

## D22 - DELIVERABLE 8.5.1

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### Report on the impact of OpenUp! content on the EUROPEANA portal and on user communities

D22 – Deliverable 8.5.1

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### Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

### Distribution

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## Description of Work

### 1 Executive Summary

The impact of the OpenUp! contribution to the Europeana projected was assessed from three points of view:

- 1) The effect of adding OpenUp! data to Europeana upon the traffic visiting the Europeana portal.
- 2) The effect of adding OpenUp! data to Europeana upon the traffic visiting the OpenUp! providers sites.
- 3) The usefulness and accessibility of the OpenUp! data within the Europeana portal.

Effects 1 and 2 were investigated by examining the Europeana and contributor web logs.

Effect 3 was investigated by analysing the results of an on-line user survey.

Simply in terms of the numbers of objects accessible through the Europeana portal, OpenUp! has had a major impact. As of the writing of this report OpenUp! is making the 7<sup>th</sup> largest contribution out of the 137 consortia and institutions providing data to the portal. The 1240570 objects currently provided via OpenUp! represent 4% of the total European offering and compares very favourably with the average offering of 21900 objects per contributor and significantly exceeds the OpenUp! target of 1.1 million contributed objects.

Excluding a sudden peak in web traffic stimulated by the launch of an upgraded Europeana portal and concomitant publicity campaign, Europeana web traffic has shown a steady rise over time. A discernable increase in the rate of increase in visits can be observed coinciding with the start of OpenUp! Perhaps more significantly, web traffic was seen to fall back to pre OpenUp! levels during a period June to October 2013 in which OpenUp! content was being omitted from the general index. This conclusively indicates that the OpenUp! data was indeed having a significant positive effect on the use of the Europeana portal. Since the correction of the indexing traffic levels have been shown to have recovered.

Analysis of the web traffic for those providers willing to provide access to their logs indicated that a significant amount of traffic was generated via referrals from the Europeana portal. The addition of OpenUp! data to Europeana has therefore had a significant impact on the dissemination of the host providers information holdings as well as contributing to raising the profile and underlining the importance of those providers and their collections. Those providers that do not provide links to their own data from the results of a Europeana query are strongly urged to do so.

Analysis of the user survey data was limited by the low number of respondents; however the following conclusions could be drawn. The majority of users appear to have found the site useful although there appears to have been some difficulty in discovering the natural history content. Return visits are relatively low even though in the majority of cases the information returned was found to have been of use and of sufficient quality. The low re-visit rate therefore appears to have been more a function of the sporadic nature of the requirement for the information provided rather than of a failing in the content or its presentation. That is, users only have need of the information available on the site infrequently but when they have a need the OpenUp!/Europeana site appears to be able to satisfy it.

## 2 RECOMMENDATIONS

- In response to the fact that a significant number of visitors who were looking for natural history data and yet found that hard to find we recommend that Europeana allow domain specific searches within their general index. We anticipate that this could be facilitated by implementing a light weight tagging mechanism that could be applied to the meta-data included in each object.
- In order to promote following of return links OpenUp! providers should ensure that back links are actually provided in their content. This will encourage exploration of the data space and specifically will stimulate access to their sites.
- Where ever possible back-links should take the visitor to a view of the object with any associated data. Providers should avoid simply representing the same image already presented in the Europeana content.
- When providing back links from Europeana it is recommended that providers follow the principles outlined in the following publications: Hyam R. *et al.* 2012, Güntsch A. & Hagedorn G. 2013, (see list of references p.22).
- Levels of interest in / access to zoological and geological materials appear to be lower than that for botanical material. To some extent this may be a result of there being more botanical objects available via OpenUp!. We recommend a targeted effort to increase the level of provision of zoological and geological objects as well as targeted dissemination efforts for these materials.

## INTRODUCTION

### 2.1 *Europeana and OpenUp!*

Natural history museums and botanical gardens hold an important volume of natural history content in their collections, including large number of multimedia data, which has not yet or has only recently been accessible to the public. The primary aim of the project is to make multimedia objects (images, sounds, and videos) from natural history collections available to the public and, with multilingual functionality, link them through Europeana ([www.europeana.eu](http://www.europeana.eu)) to a wide European cultural audience. Europeana holds primarily multimedia objects from the arts and humanities; scientific content from natural history field is still being uploaded in Europeana. The initial plan was to make available at least 1.1 million high quality images, movies, animal audio files and natural history artwork.

At present (Nov. 2013), OpenUp! is the 7<sup>th</sup> provider to Europeana in number of data, containing 1,240,570 objects. Although it is not the only provider of natural history content to Europeana (others are STERNA, The Natural Europe project, ...) it is the provider which contributes most to the total natural history data in Europeana.

The OpenUp! project involves 23 partners from 12 European countries. The objects that OpenUp! provides to Europeana (including botany, zoology, palaeontology and geology) come from 25 different European institutions, which started uploading data at different times since March 2012.

#### 2.1.1 **Dissemination activities**

Coupled with the provision of new material to the Europeana portal, the OpenUp! project has participated in a number of dissemination activities. It is anticipated that these two activity strands should result in a considerable and detectable rise in activity on the Europeana portal.

In addition to more traditional modes of promotion such as flyers releases and articles, newsletters, conferences, promotion presentations, direct mail campaigns, the OpenUp! project has utilised social media (Facebook, Twitter, OpenUp! Blog, Flickr and Pinterest) to engage its major target audiences which are professional natural scientists (scientific institutions), education sector workers (teachers, students, amateurs, artists) and journalists.

### 3 OBJECTIVE

The purpose of this report is to assess the impact that incorporation of OpenUp! data has had on the Europeana portal and its end user communities.

### 4 METHODS

There were two primary methods available for measuring the impact, namely: analysis of web traffic and user satisfaction surveys. Using these approaches will facilitate the investigation of three areas of potential impact

- 1) The effect of adding OpenUp! data to Europeana upon the traffic visiting the Europeana portal.
- 2) The effect of adding OpenUp! data to Europeana upon the traffic visiting the OpenUp! providers sites.
- 3) The usefulness and accessibility of the OpenUp! data within the Europeana portal.

#### 4.1 *Traffic data Analysis*

One of the likely impacts of adding OpenUp! content to the Europeana portfolio is a change in the traffic levels and user profiles of people accessing the Europeana portal and the OpenUp! provider's own sites.

##### 4.1.1 **Assessing the impact of OpenUp! on Europeana web traffic**

To measure the success of OpenUp! data incorporation into the Europeana portal, web traffic data has been analysed, comparing visits to Europeana before and after it became associated with OpenUp! This was facilitated by Europeana kindly granting us access to their Google Analytics data.

