WORCESTER POLYTECHNIC INSTITUTE

# RGS-IBG Expeditions Database and Report Collection

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# RGS-IBG Expeditions Database and Report Collection

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by
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# Abstract

The goal of this project was to improve the functionality and increase submissions to the Report Collection and Expeditions Database of the Royal Geographical Society (with the Institute of British Geographers) (RGS-IBG). To determine the limitations and possible improvements of the Database and Collection, we conducted an assessment, a survey, and an interview. We then produced a series of guides for volunteers at the Society and a number of recommendations for the future development of the Collection and Database.

# Executive Summary

## Introduction

Since 1830, the Royal Geographical Society (with the Institute of British Geographers) (RGS-IBG) has curated an impressive collection of photographs, maps, reports and other materials related to expeditions conducted throughout the world. In recent years, the details on these materials have started to become available in the Royal Geographical Society's databases and collections. This project focused on improving the user experience of the Expeditions Database and the associated Report Collection.

The goal of our project was to work with RGS-IBG to improve the functionality and accessibility of their Expeditions Database, as well as to provide recommendations to encourage contributions to the database. We accomplished this by assessing and improving interactions with the database for all users, by examining the contents of the Expeditions Database and Report Collection, and by developing recommendations to increase the number of submissions to the database.

The RGS-IBG documents and archives a long and proud history of exploration and travel. With much of this information now available to the public, the collection is also adapting to its audience and the times. This project aimed to expand the RGS-IBG's capacity to meet its own goals of education, and advancing the rich history of the geographical sciences.

## Literature Review

To make informed recommendations and to fully understand the scope of the project, we explored the history and role of learned societies in general, the users of Expeditions Database, and the challenges faced by learned societies in the digital age. The RGS-IBG has an open access policy for their database, so we examined some of the controversies behind open access and intellectual property.

The Expeditions Database and Report Collection have several different interfaces and many distinct groups that interact with the database in specific ways. We first classified groups as the RGS-IBG staff (internal users) and the public (external users). From these general categories, we then explored the ways specific groups interacted with the Database and Collection. Internal users are exclusively the staff of the RGS-IBG. They are responsible for maintaining the database, adding new reports, handling copyright and licensing, digitizing records for the Expeditions Database, and accessing the physical reports in the Report Collection for the external users. External users are any individuals that interact with the public web interface of the Expeditions Database or visit the Society to read or request copies of reports in the collection.

We researched some of the major issues faced by learned societies when transitioning to a digital world. We also investigated intellectual property and copyright handling in the UK. Finally, we examined the history of databases themselves and how they can be properly designed. This research gave us a foundation to build upon to achieve our project.

## Methodology

We accomplished our goal by completing the following objectives:

- To develop recommendations for improving user experiences
- To develop recommendations for improving the information in the database
- To develop recommendations for additional submissions

To gain a better understanding of the workings of the Expeditions Database and Report Collection before our project, we performed a site assessment. This general overview allowed us to develop the baseline for our analysis of the Report Collection and Expeditions Database. We examined the physical collection, the digital database and the procedures for adding entries to the Expeditions Database and reports to the Report Collection.

There are both internal users and external users interacting with the Expeditions database and Report Collection. Due to the fact that different groups have different needs and concerns, we examined the user experience from several different perspectives. We achieved this examination by utilizing each of the different interfaces used by internal and external users.

To gain a more complete understanding of the needs of the database users and the reasons why they use the database, we collaborated with the Geography Outdoors Office to design a survey to send to the Geography Outdoors mailing list. The questions in the survey were designed to clarify the types of individuals who utilize the database and their motivations for doing so.

To understand the technical capabilities of the staff at the RGS-IBG and how the Expeditions Database and Report Collection were managed, we conducted interviews with internal users. Through these interviews, we explored the history of the Database, the technical aspects of the Database, database maintenance, copyright issues surrounding the database, and how the RGS-IBG staff used the Database or Collection.

## Results

During our research, we received data from four areas: the Report Collection, the Expeditions Database, the survey of external users, and the interviews of internal users. As part of the assessment of the Report Collection, we determined the size of the collection, dimensions of the main storeroom, examined boxes and reports, and obtained visual documentation of different parts of the collection. When examining the size of the collection, we found that there are a total of 503 boxes in the Report Collection. There are 309 boxes of final reports, 83 boxes of preliminary reports and brochures, and 111 boxes of duplicate reports. We found that there were seventy boxes that need to be replaced because they were damaged or, most commonly, lacked a handle.

The survey of external users shed light on their motivations for using the database. As Figure 1 shows, the most common reason for people to access the information stored on the Expeditions Database is to assist with the planning stages of a new expedition. We learned that reports from recently returned expeditions prove to be the most helpful for individuals planning their own expedition. The RGS-IBG would be

better able to quickly provide these crucial materials to its users if a system existed for quickly and efficiently sorting and inputting materials from the backlog.

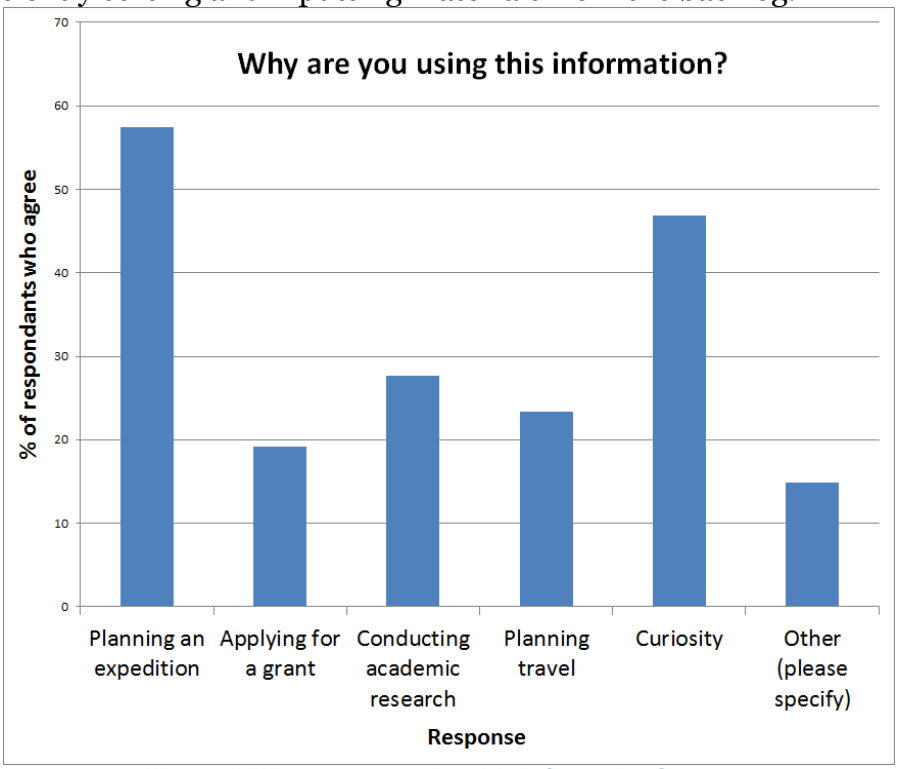


Figure 1: Why are you using this information?

During our interviews with the Expeditions Database Manager and the Grants Officer, it became clear that many of the problems with incorrectly entered data came from inexperienced data entry users. Usually these individuals were volunteers who were only there for short periods of time. This has led some fields, even very simple ones, such as "Year", to have vastly different formats depending on who entered the information.

Our survey of external users provided an insight into the motivations and demographics of those who use and submit to the Expeditions Database. The most important data we obtained from our survey were the results from the two questions asking about the user's motivation for using the Database. The most common reasons users claimed were 1) a desire to contribute to the Database and 2) a desire to make their reports available to the general public.

## Recommendations

We synthesized findings into several recommendations for the RGS-IBG. Our recommendations focus on the development of the Report Collection, improving the quality of data on the database, and making the Expeditions Database more relevant in the digital age. Our recommendations are listed below.

### Use and maintain up-to-date user guides

The use of internal user guides could enable the RGS-IBG to ensure that expeditions that are entered into their Database have consistent formatting and

information. The guides would also allow work-experience students and interns to become familiar with the workings of the database, without the need for RGS-IBG employees to spend large amounts of time training them. This would allow the interns to begin working more quickly and more efficiently, while also allowing the RGS-IBG staff to focus on more pressing work.

### Address the backlog

We recommend a series of steps to best address the backlog.

1. Divide the backlog into materials into two groups: those that took place in the past four years and remaining materials. . Because more recent expeditions will have more useful and up to date information, the newest documents should be entered into the collection first.
2. Within the first group (expeditions which have taken place in the past 4 years), the newest documents should be entered into the collection first.
3. Sort the remaining documents (i.e. older than 4 years) by continent in which the expedition took place. This will create more manageable piles that can be evaluated one at a time by an intern.

### Address past data inaccuracies

There is a significant amount of data that has been entered incorrectly or has been entered multiple times, making database searches more difficult. The area with the most pressing need for data clean-up is the "Years" field, where expeditions that took place over multiple years sometimes only correctly list one of the years. In addition, the contacts database contains hundreds of duplicate entries. We recommend that the RGS-IBG invest time into correcting these inconsistencies.

### Re-organize and maintain the Report Collection

We recommend that the RGS-IBG reorganize the storeroom and perform maintenance on the boxes and reports. We believe that the space in the storeroom can be better utilized and accessed.

### Develop an acquisition policy

The creation of an acquisition policy will allow the RGS-IBG to quickly appraise materials submitted to the Report Collection and then determine whether to incorporate the material into the Collection. An acquisition policy will clearly lay out the qualities of materials to be added to the Collection and will allow the Collection to grow in a more focused and meaningful way.

### Digitize and make reports available online

We recommend that the RGS-IBG make the reports in the Report Collection freely available online. Digitizing the reports will make the Collection available to people throughout the world and allow the RGS-IBG to remain a relevant resource in the digital age. Because they are the most useful to users, the newest reports should be digitized first.

### Promote the Report Collection and Expeditions Database

Finally, we recommend that the RGS-IBG proactively promote the Expeditions Database and Report Collection. This can include increased visibility for the Database and Collection on the various RGS-IBG social media pages, as well as more links to the web interface through the website.

## Conclusion

Our project examined standards for creating new database entries, encouraging more submissions, and assessing the current state of both the Collection and the Database. Moving forward, we recommend the RGS-IBG continue to examine how information can be retroactively corrected on the Database. Further research could conduct a focused assessment of improving and reorganizing the Report Collection, and develop a plan to fully digitize the collections. While time constraints prevented us from conducting comprehensive research into these areas, our work has identified these three issues as potential future projects.

# Acknowledgements:

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# Authorship Page

We produced this report through a team effort that involved countless hours of research and writing. Together, we proofread and edited each section. The primary authors of each section are included in the table below.

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# Chapter 1. Introduction

Since 1830, the Royal Geographical Society with the Institute of British Geographers (RGS-IBG) has curated an impressive collection of photographs, maps, reports and other materials related to expeditions conducted throughout the world. In recent years, the details on these materials have started to become available in the Royal Geographical Society's databases and collections. The Library Catalogue, the Expeditions Database, and the Field Centres Database are all open to public access. This project focused on improving the user experience of the Expeditions Database and the associated Report Collection.

The Geographical Society of London was created in 1830 to promote the "advancement of geographical sciences". It began as a dining club for discussing scientific issues, but went on to be granted its Royal Charter 29 years later. At this time, the Society's name also changed to the Royal Geographical Society. Since 1913, the Society and much of its collections have been located in Lowther Lodge in Kensington Gore. In 1992, the merger between the Royal Geographical Society and the Institute of British Geographers created the Royal Geographical Society (with the Institute of British Geographers). The RGS-IBG is acknowledged as one the largest and most active geographical societies in world with a long history of teaching, research, expedition support and the promotion of a public understanding of geographical sciences. In 2004, much of the Society's collection opened to the public for the first time (RGS-IBG, n.d.).

The scope and cultural importance of the collection is, in part, due to the extraordinary history of the RGS-IBG. During its earlier history, the Society was closely linked to the explorations of Africa, Central Asia and Antarctica, most famously with explorers like Sir Edmund Hillary, Tenzing Norgay, David Livingstone and Sir Henry Stanley. The RGS-IBG collections contain the documents, artefacts, reports and maps from these explorations (RGS-IBG, n.d.). The RGS-IBG collection has been designated an outstanding collection by the Museums, Libraries, and Archives Council (MLA). The MLA identifies and commends English collections with national and international importance (the collections recognized cannot be maintained by a national museum, library or archive) (as cited in RGS-IBG, n.d.). In total, the collections contain more than two million items with "one million sheets of maps and charts, 3000 atlases, 40

globes … and 1000 gazetteers", in the map and atlas collection alone (RGS-IBG, n.d.). As the RGS-IBG already has a prolific physical collection, it has begun to develop digital databases to complement the physical collection bringing with it all the challenges of maintaining and creating an effective digital database.

The focus of this project is on the usability and interface of the Expeditions Database and Report Collection, which contains more than 12,000 expedition entries in the database and over 5,000 associated reports in the collection. Each entry can include information on the expedition location, the expedition leader, the contact information for the expedition leader, the reference number for the full physical report or other materials in the Report Collection, and the summary of the work done by the expedition. Expeditions document anything from the work of professional researchers to individual exploration. The Society's Expeditions Database continues to expand with hundreds of new reports being submitted each year (Personal communication, Shane Winser, March 28, 2014).

The RGS-IBG Expeditions Database and Report Collection have grown over the years and have faced a number of issues that have made working with the database and the collection difficult, including a lack of standardized terminology for users and missing or incomplete data in some of the entries. The Report Collection was in need of maintenance to make it easier to use and to improve the conservation of the materials held in the collection.

The goal for our project was to work with RGS-IBG to improve the functionality and accessibility of their Expeditions Database, as well as to provide recommendations to encourage contributions to the database. We accomplished this by assessing and improving interactions with the database for all users, by examining the contents of the Expeditions Database and Report Collection, and by developing recommendations to increase the number of submissions to the database.

The RGS-IBG documents and archives a long and proud history of exploration and travel. With much of this information now available to the public, the collection is also adapting to its audience and the times. This project aimed to expand the RGS-IBG's capacity to meet its own goals of education, and advancing the rich history of the geographical sciences.

# Chapter 2. Literature Review

This chapter presents background and contextual information concerning our project in greater depth. We describe the Royal Geographical Society with the Institute of British Geographers, and present in detail its current operations and functions. We also included information pertaining to database models, intellectual property laws and how they relate to scientific research, details about the modern databases, and archive preservation and design.

To make informed recommendations and to fully understand the scope of the project, we explored the history and role of learned societies in general, and we examined the challenges faced by learned societies in the digital age. The RGS-IBG also has an open access policy for their database so we examined some of the controversies behind open access and intellectual property. We describe the basics of databases and their construction. Finally, we present our findings from the literature on designing and maintaining an archive.

Some of the references in the following sections date back to the 1990s or older. When looking at more recently written articles on Learned Societies, these articles were often cited: Heilbron, 2003; Millerson, 1998. It was also difficult to find articles that directly discuss the ramifications of digitization for learned societies. It was especially difficult to find information on British Societies and organizations. Thus, we relied on older articles that typically featured American organizations (for example: Bennett, 1997).

## 2.1 Site Description

The Royal Geographical Society (with IBG) is a learned society for the promotion of geographical sciences (RGS-IBG, n.d). A learned society is a formal organization, with limited membership, concerned with the advancement of a particular academic field. Learned societies are credited with greatly expanding our knowledge of academic fields, such as mathematics, physics and biology. Learned societies often maintained libraries, collected instruments pertinent for their field of study, published journals on the work being conducted by the organization, awarded prizes or grants for individuals or groups

and organized expeditions to advance the knowledge in their field (Heilbron, 2003). Many modern organizations, including the RGS-IBG, still perform all of these services. The RGS-IBG continues to expand the field of geographical sciences by holding lectures on geography, supporting expeditions, collecting documents and instruments related to geographical sciences, organizing professionals for conferences, providing grants for expeditions and fostering public interest in geographical sciences. Through the Foyle Reading Room, the RGS-IBG allows the public to peruse the physical collections from research and scientific expeditions.

The RGS-IBG has fifty permanent employees that work in the five divisions of the Society. The five divisions are the Director's Office, Public Engagement and Communications, Education and Outdoor Learning, Enterprise and Resources, Research and Higher Education (RHED), and Finance and Services. The RGS-IBG often has short term volunteers that perform duties like data entry for the database or event staffing for RGS-IBG conferences. The Expeditions Database is managed by the staff in the Education and Outdoor Learning division, specifically those in Geography Outdoors: the centre supporting field research, exploration and outdoor learning. The Geography Outdoors Office works with individuals planning expeditions provides them with advice and information and organizes courses to prepare individuals going on expeditions. We aided the Geography Outdoors Office in developing the Expeditions Database and Report Collection.

### 2.1.1 Terminology

Provided here is a list of terms and definitions that will make the following sections more clear and understandable.

- Report Collection: This refers to the physical collection of supplementary material related to expeditions.
- Report: This refers to an item in the report collection. Many of these items are reports or scientific papers. However, there are also brochures, press releases, newspaper articles, or other press documents in the Report Collection.
- Expeditions Database: This refers to the digital database that stores information about expeditions as entries.

