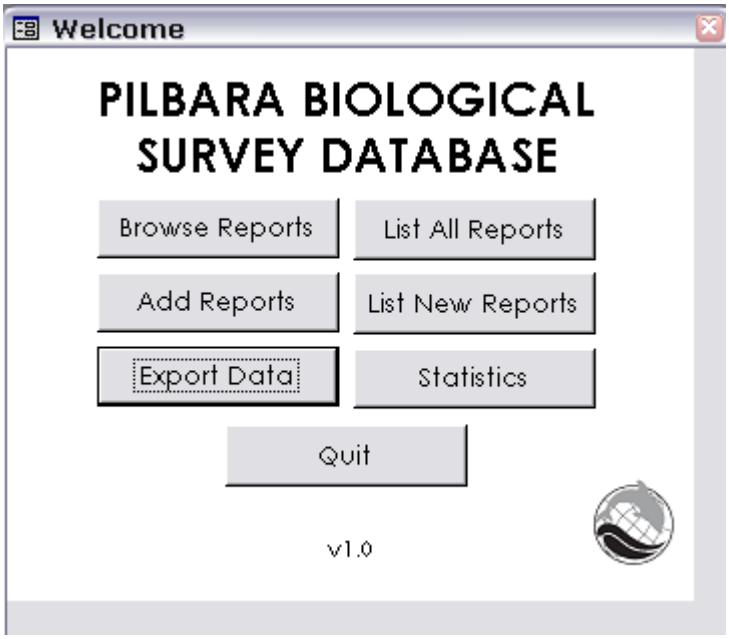

Pilbara Biological Survey Database

(Phase III)

Project Documentation (v1.0)

Project number: GR004

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Prepared for: Stephen van Leeuwen

Date: 15/7/2004

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1.0 Introduction and Scope

The Pilbara Biological Survey Database (PBSD) project has been in development since June 2000, with the release of a tender document from the Pilbara Iron-ore Environmental Committee (PIEC). Phase I of the project was undertaken under this first tender, and involved Biota Environmental Sciences capturing extended metadata statements on a number of reports (200 fully, out of 789 identified) using a commercial application known as the Spatial Metadata Management Systems (SMMS). Phase II of the project involved a 'proof of concept' project, whereby the information stored in the database was transferred to a web site at the Western Australian Herbarium (WAH). This document is a report on Phase III of the project, the development of a new metadata collection tool.

In July, 2004, Gaia Resources was commissioned to develop a database product in Microsoft Access that fulfilled the following criteria:

- Normalised data structures (for efficiency and reduced size),
- A data entry form that is simple to use, with appropriate help files,
- A means of searching the existing data to ensure you are not duplicating data entry (which will require historical data),
- The ability to export the data held within the database directly to an appropriate format for loading to the Herbarium infrastructure (i.e. a delimited text file or at least an Access query),
- A means of managing the data to identify which records have already been uploaded to the Herbarium and which have not, and;
- Appropriate documentation (in this case, help files and perhaps development documentation).

A database (PBSD_10.mdb) was subsequently developed to meet these criteria. This database (version 1.0), along with a softcopy version of this document, should accompany the hardcopy of this report.

This report includes a brief user guide, to assist future users of the database in its operation (section 3.0). A brief technical developer guide is included in section 4.0, which outlines some of the technical details behind the database, before some technical support details are provided in section 5.0.

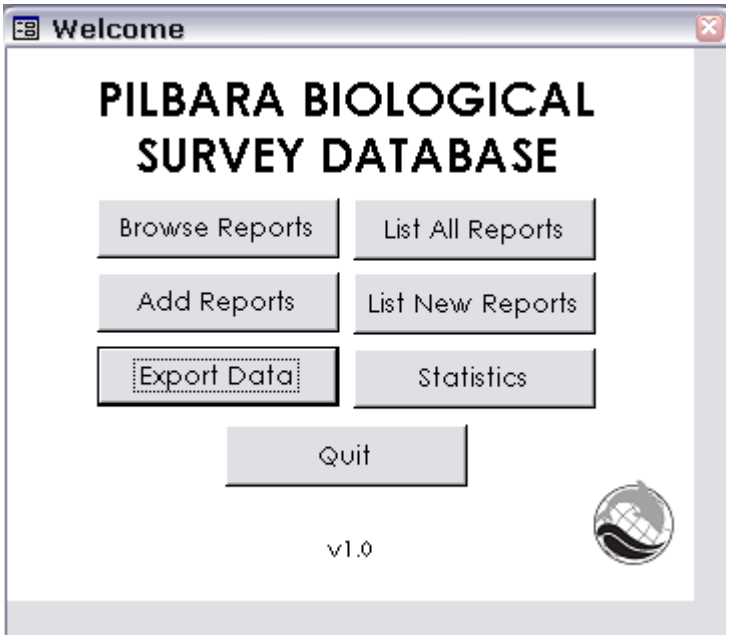
2.0 User Guide

This section of the report outlines how to use the database. It is broken up into the relevant forms and buttons of the database for ease of reference.

2.1 Welcome Form

The Welcome form is shown in Figure 1.