The most basic part of the analysis was simply to compare the number of visits before and after OpenUp! data was added to Europeana. An examination of the standard web site measures of page dwell time, new visitor rates and bounce rates was also undertaken however the significance of these measures is questionable since they are designed more for commercial sites and are indicators of the likelihood of converting a visit into a sale and are therefore of limited relevance to this analysis.

An attempt was made to examine the user profile/distribution of visitors through examination of browser hostnames. The idea was to separate visitors from natural history related institutions from other visitors and see if the proportions changed as OpenUp! data became available.



When analysing the web traffic data all robot visits were first excluded from the analysis.

From the remaining data a list of hostnames containing natural history related terms were extracted using the following list:

science, cient, university, uniw, campus, kampus, botan, natur, biol, research, recherché, wildlife, library, biblio, zoolog, institute, forest, foret, environm, institute, geo, museum, muze, museo, ecology.

A final filter was then applied excluding hostnames containing the terms: economic, politic, business, finance, art, music, design, law, social, medical, hospital, clinical, comput, sport, architect, army, defence, physic, gas, finan, computer.

Results were finally checked manually, with particularly close attention to terms not in the English language.

The final list of hostnames was then verified by visiting a sample of the web sites of the institutions identified.

The web traffic statistics were then partitioned between the hosts in the list and those not in the list.

#### **4.1.2 Assessing the impact of OpenUp! on data provider web traffic**

In order to assess the impact of involvement in the project on the OpenUp! data providers, the 25 OpenUp! provider institutions were contacted with a request to access their web logs or Google Analytics data.

When web log data was provided the logs were processed using the Webalizer software package.

The data was analysed looking for changes in traffic levels and to determine the proportion of traffic generated as a result of referrals from Europeana. Where possible the same analysis used to partition the traffic into natural history and non-natural history visitors was undertaken.

### **4.2 OpenUp! User Survey**

In order to assess the impact/ effectiveness of the Europeana content on the end users of the Europeana portal it was necessary to undertake a user survey. There are several key issues involved in this.

- 1) In order for any results obtained from such a survey to be meaningful a large enough response rate has to be elicited. An overly long or complex survey is likely to put off potential responders. Earlier surveys undertaken by other partners in the OpenUp! project had already suffered from low response rates and so this was a critical concern.
- 2) However in order to obtain a detailed and nuanced response a survey must be detailed and extensive. Often the only way to obtain a completed survey is to perform face to face interviews where the respondent is “walked” through the questionnaire.
- 3) The survey must be appropriately targeted.



Points one and two can be seen to be somewhat in conflict and the priority of one over the other must be decided. For this survey it was decided that our primary concern was to illicit a sufficient response to support some analysis. Given that we have opted for an unsupervised on-line method for conducting the survey was selected, the question set was kept deliberately short with a limited and clearly distinct set of responses available for each question even though this will result in a loss of detail.

Addressing point 3, although the primary audience are users of the Europeana portal, the specific target for this survey is the users of OpenUp! data within the portal. This is problematic since access the data returned from any given query will possibly contain a mixture of OpenUp! and non OpenUp! objects. The most direct option of incorporating a feedback survey into the Europeana offering was not therefore a practical option.

Our recruitment strategy was therefore based on the work already undertaken by Národní Muzeum in Prague who had targeted at teachers and university lecturers and students across Europe. It was decided to use the same distribution list to advertise the user impact survey which they kindly supplied.

Although the survey was primarily advertised via email, the questionnaire itself was set up on-line using the SurveyMonkey web service (<https://www.surveymonkey.com>).

In addition to the targeted mailing the survey has also been promoted through [Facebook](#), [Twitter](#) and the [OpenUp! Blog](#) and the Taxacom mailing list thus broadening the survey base.

The survey consists of 5 questions and an introduction

**Introduction** - The questionnaire starts with a short introduction which serves 2 purposes:

- a) Reassuring the visitor that there are only 5 questions and that the survey will be quick and easy to complete.
- b) Provide web links to the Europeana portal, the OpenUp! project portal and also to the collection of images of OpenUp! data on Flickr. In order to encourage respondents that have not visited Europeana or OpenUp! to do so before completing the survey.

**Question 1** -

This question acts as a filter allowing those respondents to whom the remaining questions would be irrelevant to quickly finish the survey while still providing us with useful data.

\* Have you visited [www.Europeana.eu](http://www.Europeana.eu) ?

a) YES

b) NO, but I would like to learn about it

c) NO and I don't want to know about it- *(If so, please tell us your occupation and then click the **Done** button at the bottom of this form)*



### Question 2-

One of the key measures of a site is the frequency with which a given user revisits a site. Frequent return visits can indicate both the relevance and utility of the offering

**If YES, how often do you visit Europeana?**

- a) Just once
- b) Less than once a month
- c) Once a month
- d) Once a week
- e) More than once a week

### Question 3 –

A key question with respect to the impact of including OpenUp! data in Europeana is whether or not this inclusion has promoted a wider audience for natural history objects. This question allows the responder to categorise themselves within the target audiences specified for the OpenUp! project. The responder can select multiple responses to this question.

**2- What is your occupation?**

- a) Researcher
- b) Educator
- c) Student
- d) Citizen scientist
- e) Artist
- f) Other

### Question 4 –

Since it is possible for a responder to include themselves in multiple occupational categories this question is intended to allow a more precise categorisation of the response to question 3.

**How do you use or would like to use the Natural History content in Europeana?**

- a) Educational resource
- b) Personal Interest
- c) Research

### Question 5 –

One key measure of user satisfaction is whether their expectations have been met. This question is intended to allow some indication of content expectation to be gathered.

**Which type of data do you hope to find?**

- a) Herbarium specimen sheets scans



- b) Botanical drawings
- c) Botanical live photos
- d) Zoology specimen photos
- e) Zoology drawings
- d) Animal sound files
- f) Palaeontology specimens, fossils
- g) Rocks and minerals

### User satisfaction with OpenUp! data: Question 6

This last question is a matrix of choices, each answer represents one attribute of Europeana or specific experiences of the users when visiting the portal, to which the user agrees or disagrees. It is intended that the responses in to this question are cross tabulated with the other responses in order to determine if there are specific sectors of the data presentation that are working well or failing.

