life has made significant achievements, created a dedicated following, and cataloged the progress yet to be made. During this time, ILI has assisted the EOL team in better understanding the EOL users and their needs. We collected data in two main phases, which represent different snapshots of current and potential future EOL audiences. The first phase of data collection was completed during the initial launch of EOL at the TED conference and the high media coverage following that release. The second phase of data collection was completed over the summer of 2008, after the initial media attention had subsided. (Although EOL still had a presence in the media, it was not to the same extent.) By reviewing data from these two sets, the EOL team can gain a sense of their audience and their needs and, in light of that information, strategize how to best achieve the goals laid out for the EOL project.

Due to the complex sampling issues involved with evaluating an online resource such as EOL, we can not simply combine the samples, even using weighting statistical techniques. Instead, we need to review each sample separately, as a snapshot of EOL audiences within a particular context. The first snapshot, data collected during initial launch, is strongly populated by a casual and curious science-interested visitor. While the users were not spread evenly across the globe, 97 countries were represented and 52% were from countries other than the United States. This snapshot represents EOL users during a period of strong media coverage.   In addition, we feel that this particular view of EOL might be useful in thinking about how EOL will be used two to three years from now. As EOL becomes more relied upon for authoritative information about organisms, we predict the amount of "casual" visitors, visitors who are science-interested but not amateur or professional scientists, will increase. This snapshot then provides insights into the user of the future.

The second snapshot more accurately characterizes the user of the moment. These users were slightly older (72% were 30 or older, as opposed to the first phase where 57% were 30 years or older.) and more likely to be from the United States. In the second phase, nearly 70% of the users were from the U.S., as opposed to nearly 48% in the first phase. These visitors were more strongly connected to science fields, either as professional scientists and community members, or as hobbyist.   The media was still the prime place individuals find out about EOL; search engine referrals are growing. Users were definitely returning. While they were strongly interested in having more material on EOL, these individuals were generally not frustrated and were already repeat visitors. They were highly likely to return and recommend EOL to their colleagues and friends. Within the second phase of data collection, scientists and hobbyists were the largest numbers of users. Of all the users, teachers were the population to strongly state they will need more functionality (and content) before they are able to fully use the site. Individuals, both hobbyists and professionals were interested in contributing

photographs, but non-scientists were wary of contributing other content, as they felt an expertise level higher than their own would be a more appropriate contributor.

During both periods of data collection, users indicated that they would recommend EOL to their colleagues and friends and were highly likely to return and. EOL users were excited and supportive of the site, and stated their admiration. Their comments often expressed excitement and encouragement. Nonetheless, users provided a long list of improvements needed for site. Many of those improvements were detailed in the Interim Report ILI provided the team. We are aware that the EOL team has implemented solution strategies for most of these recommendations, but we include those recommendations here again as a reference point. The top 6 recommendations were as follows:

Top Six Recommendations from the Interim Report
1. Simplify the home page. Make it more visionary and more visually compelling.
2. Add more content, including images, videos and audio.
3. Improve the searching mechanism and clarify search results.
4. Rethink the classification tree.
5. Develop a plan on how to package or modify content for both K-16 and general audiences.
6. Address the issue of identification keys.

 A condensed table of those and more current suggestions can be found on pages 32-33 (Table 13). These same basic recommendations remain today, although EOL has made significant strides in the area of content, as thousand of species pages, including those of charismatic mega-fauna, have been added. The home page and the additional content, especially images and video, are critical pieces to the more casual users.

As the EOL team is well aware, there is great diversity the audience motivations for visiting EOL, and consequently, the different audiences need different navigational structures. For all audiences, refining the search capabilities to better sort and present results and to correct for misspellings remains an important issue to address in the coming months.

One interesting discovery during the second data collection phase was users' amount of connection to and trust in E.O. Wilson. Visitors repeatedly stated that seeing E.O. Wilson's talks or interviews motivated them to visit the EOL website. This was true even of those who did not have a clear idea exactly who Wilson is. Clearly, Wilson's ability to inspire users should not be underestimated. EOL team members may want to explore ways to further incorporate Wilson in dissemination activities or efforts.