- Entry: This refers to a record of an expedition in the Expeditions Database. An expedition can be in a variety of states including planned, postponed, ongoing, unknown, cancelled, and returned.
- Web Interface: This refers to the online interface for the database intended for external users. It can be used to search and view selected entries in the database and to submit new entries.
- MS Access Interface: This refers to the Microsoft Access interface intended for the internal users. It is used to add entries into the database as well as to update existing entries.
- Back-End Interface: This refers to the interface where users can view the entries as rows in a table and edit all the information about the database. It allows the user to have complete control over all of the data in the interface, but it can be difficult to use. It is used by internal users only.

### 2.1.2 The Expeditions Database and Report Collection Users

The Expeditions Database and Report Collection have several different interfaces and several distinct groups that interact with the database in specific ways. We first classified groups as the RGS-IBG staff (internal users) and the public (external users). From these general categories, we then explored the ways specific groups interacted with the Database and Collection. These interactions were then visualized as the diagram in Figure 2.

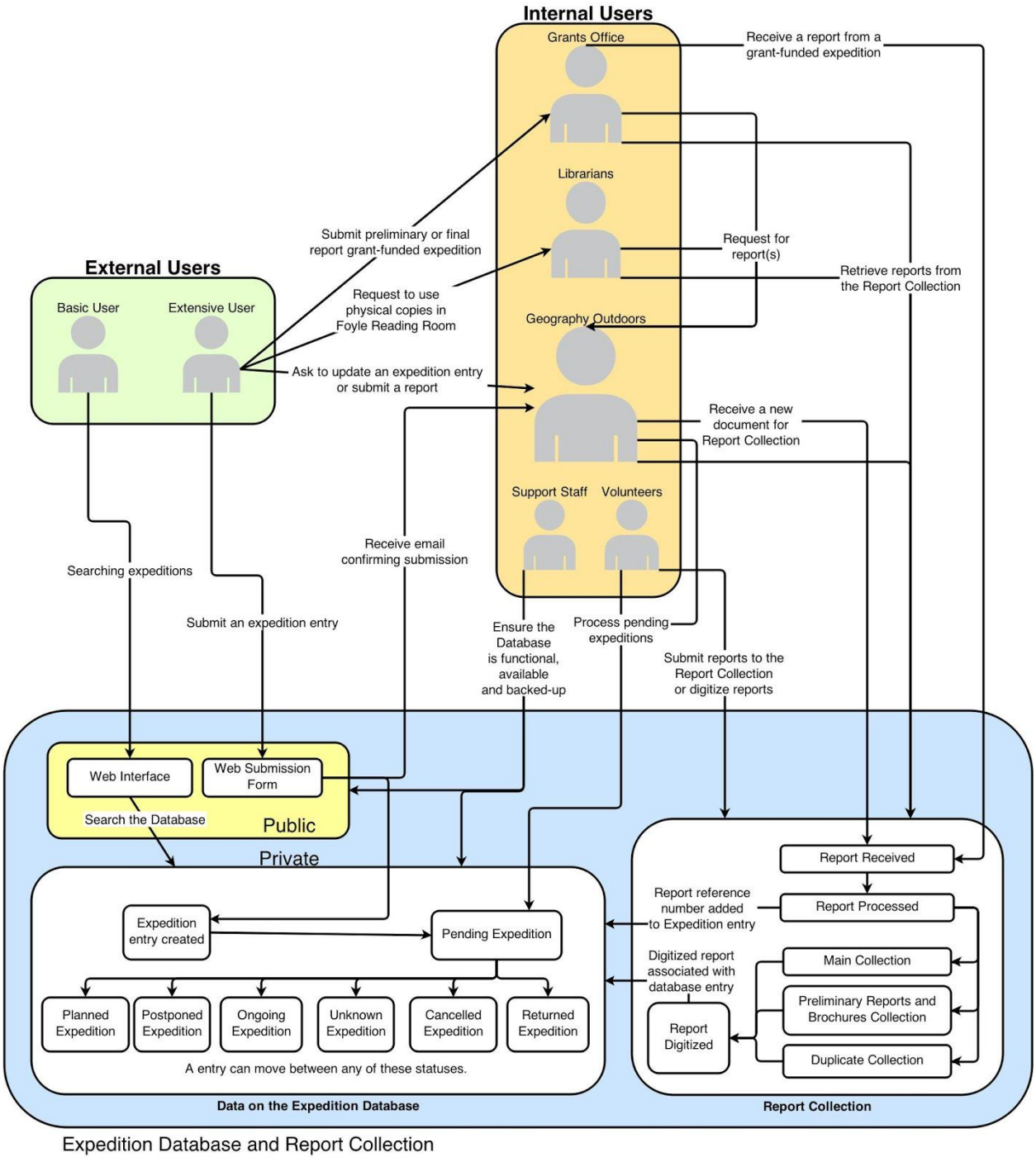


**Figure 2: Diagram of interactions between user groups, Database, and Collection**

Internal users are exclusively the staff of the RGS-IBG. They are responsible for maintaining the database, adding new reports, handling copyright and licensing, digitizing records for the Expeditions Database, and accessing the physical reports in the Report Collection for the external users. When a report is submitted to the RGS-IBG, the

staff (or volunteers) need to add the details of the expedition to the Database if it has not already been registered, and then acquire the report. When individuals request a report from the Expeditions Database, the report can be scanned and sent to the individual. Individuals can also access the physical copies of a report by visiting The Foyle Reading Room (FRR). The FRR is the public area that allows people access to the Report Collection and other collections in the RGS-IBG. If the individual comes to the FRR to use the Report Collection, RGS-IBG staff needed to locate, deliver, and then return the report. If the external user wishes to have a digital copy of the report, there may be challenges with scanning materials that require that the document binding to be dismantled, scanned, and then reassembled.

External users are any individuals that are not employed at the RGS-IBG. External users interact with the public web interface of the Expeditions Database. The database is designed to be used for planning expeditions or recording completed expeditions, however some external users may search the database for research purposes or out of curiosity. The external users can be separated into individuals that are using the search capabilities of the Expeditions Database or are submitting their own expeditions to be included in the Database. On the RGS-IBG website, it is difficult to find the Expeditions Database from the main page. This requires the user to move through several links before arriving at the search page. Search terms do not encompass all of the categories users require. There are also separate databases for photographs, as well as books, journal articles and artefacts requiring a user to search through several databases to find all material that the RGS-IBG may have on a single expedition. The process of expedition submission used to require an individual to fill out the online form that would then be emailed to the RGS-IBG and then entered into the database using the MS Access interface by an internal user. There was sometimes a long delay between the time when the information was submitted and the time when was this information was available for use on the RGS-IBG's website. Improving the experience for external users included improving search terms, making the database easier to find on the RGS-IBG website, making different databases more cooperative and simplifying the submission form.

## 2.2 Physical and Digital Archives

The Expedition Database and Report Collection are composed of two parts: a database with entries detailing expeditions and a collection of expedition reports. To understand the difficulties of maintaining both a digital archive and a physical collection, we looked into the digitization concerns and the preservation of physical archives.

### 2.2.1 Digital Archives

As digital media has become more widely used, there has been a growing discussion on how learned societies should respond. Many experts (Gaudamuz, 2006; Bennett, 1997; Parry, 2013; Prom, 2013) and organizations (American Council of Learned Societies - ACLS) believe that the digitization of data stored on physical media, such as paper, to a computerized medium will completely change scholarly fields. We identified two main concerns for scholars discussing digitization: the transition from physical to digital and, the archival of digital materials.

When discussing the transition from physical media to digital media, organizations either decide to completely phase out the physical copies, or use the digital database as an extension and complement to the physical collection. Scholars such as David Parry and Douglass Bennett represent two voices in the discussion (Parry, 2013; Bennett, 1997). Parry argues that it is simpler to have everything in one convenient digital format rather than having the complication of maintaining multiple systems (Parry, 2013). This contrasts to Douglas Bennett's caution of digital formats that may have vulnerabilities that have not yet been discovered (Bennett, 1997). Both of these arguments have practical dimensions. A physical collection requires space, careful maintenance and a staff to preserve the collection. On the other hand, a digital collection requires a method to digitize physical items (a scanner or camera), a database to hold the information and specialized staff to process items and maintain the database. Both a physical collection and digital database require enormous investments for creation and maintenance. Any organization considering digitization must weigh the advantages and disadvantages of either dissolving their collection or using a digital database in tandem with the collection.

The discussion of digital archives also greatly concerns the preservation of digital media. Currently, online information can easily be lost, overwritten or destroyed. The article *Reimagining Academic Archives* calls this time a "digital dark age" meaning that there is currently very little and irregular preservation of digital materials. The article's author believes that online and digital data needs to be archived and preserved (Prom, 2013). The Internet Archive is an example of an archive of digital media. The archive was created in 1996 with the goal to create, "permanent access for researchers, historians, scholars, people with disabilities, and the general public to historical collections that exist in digital format" (Internet Archive, n.d.). Currently, there is no standard method for the preservation of web pages, online databases or other forms of digital media resulting in digital preservation being done, if at all, at the discretion of whoever is hosting the material.

Depending on the needs of the organization the digitization process can vary. Finances, accessibility, space constraints, technical support, copyrights, and preservation are all concerns when digitizing a physical collection. Limited methods for preservation of digital materials makes it necessary for every organization to create their own protocol to back up their database.

### 2.2.2 Physical Archive Collection Storage

During our research we studied the various considerations archivists have to take when building physical collections. We discovered that the exact need of the archive varies greatly depending on the size and content of the collection. However, there are a few key elements we found that every archivist should consider. The first, and most important, element is some form of effective shelving. The Archives Association of British Columbia suggests "adjustable metal shelves with a depth of 12" to 15""(Archives Association of British Columbia [AABC], 1999). Additionally, all archives should have some form of storage container, whether it is envelopes, boxes, folders, or another appropriate solution. Finally, it is important for the archive to have an area with a table and chairs where pieces of the collection can be placed during perusal or organization. This is not a complete list of everything an archive needs to be effective, but it does account for the most basic requirements (AABC, 1999).

Obviously, when one is looking to improve the storage of their collection, the areas they should focus on vary greatly depending on the archive. Some archivists may need to work on developing new areas to store their collection, while some may just need to work on optimizing the space they already have. Assessing what aspects need the most improvement is up to the individual, and oftentimes there is more than one correct answer. However, whatever the ultimate decision is, there should always be a focus on ensuring ease of access to the collection while still maintaining a secure and stable environment (AABC, 1999).

## 2.3 Intellectual Property and Open Access

Because the Expeditions Database and Report Collection curates materials from individuals and share the information with the public there are a myriad of legal and social implications. To address these concerns, we researched the intellectual property laws of the UK and the issues surrounding open access materials.

### 2.3.1 Intellectual Property

Under United Kingdom (UK) copyright laws, the reports, the summaries and the Database itself are subject to copyright. Thus, the RGS-IBG is responsible for the copyright or license of all of the materials in the Expeditions Database and Report Collection. To obtain a full understanding of the challenges faced by the RGS-IBG, we researched copyright laws in the UK that affect information stored on the Database or the Database itself.

In the UK, there are copyright laws that affect how original works can be used and shared. The Intellectual Property Office (IPO) of the United Kingdom is responsible for copyrights, patents, designs and trademarks. The IPO defines a copyright as a legal way to protect an original work. To qualify for copyright in the UK, the piece must meet three criteria. First, the piece must be an original work. Second, the piece must have some form of permanent record either written or recorded. Lastly, the piece must be produced in the UK or by a UK citizen. If all of these requirements are met, the author or owner of the work has rights over how the piece is used (IPO, n.d.). Copyright also

gives the owner of copyright control over the distribution of the material. They may control the copying of their materials by any method, issue of copies (like selling books) and the lending of their work. Distribution is also connected to the concept of fair use (or fair dealing), which outlines certain circumstances where use of copyrighted material without license is allowed. Under UK law, a user can use parts of a copyrighted work as long as the copy is for research or personal use, without the intention of commercial gain, properly acknowledged, and that the user does not make the work publically available (IPO, n.d.).

Apart from copyrights pertaining to individual materials, there are specific copyrights for databases. A database, itself, may qualify as an original literary work or have its own database right. In order for a database to be protected as a literary work, the database must have an original collection or presentation of works and must have been a demonstrable investment in the curation of the materials. A database right does not need to be applied for, but unlike literary copyright protection the database right is only valid for fifteen years from the point the database goes live. The creation and maintenance of a database is further complicated if materials presented on the database have copyrights as well. The databases curated must obtain license from the owners of each material before adding it to the database (IPO, n.d.).

To respect copyright laws, there are a number of considerations for databases. The copyright and licensing agreement between the contributor and the database must be clear before submission to the database. Each contributor should acknowledge that they have been informed and understand the licensing agreement when they submit to the database. Databases should keep a thorough record of these agreements as proof of their license (IPO, n.d.).

### 2.3.2 Open Access

As the Expeditions Database is a collection that contains scientific research and is available to the public, we determined that it was necessary to research the implications of open information. There is a growing concern about “the trend to fence and protect scientific research through intellectual property” (González, 2006). In the past, peer-reviewed journals would typically make new basic research accessible to the public as

soon as possible. However, this research has become more and more protected, as corporations have been reluctant to share data that may prove to be a lucrative trade secret. This secrecy makes it difficult for other scientists to build upon the research. Researchers have argued that this increased restriction of intellectual property may "have adverse effects in the development of future research" (González, 2006). The ability of scientists to make new discoveries is dependent on them having access to the most recent scientific research. However, opponents of open access argue that many scientific journals rely on fees that are paid by subscribers in order to gain access to the newly published work (Jump, 2013). These subscription fees help to keep learned societies functioning, but they also limit the number of people who read the society's journals. Ultimately, it is the duty of each individual society to determine where their interests lie, and whether their financial needs truly necessitate withholding scientific research to those who are unable or unwilling to pay a subscription fee. For those organizations and individuals that wish to have their research made available, there are open access licenses that allow the work to be distributed and built upon, while allowing the organization to keep its copyright on the work.

The problem of overly-protective intellectual property measures has been addressed in the computer programming field. In general, open source software licenses allow programs and their source code to be freely examined, used, modified, and redistributed, while still keeping copyright protection. Applying this model to scientific research would allow the free distribution of the research to those who may be able to build on it, while ensuring that the creator of the work retains certain intellectual property right. The term "open science" is used to describe this new intellectual property model. Open science "could be defined as the application of open source licensing principles and clauses to protect and distribute the fruits of scientific research" (González, 2006). The Open Science movement strives to encourage the distribution of knowledge, in a way that is financially acceptable to researchers.

Licensing systems such as The Creative Commons licenses represent a step forward for the open science movement. These licenses are easy to use and understand, and are available in a myriad of jurisdiction-specific versions, allowing them to retain their legal power internationally. These licenses are easily applied to scientific literature because all literary works are covered by copyright law. As mentioned in the Intellectual

Property section, the work is protected after the work is completed without additional application processes. This means that all of the expedition reports in the RGS-IBG's database are currently protected by copyright law. The rights of the author can be modified if the author chooses to distribute their work with a license that promotes the ideals of the open science movement.

Licenses adopted from the open source software movement allow this information to be distributed, while still guaranteeing that the original creator maintains their copyright. Non-commercial licenses also guarantee that those who use the newly accessible information cannot make money from the copyrighted material. This assures that those in every field of science are able to make use of new discoveries. It also guarantees that the owners retain their rights and their ability to make money with their discovery.

## 2.4 History of Databases

In order to understand just how this scientific research is stored and accessed online, we must understand what exactly databases are and how they operate. A database is a collection of information that is stored in a consistent manner. Unlike a basic list, every entry in a database must follow the same structure. This common structure makes databases very efficient ways to store, organize, and retrieve large amounts of information. For example, if a database was created to keep track of books it might look like the example depicted in Figure 3.

| Title | Author | Page Count | Publication Year |
|---|---|---|---|
| War and Peace | Leo Tolstoy | 1,225 | 1869 |
| Anna Karenina | Leo Tolstoy | 864 | 1877 |
| ... | ... | ... | ... |

Figure 3: Flat-file book database

Every instance of these four attributes is known as a record. All records of the same type are stored in a section of the database known as a table. Each table can

contain only one type of record. For example, if one wanted to add information about movies in our current book database, one would have to create a new table to store those new kinds of records (Churcher, 2012).

Simple databases have been used ever since writing was first developed. Early traders would keep track of the trades they made so they would have accurate information on what inventory they still held (Berg, 2013). These lists of trades are the simplest form of databases known as flat-file databases. A flat-file database is a database that has only one table. This makes flat-file databases very easy to design and implement, however they can become hard to work with if too much information gets added to a record.

If we go back to the book database in Figure 3, we might now want to keep track of additional information about the authors including their home address. The new database would look like the database depicted below in Figure 4.

| Title | Author | Author Address | Page Count | Publication Year |
|---|---|---|---|---|
| War and Peace | Leo Tolstoy | Astapovo, Russian Empire | 1,225 | 1869 |
| Anna Karenina | Leo Tolstoy | Astapovo, Russian Empire | 864 | 1877 |
| ... | ... | ... | ... | ... |

Figure 4: Modified flat-file book database

As one can see, multiple books written by the same author have the address duplicated on each line. Unfortunately, if the author's address changes this change must be made in the record of every book that the author has written. If there are just a few books by this author on the database, this task may be trivial, but if there are numerous books by this author, this task may become time consuming. People recognizing these problems began to create a new form of database known as a relational database.