**Please rate how much you agree or disagree. The Natural History data in Europeana is...**

[For each answer choose: Strongly agree, somewhat agree, neither agree or disagree, somewhat disagree, strongly disagree]

- a) Useful
- b) Easy to find
- c) Attractive
- d) Diverse
- e) Media/Images of Good quality (resolution...)
- f) Data of sufficient quality (for taxon-determination, morphology, research...)
- g) Good source of knowledge (directly or indirectly)
- h) Reliable

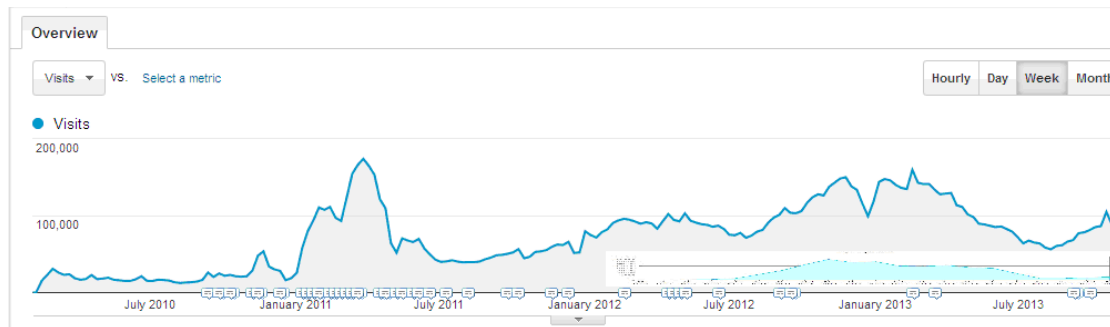
## 5 RESULTS

### 5.1 Europeana and OpenUp! web traffic data

Europeana web traffic has been analysed over the period covering 18 months either side of the start of OpenUp!

Excluding a sudden peak in web traffic stimulated by the launch of an upgraded Europeana portal and concomitant publicity campaign, Europeana web traffic has shown a steady rise over time. A discernable increase in the rate of increase in visits can be observed coinciding with the start of OpenUp! Perhaps more significantly, web traffic was seen to fall back to pre OpenUp! levels during a period June to October 2013 in which OpenUp! content was being omitted from the general index (Berendsohn, 2013) , indicating that the

OpenUp! data was indeed having a significant positive effect on the use of the European Portal. Since the correction of the indexing, traffic levels have been shown to have recovered.



**Figure 1.** All visits to Europeana, from February 2010 to November 2013. Inset is a scaled graph of the Europeana traffic generated from OpenUp! data.

The first visits requesting OpenUp! data were recorded on 5<sup>th</sup> of March of 2012 and by the end of November 2013 this had risen to a total of 147,538 constituting 1.04% of the total visits to the Europeana portal. The monthly visitor statistics for OpenUp! content are shown in Figure 2.



**Figure 2.** All visits to OpenUp! March 2012 to November 2013, by month.

### 5.1.1 Europeana visitor retention

The graphs and charts in figure 3 provide a summary of Europeana visitor behaviour during the period of study. The overall bounce rate (i.e. the number of visitors that view a single page and then leave the site) does not appear to have been affected by the including OpenUp! data although the bounce rate for OpenUp! data appears to be lower than for the overall site. Dwell time for OpenUp! pages is higher than for the overall offer and the number of return visits to the OpenUp! specific data also appears to be higher. All these results lead to the conclusion that the addition of the OpenUp! content is stimulating viewers to remain within the Europeana site and explore page content more thoroughly as well as encouraging viewers to make return visits to Europeana.

Jan 2010 - Nov 2013

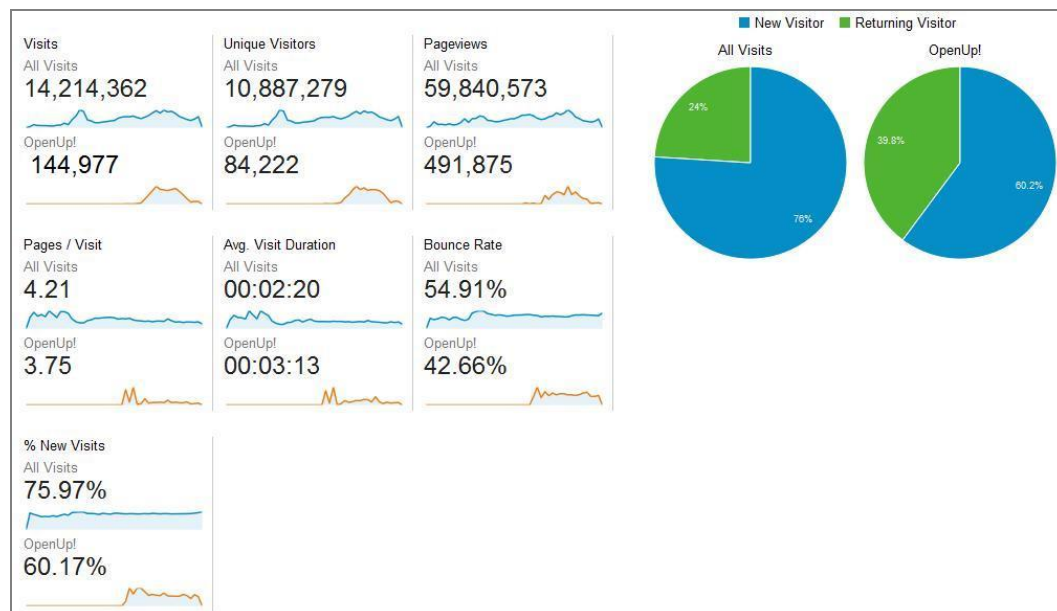


Figure 3. All visits to Europeana and OpenUp!, from January 2012 to November 2013.

### 5.1.2 Europeana visitor type breakdown

Before OpenUp! started, between the 1<sup>st</sup> of September 2010 to the 1<sup>st</sup> of March 2012, there were 4,950,984 visits to Europeana from 180,972 distinct hostnames (71,715 excluding robots). From these, 3,433 were natural science related institutions (Approx. 4.8%).

After OpenUp! data had started being uploaded in Europeana, between the 1<sup>st</sup> of March 2012 to the 15<sup>th</sup> September 2013, there were 8,184,776 visits from 157,825 distinct hostnames (104,163 excluding robots). From these, 5,908 were natural science related institutions (5.7%). The number of visits by users with an identifiable natural history background has not changed significantly as a result of the additional OpenUp! data even though traffic levels have been rising. This is indicative of the fact the mobilising natural history data through Europeana has been effective in increasing access to this data to a broader community. This is reinforced by the fact that 75% of the visits specifically requesting OpenUp! data were not from Natural History organisations.