As casual browsers and members of the general public increasingly make use of the site, creative ways of enabling browsing and exploration will become more necessary. Visitors in this category want to be taken someplace amazing, and while the scientific level of the text may prove too complex for them at times, the pictures and video will be the primary focus of their attention. For websites with such a wide range of audiences, it

is a struggle to maintain a clean, understandable design while allowing multiple points of entry for the visitors. This balance of the quick search and the satisfying browse is difficult to achieve. For example, as Amazon has incorporated multiple ways to connect to other content on each book's page, the pages themselves have become increasingly cluttered. Despite the clutter, the multiple types of connections Amazon allows its users to make help provide a richer and more personalized experience. As David Weinberger writes in *Everything is Miscellaneous,* it is these miscellaneous and user-generated connections to the content matter that ultimately allow the users to make connections that are meaningful to them. The EOL team will need to continue to explore and test with its user's ways to facilitate a meaningful browsing experience.

Related to the browsing experience is the use of visualizations on the EOL site. Throughout both phases of testing, individuals were intrigued but ultimately frustrated by the classification tree, both as visualization and as a navigational tool. Multiple visitors mentioned that once the classification visualization was improved, it should serve as a central browsing tool. This idea encompasses two interests of the visitors. First, they seek ways to understand the connections between organisms within the EOL site. Secondly, it is through the visual display of those connections that they wish to navigate. While both of these ideas were a part of the original classification visual concept, these ideas remain important to EOL users as the site evolves. As Hans Rosling discusses in his 2006 TED talk, generally speaking, both access to data already generated and the ability to organize and visualize this data are lacking in our information age. As EOL evolves, both the organization and the visualization of that content will continue to of central concern to the users.

During the development of strategies and solutions to these issues, we would recommend that the EOL remain connected to the range of users. As the EOL team is in a significant development phase within the next six months, we recommend working with users once a concepts and prototypes for the next release are much further developed. Once the EOL team has the fundamentals of the next release developed, we strongly recommend working with an established usability lab to test for usability issues, as well as to sample users to gain understanding of user perspective and context on the new developments. In the meantime, we recommend the development of user personas to help the EOL team with a user perspective during the next stages. Personas used as part of a user-centered design process for online or software application. They are profiles of a particular user type that help the design team understand the needs and motivations of that user. In the case of EOL, the team should develop personas of each of the main audience types. We believe the user of personas during the development process and the combination of usability studies with user feedback will ultimately make for a stronger and more effective EOL site.

Appendix 1:   Audience Segmentation Slides

Audience Segmentation

	Informal Learners	K-12 Community	Hobbyists	Scientific Community
Approx. % (Phase Two)	8%	13%	26%	30%
Description / Mindset	• General population curious about life sciences • Does not actively partake in life science activity or learning but are interested in science as part of broadening general knowledge • Interested in being "science aware"	• Life science teachers ▪ Intrigued by possibility of having students contribute but at the same time concerned about content credibility • K-12 students (under 18) ▪ Large variability in reading levels	• Enthusiasts, amateur or citizen scientists • Actively participates in life science activities outside of their profession (e.g. scuba diving, Project FeederWatch, horticultural group, etc.)	• Community of 'experts' within the life science field including researchers, scientists, professors, and graduate students. • Holds (or is pursuing) an advanced degree in life science and is actively furthering their field • Broadly viewed as experts in their area of interest
Planned Use of EOL	• General reference resource • To ID local animals & plants • Looking at media – cool pictures and video	• Reports and projects • General reference resource • Teaching resource	• General reference resource • Field guide • Content contribution	• Reference resource • Resource for updated taxonomic information • Content contribution
Other Websites Used	• Google, Yahoo!, ask.com • Wikipedia • Britannica.com, Encarta.com • Discovery Channel, Smithsonian, National Geo. • WWF.org, ARKive.org	• Google, ask.com • Wikipedia • National Geographic • USGS, USDA, WHO • University portals (e.g. Cornell, UMich)	• Wikipedia • National Geographic • WWF.org, Earthwatch.org • Tree of Life • University portals (e.g. Cornell, UMich) • Fishbase, marinebio.org	• Wikipedia • Tree of Life • Library of Science • CatalogueofLife.org • itis.gov, fishbase, NCBI, marinespecies.org

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Audience Segmentation (cont.)