The largest improvement found in relational databases is that they no longer have to be just one table. This makes them powerful because it reduces data duplication, though greater effort is needed to design and maintain the relations between the tables. If we go back to the book database in Figure 3, switching to a relational database would yield two tables that looked like those in Figure 5.

| Unique ID | Title | Page Count | Publishing Year | Author ID |
|---|---|---|---|---|
| 1 | War and Peace | 1,225 | 1869 | 1 |
| 2 | Anna Karenina | 864 | 1877 | 1 |
| 3 | ... | ... | ... | ... |

| Unique ID | Author Name | Author Address |
|---|---|---|
| 1 | Leo Tolstoy | Astapovo, Russian Empire |
| 2 | Ayn Rand | New York, New York |
| 3 | ... | ... |

Figure 5: Relational book database

If an author changes their address with this new layout, the users would only need to update one entry, instead of needing to update one hundred records. (Indiana University, 2006).

For most modern database implementations a relational database is going to be a superior option. While it requires a larger initial time investment than a flat-file database the time saved on updating and maintaining the database will outweigh that imbalance. While there are some situations where a flat-file database will be simpler, that is not the case in this situation.

## 2.5 Case Studies in Database Design

The primary concern of the RGS-IBG was to streamline their database. In order to better understand how to properly improve a database and to avoid the potential pitfalls, we reviewed two cases; one that succeeded, and one that failed.

### Database 1 - Croydon Council Database

In 2012, a team of WPI students resolved a number of problems with The Croydon Council's database systems. The Croydon Council oversees a database containing information relating to over 16,100 of its tenants (Hufnagle, Mao, & Rashid,

2012). The data included information about the Council's residences, tenants, rent, property locations, and requests for repairs. This information was stored in two separate databases, and could be accessed using a "Geographical Information System (GIS)" (Hufnagle, et al., 2012). The databases and GIS were not connected together in any way, which resulted in inconsistent and duplicate data. The student team developed recommendations that connected the databases together to make information in the database easier to access by the Council's tenants.

The team came to the conclusion that a "middleware system" would be the best option for the Croydon Council to implement (Hufnagle, et al., 2012). This solution did not attempt to migrate the existing data into a new single database. Instead, it kept the data in the two separate databases. It then allowed users to view and modify the information from the two disparate databases, as if they were stored in the same database. The group chose this option because it allowed for a single user interface, while being much less costly than developing a new database.

Because the ultimate goal of the project was to improve usability and access to the Council's information, and not to rebuild the existing databases, certain technical problems related to these databases were not addressed by this team. The fact that data was stored in more than one database meant that data was sometimes inconsistent or out-of-date (Hufnagle, et al., 2012). This would continue to be a problem in the future if the databases were improperly maintained. The team's solution also did not resolve existing inconsistencies in the data, although it would allow the Croydon Council's staff to find them more easily. The students were able to successfully create recommendations to improve the functionality of the database at a user level. The project accomplished its stated goals, however several problems with the two databases were left unresolved.

When designing or modifying a database, user interaction and maintainability is important. However, if the cost to rebuild an existing database proves too much of a financial or technical burden, other options can be executed that will produce similar results in terms of the external user interface.

### Database 2 - Mount Everest Foundation

When developing a plan to improve a database system, it is helpful to look at examples of databases that ineffectively connect the user with the data. The Mount Everest Foundations online database, found at http://www.mef.org.uk/, serves as just such an example. Though the information contained within is still accessible, it places many barriers to navigation that only serve to prevent the user from getting to the information they desire in any effective period of time.

The first and largest issue this site has is its lack of a common menu. On every page, the method by which the user is required to move around changes. This causes the database to seem unorganized and disjointed. A persistent bar at the top of the page that can allow the user to navigate at will would make finding information a much simpler task.

Similarly, the only links on the page are represented by small images placed directly adjacent to the text. While these images are always the same, they obfuscate the navigation process. It has become common practice on the web for the text describing another page to link the user to that area, and when one has to click on a separate entity to cause that navigation it will put many users off.

Finally, it is not always clear where a link will bring the user and what information will be available. Some links bring the user to the same location, through roundabout routes. At the same time, the user will get to a page and not know how they ended up in that section. A database that does not cleanly organize the data is not an effective solution.

This database is an example of how important it is have an interface that is effective, simple, and intuitive.

## 2.6 Summary

In the literature review, we researched some of the major issues faced by learned societies when transitioning to a digital world. We also investigated intellectual property and copyright handling in the UK. Finally, we examined the history of databases themselves and how they can be properly designed. This research gave us a foundation on which to build our project.

# Chapter 3. Methodology

The goal of our project was to work with RGS-IBG to improve the functionality and accessibility of their Expeditions Database, as well as to provide recommendations to encourage contributions to the database. We accomplished this goal by completing the following objectives:

- To develop recommendations for improving user experiences
    - Determine methods for the reorganization of the Report Collection to make reports easily accessible for internal users, less cluttered and optimize the spaces available.
    - Identify bottlenecks in the data input process and determine quickest way to input data.
    - Standardize the terminology used on the database
    - Determine methods for improving information input
- To develop recommendations for improving the information in the database
    - Address inaccuracies in summaries on the Expeditions Database
    - Review the backlog and input it into the database
    - Create a series of user guides to standardize data input and acquisitions
- To develop recommendations for additional submissions
    - Summarize and visualize composition of the Collection and Database
    - Based on survey results, provide visualizations and a summary of potential motivations for users to contribute to the database
    - Based on survey results, provide visualizations and a summary of potential concerns users have that prevent them from contributing to the database

This chapter outlines the processes we utilized in order to meet our objectives. We have also provided justifications for our methodological choices. These strategies allowed us to gather the data that we required, and to generate conclusions and recommendations based on the data acquired.

## 3.1 Site Assessment

To gain a better understanding of the workings of the Expeditions Database and Report Collection before our project, we performed a site assessment. This general overview allowed us to develop the baseline for our analysis of the Report Collection and Expeditions Database. The overview also gave us a better understanding of the type of expeditions submitted, the submission process, the accuracy of the information held in the database and an idea of the number of reports held on the expeditions. Our assessment determined the main areas of the Collection and Database the were in the most need of improvement. We examined the physical collection, the digital database and the procedures for adding entries to the Expeditions database and reports to the Report Collection. This information was used to determine how to optimize the submission process and what kind of documents make up the Report Collection.

Our site assessment included a visit to the storage facilities of the physical collection. The Report Collection is stored in two different locations. One location has primary copies of the Report Collection, while duplicate reports are kept in a separate storeroom. At each location, we collected information on the number of documents stored there and how the documents were organized. Our process also included an assessment of the storage containers, storage room and the form of the reports. This information gave us an idea for how the Report Collections storage could be improved.

Our assessment also included initial observations of the back-end interface of the database. We examined both the structure of the database tables, as well as the format of the information stored in the tables. Through the back-end interface, we acquired information concerning the different reports in the Expeditions Database and Report Collection. We reviewed a series of attributes including whether the expedition received a grant, whether the expedition had some form of publication associated with it, and what the status of the expedition was. This information helped us understand which expeditions were of best quality and how consistent the data format was across the whole database.

Finally, we examined the procedures the RGS-IBG had for evaluating, and inputting the expeditions into the Database. This was accomplished by learning about how entries are handled by the Expeditions Database and how reports are integrated

into the Report Collection. We studied how important information about the expeditions was entered into the database, and how this information was found if the expedition leaders did not provide it themselves. We learned about the processes for digitization and how external users can access the reports. This information was obtained through discussion with RGS-IBG staff familiar with the Expeditions Database and Report Collection. This information enabled us to develop recommendations on where the RGS-IBG could focus its efforts in order to improve the digitization process.

All of the information from this site assessment was stored in a series of electronic documents and Excel sheets. We also took photographs documenting each room we observed and the different types of documents we observed. Our analysis was discussed with our sponsor. All of these documents were kept confidential and utilized password protection. At the conclusion of our project, these documents were given to the RGS-IBG and local copies were destroyed.

## 3.2 Participant Observation

There are both internal users and external users interacting with the Expeditions database and Report Collection. Due to the fact that different groups have different needs and concerns, we examined the user experience from several different perspectives. We achieved this examination by utilizing each of the different interfaces used by internal and external users. Because there was a new web interface being implemented by a third party concurrently with our project, we also did a comparison between the new and old web interfaces.

Internal users would most often interact with the MS Access interface and some work may be done in the back-end interface. They include those working in the RGS-IBG's Geography Outdoors Office and the Grants Office. For the old web interface, data was entered into the interface and was then emailed to the Geography Outdoors office. Data was then examined and manually entered into the database. Submissions to the new web interface only need to be reviewed by the internal users and do not need to be manually entered. To get an understanding of how data entry was done, we submitted test reports to the database through both the old and new web interfaces in order to assess changes and improvements to the process. By comparing the differences between

the web interfaces, we were able to determine any shared issues and potential improvements. Internal users can also use the MS Access interface to search the Report Collection and the Expeditions Database. We experimented with searching for specific reports in the database and then confirmed whether the information listed in the entry was accurate.

External users interact with a web interface that allows users to search the database and submit their expedition to the Expeditions Database. We performed a comparison of utilizing the new and old web interfaces for both searching and submission of expeditions. By searching for data on the database ourselves, we were able to evaluate the process by which an external user may perform searches. This action was designed to help us determine the ease with which a specific database entry may be found, given different search terms and criteria. We were concerned about the ease of finding the web interfaces. We tried multiple ways of finding the web interface from the RGS-IBG's main page and from online.

## 3.3 Survey

To gain a more complete understanding of the needs of the database users and the reasons why they use the database, we collaborated with The Geography Outdoors Office to design a survey that was sent to the Geography Outdoors mailing list. The RGS-IBG has an email list of roughly 7,000 people that are interested in the Geography Outdoors program. The RGS-IBG sent the survey to the entire email list. Recipients were asked to fill out the survey within fourteen days, with a reminder sent via email. We chose to utilize a survey in order to quickly and easily understand how those associated with the RGS-IBG interact with the database. To analyse the data, the RGS-IBG granted us access to the raw data from the survey.

The questions in the survey were designed to clarify the types of individuals who utilize the database and their motivations for doing so. This information was used to develop recommendations for areas the RGS-IBG could focus on to increase the number of contributions to the database. The full survey can be found in Appendix A.

The survey included our thanks and an email address that the participant could use to contact us with additional information or questions relating to our survey or our

project. We used an RGS-IBG affiliated email address for survey-takers to send survey questions to. We determined that an RGS-IBG email address would help reduce confusion for the survey-takers. The data was first received by the RGS-IBG.

## 3.4 Interviews

To understand the technical capabilities of the staff at the RGS-IBG and how the Expeditions Database and Report Collection were managed, we conducted interviews with internal users. The interviews assessed the needs of internal users as they relate to interacting with the database and the collection. Through these interviews, we explored the history of the database, the technical aspects of the database, database maintenance, and copyright issues surrounding the database and how the RGS-IBG staff used the database or collection.

We interviewed eight individuals that either regularly interacted with the database or the collection, or that played a role in the creation of the database or the collection. We interviewed the programmer who writes the code for the database, the IT specialist that maintained the database, the RGS-IBG webmaster, the RGS-IBG grants officer, two of the librarians from the Foyle Reading Room, and the head of Geography Outdoors.

The interviews were semi-standardized by design (Berg, 2012). We asked background questions about the individual's responsibilities at the RGS-IBG and what work they did with the Expeditions Database. We also created individualized questions for specific interviewees based on their job and relationship with the database and the collection. The interviews took thirty minutes to an hour, and were conducted by a pair of teammates. In some situations, the interview was recorded and transcribed. At the beginning of the interview, we informed the interviewee of all groups that will have access to the raw data from the interview and how we would be handling the data. We explained to the interviewee that their answers would be shared only with our group and with Shane Winser, Geography Outdoors Manager, and at the end of the interview we asked if the interviewee would permit us to use their name. A full list of questions and a list of interviewees are included in Appendix B.

All of the information we collected during our methodology was stored in electronic documents on password protected computers. All original copies of notes from the interview were destroyed once they were moved to a digital format. At the conclusion of the project, all the data we collected was given to our sponsoring organization.

## 3.5 Gantt Chart

Figure 6 is the Gantt chart we used to outline our week by week itinerary to implement our methodological strategies. In addition to our Gantt chart, we created a table containing the individual activities we had to accomplish.

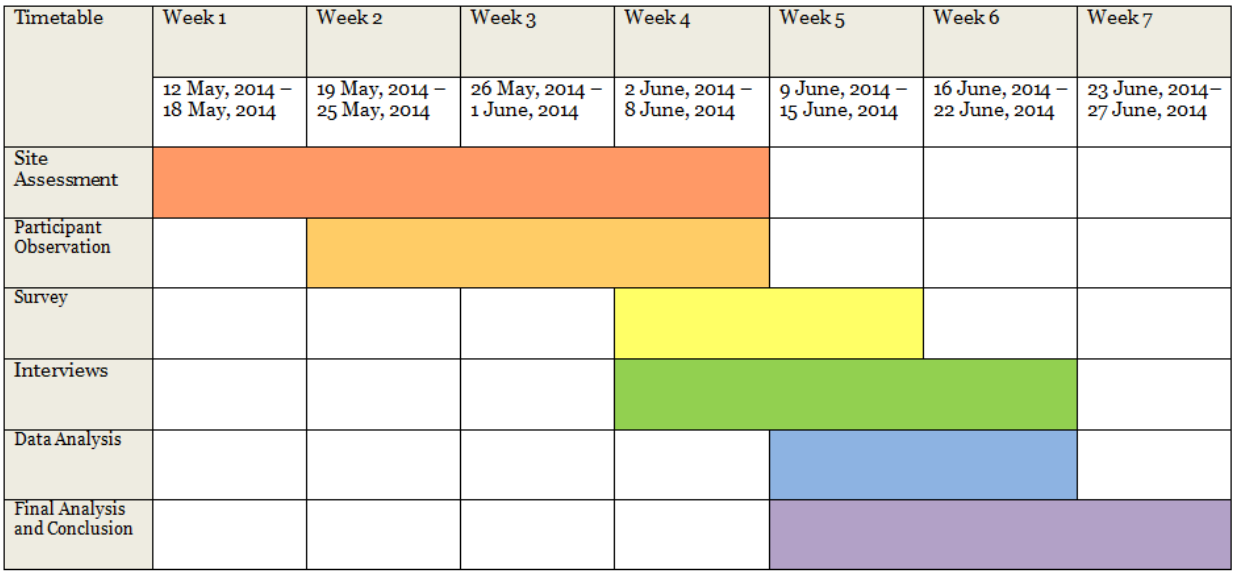


**Figure 6: Gantt Chart**

# Chapter 4: Results and Discussion

This chapter is organized into two sections. The first section, Results, presents key points from the data we collected and is organized by our three objectives. The second section, Discussion, examines themes that emerged from our results.

## 4.1 Results

Through implementing each portion of our research, we acquired a significant amount of data. From these data, we have selected the points that we found to be most significant and best representative of our findings. These findings were then organized by our three original objectives.

### 4.1.1 Objective 1: Improve User Experience

Our first objective was to examine and improve the current user experience. Data for this objective was obtained through site assessment, participant observation, and interviews with internal users as described in section 3.4. To best understand our findings, we further divided our data based on the two user groups. For internal users of the database, we documented the Report Collection and the backlog, and analysed the interviews with RGS-IBG staff. For external users, we tested the web interface and examined opinions expressed in both the interviews and surveys.

#### Internal Users

Several groups of internal users interact with the Report Collection. This includes the staff of Geography Outdoors, the librarians from the Foyle Reading Room, the staff from the Grants Office, and the volunteers in the Grants Office, and Geography Outdoors. As part of the assessment of the Report Collection, we determined the size of the collection, dimensions of the main storeroom, examined boxes and reports, and obtained visual documentation of different parts of the collection. We found that the shelves were twenty centimeters deep while the archive boxes used for the reports were about thirty-nine centimeters long. This results in about a nineteen centimeter

difference between the length of the boxes and the depth of the shelves. When examining the size of the collection, we found that there are a total of 503 boxes in the Report Collection. There are 309 boxes of final reports, 83 boxes of preliminary reports and brochures, and 111 boxes of duplicate reports. We found that there were 70 boxes that need to be replaced because they were damaged or, most commonly, lacked a handle. This meant that about 14.5% of the collection needed to re-boxed. We were able to re-box eleven of the most damaged boxes. **Error! Not a valid bookmark self-reference.** shows one of the damaged boxes we found and replaced. During our examination of the collection, we also observed that many reports have become deformed over time. Appendix C contains the full details and notes from the assessment of the Report Collection.