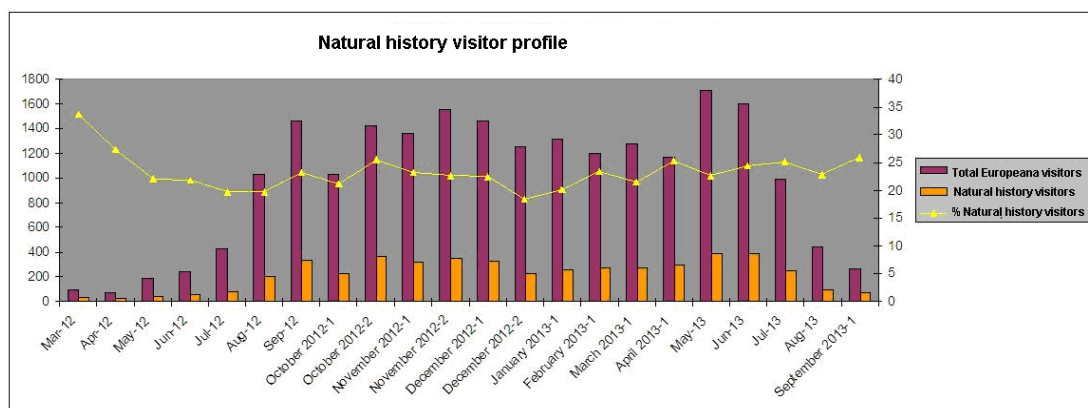
#### Natural history visitors as identified by hostname

	Total visits	Proportion of visits with a natural history origin	OpenUp! partners (% within the science service providers)
<b>Europeana Before OpenUp! data</b> (Sep10-Mar12). 18months	4,950,984	4.787% (3,433)	0.379% (13)
<b>Europeana After OpenUp! data</b> (Mar12-Sep13). 18months	8,184,776	5.672% (5,908)	0.271% (17)

Table 1. For two periods, before and after OpenUp! data uploaded: visits to Europeana, Science service providers and the percentage of the OpenUp! partners within the science service providers.

Table 1 shows that when viewed over the entire period in which OpenUp! data has been available there appears to have been a small rise in the proportion of visitors from a natural history background viewing the overall Europeana offering. It is possible that including OpenUp! data has stimulated this broadening of the user base.

Figure 4 shows the month by month changes in visitor numbers specifically requesting OpenUp! data from the Europeana portal. From this it can be seen that except in the initial period where the OpenUp! data was predominantly viewed by natural historians; the proportion of natural history visitors has remained relatively constant at about 25%. That is the OpenUp! data is being viewed by a broad spectrum of visitor types and is not simply a resource of use or interest to natural historians.



**Figure 4.** Proportion of Europeana visits to OpenUp! data identifiable as originating from natural history organisations.

The low percentage of visits to OpenUp! data by people from the partner institutions (Table 2) also indicates that within the natural history community dissemination has been effective and that this content when being viewed by natural historians is not simply a result of partner institutions reviewing their own data.

	Total visits	Proportion of visits with a natural history origin	OpenUp! partners (% within the science service providers)
<b>OpenUp!</b> (by months, Mar12-Sep13) 18m	142,072	23.264% (3,762)	0.45% (17)

**Table 2** Visitor numbers specifically accessing open up data

This conclusion is further supported by the initially high proportion of visits to OpenUp! data by the providers themselves (Figure 5) which fell rapidly as the number of non-partner natural history visits rose. Perhaps surprisingly the numbers of visits by the partners remained more or less stable throughout the period.

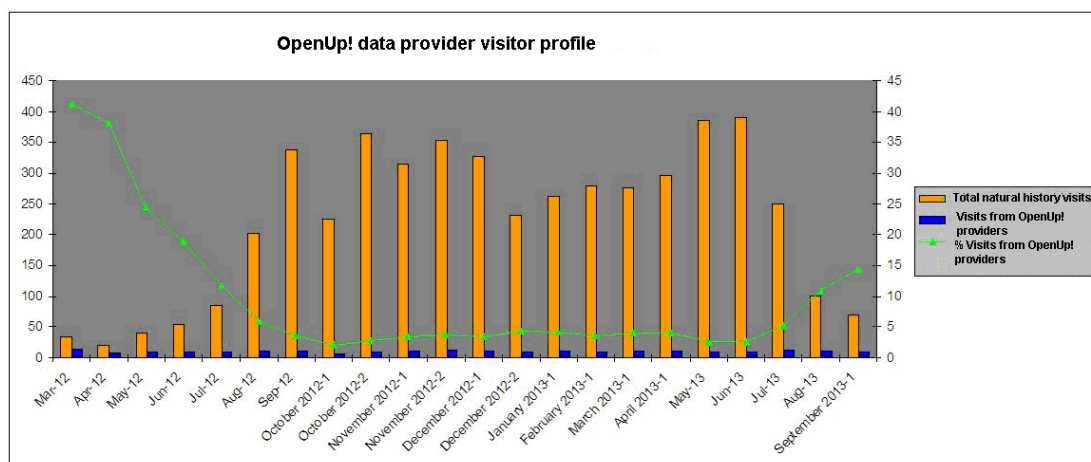


Figure 5. The proportion of Europeana visits to OpenUp! data by the data providers.

## 5.2 Data provider traffic data

Europeana facilitates the display of a link back to a location on the providers own web site. As a consequence, those providers including such a link in their data should see an increased number of visits to their own site as users explore the Europeana result set.

When exploring the links provided by partners, in some cases it was noticed that the link merely took the visitor to the partner institutions home page rather than revealing more details about the specific object being display in the Europeana result set.

In order to gauge the influence of participating in OpenUp! on the providers own web traffic it was necessary to analyse their web logs or web analytics data. All 25 OpenUp! content providers were contacted requesting access to this data. As of the time of writing this report, 6 partners had provided access to information sufficient to perform an analysis. 2 partners were unable to provide access to the data due to institutional policy, 4 partners had been contributing data to OpenUp! for too short a period for any meaningful analysis to be performed and, 6 partners provided data but it was not sufficient to perform an analysis and no further data was made available, 5 Partners provided no data and one partner had no institutional web presence for their collection.

The following gives a brief summary of the results for the 6 suitable data sets.

### 5.2.1 The Royal Botanic Garden Edinburgh (196,475 objects)

As of the time of writing this report The Royal Botanic Garden Edinburgh provided the second largest numbers of objects to OpenUp! with a total of 196,475. Most of these are herbarium specimens (including 50,000 type specimens)

with an additional 4,000 images predominantly of the RBGE living collection with small number of botanical illustrations.

Access to the RBGE Google Analytics data revealed that from March 2012, 70.55% of the visits to RBGE online herbarium catalogue (<http://elmer.rbge.org.uk>) were referral traffic. There was a total 20,339 visits during this time. The majority of referrals were from other servers within the rbge.org.uk domain (self-referrals) (Figure 6). Excluding self-referrals from the result set shows that Europeana was the highest referrer with 58.6% of the total.