	Informal Learners	K-12 Community	Hobbyists	Scientific Community
Readiness to Use (Phase Two)	▪ Yes: 77.8% ▪ No (Content): 22.2% ▪ No (Features): 0.0%	▪ Yes: 57.1% ▪ No (Content): 35.7% ▪ No (Features): 18.9%	▪ Yes: 72.4% ▪ No (Content): 10.3% ▪ No (Features): 0.0%	▪ Yes: 69.9% ▪ No (Content): 18.2% ▪ No (Features): 3.0%
Perception of Usability (Avg. Rating from Phase One)	▪ Look: 3.93 ▪ Organization: 3.77 ▪ Relevancy: 4.05 ▪ Searching: 3.65	▪ Look: 3.93 ▪ Organization: 3.83 ▪ Relevancy: 4.28 ▪ Searching: 3.73	▪ Look: 4.03 ▪ Organization: 3.81 ▪ Relevancy: 4.35 ▪ Searching: 3.72	▪ Look: 3.79 ▪ Organization: 3.68 ▪ Relevancy: 3.94 ▪ Searching: 3.67
Species Needs	▪ Worldwide mega-fauna, endangered species	▪ Local organisms, endangered organisms	▪ Local organisms, invasive species	▪ Specialized organisms and phylum
Site Suggestions	▪ Better/easier-to-use search capabilities and prioritized search results ▪ Nav. via classification tree ▪ More media (photos, video) ▪ More ways to explore and browse	▪ Geographic searching (finding local information) ▪ More media (photos, video) and interactives, webquests ▪ Alignment with NSTA ▪ Support for various grade and reading levels (more kid-friendly content)	▪ More advanced search engine, (e.g. geographic) ▪ Identification tools (dichotomous keys) ▪ Better browsing scheme ▪ Graphical scheme for classification	▪ Ability to do complex queries ▪ Nav. via classification tree ▪ Bigger and more detailed photos – helps with ID ▪ Better mapping ▪ Species evolutionary tracking capabilities

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Audience Segmentation slides are available as a separate file.

Appendix 2: Encyclopedia of Life User Web Survey

Thank you for visiting the Encyclopedia of Life and for taking our user survey! The survey should only take 3-5 minutes to complete.

1) Have you visited the Encyclopedia of Life (EOL) before today?

     ○ Yes
     ○ No
     ○ Not Sure

2) How did you hear about the Encyclopedia of Life (EOL)?

     ○ I read/heard about EOL in the media (newspaper, radio, etc.)
     ○ I read about the web site in an EOL newsletter.
     ○ I attended/am associated with the Technology Entertainment Design (TED) group.
     ○ I was referred by a colleague, friend or family member.
     ○ I found the link on a search engine (Google, Yahoo!, etc.)
     ○ I followed a link from another web site.
     ○ Other (please specify)

If you selected other, please specify
_____

3) Why did you come to the EOL website today?

_____
_____

4) How likely are you to return to the EOL site?

     ○ 1- Definitely Will Not Return
     ○ 2
     ○ 3
     ○ 4
     ○ 5 - Definitely Will Return

5) How likely are you to recommend EOL to a colleague, friend or family member?

     ○ 1- Would Not Recommend
     ○ 2
     ○ 3
     ○ 4
     ○ 5 - Will Definitely Recommend

6) How do you plan to use the EOL website in the future?