Figure 1: Welcome Form



This form appears as soon as the database is opened. It is the means to navigate between the various tasks that you may wish to undertake. The buttons on the form include:

- Browse Reports – allows you to scroll through the details of each of the reports (see section 3.2)
- Add Reports – allows you to enter new reports to the database (see section 3.3_

- Export Data – exports all new reports (those that are not already submitted) to a tilde (~) delimited text file as per Phase II specifications for the WAH (see section 3.4)
- List All Reports – opens an Access report that lists the title of each of the reports in the database, ready for printing (see section 3.5)
- List New Reports – opens an Access report that lists the title of each of the new reports in the database, ready for printing (see section 3.6)
- Statistics – displays the current number of reports in the database and the number of new reports (see section 3.7)
- Quit – closes the application (see section 3.8)

Each of these is discussed in more detail in the following sections.

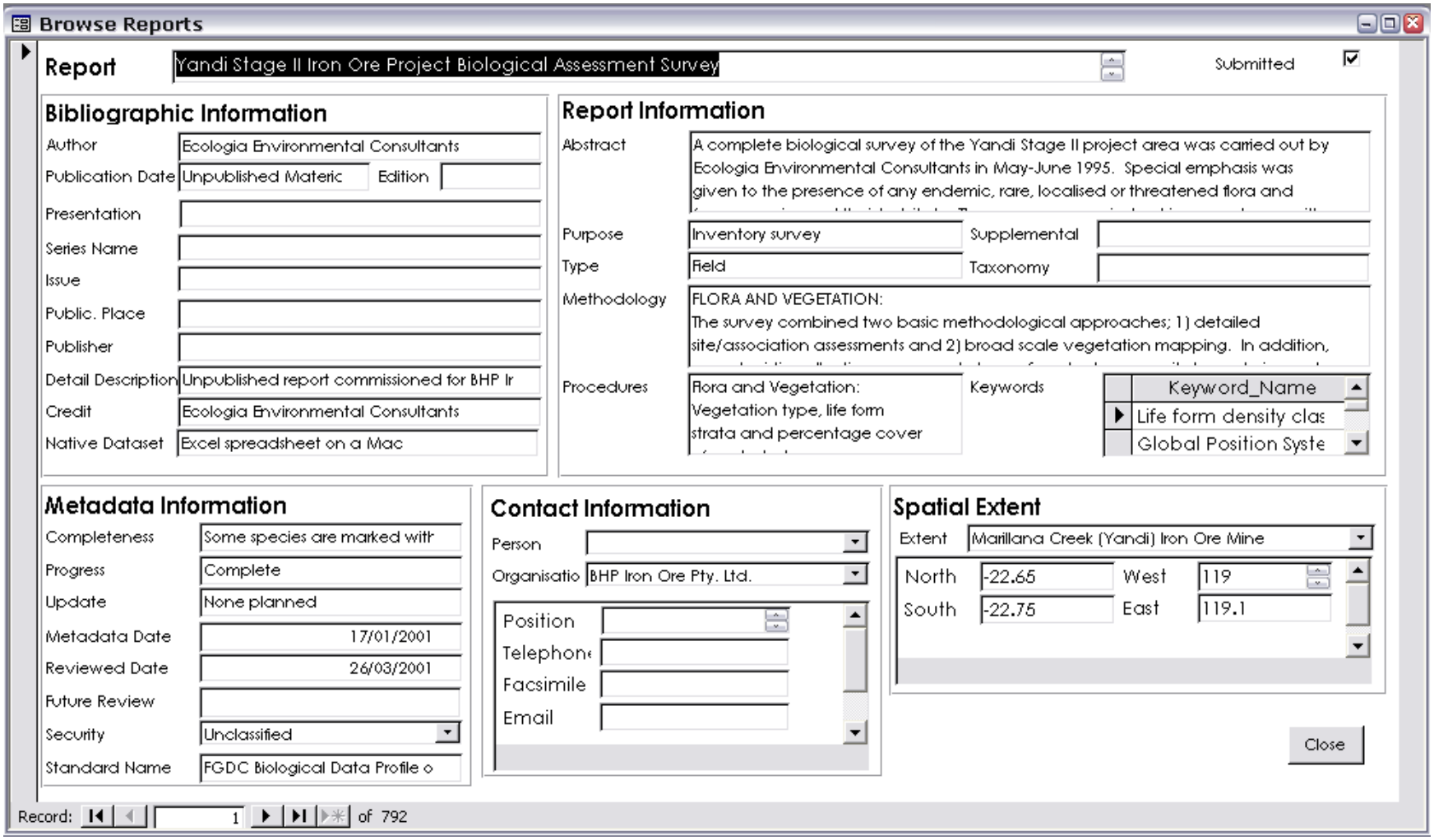
2.2 Browse Reports

The Browse Reports form is shown in Figure 2.

This form has been developed for the express purpose of allowing the user to scroll through or investigate the details of specific reports. It does not allow for any of the details of the data to be changed (to do that, you can use the data entry form, see section 3.3). It is a useful form to become acquainted with the fields that are stored in the database, and what information goes within them.