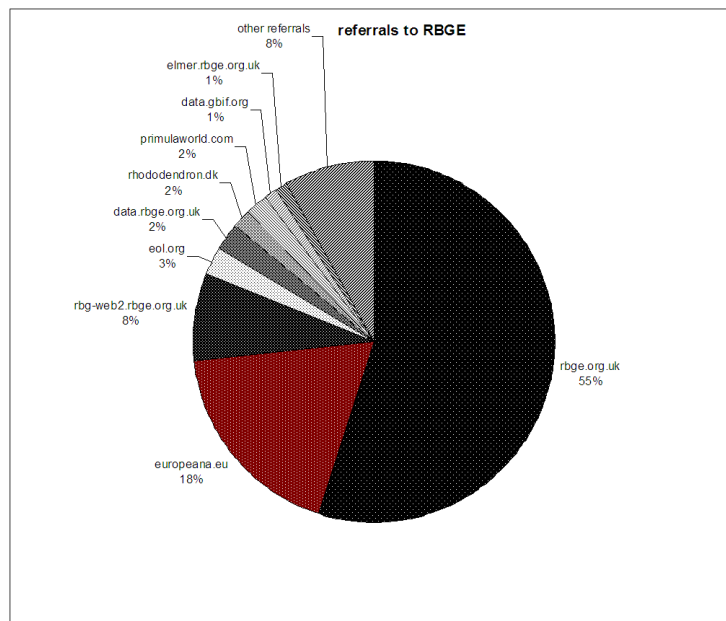


Figure 6. All referral visits to <http://elmer.rbge.org.uk>, europeana.eu: 18%.

### 5.2.2 Botanic Garden and Botanical Museum Berlin-Dahlem (127,772 objects)

As of the time of writing this report Botanic Garden and Botanical Museum Berlin-Dahlem provided the third largest number of objects to OpenUp! with a total of 127,772 high resolution images of herbarium specimens, from more than 200 countries.

The data provided allowed us to plot the pattern of referrals as shown in figures 7 and 8 below.

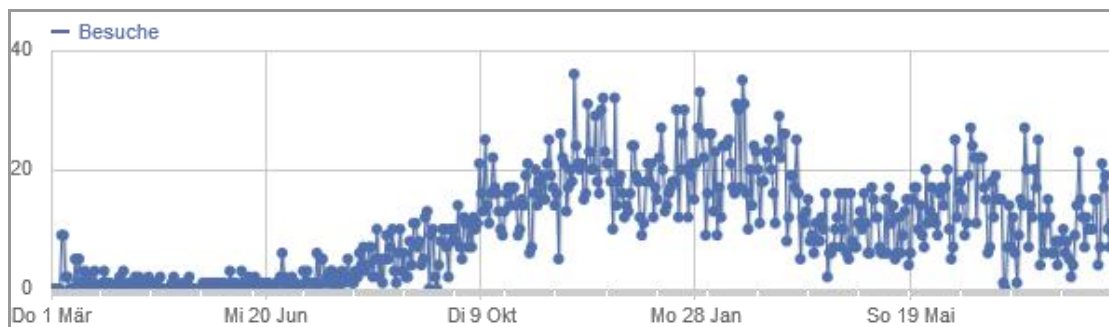
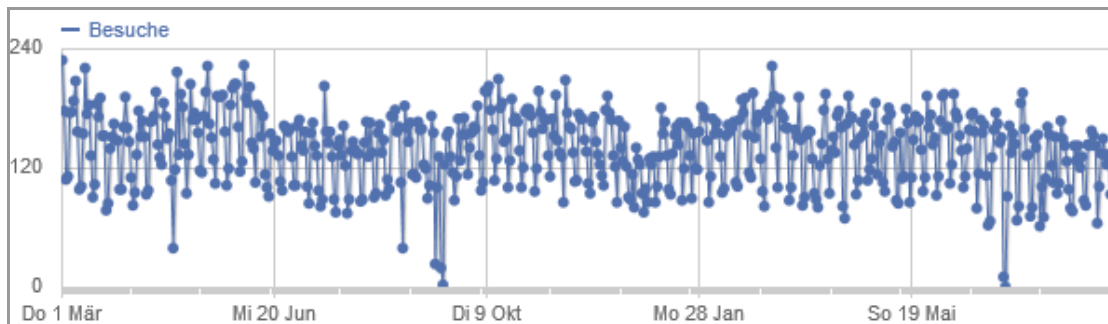


Figure 7. Referrals from Europeana to <http://ww2.bgbm.org/herbarium>.





**Figure 8.** All Referrals to <http://ww2.bgbm.org/herbarium>.

The total number of referrals to the BGBM herbarium website were more or less stable over the monitoring period even though the number of referrals from Europeana has risen. This is explained by the fact that even with the maximum percentage of referrals from Europeana in one day rising to approximately 20% of the total, there is so much variation in the referral statistics that the signal is being swamped. The apparent decrease in the referrals from Europeana from March 2013 should be discounted since it will have been caused by the problems with the indexing of the OpenUp! data.

### 5.2.3 Biologiezentrum der Oberoesterreichischen Landesmuseen (92,297 objects)

As of the time of writing this report the Biologiezentrum der Oberoesterreichischen Landesmuseen provided the fifth largest number of objects to OpenUp! with a total of 92297 objects provided – consisting of 82,000 medium quality botany specimen images and 5,000 high quality zoology specimen type images.

Access to the weblogs for the period spanning March 2012 to October 2013 was granted. Figure 9 shows the referrals to [www.zobodat.at](http://www.zobodat.at) with self-referrals excluded. As with the other providers the level of referrers coming from Europeana has risen steadily. By mid-December 2012 the majority of referrals were coming from Europeana. As with the other data sets the indexing problems during the early months of 2013 has a significant effect on referral levels indicating that Europeana was having a significant and tangible positive effect on the utilisation and visibility of this data provider's home site.

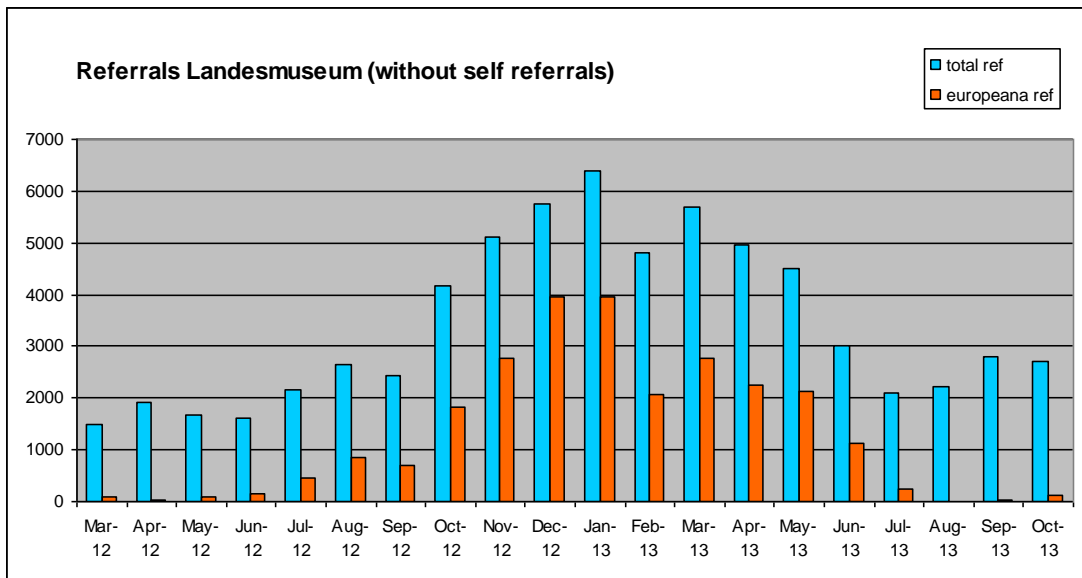


Figure 9. Total referrals (excluding self-referrals) to [www.zobodat.at](http://www.zobodat.at) and Europeana referrals in absolute numbers.