_____
_____

7) Now that you've seen the site, do you think you will begin using it right away?

❍ Yes, I'll use it in its present form.
❍ No, but I'll use it when it contains more content.
❍ No, but I'll use it when it has more functions.
❍ No, I'm unlikely to use it now or in the future.
❍ Other (please specify)

If you selected other, please specify

_____

8) Would you be interested in receiving updates about the EOL site if they were offered?

❍ Yes
❍ No
❍ Not Sure

9) If yes, what format would you prefer to receive updates?

_____

10) Have you ever uploaded nature or science content or images to a website (such as Wikipedia, ARKive, Flickr)?

❍ Yes
❍ No

11) How interested are you…

	1= not at all	2	3	4	5 = to a great extent
in uploading photos to the EOL website?	❍	❍	❍	❍	❍
in uploading information/content to the EOL website?	❍	❍	❍	❍	❍

12) How likely are you to…

	1= not at all	2	3	4	5 = to a great extent
upload photos to the EOL website?	❍	❍	❍	❍	❍
upload information/content to the EOL website?	❍	❍	❍	❍	❍

13) Why are you or are you not interested in or likely to upload photos and/or other content to the EOL website?

_____
_____

14) Which other web sites do you currently use to find information like that offered by EOL?

_____
_____

15) How has the site met or not met your expectations?

_____
_____

16) Gender:

  ❍ Female
  ❍ Male

17) Age:

  ❍ Under 11
  ❍ 11-13
  ❍ 14-18
  ❍ 19-29
  ❍ 30-49
  ❍ 50-65
  ❍ Over 65

18) Are you a/an (PLEASE CHOOSE <u>ALL</u> THAT APPLY)

	Yes	No
Teacher (K-16)	❑	❑
Nature or science hobbyist (bird-watcher, scuba-diver, aquarist, etc.)	❑	❑
Generally interested in nature, the environment or science (including watching TV shows. reading related news, etc.)	❑	❑
Project or program volunteer (commity or citizen science projects, docents, volunteering?	❑	❑
Informal science educator	❑	❑
Professional environmentalist / conservationist	❑	❑
Science faculty and/or scientific researcher	❑	❑
Student	❑	❑

19) What country do you live in?

If you selected other, please specify
_____

20) Do you have any other comments you would like to share about EOL?

_____
_____

Thank you so much for your feedback!
Please visit us again as EOL evolves.

Appendix 3: Encyclopedia of Life Remote User Interview

Note for interviewer: We're not primarily focusing on gathering information about site functionalities at this point; instead the focus is on the users, their motivation to use the site, how they have used the site, and how they plan to use it.

Interviewer: _____   Date:_____
           Time:_____

Recruit name: _____

I.   Motivation to Use the Site

1) Have you visited the Encyclopedia of Life (EOL) before today?

	1. Yes
	2. No

2) How did you hear about the Encyclopedia of Life (EOL)?
<mark>*open-ended; use categories below to code afterwards and to probe*</mark>

	1. I read/heard about EOL in the media (newspaper, radio, etc.) 2. I read about the web site in an EOL newsletter. 3. I attended/am associated with the Technology Entertainment Design (TED) group. 4. I was referred by a colleague, friend or family member. 5. I found the link on a search engine (Google, Yahoo!, etc.) 6. I followed a link from another web site. 7. Other (please specify)

3) Why did you come to the EOL website today?
<mark>*open-ended; use categories below to code afterwards and to probe*</mark>

	1. For my entertainment/recreation, looking up random/ interesting facts, **look up out of curiosity (fun and interest)** 2. For my entertainment/recreation, looking up pretty **pictures** 3. To **improve my knowledge** about species and nature (self-learning) 4. As a **professional researcher**, to search information for a research project 5. As a **student**, to search information for school/college projects 6. As a **teacher or educato**r, to search information to plan classes or materials 7. As a **hobbyist**, to help me identify species I come

	across during my hobby (Hobbies: aquarium, garden, bird-watching, scuba diving) 8. As a **hobbyist**, to look up information that will help me further develop my hobby (e.g., information that will help set up an aquarium; identify and learn about animals I see while hiking/ scuba diving) 9. To **contribute photos and/or content** to the EOL site 10. To **serve as a curator** or organizational partner 11. To **help improve the website** 12. As a **parent/grandparent**, to show animals and plants to my children 13. As **inspiration for artwork**

II.   Planned Uses of the Site

4) How likely are you to return to the EOL site?