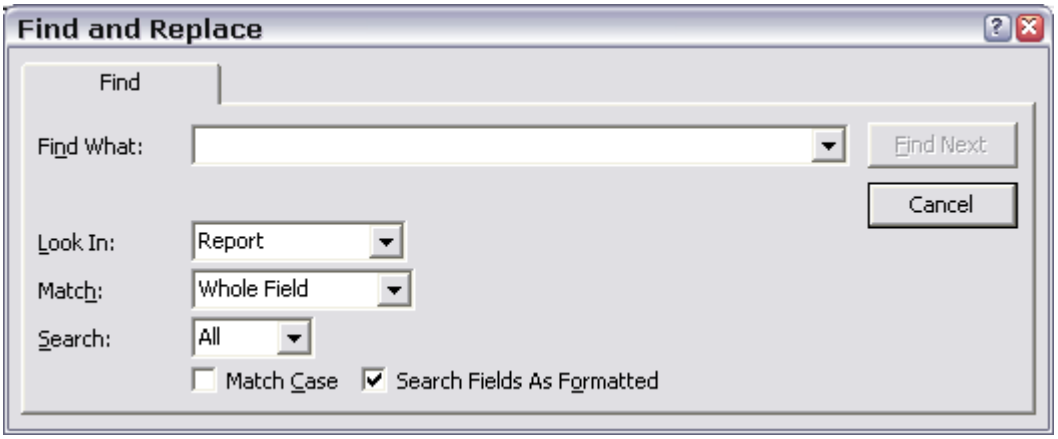
When the form opens, it will display the first record in the database, as shown in Figure 2. You can navigate through the records in a number of ways.

Figure 2: Browse Reports Form



Firstly, if you know the name of a specific report, the best method to find it is to use Access' "find" command. First, click in the **Report** field on the form to set which field you are searching. Then click on the **Find** button, represented by a button on the toolbar showing a pair of binoculars ( ). Alternatively you can use the menu item **Edit>Find**, or press **Ctrl+F**. Any method used will open the **Find and Replace** dialogue box (Figure 3), which allows you to enter the name of the report and do a search for the particular report. If you only know part of the title, you can still use this function, although you will need to set the **Match** field to be "Any part of field" rather than "Whole field".

Figure 3: Find and Replace Dialogue Box



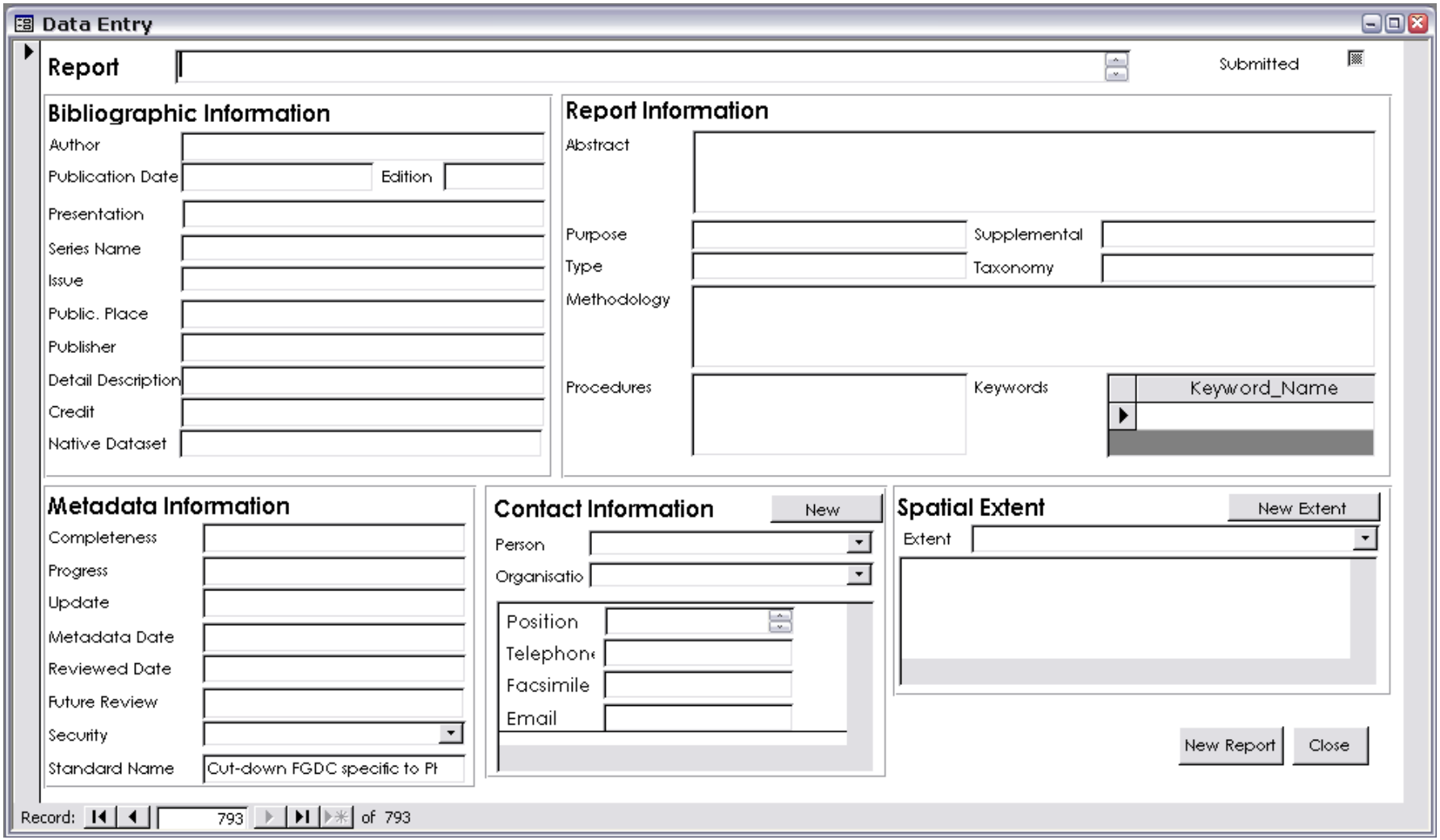
Secondly, you can navigate through the records manually using the standard record navigation buttons that are present. These buttons (Record: 1 of 792) allow you to move between records, or by entering a number in the input area, to jump to a specific record.