Figure 7: Damaged box from Report Collection

Another aspect of the assessment was to examine how different classes of materials were stored. By examining the backend, we were able to find out the different publication types and the number of each type held in the collection. There are a total of eighteen different publication types listed in the database. The publication types with the most materials included Reports, Preliminary Reports and Brochures. All three of these classes had more than 1,000 entries each. However, we also found that ten of the eighteen types had 100 or fewer materials associated with them. These types are: Calendar, DVD, Educational Resources, Map, Compact Disc, Film, Colour Slides, Yearbook, Press Release, Other Products. An examination of the entries in the Database and locations listed in the Report Collection revealed that the location of many of the materials is unknown and that the Other Products type contained many materials that could be otherwise classified. Details on the numbers of each type are available in Appendix C.

As Figure 8 shows, the most common reason for people to access the information stored on the Expeditions Database is assist with the planning stages of a new expedition. Through discussions with Shane Winser, we learned that reports from recently returned expeditions prove to be the most helpful for individuals planning their own expedition. The RGS-IBG would be better able to quickly provide these crucial materials to its users if there existed a system for quickly and efficiently sorting and inputting materials from the backlog.

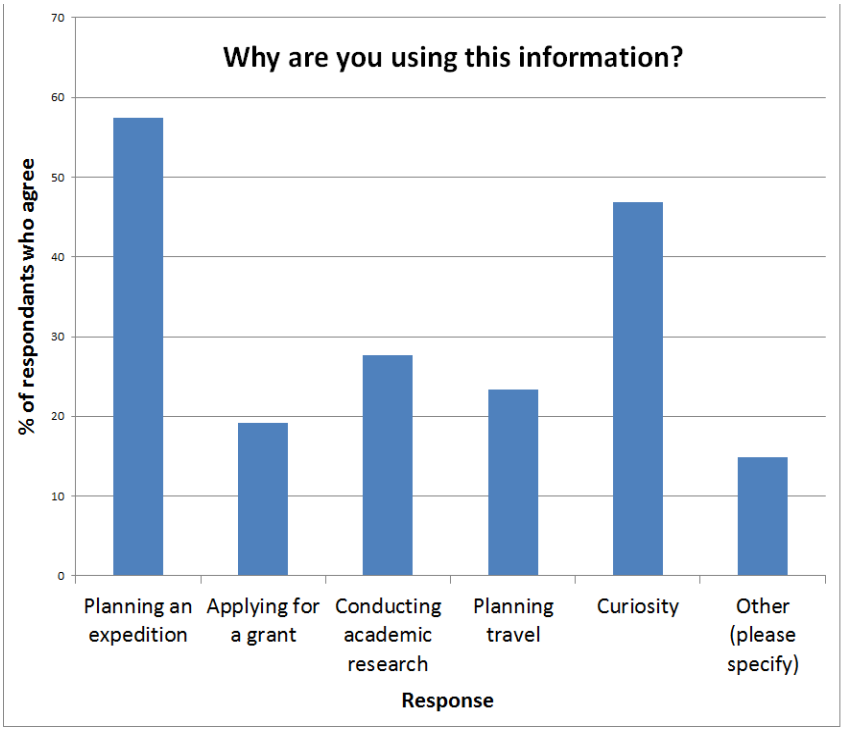


Figure 8: Why are you using this information?

The backlog was the set of the materials that were not yet entered into the Collection. When we arrived to the RGS-IBG, there were over a thousand documents and other materials needing to be sorted before being submitted to Collection. The process of sorting these materials took over three hours. Of the materials sorted, only seventy-seven documents were full expedition reports. Much of the backlog was not full reports, but rather leaflets and brochures. To streamline the process of sorting the backlog, we developed a process for identifying the most important documents to be submitted to the Collection first. Through our participant observation, we realized that it would not be difficult for a volunteer of any skill level to sort the documents by year and expedition status. Documents detailing returned expeditions from the last 5 years

were considered the most important. By sorting the backlog based on these two criteria, the most important and useful documents are added to the Collection first. Appendix E contains additional details and notes on the backlog.

From the interviews we were able to learn about issues that different internal users have encountered. Several interviewees also provided recommendations on how to improve the Report Collection. The employees that had the most interaction with the Report Collection were Tilly Alcayna, Geography Outdoors Administration Officer, and Jan Turner, Deputy Librarian. Issues discussed were safety concerns when accessing the Report Collection and difficulties with the current storage system of the reports. When we asked for recommendations, we received several specific recommendations including: to obtain a better ladder or step stool, to optimize the space in the storeroom for the main collection, and to have a standardized format for reports submitted to the Collection.

### External Users

External users use the web search interface and the web submission form. As part of our participant observation we tested the web interfaces. We found that it was sometime difficult to search the database effectively. The "Keyword" field in the search interface searches the surname and summary of the reports. If more than one word is in the field, it is searched as string.

Our interviews also touched upon how to improve the experience of external users. Many of the people we interviewed discussed issues and improvements that they have considered to the web interface. Comments made by Clive Woodman (Database Programmer) were particularly interesting because he interacts with the Database in two capacities: as a programmer writing the code for the Database; and as an individual searching and adding to the Database. He pointed out that the Expeditions Database is competing with other sites that make full reports available online and suggested that the RGS-IBG do the same. Shane Winser (Expeditions Database Manager) also suggested the same idea. Adarsh Muppane (Webmaster) suggested that other materials from the Report Collection, like photos, should also accompany the reports.

### 4.1.2 Objective 2: Improve Information in the Database

During our interviews with the Expeditions Database Manager and the Grants Officer, it became clear that many of the problems with incorrectly entered data came from inexperienced data entry users. Usually these individuals were volunteers who were only there for short periods of time. This has led some fields, such as "Year", to have vastly different formats depending on who entered the information.

Additionally, during our site assessment we found that almost 151 records were missing years and 683 records were missing summaries. All of these records were already entered into the database and many were appearing on the web interface. The most surprising find was that fifty-six records did not have a name. As shown in Figure 9, while records missing this information only account for a small portion of the total database, there are many other fields which, while less important, are not present in a much larger percentage of records.

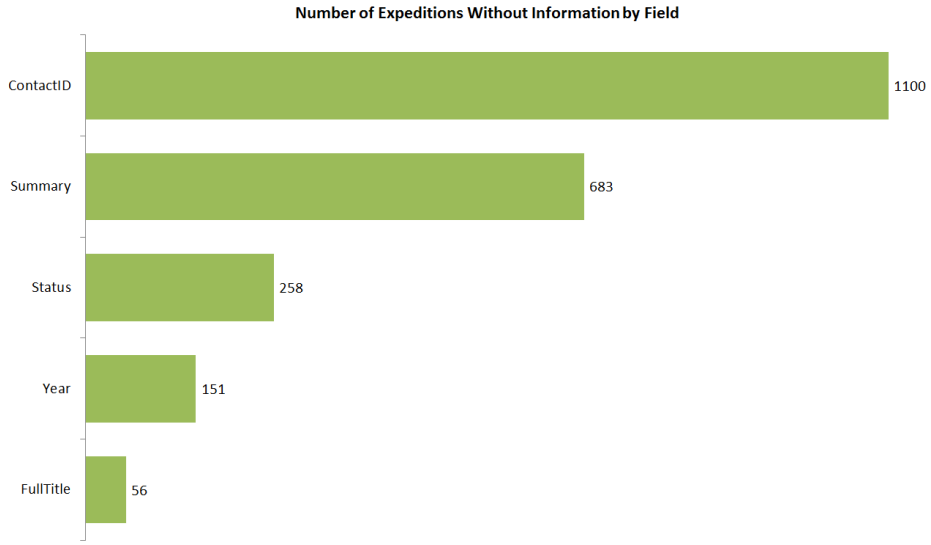


**Figure 9: Number of Expeditions Missing Information by Field**

The survey of external users included a question that asked the respondent to identify any additional areas of improvement that they saw for the database. This question was open-ended, and not required. Five respondents mentioned that the data in the Database was either missing or incomplete. This echoed our belief that the data that had already been entered into the Database should be made more consistent and complete.

The backlog contains a wealth of information that is currently unavailable to users of the Report Collection. We found that it contains expedition reports that were not currently present in the Collection. The backlog also contained news clipping and press releases that detailed the preparation and results of many expeditions that were in the Database. These materials could be used to update the "Status" field for many expeditions on the Database. As expeditions marked as *Unknown* do not appear on the external web interface, it is crucial that these entries are updated if a document is found in the backlog that confirms if the expedition ever set off or not.

### 4.1.3 Objective 3: Encourage More Submissions to the Database

Interviews at RGS-IBG revealed that 55% of those interviewed have had little to no experience with using or developing the Database or Report Collection.

Our survey of external users provided an insight into the motivations and demographics of those who use and submit to the Expeditions Database. After two weeks, forty-eight people responded to our survey. Thirty of the submitters responded that they were paying members of the RGS-IBG, and sixteen claimed to have won a grant from the RGS-IBG.

The most important data we obtained from our survey were the results from the two questions asking about the user's motivation for using the Database. Figure 10 displays the reasons users have submitted materials to the Database. The most common reasons users claimed were a desire to contribute to the Database, and a desire to make their reports available to the general public. The figure also displays the precise question wording used in the survey. An answer to this question was required for all respondents.

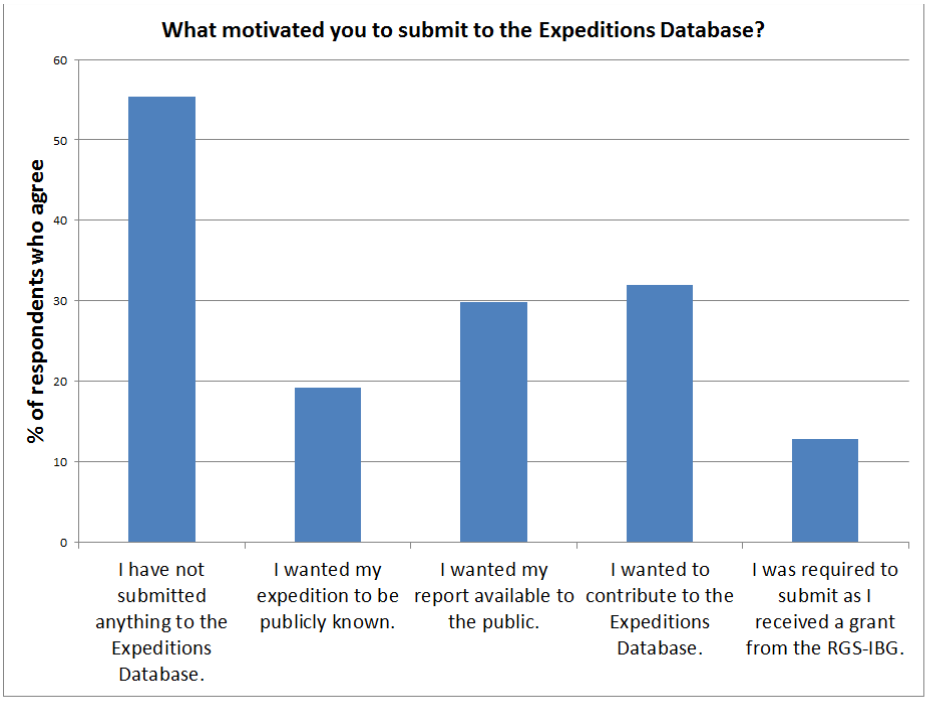


**Figure 10: Motivations for submitting to the Database**

Figure 11 displays the results of a survey question created to determine the reasons why external users choose not to submit materials to the Expeditions Database. "I did not know I could submit to the Expeditions Database" was the most common response with 65% of respondents agreeing. Figure 11 also displays the precise wording of the survey question, as well as a summary of how many survey respondents chose to answer the question, and how many chose to skip the question.

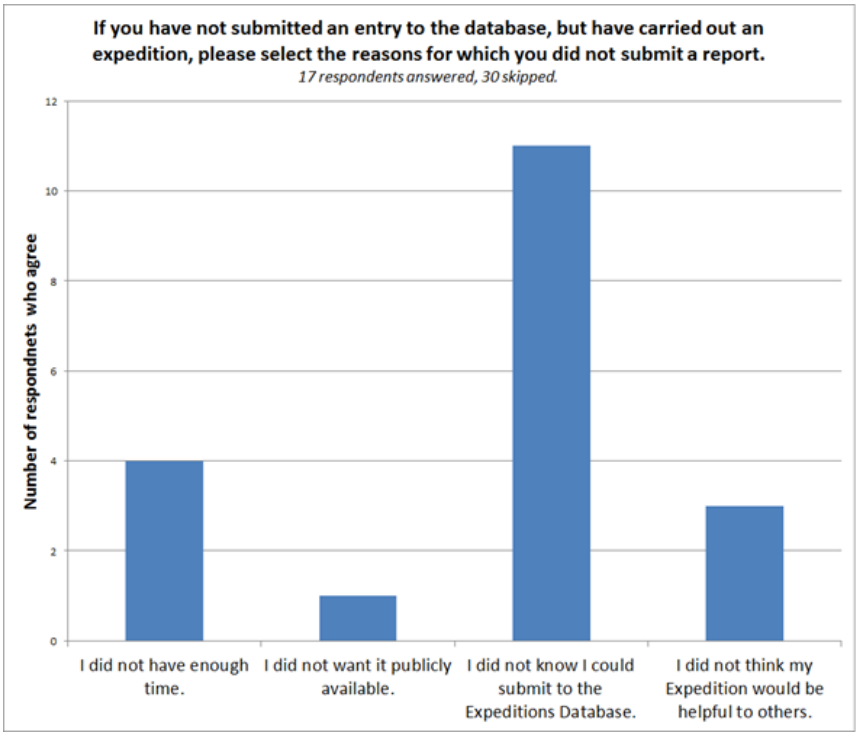


**Figure 11: Reasons preventing individuals from submitting to the Database**

Five respondents also recommended that the RGS-IBG integrate the Expeditions Database with the Library Catalogue, which was a request we also encountered during our interviews.

## 4.2 Discussion

Through an analysis of trends and patterns, we identified themes that have appeared throughout our study. These include addressing data inconsistency, making reports public, raising awareness of the Expeditions Database, and establishing standards for data input and report submissions.

An issue that reoccurred and sometimes hindered our work was inconsistencies in how data was entered into the Database. This issue is made obvious when examining the database records. Approximately 9% of all records are simply missing data while 39% of records have incorrectly formatted data, mostly in the *Year* field. We found that inaccuracies in the data cause several problems with searching the Database. It complicates searching the database because it makes it more difficult to find the correct

expedition. A technical aspect is that the inaccuracies need to be filtered before the database can be searched increasing the time to complete a search.

Through our interviews, we learned that most of the inconsistencies with the data arose from inconsistent training and instruction to volunteers entering data. This issue has been further complicated by the variable skill level of volunteers and expedition leaders not being forthcoming about some details of their expeditions. If certain crucial details of their expedition are missing, the expeditions become very difficult to search for. We found that the most important fields are Year, Title, Status, Summary and Contact information. If enough information is missing, the expedition entry may not prove useful to anyone. For this reason, it is crucial that individuals submitting to the database understand the basic requirements for their submission. The more information entered by external users, the less time RGS-IBG employees need to spend correcting and researching information about the expedition.

Throughout our research, we found that there was interest to make full reports available online. It was mentioned in several interviews and in some of the survey responses. Currently, the web interfaces only provide summaries of the expeditions and reference numbers for reports relating to that expedition. However, to see a full report, database users must travel to the RGS-IBG in London or request a digital copy from Geography Outdoors. These constraints on the distribution of reports discourage people from utilizing the Database and the Collection. One of the survey-takers indicated that he much preferred using the Imperial College database which we explored and provides full reports online.

As indicated by the survey, the most prevalent reason why users were not submitting materials to the Expeditions Database was simply because they did not know that they could. The other answers were much less popular. We believe that this lack of awareness about the Expeditions Database could be improved with advertising and promotion by both the RGS-IBG in general, and its website. Both the link to the Expeditions Database and the Submission form were not easily found on the RGS-IBG's homepage. This low visibility possibly kept casual visitors from discovering the Expeditions Database and the ability to submit their own expeditions to the society. Newsletters sent out to RGS-IBG members rarely mentioned the Database or the ability to submit expeditions.

These recurring themes heavily influenced our creation of recommendations. The key themes included addressing data inconsistency, making reports public, raising awareness of the Expeditions Database, and establishing standards for data input and report submissions.

# Chapter 5: Recommendations and Conclusions

We synthesized findings into several recommendations for the RGS-IBG. Our recommendations focused on the development of the Report Collection, improving the quality of data on the database, and making the Expeditions Database more relevant in the digital age. We then examined how this project can be further developed if additional research were to be conducted.

## 5.1 Recommendations

During our research and data collection phase, we found several aspects of the Expeditions Database and the Reports Collection could be improved. By examining these areas more closely we developed a series of recommendations for improvement that will enable to database to grow and meet the needs of its users in the future. These recommendations are described below.

### 5.1.1 Use and Maintain Up-to-Date User Guides

We created informative user guides, see Appendix G, for interacting with the Expeditions Database and Report Collection. These user guides were designed to clarify areas of confusion with data entry as well as to highlight key fields of expeditions. This can enable the RGS-IBG to ensure that expeditions that are entered into their Database have consistent formatting and information. The guides will also allow work-experience students and interns to become familiar with the workings of the database, without the need for RGS-IBG employees to train them. This can allow the interns to begin working quickly and efficiently, while allowing the RGS-IBG staff to focus on more pressing work. Maintaining and updating the user guides as the Database changes should allow future workers to work with the Database just as efficiently as their predecessors.