### 5.2.4 National Botanic Garden, Belgium (64,903 objects)

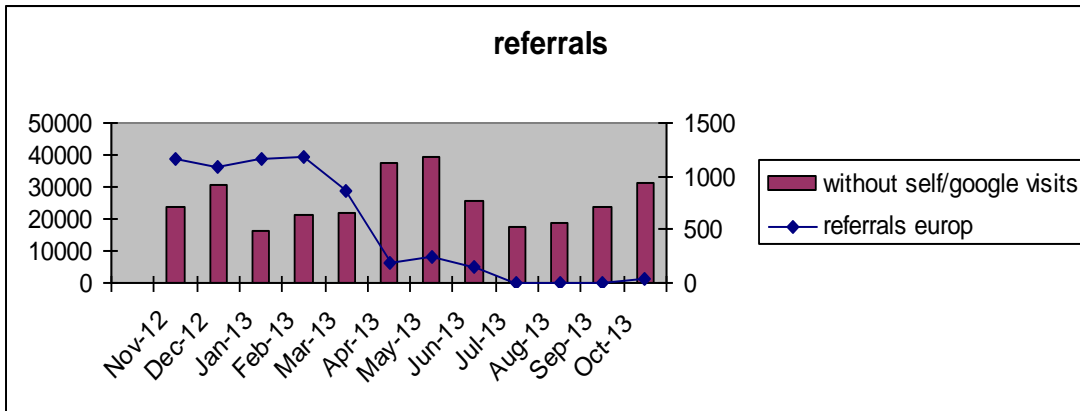
As of the time of writing this report the National Botanic Garden, Belgium provided the fifth largest number of objects to OpenUp! with a total of 64,903 objects comprising mainly high quality botanical specimen photographs.

Access to the full weblogs covering the period spanning November 2012 to October 2013 was granted.

As with the RBGE, the majority of traffic for this site was generated by self-referrals which accounted for 95% of their visits. Excluding these, Europeana contributed on average 4.8% of the total traffic which placed it second in the list of referrers (Table 3). Although this number seems quite low, this nevertheless represents an average of approximately 20,000 referrals a month. As with the other sites, the significant negative effect of the Europeana indexing problems was clearly evident in the decline in referrals in early 2013 (Figure 10). Unlike the other sites analysed this level of referrals does not seem to have recovered as well.

position	referral	visits	(%)
1	<a href="http://www.plantcol.be">www.plantcol.be</a>	48353	42.7
2 or 3	<a href="http://www.floraofbrussels.be">www.floraofbrussels.be</a>	7144	6.3
2 to 4	<a href="http://www.europeana.eu">www.europeana.eu</a>	5436	4.8

Table 3. The three higher institutions in referrals to [www.br.fgov.be](http://www.br.fgov.be), without self-referrals.

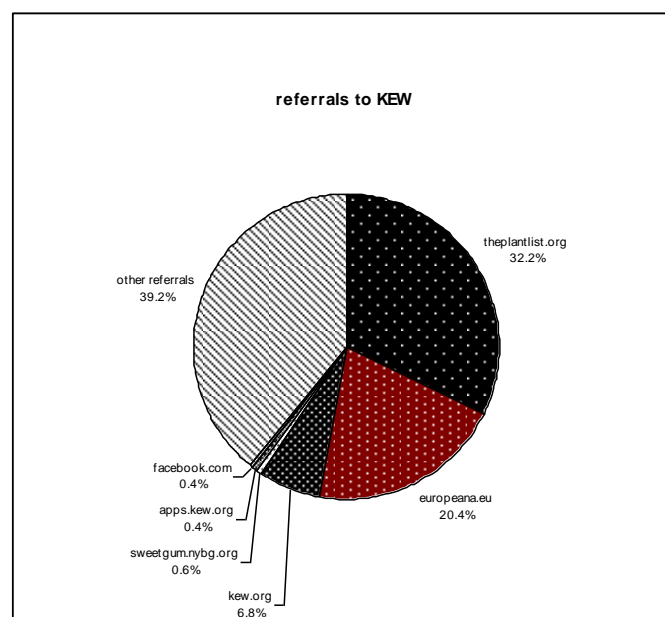


**Figure 10.** All referrals (excluding self-referrals and direct requests) to Belgium national botanic garden website, and referrals from Europeana, in absolute numbers and percentage.

### 5.2.5 Royal Botanic Gardens, Kew (33,346 objects)

As of the time of writing this report the Royal Botanic Gardens, Kew provided the tenth largest number of objects to OpenUp! with a total of 33,346 objects, however problems with the harvester have resulted in a fall in the number of objects from this provider from a high of 262,918 objects contributed up to September 2013. The current RBG Kew offering comprises 180,000 high quality botanical photographs and 170,000 herbarium specimen images.

Access to the appropriate Google analytics data covering the study period was provided. From March 2012, 20.44% of the referred visits to Kew online collection website were made from Europeana. And during that time they had 108,797 referred visits. Europeana is the second higher referrer, after theplantlist.org (Figure 11)



**Figure 11.** All Referrals to [www.kew.org](http://www.kew.org).

## 5.2.6 Museum of Geology, University of Tartu (9,968 objects)

As of the time of writing this report the Royal Botanic Gardens, Kew provided the nineteenth largest number of objects to OpenUp! with a total of 9,968 objects comprising digital images of palaeontology and geology specimens.

In their metadata this provider links to the Geo-collections of Estonia web site (<http://geokogud.info>) rather than their institutional site at <http://www.ut.ee/BGGM/museum.html>. Geo-collections of Estonia is a data aggregation site combining data from 3 different institutions. Only 25% of the data provided by Geo-collections of Estonia is from this provider.

Access was given to the weblogs for <http://geokogud.info> for the period covering December 2012 to November 2013. Up till May 2013 there were no referrals from Europeana and since then the number and percentage of referrals from Europeana is very low. It would appear that in this case the impact of participating in OpenUp! upon the providers web traffic has been insignificant.