The only other control of note on this form is the **Close** button, which will close this form and return you to the Welcome form.

2.3 Add Reports

The Add Reports form is shown in Figure 4.

Figure 4: Data Entry Form



This form is similar in many ways to the Browse Reports form, except for some subtle, and important, differences.

The first difference you will note is that it opens to a new, blank record. This reduces the chance of old records being over-written, and should highlight that this is the form to use when data is to be entered.

Secondly, you will notice some additional buttons on the form, namely ones for **New** contact information, **New Extent** and **New Report**.

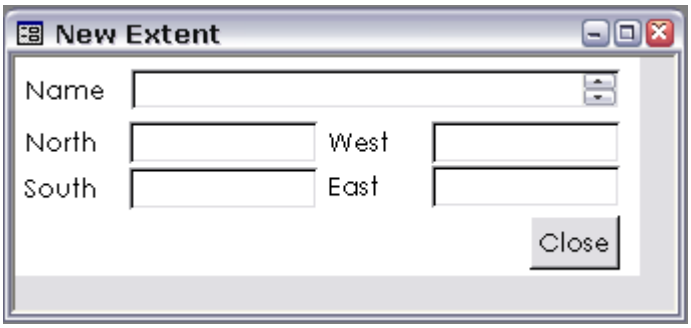
The **New** contact information button allows you to enter details of a contact that is not currently listed in the database. Otherwise, if a contact exists, you will be able to select then from the drop down lists underneath the button. Clicking on this button opens a new form, shown in Figure 5.

Figure 5: New Contact Information Form

This form allows you to enter details of a new contact. When you are finished, press the **Close** button to return to the Data Entry form.

The **New Extent** button works in a similar fashion. It allows you to enter a new spatial extent into the database, that is not already present. Otherwise, you would use the drop-down list of spatial extents that contains the existing extents. The form that opens is shown in Figure 6.

Figure 6: New Extents form



Finally, the **New Report** button simply opens a new blank record, ready for data entry.

There is also a check built into the title field of the data entry form, that is intended to remove duplicate records. When a title is entered into the **Report** field of the database that already exists, a warning box will appear that will tell you it already exists, and will load that record so that you can edit it. The warning box is shown in Figure 7.

Figure 7: Duplicate record warning box

If this (or any) record is edited, you should then change the **Reviewed Date** that is located under the "Metadata Information" section of the Data Entry form. Also, the **Submitted** check box in the upper right corner should be turned off. This ensures that the report is properly tagged with a reviewed date, and will be submitted to the WAH with the next export.

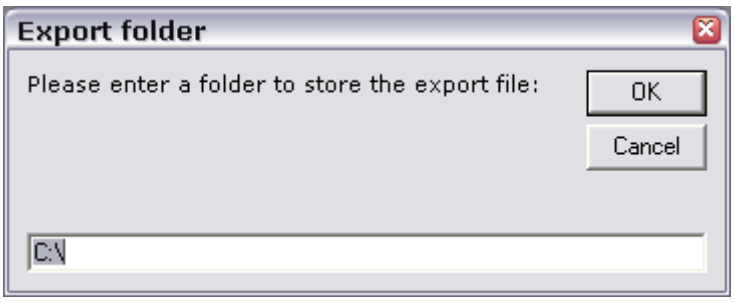
There are a range of fields in this form. They are listed in Appendix 1, along with their descriptions. Some of them, such as **Keywords**, are

already pre-defined, so you need to pick from the list provided. These fields will make more sense in relation to previous data.

2.4 Export Data

The **Export Data** button exports the unsubmitted reports (those that do not have the **Submitted** box checked) and their supporting keywords (which are stored in a separate file) to two tilde (~) delimited text files. Pressing the button doesn't give you a new form, but instead will ask you for the location of a folder to store the exported text files, using an input box as shown in Figure 8.