We also believe that user guides aimed toward external users should increase the overall quality of the expedition submissions. Guides for writing Expedition Reports exist, however their information is not present on the Expedition submission page. Placing concise instructions on the submission page should allow external users to submit more useful and meaningful information. This will prove most useful for the

"Summary" field. More accurate and complete summaries will reduce the need for RGS-IBG employees to re-write them, thus saving large amounts of time.

### 5.1.2 Address the Backlog

We recommend that the backlog of materials be divided first into two groups. One group will include all materials concerning expeditions that are at most four years old, and the other group will include the remaining documents. Because more recent expeditions will have more useful and up to date information, the newest documents should be entered into the collection first. The remaining documents may then be divided by which continent the expedition took place on. This ensures that various materials from the same expedition are kept together. Work-experience students or interns may then begin entering the backlog at an accelerated pace with the user guides.

To prevent the backlog from growing larger, we recommend that new documents be input into the Report Collection as quickly as possible. If the document references an expedition that is not in the Database, the document may be sorted into the backlog if there is not enough time or information available to create a new expedition entry.

### 5.1.3 Address Past Data Inaccuracies

The creation of the user guides addresses the input of data in the future, but the existing data also needs to be addressed. We realized that there is a significant amount of data that has been entered incorrectly or has been entered multiple times, making database searches more difficult. The area with the most pressing need for data cleanup is the "Years" field, where expeditions that took place over multiple years sometimes only correctly list one of the years. The search functionality would be greatly improved if the inconsistencies with the data were fixed. The quicker but more expensive solution would be the development of a computer program that automatically corrects these issues. There is also the possibility of doing it manually, which would be significantly more time-consuming, but potentially more accurate, as the employees in the Geography Outdoors Office are the best equipped to deal with each type of mistake or inconsistency in the data. Updating the "Expedition Status" is something that can only be done by an employee of the RGS-IBG who actively researches each expedition in question to determine if the expedition has returned, or if it has happened at all.

Resolving the data inconsistencies and added missing data will make the online search results more accurate and complete.

In addition, the contacts database contains hundreds of duplicate entries. Because resolving conflicts when addressing these duplicates often requires knowledge of the contacts in question, this is a task that can only realistically be carried out by members of the Geography Outdoors Office. The process of removing the duplicates from the contacts database will be time-consuming, but it will only have to happen once. Making volunteers aware of the correct ways to search for and input contact information should also reduce the incidence of new duplicates being added.

### 5.1.4 Re-organize and Maintain the Report Collection

Our recommendation for the Report Collection is to reorganize the storeroom and perform maintenance on the boxes and reports. We believe that the space in the storeroom can be better utilized and accessed. To make the Collection more easily accessible, we would recommend a working space and a better ladder or step stool. A working space would ideally be an area to place report boxes, when removing or returning reports, and to examine reports. To safely remove reports from higher shelves, we would ask the RGS-IBG to consider either a step stool or setting up multiple small ladders throughout the room.

To maintain the Report Collection for future use, we recommend that damaged boxes be replaced, the reports in every box to be check for deformation, and the problematic reports be repacked in a way to prevent further damage. Boxes that are damaged, missing handles, or are unlabelled need to be addressed to make the Collection safer and more organized. To prevent reports from sustaining further damage or deformation, each box of reports needs to be examined and, if necessary, be repacked. We would also recommend that the Duplicate Collection is also examined and issues addressed if necessary.

Due to time constraints, we were unable to fully examine or address all the issues we found with the Report Collection. Through our interviews and site assessment, we have identified a number of issues that could be examined in further detail. This includes finding a more convenient method for storing the reports either by altering the

shelves to better accommodate the long boxes or by consider an alternate system to the current archive boxes.

### 5.1.5 Develop an Acquisition Policy

The creation of an acquisition policy will allow the RGS-IBG to quickly appraise materials submitted to the Report Collection and then determine whether to incorporate the material into the Collection. An acquisition policy will clearly lay out the qualities of materials to be added to the Collection and will allow the Collection to grow in a more focused and meaningful way. We also believe that a clear acquisition policy would reduce the backlog and the physical space that the Report Collection occupies.

### 5.1.6 Digitize and Make Reports Available Online

Additionally, we recommend that the RGS-IBG make the reports in the Report Collection freely available online. Digitizing the reports will make the Collection available to people throughout the world and allow the RGS-IBG to remain a relevant resource in the digital age. The online availability of free information on expeditions dissuades people from making a trip to London just to look at physical copies of reports.

To realize this recommendation, there are several steps we suggest. Foremost, it is critical to determine the procedure the RGS-IBG would use to prevent copyright or licensing violations of the materials. For all future reports, the licensing agreement with the RGS-IBG should be made clear. If possible, we would suggest that the licensing agreement be integrated into the web submission form to make it easier to record. We would also suggest that the RGS-IBG not make past reports available until the revised licensing agreement has been given to the copyright holder. To build the digital archive in the future, it would be beneficial to request that individuals submit both a physical and digital copy. This will prevent the need to scan reports in the future.

### 5.1.7 Promote the Report Collection and Expeditions Database

Finally, we recommend that the RGS-IBG proactively promote the Expeditions Database and Report Collection. This can include increased viability for the Database

and Collection on the various RGS-IBG social media pages, as well as more links to the web interface through the website. A link could be incorporated into the Library Catalogue web page and possibly on the homepage. Increasing awareness of the Database at events such as Explore would target the Database's intended users. These advertisements should encourage the external users to submit their own expeditions to the Database and Collection.

## 5.2 Conclusion

For the last forty-nine years, the RGS-IBG's Expeditions Database and Report Collection has been an invaluable resource for individuals planning expeditions, as well as a historical record of the work of done by contemporary explorers. Our seven weeks with the RGS-IBG has culminated in this report detailing our work, recommendations for further improvements, and suggestions for new resources to aid the the RGS-IBG in improving their Database and Collection in the future. We have made significant strides to develop a full picture of the current condition of the Database and Collection, and towards understanding what specific improvements would allow it to remain a relevant resource for explorers. Nevertheless, we believe that there is the potential for further refinement to improve the Expeditions Database and Report Collection.

Our project examined standards for creating new database entries, encouraging more submissions, and assessing the current state of both the Collection and the Database. Moving forward, we would recommend that the RGS-IBG continue to examine how information can be retroactively corrected on the Database. Further research could conduct a focused assessment of improving and reorganizing the Report Collection, and develop a plan to fully digitize the collections. While time constraints prevented us from conducting comprehensive research into these areas, our work has identified these three issues as potential future projects.

We believe that our recommendations, especially those with regard to digitizing the Collection, will bring the Expeditions Database and Report Collection to a larger user base and will enable all users to more effectively and efficiently utilize the wealth of knowledge contained in the Collection. We believe that we have helped the Expeditions Database and Report Collection maximize its potential as a resource for explorers.

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# Appendix A: Survey Format and Questions

**Email Cover Letter:**
Subject: RGS-IBG EXPEDITIONS & FIELD RESEARCH DATABASE

The Society's Expeditions Database and report collection is one of the most important resources we offer to those planning expeditions and field research. It also forms a record of those projects given grants by the Society.

We have recently made a significant number of improvements for those wanting to use the Expeditions Database via the Society's website including viewing search results on Google maps and a facility to help geo-referencing new submissions.

We are extremely fortunate to have the help of three American university students from Worcester Polytechnic Institute (WPI) who have designed a questionnaire to help us evaluate the recent improvements to the Expeditions Database, and to understand how and why the Expeditions Database is used so that we can make further improvements.

If you are a regular user of the Expeditions Database, we would be most grateful if you complete the survey: **[Survey Link**]

If you are unfamiliar with the Expeditions Database or have not seen it in a long time, feel free to have a look at it, and fill out the survey afterwards.

If you are unfamiliar with the Expeditions Database, please do have a look at the Expeditions Database: **www.rgs.org/expeditionreports** , and then complete the survey. **[Survey Link]**

Information collected in this questionnaire will only be viewed by the RGS-IBG staff and the WPI student group. The survey will be anonymous unless you choose to disclose your email address at the end of survey. Thank you for giving your time and energy to complete this survey. Your answers are extremely valuable to us and will allow the Expeditions Database to become more accessible and easier to use. If you have any queries, do contact us.

Will, Peter, and Rebecca from WPI
Email: go.admin@rgs.org

Shane and Tilly, RGS-IBG
website: www.rgs.org/expeditionreports

**Questions:**

RGS-IBG Expeditions Database Questionnaire

*** Required**

**1. What do you use the Expeditions Database for? ***

Please select all that apply.

- Researching past expeditions (without reports)
- Researching past expeditions (with reports)
- Researching planned/future expeditions
- Other: _____

**2. Why are you using this information? ***

Please select all that apply.

- Planning an expedition
- Applying for a grant
- Conducting academic research
- Conducting media research
- Planning travel
- Curiosity
- Other: _____

**3. Do you value the Expeditions Database as: ***

Please rank in order of importance:

- a source of inspiration
- a catalogue of the Report Collection
- information on who else is planning expeditions
- a source of current ongoing expeditions
- a source of scientific data
- an historical record
- region-specific information
- a tool to research previous grant recipients
- Other: _____

**4. What kind of expeditions are you interested in?**

Please select all that apply.

- Mountaineering and Trekking
- Polar and Arctic
- Tropical Forests
- Desert and Savannah
- Vehicle dependent
- Marine and Ocean
- Cycling
- River journeys
- Human Sciences including anthropology
- Biological field research
- Conservation research
- GIS and field mapping
- Charity Challenge
- Earth Sciences field research

- Other: _____

**5. Have you ever submitted to the Expeditions Database?**

If not, please skip to Question 7.

| | No entries | 1-3 entries | 4+ entries |
|---|---|---|---|
| Registered details of my expedition online | | | |
| Details of my expedition are on the database, but I did not input them. | | | |
| Preliminary Report | | | |
| Finished Report | | | |

**6. What motivated you to submit an entry to the Expeditions Database?**

Please select all that apply.

- I wanted my expedition to be publicly known.
- I wanted my report available to the public.
- I wanted to contribute to the Expeditions Database.
- I was required to submit as I received a grant from the RGS-IBG.
- Other: _____

**7. If you have not submitted an entry to the database, please select all the reasons that apply.**

- I did not have enough time.
- I do not want it publicly available.
- I did not know that I could submit to the Expeditions database.
- I did not think that my Expedition would be helpful for others.
- Other: _____

**8. We have recently made improvements to the Expeditions Database, as indicated in our mailing. Would you like to see any further improvements/changes?**

For instance, were there any fields that you found confusing or difficult to use?

_____

Demographics (Page 3 of 3)

**9. What is your age? ***

- Under 21
- 21-25
- 26-30
- 31-40
- 41-50
- 51-60

- 61-70
- 71+

**10. Are you an RGS-IBG member? ***

- Yes
- No

**11. Have you ever won an RGS-IBG grant? ***

- Yes
- No

**12. Have you ever received advice from Geography Outdoors (Expedition Advisory Centre) about planning an expedition? ***

- Yes
- No

**13. Have you ever attended the annual field planning seminar, Explore? ***

- Yes
- No

**14. Have you ever used the Foyle Reading Room? ***

Please select all that apply.

- Books
- Maps
- Reports
- None of the above.

**15. Do you consider yourself: ***

Please select all that apply.

- Adventurer
- Explorer
- Research Scientist
- Traveler
- Geographer
- Writer
- Other: _____

Contact Page

Your email will only be shared with the RGS-IBG.

**If you are you interested in submitting to the Expeditions Database, please fill in your email address below: _____**

The RGS-IBG will be contacting you in the coming months with further information.

Thank you for your time. If you have questions or concerns, please email go.admin@rgs.org with the heading, "Expeditions Database Questionnaire".

# Appendix B: Interview Format and Questions

**Email Cover Letter:**
Subject: RGS-IBG Expeditions and Field Research Database

Dear X,

We are three American university students working with Shane and Tilly in Geography Outdoors. Through our university, we are working on a project to improve the Society's Expeditions Database and Report Collection.

If you can spare the time, we would very much like to interview you about your experiences with the Expeditions Database and Report Collection before 18 June 2014. This interview should take no more than an hour of your time. If you are willing to do an interview with us, could you please suggest a time and date that suit you?

We look forward to hearing from you.

With many thanks,
Peter Craft
Rebecca Lee
William Spurgeon

**Questions:**

General Questions:
Very important questions: *

Background: (How their position relates to the Expeditions Database)

1. How long have you been working at the RGS-IBG?
2. What is your role?
3. Does the Expeditions Database/Report Collection help you fulfill any of your key duties, and if so how?*
4. If not, what interactions do you have with the Expeditions Database/Report Collection?*

Database and Collection: (Relationship/Interactions to the Expeditions Database)

1. How familiar are you with the Expeditions Database and the Report Collection?
2. What role have you played in the development of the Expeditions Database?
3. How often do you interact with the database?*
4. What is the main reason(s) you use the Expeditions Database?*

Recommendations: (What improvements different individuals would like to see)

1. What changes would you make to the Expeditions database to make it easier to use either for yourself or others?*

Objectives (Bring a print-out of our objectives/goal):

1. These are the objectives for completing our project. Do you have any advice or other information that we should know? Are there other topics that we should look into?

**Specific Questions:**

**Expeditions Database Manager**
(Aim: Understand Shane's aspirations for Database and Report Collection)

- Background
- Database and Collection
    - What would an ideal Expeditions Database look like to you?*
    - Ideally, who should be using the Expeditions Database?*
    - What do you consider to be the biggest challenges? (Expeditions Database and Report Collection)
    - What kind of maintenance does the database need?*
    - What does an "excellent" report look like?
    - What is the typical skill level of your data entry volunteers?*
- Recommendations
    - Are the existing fields helpful?
    - Can they be expanded/simplified?
    - How would you define each of the status terms on the Expeditions database? (Planned, Postponed, Ongoing, Returned, Unknown & Cancelled)
    - Are there ways that the Expeditions Database workload could be streamlined?

**IT Manager:**
(Aim: Understand technical aspects of Expeditions Database and technical support required)

- Background
    - How much support does the Geography Outdoors Office need for the Expeditions Database?
- Database and Collection
    - What kind of backup system is in place for the Expeditions Database?
    - Are there data security concerns?
    - Where is the physical server for the database?
    - What challenges have you experienced during upgrades to the database?*
- Recommendations

**Programmer:**
(Aim: Understand the challenges around coding and access and technical aspects of the Expeditions Database)

- Background
    - Have you worked on the other databases run by the RGS-IBG?*
    - What challenges have you faced during the upgrades?
    - How is the database's code structured?
- Database and Collections
    - How does this database compare to other databases at the RGS-IBG you have worked on?*
    - What is the basic structure of the web interface?
- Recommendations

- Where do you think GO resources should be allocated to make the database better? **or** Do you have ideas of how to further improve the database? Suggestions for the database in a year? 3 years? 10 years?*
- How could the geo-referencing capability of the website be improved?

**Webmaster:**
(Aim: Understand the visibility of the Expeditions Database)

- Background
- Database and Collection
  - What do you think of the new layout?*
  - How do you feel about navigation to the Expeditions Database and its related web forms?*
- Recommendation
  - What other data has the potential to benefit from a similar map based display?*
  - Is there a possibility of promoting the expeditions database through the RGS-IBG's social media accounts?*
  - Moving forward, how could we develop the Google Analytics?

**Grants Officer:**
(Aim: Understand what data the Grants Officer would like to have easy access to)

- Background
  - How do you teach your volunteers to do data entry?
- Database and Collection
  - This is the type of graphs it is possible to produce… (show example). What other graphs would be useful for your work?*
  - Do you find Integra or the Expeditions Database more useful in your day to day contact with grant applicants?
  - What is most challenging about using the Expeditions Database? Most useful capabilities?*
  - How would you define each of the status terms on the Expeditions database? (Planned, Postponed, Ongoing, Returned, Unknown & Cancelled)
- Recommendation
  - Are there search capabilities that you want or need? What bits of information do you need easy access to?*
    - Ideally how would you like to access this information?
  - If we create user guides, we anticipate volunteers and staff in your office using the guide. What would be generally helpful to be contained in the user guide? Any specific information for individuals working in the grants office?*

**Deputy Librarian / Map Librarian:**
(Aim: Understand the public interface to the Report Collection and the Expeditions Database)

- Background
  - How often do people ask for reports from the Database? *

        - Do you recall what they were using the report(s) for?*
- Database and Collection
    - What do you think of the new geo-referencing function in the Database?*
    - Do you direct people to the Expeditions Database or do they come knowing about the database already?*
    - Do you keep a record of the reports that have been requested?
- Recommendations
    - Do you think there could be a more efficient system to access the Report Collection? *
    - Are there techniques you think can be transferred from the Library to help maintain the Report Collection?*
    - Do you see a potential for connectivity between the Library catalogue and the Expeditions Database? *

**Integra Manager:**
(Aim: Understand the potential links between the two databases)

- Background
- Database and Collections
    - Is there currently overlap in the content between the two databases?*
- Recommendations
    - Any advice from challenges of data management from integra that you would like to share with GO office?
    - Do you believe that there a potential for connectivity between the two databases?
        - If so, do you have any middleware suggestions?*
    - What are your thoughts on eventual integration?