	1 - Definitely Will Not Return
	2
	3
	4
	5 - Definitely Will Return

5) How likely are you to recommend EOL to a colleague, friend or family member?

	1 - Would Not Recommend
	2
	3
	4
	5 - Will Definitely Recommend

6) How do you plan to use the EOL website in the future?
open-ended; use categories below to code afterwards and to probe

	1. For my entertainment/recreation, looking up random/ interesting facts, **look up out of curiosity (fun and interest)** 2. For my entertainment/recreation, looking up pretty **pictures** 3. To **improve my knowledge** about species and nature (self-learning) 4. As a **professional researcher**, to search information for a research project 5. As a **student**, to search information for school/college projects 6. As a **teacher or educato**r, to search information to plan classes or materials 7. As a **hobbyist**, to help me identify species I come

	across during my hobby (Hobbies: aquarium, garden, bird-watching, scuba diving) 8. As a **hobbyist**, to look up information that will help me further develop my hobby (e.g., information that will help set up an aquarium; identify and learn about animals I see while hiking/ scuba diving) 9. To **contribute photos and/or content** to the EOL site 10. To **serve as a curator** or organizational partner 11. To **help improve the website** 12. As a **parent/grandparent**, to show animals and plants to my children 13. As **inspiration for artwork**

7) After you looked at the site, do you think you will begin using it right away?

1. Yes, I'll use it in its present form.
2. No, but I'll use it when it contains more content.
3. No, but I'll use it when it has more functions.
4. No, I'm unlikely to use it now or in the future.
5. Other (please specify)

6. If you selected other, please specify

8) If offered, would you be interested in receiving updates about the EOL site?

1. Yes.
2. No.

Probe: How would you like to be updated?

9) Have you ever uploaded nature or science content or images to a website? (Arkive, Wikipedia, Flickr)

1. Yes
2. No

10) How interested are you in uploading your photos of species (such as plants, animals or organisms) to EOL?

1. Very interested, would definitely want to contribute
2. Interested, might contribute information

	3. A little interested, but not very likely to contribute
	4. Not at all interested in contributing photos

5. Why?

11) How interested are you in uploading other information about species to EOL?

	1. Very interested, would definitely want to contribute
	2. Interested, might contribute information
	3. A little interested, but not very likely to contribute
	4. Not at all interested in contributing other species information

5. Why?

12) Which other web sites do you currently use to find information like that offered by EOL?

<mark>*open-ended; use categories below to code afterwards and to probe*</mark>

13) How has the site met or not your expectations?

III.   Demographics

Please tell us about yourself:

14) Gender:

	1. Female
	2. Male

15) Age:

	Under 11
	11-13
	14-18
	19-29
	30-49
	50-65
	Over 65

16) Are you… *(read each as a separate question)*

	YES	NO
1. Teacher (K-16) ?		
2. Nature or science hobbyist (bird-watcher, scuba-diver, aquarist, etc.) ?		
3. Generally interested in nature, the environment or science (including watching TV shows, reading related news, etc.) ?		
4. Project or program participant (community programs, volunteering, docent, citizen science projects, etc.) ?		
5. Informal Educator?		
6. Science faculty and/or scientific researcher?		
7. Student ?		
8. If student, which level? (graduate student)		

17) What country do you live in?
      If US, which state: _____

18) Do you have any other comments you would like to share about EOL?

Thank you so much for your feedback!
Please visit us again as EOL evolves.