Figure 8: Export file folder



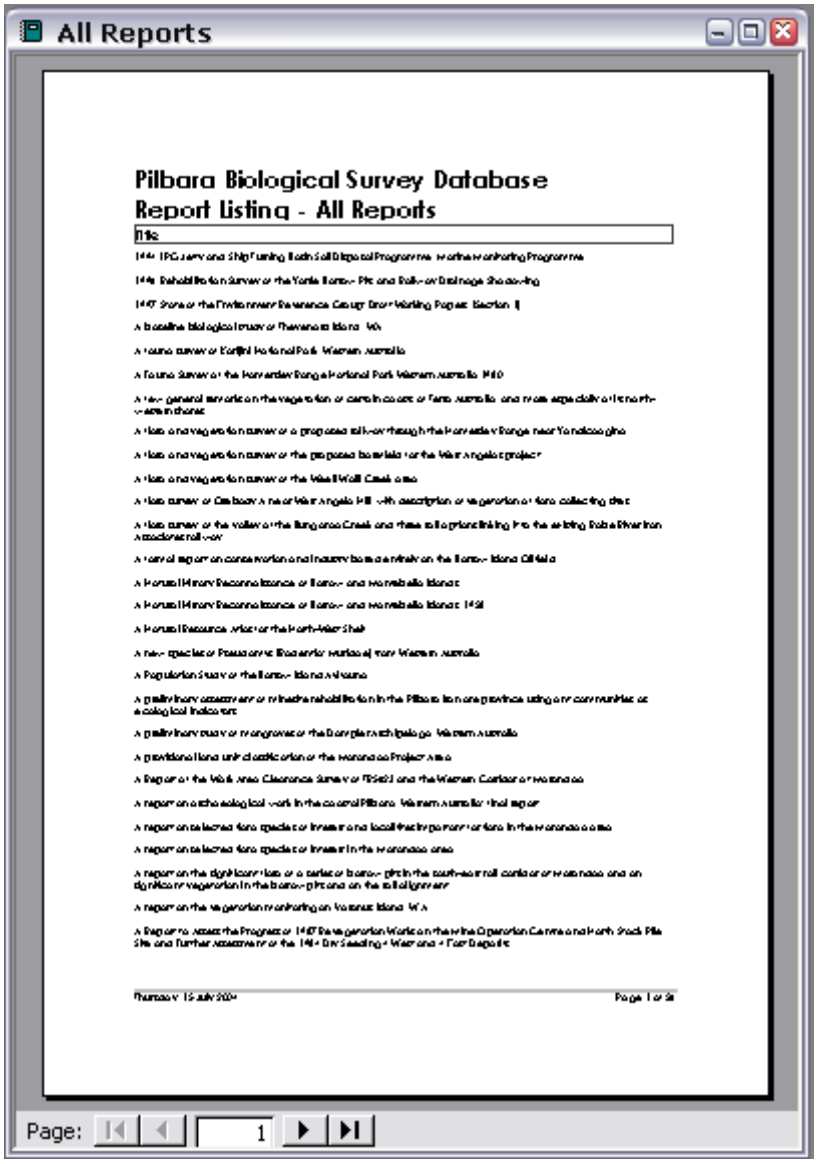
Once the folder is listed, the code underlying this function will check if it exists, create it if not, and then export the files. The files will be saved with the file names "export_<day>_<month>_<year>.txt" and "keyword_<day>_<month>_<year>.txt" in the folder specified. Once the export is complete, you will be asked if you want to see the files yourself, and all reports that were exported will be automatically marked as submitted by the code.

The files can then be sent to the WAH for uploading to the database. Please note that if you change old records, and these are included in these export files, then the WAH should be informed, as older records will need to be over-written.

2.5 List All Reports

This simple function opens a Access report, as shown in Figure 9, that lists all reports in the database alphabetically. This can be printed out to provide a reference list; this is intended to be used when new data is entered to help prevent duplicates.