**Closing:**
Thank you for your time. At this moment, do you have any questions for us?

Because the interview is now complete, we would like to ask if it is okay for us to use your name in our paper? If you would not like have you name used in our paper, we can also omitted identifying responses from the transcript and paper. Before the final draft of our paper is submitted, we will send you a copy of our paper for you to view before our final submission.

# Appendix C: Details of the Report Collection

**Number of publications by type:**

Total Number of types: 18

| Publication Types | Number in Collection |
|---|---|
| Calendar | 1 |
| DVD | 4 |
| Educational Resources | 11 |
| Map | 18 |
| Compact Disc | 19 |
| Film | 20 |
| Color Slides | 22 |
| Yearbook | 40 |
| Press Release | 73 |
| Other products | 86 |
| Book | 189 |
| Scientific Paper | 203 |
| Newsletter | 218 |
| Medical Survey | 470 |
| Article | 587 |
| Brochure | 1510 |
| Preliminary Report | 2096 |
| Report | 5918 |

**Boxes in Collection:**

| Categories | Total boxes | Boxes in Urgent Need of Attention (%) | Boxes in Need of Attention (%) |
|---|---|---|---|
| **Final Reports** | 309 | 11 (2.6%) | 19 (6.4%) |
| **Preliminary Reports and Brochures** | 83 | 1 (1.2%) | 27 (32.5%) |
| **Duplicates** | 111 | 0 (0%) | 15 (13.5%) |
| **Full Main Collection** | 503 | 12 (2.4%) | 61 (12.1%) |

Every box that needs to be attended to: 73 boxes
Percentage of the collection: 14.5%

Features of boxes in urgent need of attention:
Structural Damage – dangerous to remove from shelf or seams very clearly split
Held together with tape

Features of boxes in need of attention
No/ Missing/ Damaged Handles
Taped, but box structure was still fairly sound – safe enough to remove from shelf

**Size of Collection:**

| Categories | In Metric Units | In Empirical Units |
|---|---|---|
| **Final Reports** | 42.3 m | 145.5 ft |
| **Preliminary Reports and Brochures** | 11.6 m | 38.3 ft |
| **Duplicate Reports** | 15.0 m | 48.6 ft |

**Notes on Preliminary Reports:**

| Box Year | Notes |
|---|---|
| **2013** | Documents out of order<br>About 20 documents<br>All not in color<br>Very short documents, Stapled Pages<br>Significant number of Mount Everest Foundation Reports |
| **2012** | 19 documents<br>2 in color<br>Bent<br>1 booklet, cannot be separated into pages<br>All other documents are stapled pages |
| **Unmarked (Contained 2011)** | 16 documents<br>Bent<br>1 document in color<br>All stapled pages<br>Smaller box<br>Missing box Preliminary Reports 11/01-11/50<br>Has some reports from other years |
| **2010** | 16 documents<br>Larger Box<br>Bent<br>Text on some of the documents has become faded and is difficult to read<br>All stapled pages |
| **2009** | 26 documents<br>5 in color<br>1 booklets<br>2 brochures<br>All others stapled pages<br>Very deformed documents<br>Newspaper articles or copies of newspaper articles |
| **2008** | 50 documents<br>12 documents in color<br>Duplicates<br>Mix of materials: Newspaper clippings, Correspondence, Presentation Programme, Brochures and Business Cards<br>Bent |

The boxes we examined do not have many preliminary reports or brochures. The loose packing resulted in bent reports. The six years (2008-2013) we examined did not have

many colored reports or brochures. Many of the reports in these years seemed to come from the Mount Everest Foundation.

Total color documents in the boxes searched: 20 documents counted
Colored documents in all publications (searching backend): 1052 “colour”
Colored documents in only preliminary reports: 122 “colour”

**Other Notes:**

- Difficult to get at the reports stored on the lowest shelves
- No space to rest the box when returning the report
- Difficult to see the reports on the lowest shelves
- The reports in the boxes are frequently out of order
- Reports are very commonly bent
- Boxes are unwieldy when without handles
- Shelves are 20 cm or 7.9 in (about 19cm shorter than the boxes)

**Timed Report Returning:**

2 Preliminary Reports
5 Final Reports

Took: 10:44:88 Minutes to return to the collection

**Notes on the Duplicate Collection:**

- Boxes were double stacked
- Difficult to count the boxes – estimated the number of boxes
- Also estimated the size of the duplicate collection. Used the width of boxes and the number of boxes in the collection to get an approximate size.
- Many boxes with damaged handles

Images of Main Report Collection and Preliminary Report Collection:

In Figure 12, the shelves along the back of the room are boxes filled with final reports. There are several styles of archive boxes all have similar dimensions. The other materials seen in the image are related to expeditions. These materials include invoices, images, correspondence and budget sheets. The stool in the corner was currently the main way to assess and remove reports.

Figure 13 shows boxes with final reports on the left and boxes of preliminary reports on the right. The ladder in the back can be used to reach reports higher up.

Figure 14 shows more shelves of final reports along the right wall. Along the back of the room, there is a second ladder.


Figure 12: Image of Main Report Collection

Figure 13: Image of Main Report Collection

Figure 14: Image of Main Report Collection

## Image of Duplicate Collection:

Figure 15 shows the duplicate collection. The boxes are double stacked making it difficult to access all of the reports. All of the boxes are clearly labelled and the reports seem to be well packed.


**Figure 15: Image of Duplicate Collection**

## Image of Damaged Boxes:

Figure 16 shows another damaged box that was replaced. Boxes throughout the collection have been damaged over time and many have been taped together. The boxes often split along the seams of the box as shown in this image.


**Figure 16: Image of damaged box from Report Collection**

# Appendix D: Interview Analysis

Suggested Improvements:

| Category | Improvement |
|---|---|
| Report Collection | ● Optimize the storeroom space<br>● Clear out the miscellaneous materials<br>● More/better ladders<br>● Consider new organization for the reports to make it more accessible<br>○ Shuffle the shelves in the collection to fit better on the smaller shelves. (Ex. Lay on the front face for a smaller footprint)<br>○ Get rid of the archive boxes<br>○ Change the shelves and place the boxes along another face of the box.<br>● Standard report format for easier scanning<br>○ Removable binding so the report can be read into the scanner easily |
| Expeditions Database | ● Better quality of entries - pertaining to basic expedition information<br>○ Better summaries – clear aims, goals, objectives and accomplishments<br>○ Year or dates completed<br>○ Names<br>○ Destination<br>○ Status<br>● More complete entries - pertaining to information that is not considered basic expedition information<br>● Linking to completed reports<br>● More powerful searching on the web interface<br>○ More than one keyword<br>○ Keyword searches more fields<br>● Links on the Library Catalogue<br>● More marketing about the Expeditions Database<br>○ Twitter posts about particular expeditions<br>○ Advertise its updates<br>● Look into analytics integrated into the Expeditions Database pages<br>● Ask fellows or individuals with familiarity with regions to geo-reference expeditions of a particular region<br>● Geo-referencing capabilities for routes or regions<br>● Consolidate all the contact information onto Integra<br>● Import the Report Collection entries to the Library |

| | |
|---|---|
| | ● Better/Clearer testing system |
| Both | ● Make Report Collection digitally available<br>○ Make other materials like photos available online as well as reports<br>● More through user guide for using the Expeditions Database and the Report Collection<br>● Integrated Report Collection (and the associated entries in database)<br>● Consider hiring a long-term volunteer for the Expeditions Database and Report Collection |

Issues:

| **Category** | **Issue** |
|---|---|
| Report Collection | ● Difficult to get the report held in upper shelves<br>● Difficult to use the boxes to store reports.<br>● Safety |
| Expeditions Database | ● Hard to learn to associate entries with the digital copy<br>● More general information summaries for grants (rather than only information on the money to an individual also have information about total money to a grant.) is not available through the current interfaces<br>● Not very clear nor consistent licensing or copyright notices<br>● Not very clear submissions to the Database<br>● Getting accurate geo-references<br>● Some expeditions have been to multiple locations, explores a large region or followed a specific route as their expeditions. The new web interface cannot currently input multiple locations, regions or routes into the georeferencing.<br>● Limited search capabilities<br>● Not enough advertising to external users about the database |
| Both | ● Inconsistent data input |

# Appendix E: Backlog Notes

- Much of the backlog is brochures/leaflets. (Not full reports)
- The backlog existed because they don't know what to do with these extra documents. Should they be added to existing entries, or an entry in their own right?
- Do they need all of these documents? Which ones are safe to delete?
- The backlog contains duplicates. How many copies (if any) of these documents should be kept?
- Document entries in the database are vague. It's difficult to tell if a document in the backlog is already in the database because the reference in the database is so vague. Requires finding the document in the report collection to make sure that the document in the backlog really is new.
- Documents for a given expeditions should be stored together. The reports should probably be stored chronologically. What if an expedition has many documents? What if new documents from the backlog are added later?
- These decisions about how to enter the information cannot be decided by someone new to the Expeditions Database.
- Many of the documents were personally found by Shane Winser. Some of them only have a little to do with the expedition in question. Some were not submitted by the leaders of the expedition. Others were.
- Would these supplementary documents be more helpful if they were digitized? Some are very short and easy to scan. This would save space and make the Report Collection much cleaner because there won't be variably-sized pieces of paper floating around.

# Appendix F: Publication Types

| Publication Type | Definition |
|---|---|
| Article | A story about an expedition published in a magazine or newspaper, either in print or online, for a popular audience. Sometimes known as Press Cuttings. (See also *Scientific paper*, below) |
| Book | A published work giving an account of a returned expedition and/or its findings, usually available for sale through a commercial publisher or bookstore. |
| Brochure | A document outlining the intentions a planned expedition, detailing what they hope to discover/do on their journey. Brochures are sometimes meant to attract sponsorship or donations. Also known as a proposal. |
| Calendar | An illustrated product from an expedition, possibly intended as means of raising money for the expedition. |
| Color Slides | A collection of 35mm photographic slides from a returned expedition. |
| Compact Disc (CD) | A CD typically includes a digital version of an expedition's documents and its photographs, and possibly audio files.(See also *DVD*, below) |
| Film | Film made by an expedition, possibly for television broadcast. |
| Map | A stand-alone map or collection of maps created by an expedition. |
| Medical Survey | Confidential responses from those expeditions that have contributed to the RGS-IBG Health & Safety Surveys in years x-y. |
| Newsletter | A document produced by an expedition. Created to document its progress. |
| Other products | Other products and outputs from an expedition. |
| Preliminary Report | The initial account from a recently returned expedition, as a precursor to fuller Final Report, once the outputs have been collated and analyzed. |
| Press Release | An announcement to the media about an expedition with the intention of raising public awareness.. |
| Report | A document written by those involved with an expedition that describes the expedition and its achievements as completely as possible – usually the Final Report. |

| | |
|---|---|
| Scientific paper | An article published in a Scientific Journal detailing the scientific findings from an expedition. |
| Yearbook | Two page reports from returned expeditions published by the RGS-IBG in The Expedition Yearbooks from 19XX-19XX. . |
| DVD | Digital records of an expedition, typically moving images and sound, but also digital versions of an expedition's final report and supplemental findings. (See also *CD*, above) |
| Education Resources | Resources (text and images) produced by an expedition for use by school teachers. |

Appendix G: User Guide

# RGS-IBG Expeditions Database User Guide

# Table of Contents

# Accessing the Database

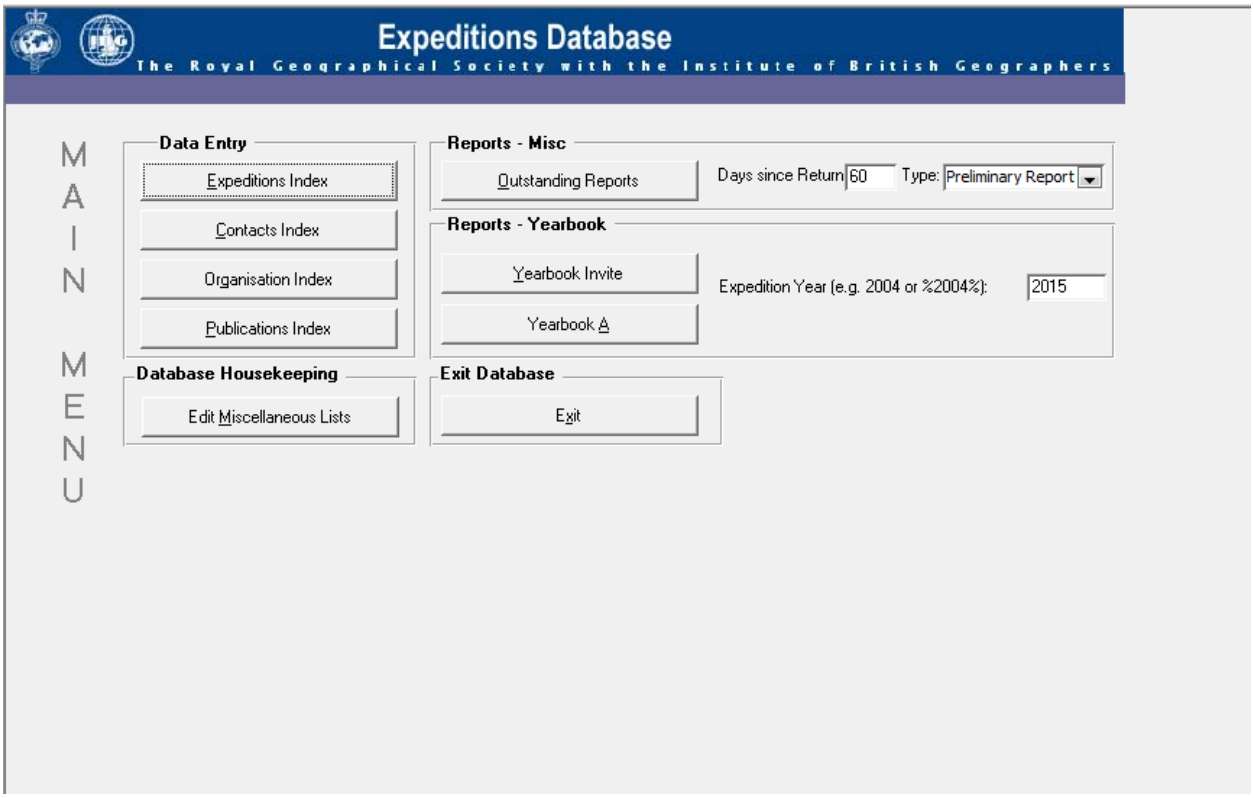
In order to access the database you first need to copy the shortcut onto your computer. This will enable you to just double-click on an item on the desktop. The process to complete that is (as of writing)

1. Navigate to the F:\ Drive. There will be many folders. Find the one called SQL2005ADPFiles.
2. Inside that folder there will be several different folders each corresponding to a database at the RGS-IBG. Select the folder titled expeditions.
3. Right click on the most recent file, called ExpeditionsSQL2005Ver5 and select copy.
4. Paste that file anywhere locally on your computer. The easiest place is usually the desktop.

Now all you need to do is double-click on that file and an access portal will open up allowing you to interact with the Expeditions database. If a pop-up appears when you open the database you can click open and proceed.

# Main Menu

Below is the initial window that appears when you open the expeditions database. From here you can access the search and creation functions for all the types of information stored in the database. Most of the work will be done in the Expeditions Index.