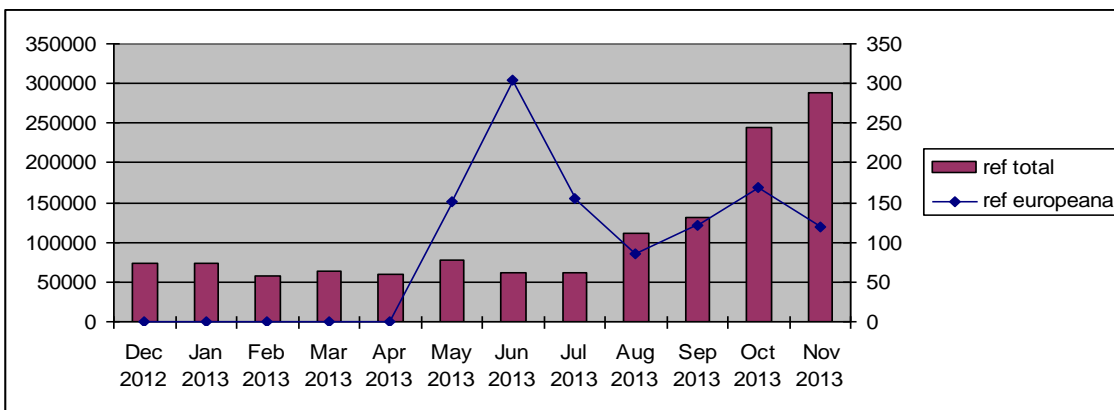
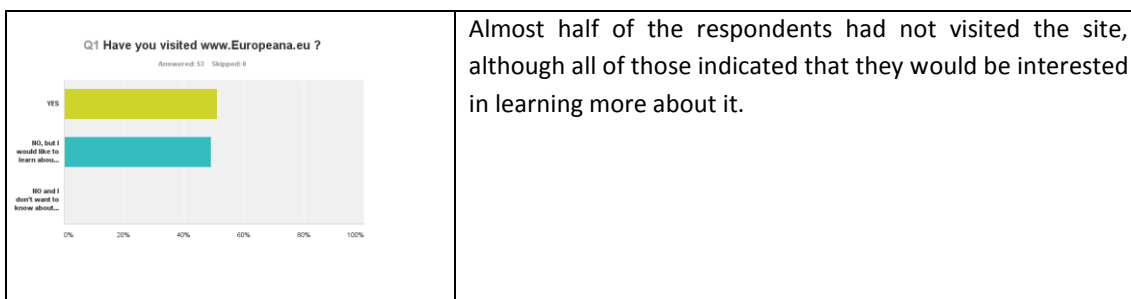


Figure 12. All referrals (bars) to <http://geokogud.info> and the referrals from Europeana (points).

## 5.3 User survey results

### 5.3.1 User interests

A total of 50 people responded to the survey – the results are summarised in the table below:



<p><b>Q2 1- If YES, how often do you visit Europeana?</b> Answered: 35 Skipped: 18</p> <table border="1"> <thead> <tr> <th>Frequency</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Just once</td> <td>50%</td> </tr> <tr> <td>Less than once a month</td> <td>40%</td> </tr> <tr> <td>Once a month</td> <td>5%</td> </tr> <tr> <td>Once a week</td> <td>5%</td> </tr> <tr> <td>More than once a week</td> <td>10%</td> </tr> </tbody> </table>	Frequency	Percentage	Just once	50%	Less than once a month	40%	Once a month	5%	Once a week	5%	More than once a week	10%	<p>Those respondents who had visited almost all were infrequent visitors and 50% of these visited only once. Cross tabulating the data against occupation types revealed no significant pattern. Frequent visitors were evenly distributed across the occupation categories.</p>						
Frequency	Percentage																		
Just once	50%																		
Less than once a month	40%																		
Once a month	5%																		
Once a week	5%																		
More than once a week	10%																		
<p><b>Q3 2- What is your occupation?</b> Answered: 51 Skipped: 2</p> <table border="1"> <thead> <tr> <th>Occupation</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Researcher</td> <td>80%</td> </tr> <tr> <td>Educator</td> <td>10%</td> </tr> <tr> <td>Student</td> <td>10%</td> </tr> <tr> <td>Citizen scientist</td> <td>5%</td> </tr> <tr> <td>Artist</td> <td>5%</td> </tr> <tr> <td>Other</td> <td>10%</td> </tr> </tbody> </table>	Occupation	Percentage	Researcher	80%	Educator	10%	Student	10%	Citizen scientist	5%	Artist	5%	Other	10%	<p>The majority of visitors (41/50) classified themselves as researcher, 3 of these co-classified themselves as educator.</p>				
Occupation	Percentage																		
Researcher	80%																		
Educator	10%																		
Student	10%																		
Citizen scientist	5%																		
Artist	5%																		
Other	10%																		
<p><b>Q4 3- How do you use or would like to use the Natural History content in Europeana?</b> Answered: 49 Skipped: 4</p> <table border="1"> <thead> <tr> <th>Usage</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Educational resource</td> <td>35%</td> </tr> <tr> <td>Personal interest</td> <td>45%</td> </tr> <tr> <td>Research</td> <td>80%</td> </tr> </tbody> </table>	Usage	Percentage	Educational resource	35%	Personal interest	45%	Research	80%	<p>The majority of visitors were seeking material/information to support their research. Although 15 respondents indicated a desire to use the content as an educational resource in only 2 of those cases was this the sole intended use. In all other cases the usage was co-classified with research. A similar pattern was shown where a personal interest in the information was expressed, in this case only 4 respondents indicated that this was their sole purpose in accessing the data.</p>										
Usage	Percentage																		
Educational resource	35%																		
Personal interest	45%																		
Research	80%																		
<p><b>4- Which type of data do you hope to find?</b> Answered: 47 Skipped: 3</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Herbarium specimens, photos</td> <td>55%</td> </tr> <tr> <td>Botanical drawings</td> <td>50%</td> </tr> <tr> <td>Botanical tree photos</td> <td>45%</td> </tr> <tr> <td>Zoology specimen photos</td> <td>40%</td> </tr> <tr> <td>Zoology drawings</td> <td>35%</td> </tr> <tr> <td>Animal sound files</td> <td>25%</td> </tr> <tr> <td>Paleontology specimens, fossils</td> <td>20%</td> </tr> <tr> <td>Rocks and minerals</td> <td>15%</td> </tr> </tbody> </table>	Data Type	Percentage	Herbarium specimens, photos	55%	Botanical drawings	50%	Botanical tree photos	45%	Zoology specimen photos	40%	Zoology drawings	35%	Animal sound files	25%	Paleontology specimens, fossils	20%	Rocks and minerals	15%	<p>There appears to have been a strong bias towards an interest in botanical resources. 23 respondents expressed interest in botanical resources alone, compared with only 7 for zoology. 1 respondent indicated a specific interest in paleontological specimens alone and no respondents were interested in just rocks and minerals. 9 respondents simply selected all categories of interest and expressed a combined botanical and zoological interest</p>
Data Type	Percentage																		
Herbarium specimens, photos	55%																		
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Animal sound files	25%																		
Paleontology specimens, fossils	20%																		
Rocks and minerals	15%																		