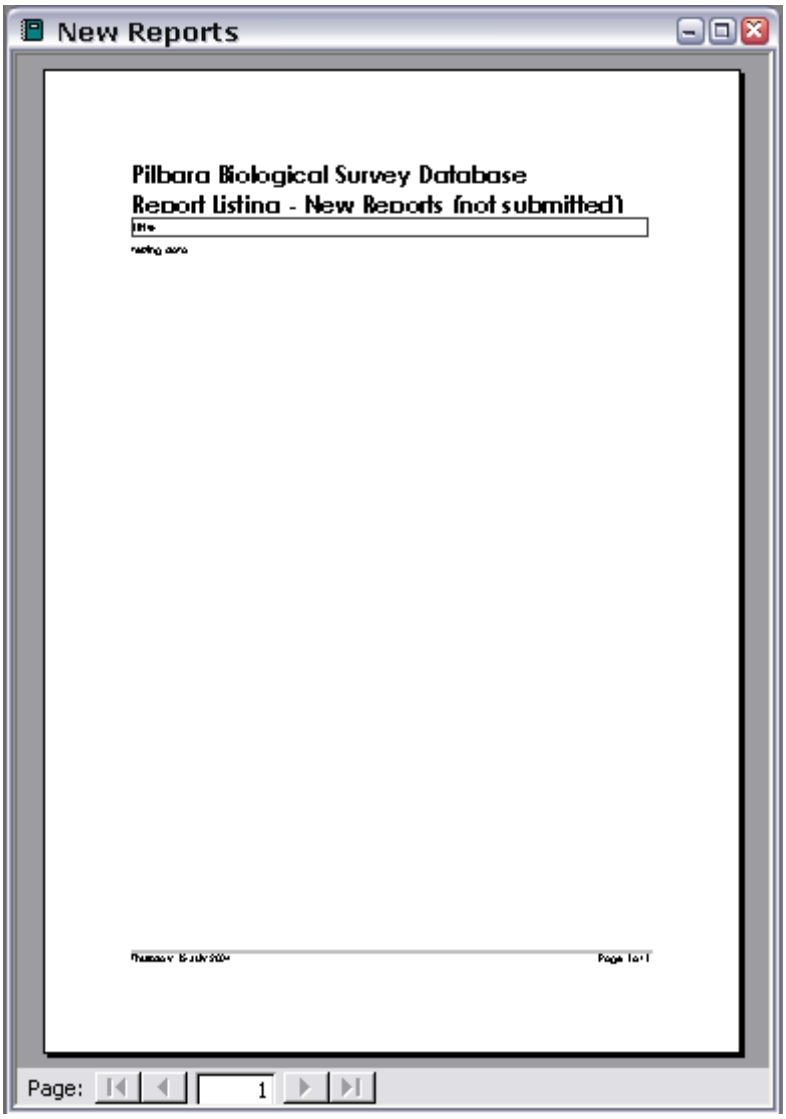
Figure 9: All Reports Listing



2.6 List New Reports

In a similar manner to the previous function, this button opens an Access report that lists the new reports present in the database. If there are none, then this report will be blank, as indicated in Figure 10.

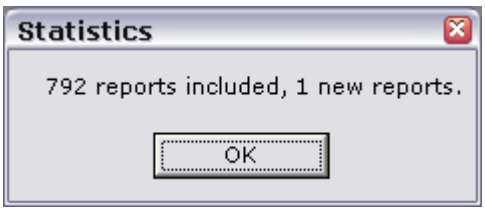
Figure 10: New Report Listing



2.7 Statistics

The **Statistics** button will open a simple dialogue box as shown in Figure 11 that lists the total number of reports in the database, and the total new reports.

Figure 11: Statistics for the database



2.8 Quit

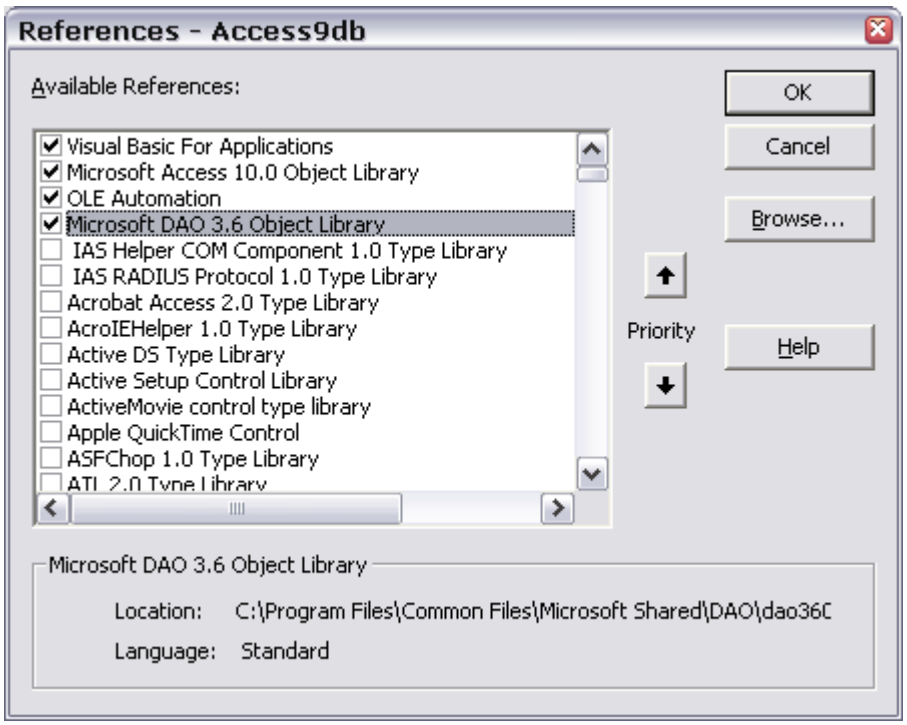
The **Quit** button will close Access. Please note that as Access saves as it goes, any changes you make to records will already be saved.

3.0 Developer Guide

This section just aims to provide some information to any future developers about the different functions that are included in the database.