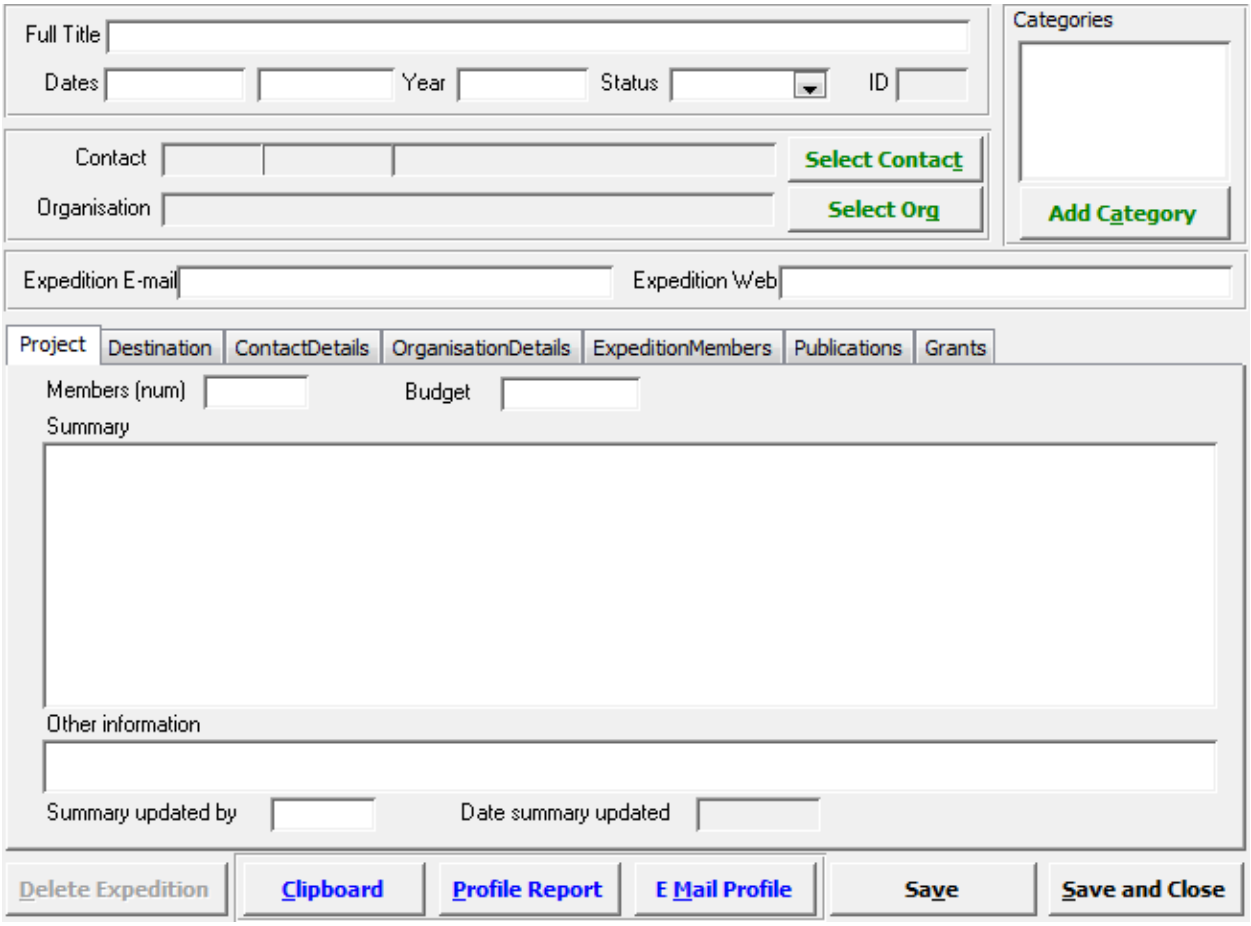


# Expeditions Index Window

This is the window that opens when you click on the Expeditions Index button from the primary window. From here you can search all the expeditions based off of a variety of categories. Additionally, you can create a new expedition record by clicking the new expedition button in the bottom left.

# Entering an Expedition

The first step when entering an expedition is to check if it is already present in the database. Once you have determined that it has not already been entered, you must find out if you have a report describing the expedition. Oftentimes this report will not contain all of the information you will need and additional research will have to be done.




This is the window that appears when you begin to enter a new record. The top half of the window is static, but the fields underneath the tabs change as you select tabs. Ensure that you check each tab when you are entering an expedition so that information is not lost.

## Key Fields

These are the fields that every expedition needs to have if it is to be searchable on the web interface.

**Full Title:** The first thing you need to enter for every expedition. This is the main identifier for every expedition. It should be easily identifiable on the report. If you have to create a title for the expedition, you must make sure it includes some information about the destination, when or how long the expedition took, and if it is particularly unique the method of travel (such as kayaking).

**Year:** This is the year that the expedition occurred in. It takes place over multiple years you must enter in each year formatted as XXXX - XXXX - XXXX (e.x. 1994 - 1995 - 1996 - 1997). You can often find this on the cover page of the report, however sometimes it will be necessary to read through a portion of the report to find this information.

**Status:** This is the current state of the expedition. Most often when entering an expedition in manually the status will be *planned*, *returned*, or *ongoing*, however it can also be *cancelled* or *pending*.

**Summary:** This is the description of the expedition. Some reports will have a summary or abstract provided, but frequently one will need to be written from scratch. It must include a brief description of who is performing the expedition, when is the expedition taking place, the expedition location, and the purpose of the expedition. It should be roughly four or five sentences long.

**Destination Countries:** You are able to select from a list of countries that has already been entered in to the database. This field is found under the Destination tab. This information may be provided at the beginning of the report, however not always.

## Other Fields

**Date:** The date is a more specific representation of the time an expedition occurred in. There is both a start date and an end date. They are formatted as dd/mm/yyyy. Sometimes you may find these in the report, but often you will have to go to the expedition's website or another source to find this information.

**Expedition Email:** An email to contact regarding information about the expedition. Only enter an email here if it is specifically for the expedition. Often reports will list a personal email for the expedition leader, but unless it is listed in the report as an expedition email, it is  not be appropriate to put here.

**Expedition Website:** A website containing information regarding the expedition and its travels. This should be listed in the report, but if it is not sometimes a Google search for the expedition name can help find something.

**Budget:** This is the amount of money in pounds the expedition had to work with. Enter the amount without the pound sign as the database will add it in automatically.

**Number of Members:** This is the number of members who are participating in the expedition.

**Location:** This is a free-text entry for where the expedition took place. You can format it as country, region. Or you can be more general like, Nile River Delta. This field is found under the destination tab.

**Latitude and Longitude:** These refer to the geo-referenced location of the expedition. The easiest way to find this information would be through google maps. Be sure to format it as 19° 45.5' instead of 19° 45' 30". You must also be sure to enter the right number of digits in each box (represented by *'s) or it will not accept the number. It is important to note that the degrees field for latitude takes two digits, while the degree field for longitude takes 3. So if you have a two digit longitude you will need to enter a zero at the beginning.

**Contact:** You select the contact from a list of contacts that already exist in the database. If the contact does not exist you can add it through the menu that will appear. Enter as much contact information can be found in the report and on the expeditions website.

**Organization:** Similar to contact this will be a list of organizations already in the database. You can also add in an organization if the one you were looking for does not exist yet. Many expeditions will not have an organization associated with them.

**Category:** You can select multiple categories from a list of existing categories on the database. Sometimes reading the entire expedition may be necessary to determine the category, but often you can determine it from the summary. If an expedition falls into more than one category it is possible to select multiple.

**Linking an Existing Publication**

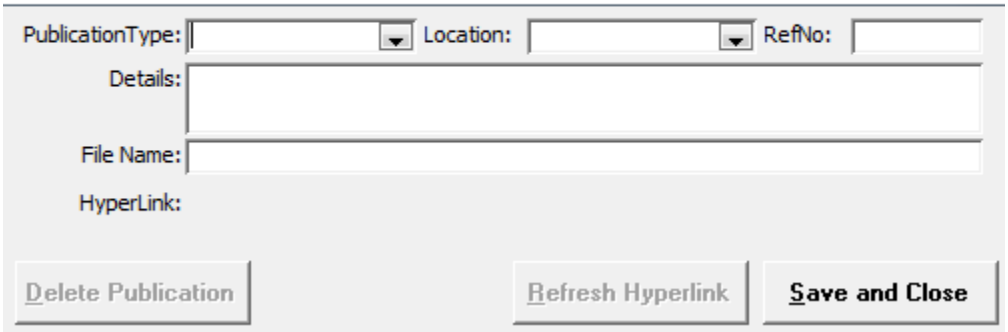
If the publication is not already entered in the database please refer to the Entering a Publication section. In order to add an existing publication to an expedition you need to have its reference number on hand, and in some cases the pages that the expedition is referenced on.

1. Select the publications tab on the expedition entry screen.
2. Click on Add Existing Publication.
3. Type the reference number in the box and click search.
4. When the expedition you want appears click it and then click on Select Publication.
5. Once you have selected the publication it will give you an option to edit the description, if there are specific pages in the report that the expedition is mentioned on this is where to enter it.

Click on enter publication and you should be all set.

# Entering a Publication

There are several ways to enter a publication. The easiest way is entering it when you are entering the expedition it corresponds to, however you can also enter it from the main screen.




### Fields

**Publication Type:** This describes what the publication is. Most of the publications are reports however, there is a decent number that fall into another category. If you are confused about what category a publication falls into you can look in the section "Publication Types" which describes each type in detail.

**Location:** This refers to the area where the publication is stored. Unless you know it is being stored elsewhere choose Report Collection.

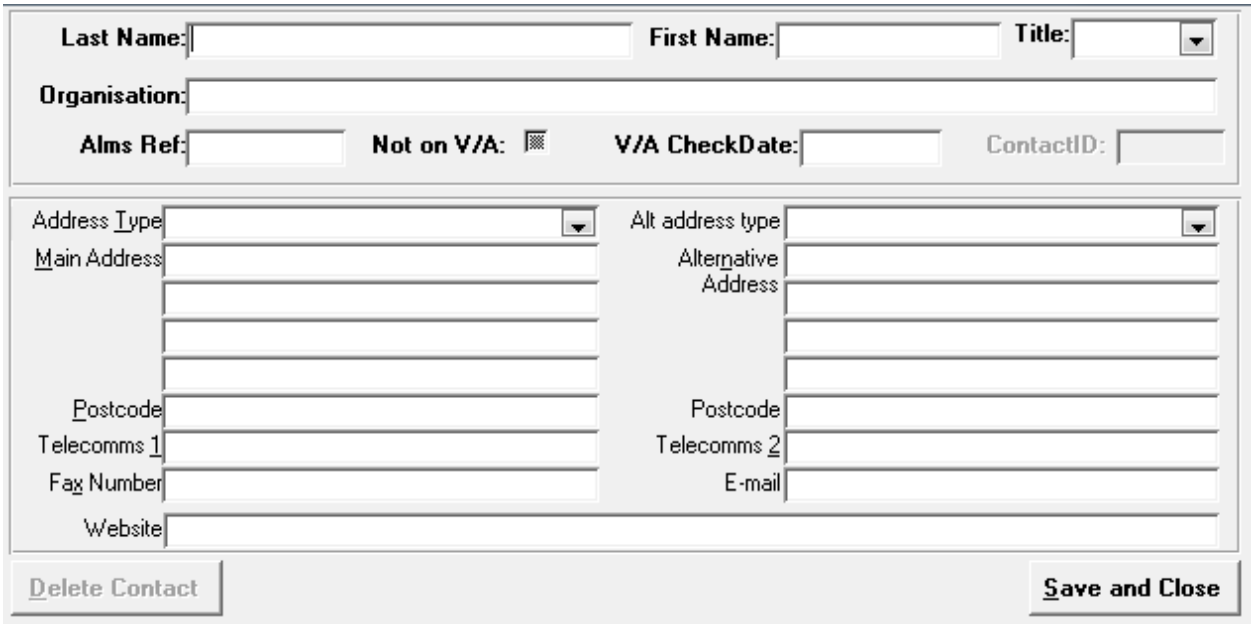
**RefNo:** This is the reference number of the publication in the physical collection. For report, preliminary report, and brochure the reference number will be automatically generated for you. If you have a report of a different type, you should first choose one of these types to generate a reference number and then change back to the correct type.

**Details:** This is a description of the publication. The first element of this field should be the number of pages (ex. 10pp) or the range of pages the expedition appears on (ex. pp 40-45). The next element of the details section is a description of the content this can be anything from maps to illustrations (illus.). Finally, there should be a note about whether the publication is in colour (colour) and if a duplicate is held (duplicate held). A model example is report #5193 "26pp. Maps. Colour Illus."

**File Name:** If the publication has been digitized you can enter the file name here and the system will automatically generate a hyperlink that will link to the digital copy of the publication. (You can find the digital copies of publications in F:\sqldatabases\expeditions\expedpubs).

# Entering a New Contact

When an expedition is submitted by a person not yet in the database it is necessary to add them in as a contact. This can be done while adding an expedition of from the main screen.




**Fields**

**Last Name:** The last name of the contact.

**First Name:** The first name of the contact.

**Title:** The title for the contact. You can select this from a drop down menu.

**Organisation:** If the contact has an affiliation with a specific organisation, such as a college or business, enter it here. This field is independent of the organisation field in reports, so you can enter any organisation into this field even if they are not already on the database.

**Alms Ref:** An old field left over from the old contacts database.

**V/A:** These two fields are to check if the contact is represented in the Integra Membership database.

**Address Type:** You can select the type of address from a dropdown menu. If the type does not perfectly match one of the options choose the one that is the closest.

**Main Address:** Enter in the lines of the address here, moving from most specific information to least.

**Postcode:** If the address has a post code enter it here.

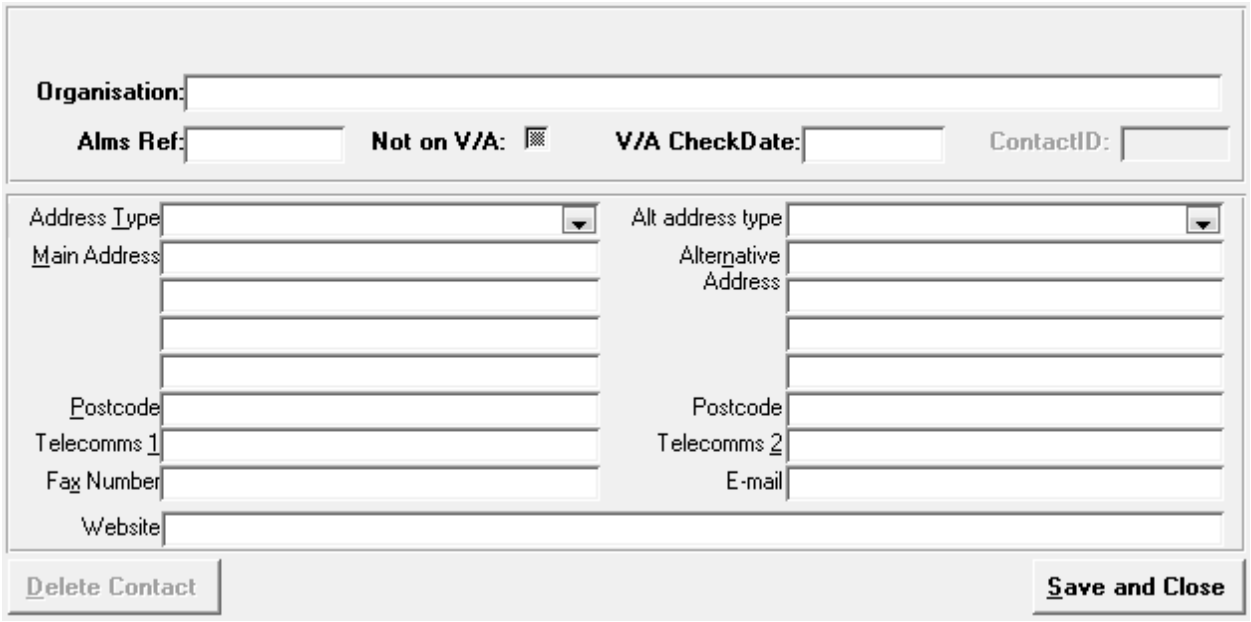
**Telecomms 1:** The phone number of the contact. This should be whatever number they list on their expeditions to be contacted with.

**Fax Number:** The contacts fax number.

**Email:** The email of the contact. The email used should be the one they offer on their reports for people to contact them at.

**Website:** If the contact has a website where they have information about their expeditions or can be contacted enter it here.

# Entering a New Organization




**Fields**

**Organisation:** The name of the organisation being entered.

**Alms Ref:** An old field left over from the old contacts database.

**V/A:** These two fields are to check if the contact is represented in the Integra Membership database.

**Address Type:** You can select the type of address from a dropdown menu. If the type does not perfectly match one of the options choose the one that is the closest.

**Main Address:** Enter in the lines of the address here, moving from most specific information to least.

**Postcode:** If the address has a post code enter it here.

**Telecomms 1:** The phone number of the organisation. This should be whatever number they list on their expeditions to be contacted with.

**Fax Number:** The organisations fax number.

**Email:** The email of the contact. The email used should be the one they offer on their reports for people to contact them at.

**Website:** If the contact has a website where they have information about their expeditions or can be contacted enter it here.

# Digitizing a Publication

The first step to digitize a publication is to examine the binding. As long as it will not damage the publication the binding should be removed. This will enable the publication to be run through the upper drawer. However, if you cannot remove the binding each sheet will have to be manually scanned on the flatbed scanner.

## Upper Drawer

The upper drawer is the fastest way to scan in a publication, however in order to use the upper drawer the publication must be unbound sheets of paper. When a publication has an easily removable binding, it is best to spend the time to remove it and use the upper drawer. When using the upper drawer you only have to press scan once and the printer will pull all of the sheets through.

## Flatbed

The flatbed is not as fast as the upper drawer, but it is more versatile. Using the flatbed you can scan in paper that is not A4, as well as publications with unremovable bindings. However, it is imperative to ensure that as little light get into the flatbed as possible. A large amount of light will make the scan unusable.

## Scanning

1. Place the publication into the scanner.
2. Press the “Scan” button, and then select “Scan to File” on the screen.
3. Click on “Edit” and change the file type from TIFF to PDF.
4. If the publication has pictures in it click on “Advanced” and change the PPI from 200 to 300 or 400. (N.B. This will noticeably increase the file size)
5. If you want to scan double sided you have to choose “Book Mode”.
6. When you are ready to start scanning hit the “Scan” button on the screen.
7. If you are using the upper drawer all of the pages will get pulled through automatically, but if you are using the flatbed after each page you will have to place the next one on the glass and hit “Scan” again.
8. When all pages have been scanned in hit “Finish” on the screen to send the scan to a file.
9. Next open up the folder \\Eacp\file_share\SCAN and find the most recent file in there. This will be the publication you just scanned in. Move this file into F:\SQLDatabases\Expeditions\ExpedPubs.
10. Rename the file to “X_Expedition Name” where X is the reference number of the publication.