**Table 4.** Summary results of OpenUp! data user survey

### 5.3.2 User satisfaction with OpenUp! data

The table of user satisfaction responses is presented below:

	Strongly agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Strongly disagree	Total
USEFUL	37.78% 17	35.56% 16	20% 9	0% 0	6.67% 3	45
EASY TO FIND	16.28% 7	20.93% 9	30.23% 13	20.93% 9	11.63% 5	43
ATTRACTIVE	18.60% 8	44.19% 19	20.93% 9	11.63% 5	4.65% 2	43
DIVERSE	30.95% 13	30.95% 13	33.33% 14	2.38% 1	2.38% 1	42
MEDIA/IMAGES OF GOOD QUALITY(resolution...)	25% 11	43.18% 19	29.55% 13	0% 0	2.27% 1	44
DATA OF SUFFICIENT QUALITY(for taxon-determination, morphology, research...)	9.09% 4	22.73% 10	54.55% 24	9.09% 4	4.55% 2	44
GOOD SOURCE OF KNOWLEDGE(directly or indirectly)	13.64% 6	52.27% 23	22.73% 10	4.55% 2	6.82% 3	44
RELIABLE	11.36% 5	29.55% 13	43.18% 19	9.09% 4	6.82% 3	44

**Table 5.** Summary results of OpenUp! data user satisfaction survey

In order to try and discern why certain visitors visit less frequently than others the data have been cross tabulated splitting them between frequent and infrequent visitors and looking for patterns within occupational categories.

#### **Researchers**

##### *Infrequent visitors*

Of those respondents interested in research 23 out of 39 visited less than once a month (50% of those only once) even though 11 of those regarded the information presented as being useful but 7 found the data difficult to find , while 6 indicated that the information was easy to find.

3 infrequently visiting researchers found the information neither useful nor easy to find.

All these infrequent visitors found the image quality to be satisfactory but 4 found the data insufficient for their research.

##### *Frequent visitors*

6 out of 29 research respondents visited the site frequently.

All found the information useful but 3 out of 6 found the data hard to find and only 1 found the data easy to find.

All but one failed to express an opinion on the suitability of the data for research but 5/6 indicated that the image quality was good.

### ***Non – research visitors***

5 out of 6 non-research respondents visited the site infrequently of which 2 visited the site only once. 3 respondents found the data useful, 2 of whom found the data easy to find.

All non – research visitors found the image quality good but only 2 found the data sufficient for their purpose.

## **6 Discussion and Conclusions**

Simply in terms of the numbers of objects accessible through the Europeana portal OpenUp! has had a major impact. As of the writing of this report OpenUp! is making the 7<sup>th</sup> largest contribution out of the 137 consortia and institutions providing data to the portal. The 1,240,570 objects currently provided via OpenUp! represent 4% of the total European offering and compares very favourably with the average offering of 21900 objects per contributor and significantly exceeds the OpenUp! target of 1.1 million contributed objects.

The analysis of the web traffic statistics was unfortunately complicated by the technical indexing problems at the Europeana site indicating an apparent decline in interest in OpenUp! data during 2013. However this artefact can be seen as being advantageous in that it allows for some level of verification of the impact of the OpenUp! contribution. Excluding a sudden peak in web traffic stimulated by the launch of an upgraded Europeana portal and concomitant publicity campaign, Europeana web traffic has shown a steady rise over time. A discernable increase in the rate of increase in visits can be observed coinciding with the start of OpenUp! Perhaps more significantly, web traffic was seen to fall back to pre OpenUp! levels during a period June to October 2013 in which OpenUp! content was being omitted from the general index, indicating that the OpenUp! data was indeed having a significant positive effect on the use of the European Portal. Since the correction of the indexing traffic levels have been shown to have recovered.

The analysis of the breakdown of traffic between natural history related and other types of visitor can only be viewed as a very crude measure but was nevertheless informative. As expected the inclusion of natural history objects into the European portfolio did result in a rise in the number of identifiable natural history visitors but this increase was relative small compared with the overall increase in traffic visiting OpenUp! data during the analysis period. The conclusion can therefore be drawn that the OpenUp! activity has indeed been effective in extending the interest in and visibility of objects in natural history collections. We also conclude that this provides a far stronger measure of this success than the contrary indication provided by the user survey as shown below.

Analysis of the web traffic for those providers willing to provide access to their logs indicated that a significant amount of traffic was generated via referrals from the Europeana portal. The addition of OpenUp! data to Europeana has therefore had a significant impact on the dissemination of the host providers information holdings as well as contributing to raising the profile and underlining the importance of those providers and their collections . Those providers that do not provide links to their own data from the results of a Europeana query are strongly urged to do so. The effect on web traffic on the host provider's site did, however, appear to be influenced by the data presented by the provider site when the link from Europeana

was followed. The greatest effect appeared to be generated when the provider offering included additional information about the object in the image. OpenUp! should therefore encourage its providers to examine the data they present when offering a return link from Europeana and ensure that the information provided is as rich as possible and not simply a reiteration of the image available from Europeana.

Analysis of the user survey data was limited by the low number of respondents. In contrast to the analysis of the web traffic statistics, the pattern of the survey responses appears to indicate a preponderance interest by natural history visitors. Unsupervised surveys are however extremely subject to target bias and can be as indicative of the likely hood of a particular response group to actually respond to a questionnaire as well as reflect on the effectiveness with which the survey has been disseminated across all target groups. We therefore place more reliance on the indicators obtained from the web traffic analysis.

We do however consider that the following conclusions can validly be drawn. The majority of users appear to have found the site useful although there appears to have been some difficulty in discovering the natural history content. Return visits are relatively low even though in the majority of cases the information returned was found to have been of use and of sufficient quality. The low re-visit rate therefore appears to have been more a function of the sporadic nature of the requirement for the information provided rather than of a failing in the content or its presentation. That is, users only have need of the information available on the site infrequently but when they have a need the OpenUp!/Europeana appears to be able to satisfy it.



## List of References

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**Güntsch A. & Hagedorn G.** (2013). Stable identifiers for specimens – A CETAF ISTC initiative supported by pro-iBiosphere (<http://www.pro-ibiosphere.eu/show.php?storyid=4296>).

**Hyam, R.D., Drinkwater, R.E. & Harris, D.J.** (2012) *Stable citations for herbarium specimens on the internet: an illustration from a taxonomic revision of Duboscia (Malvaceae)*. Phytotaxa 73: 17–30.