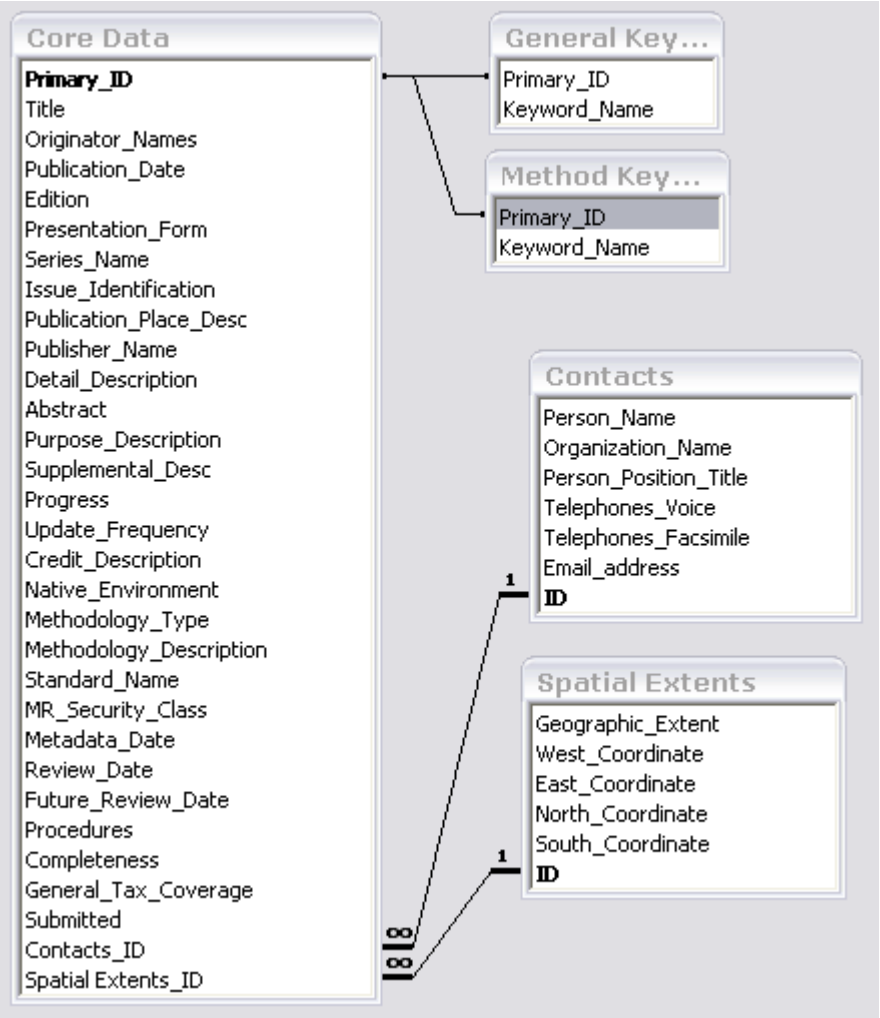
Firstly, in terms of References used in the Visual Basic coding, the set up is as shown in Figure 12. This is a common cause of problems between developments. The database was developed using Microsoft Access 2002 on Windows XP.

Figure 12: VBA References



Relationships in the database are fairly straight forward, and are shown in Figure 13.

Figure 13: Database relationships



As can be seen from Figure 13, the databases are first order normalised.

Coding in the database is relatively simple, and there are only several complicated subroutines in the code. The most complex is the code that does the exporting of the data to a tilde-delimited file, and this has been commented in order to let future developers know what the code does. It may not be the most elegant or efficient code, but it does the job.

If you are a frustrated developer reading this, feel free to call Piers Higgs using the contact details in the database (see section 4.2).

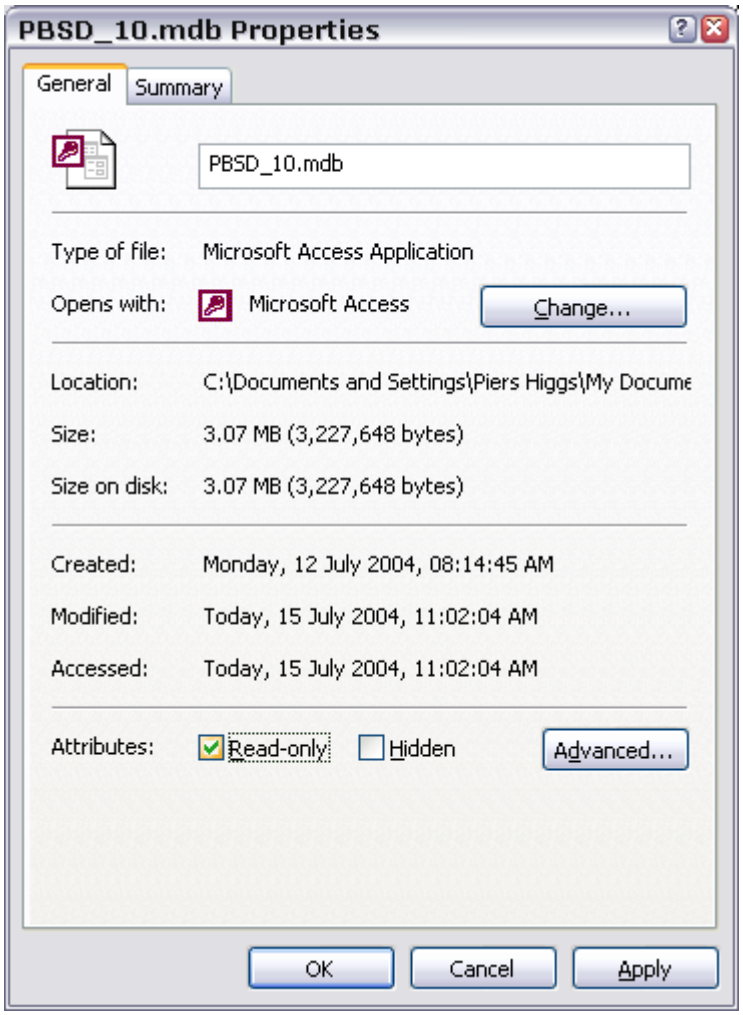
4.0 Technical Support

In this section, some brief outlines of how to perform some tasks and where to get additional support is included.