## Attaching the Report

1. Find the file name for the digitized publication. Either copy it or write it down exactly.
2. Open the expedition the publication is associated with in the database.
3. If the publication has already been entered, double click on the entry to edit it, or if it is not present enter it into the database.
4. Now enter the filename you found into the file name box on the publication entry field. Be sure to add .pdf to the end of the file name.

5. Now click on “Refresh Hyperlink” this should ensure that the hyperlink reflects the changes you have just made. To check click on the produced link and ensure that it opens up the file.
6. Once you are sure that the file name is correct and the file opens, click on the “Save and Close” button.

# Labelling a Report

Once the type of publication has been determined, label the report with a reference number. If you are unsure of the publication type look at the Table of Publication Types.

| Publication Type | Reference Number | Label Style |
|---|---|---|
| Reports | • In the drop down menu for Type, select Report.<br>• Reference numbers are automatically generated. | Place the label in the upper left corner as in Fig. 1. |
| Preliminary Reports | • In the drop down menu for Type, select Preliminary Report.<br>• Reference numbers are automatically generated<br>• Must have a year in the Year field | Place the label in the upper left corner as in Fig. 1. |
| Brochures | • In the drop down menu for Type, select Brochure.<br>• Reference numbers are automatically generated<br>• Must have a year in the Year field | If the brochure is A4 sized, place the label in the upper left corner like in Fig. 1.<br><br>If the brochure is small enough to fit upright, place the label on the top of the brochure as in Fig. 2. |
| Other Materials (e.g. DVDs, CDs, news articles) | • From the drop down menu for Type, chose the appropriate material type. If unsure of the type of material, refer to the Publication Types table.<br>• If it was produced in preparation of the expedition, add the material to the preliminary collection.<br>• Use the existing reference number for the other materials | Place label in the upper left corner as in Fig. 1 |
| | • From the drop down menu for Type, chose the appropriate material type. If unsure of the type of material, refer to the Publication Types table.<br>• If it was produced at the conclusion of expedition, add | Place label in the upper left corner as in Fig. 1 |

| | | |
|---|---|---|
| | the material to the main collection.<br>● Use the existing reference number for other materials | |

Checklist for reports, preliminary reports and brochures:

- Check the materials for damage including:
    - Rips in the pages
    - Bending with age
    - Discoloration
- If damaged consider digitizing the report.
- Labels should be neatly hand-written or typed
- If there are other materials related to the expedition (e.g. maps, CDs, DVDs or correspondence), label with the same reference number and keep all materials in a folder.

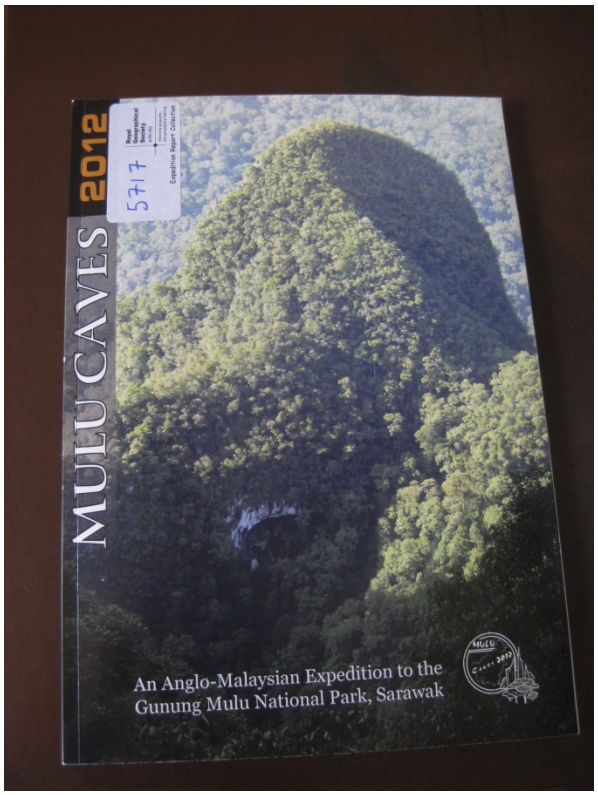



Figure 17: Example of full size report

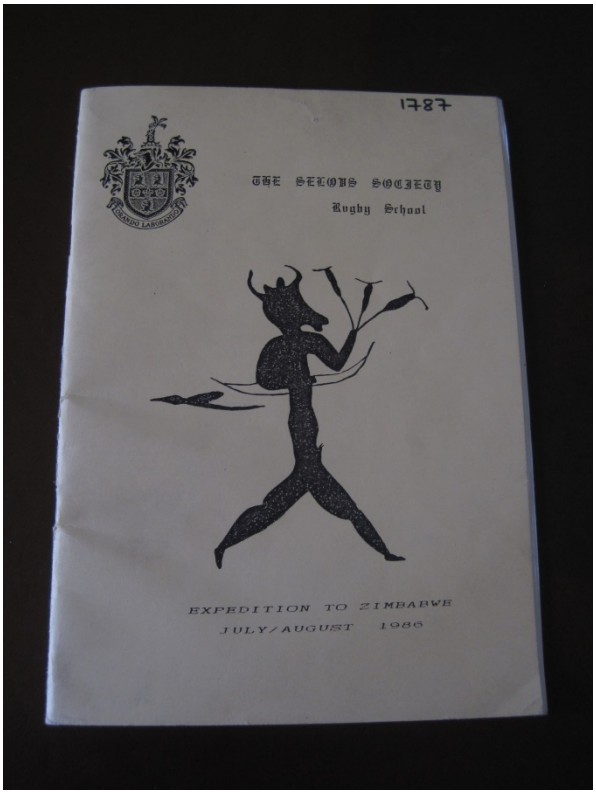



Figure 18: Example of small report

# Labelling a Box

| Section of the Collection | Numbering | Notes |
|---|---|---|
| Main Collection | First Reference Number – Last Reference Number, refer to Figure 19 and Figure 20 | Boxes that are not full can be labelled with the First Reference Number and Last Reference Number can be added when the box is full. |
| Preliminary Report and Brochure Collection | Year, refer to Figure 21 | If there are multiple boxes for a single year, label with year and reference numbers in the box. Refer to Figure 22 |

Checklist for labelling a box:

- Check for damage to the box, including:
    - Broken seams of the box
    - Damage to the lid or bottom of the box
    - Damage to the handle
- Write neatly in marker or, if possible, type up and print.
- The reference numbers should be large and easily readable
- Labels should be placed in such a way that it does not interfere with the lid or handle of the box.


Figure 20: Example of final report box with typed label

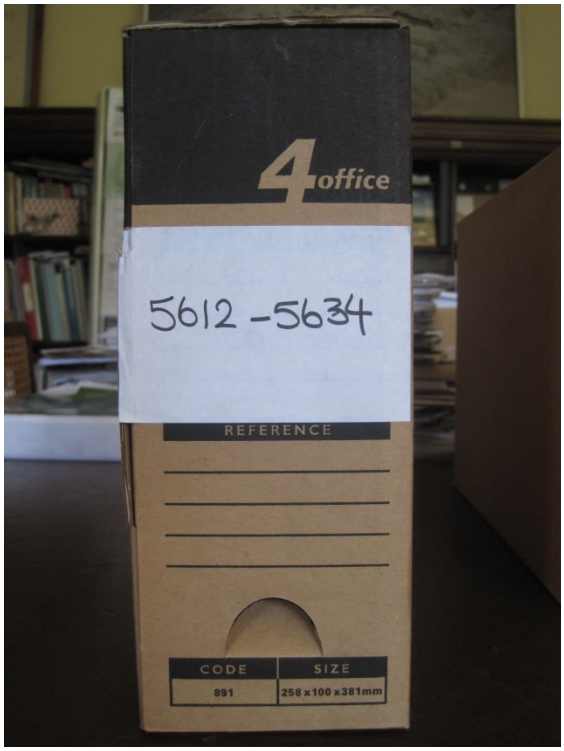



Figure 19: Example of final report box with hand-written label

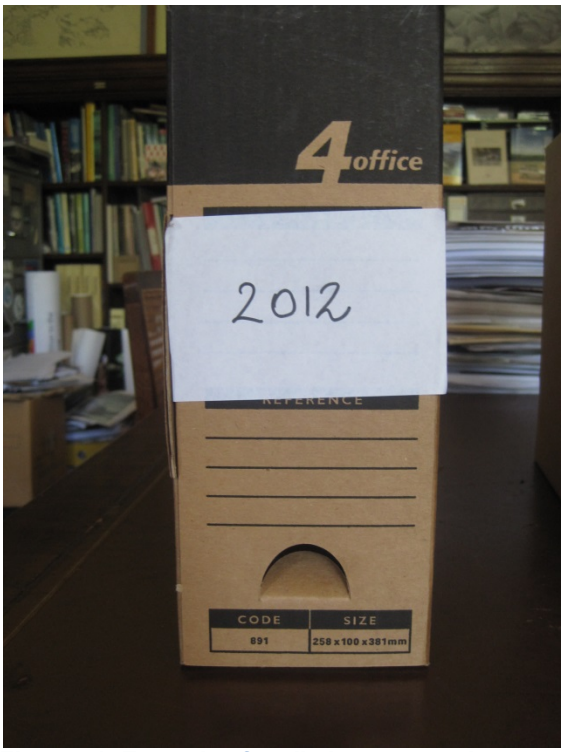



Figure 21: Example of preliminary report box with handwritten label.

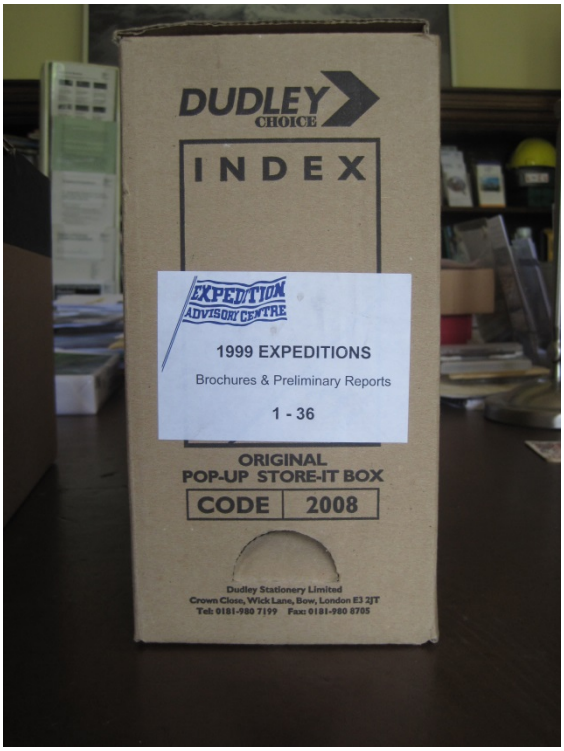



Figure 22: Example of preliminary report box from a year with multiple boxes

# Packing a Box

Checklist for packing a box:

- Documents should be tightly packed to prevent bending.
- Documents should be packed with the spine upwards to make it easier to remove the document (refer to Figure 23 for an example)
- The documents should be ordered from lowest reference number to highest reference number.

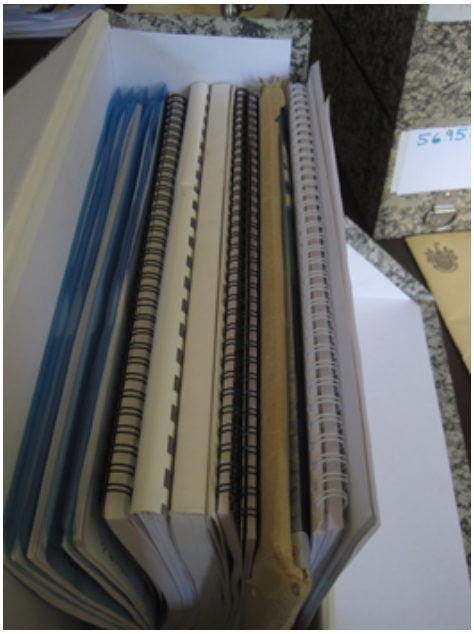


Figure 23: Example of well packed box

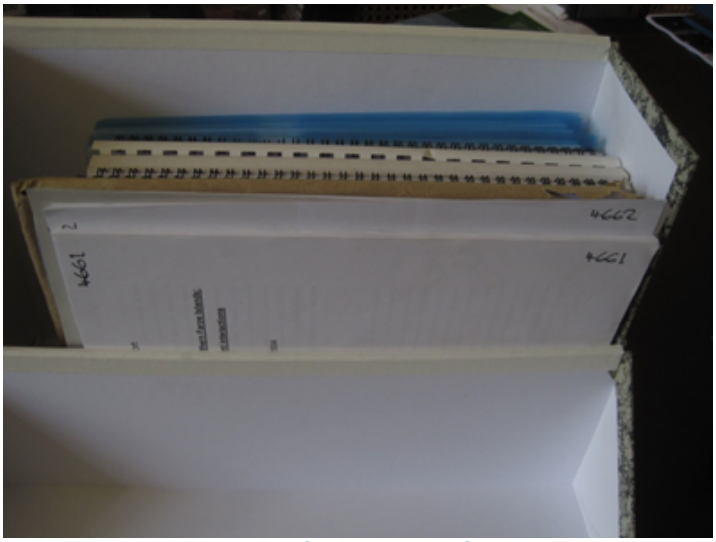
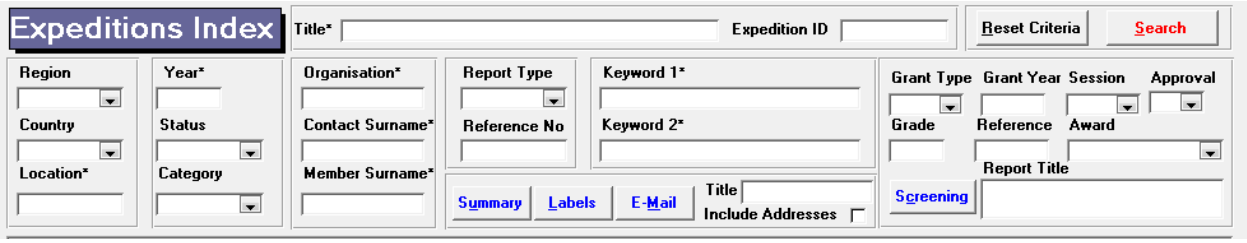


Figure 24: Example of orientation of reports in a box

# Searching the Database

The easiest way to search the database is through the main interface in Access. From this interface you can select any attribute of an expedition and narrow down your search through that.




You can choose an option in any field and then hit the search button. This will populate the main area with a list of expeditions that match those criteria. Any of those expeditions can be double clicked on to provide additional information. If you want to search for a new set of records the easiest solution is to hit Reset Criteria and then enter new criteria.

# Publication Types

This table details what each different type of publication refers to. There may be some publications that could fit into multiple categories, but most will be in one or another.

| Publication Type | Definitions |
|---|---|
| Article | A story about an expedition published in a magazine or newspaper, either in print or online, for a popular audience. Sometimes known as Press Cuttings. (See also *Scientific paper*, below) |
| Book | A published work giving an account of a returned expedition and/or its findings, usually available for sale through a commercial publisher or bookstore. |
| **Brochure** | A document outlining the intentions a planned expedition, detailing what they hope to discover/do on their journey. Brochures are sometimes meant to attract sponsorship or donations. Also known as a proposal. |
| Calendar | An illustrated product from an expedition, possibly intended as means of raising money for the expedition. |
| Colour Slides | A collection of 35mm photographic slides from a returned expedition. |
| Compact Disc (CD) | A CD typically includes a digital version of an expedition's documents and its photographs, and possibly audio files.(See also *DVD*, below) |
| Film | Film made by an expedition, possibly for television broadcast. |
| Map | A stand-alone map or collection of maps created by an expedition. |
| Medical Survey | Confidential responses from those expeditions that have contributed to the RGS-IBG Health & Safety Surveys in years x-y. |
| Newsletter | A document produced by an expedition. Created to document its progress. |
| Other products | Other products and outputs from an expedition. |
| **Preliminary Report** | The initial account from a recently returned expedition, as a precursor to fuller Final Report, once the outputs have been collated and analyzed. |
| Press Release | An announcement to the media about an expedition with the intention of raising public awareness. |
| **Report** | A document written by those involved with an expedition that describes the expedition and its achievements as completely as possible – usually the Final Report. |
| Scientific | An article published in a Scientific Journal detailing the scientific |

| | |
|---|---|
| paper | findings from an expedition. |
| Yearbook | Two page reports from returned expeditions published by the RGS-IBG in The Expedition Yearbooks from 19XX-19XX. . |
| DVD | Digital records of an expedition, typically moving images and sound, but also digital versions of an expedition's final report and supplemental findings. (See also *CD*, above) |
| Education Resources | Resources (text and images) produced by an expedition for use by school teachers. |