4.1 Installation

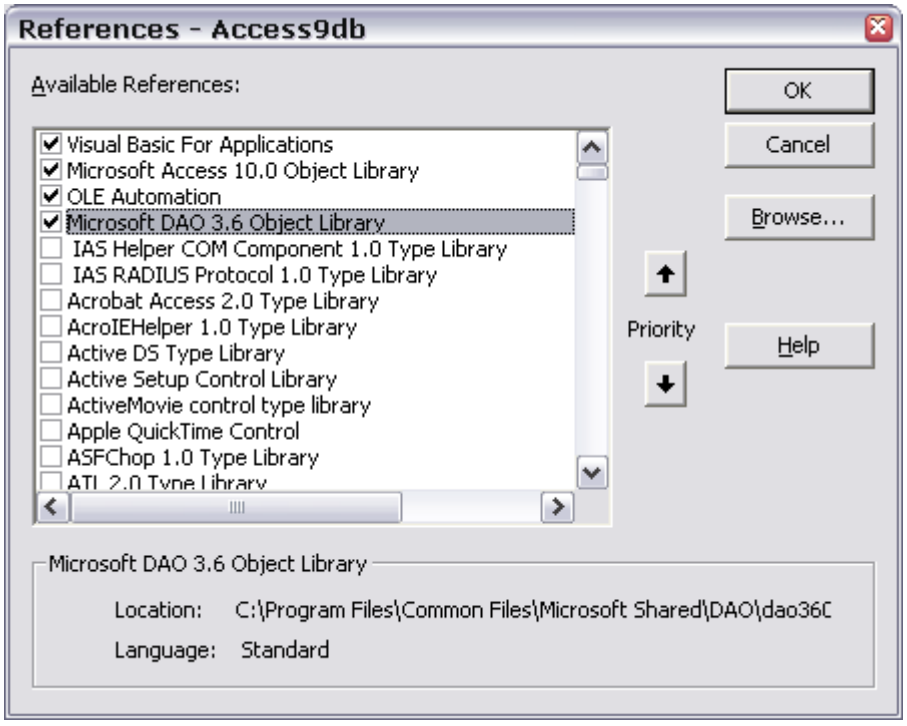
When installing the database, there are two tasks required. The first is to copy the database (i.e. the PBSD_10.mdb file) from the CD-ROM to the local hard disk of your computer, and make sure that the copied database is no longer set as a read-only file. This can be done by opening the properties for the copied database (right-click and select **Properties**), and then turn the **Read-only** box off (see Figure 13).

Figure 14: Properties



Once the database has been copied, then you must make sure that the Visual Basic references are the same as those used in the development environment. Open the database, and with the Welcome form displayed, click the **Design** view button ( ) to open the form in design view and get access to other buttons. Then click on the **Code** button ( ) to access the Visual basic environment. Then, under the **Tools** menu, click on **References**, which will display a list of all the Visual Basic references included. Make sure that these are the same as that shown in Figure 14 by turning them on or off, and ensuring they are in the same order using the **Priority** arrows.

Figure 15: VBA References



The database should then be fully operational.

4.2 Bug fixes

Bug fixes caused by faults in the database will be fixed by Gaia Resources, the developer. Contact details can be obtained by clicking on the Gaia Resources logo on the Welcome form.

Appendix 1
Field descriptions for tables in the database

Core Data Table

Field Name / Heading	Description	Format[1]	Data Entry
Primary_ID	A unique number identifying each report	AutoNumber	NO
Title	The title of the report.	Text	YES
Originator_Names	The name of the author or authoring organisation.	Text	YES
Publication_Date	The date it was published. This is set to "Unpublished Report (YEAR)" for some reports, hence the text value.	Text	YES
Edition	The Edition of the report.	Text	YES
Presentation_Form	The form of the report (usually blank, or "Map")	Text	YES
Series_Name	The name of the series, such as the name of the Journal.	Text	YES
Issue_Identification	Identification for the issue, such as the volume number, issue number and page numbers.	Text	YES
Publication_Place_Desc	The place of publication.	Text	YES
Publisher_Name	The name of the publisher.	Text	YES
Detail_Description	A description of the report details; usually stating information such as who the report was for, internal report identification, etc.	Text	YES
Abstract	The abstract for the report.	Memo	YES
Purpose_Description	The purpose of the report.	Memo	YES
Supplemental_Desc	Any additional text information required for the report.	Text	YES
Progress	Progress indicates if this was a progress report or a completed report.	Text	YES
Update_Frequency	This is the intended update for the report.	Text	YES
Credit_Description	A description of who did the work.	Text	YES
Native_Environment	The native environment of any datasets that were used in the report, such as "Excel spreadsheet", etc.	Text	YES
Methodology_Type	A description of what the following field pertains to.	Text	YES
Methodology_Description	This is the complete description of the methodology used in the report.	Memo	YES
Standard_Name	This is the name of the standard to which this metadata has been compiled	Text	YES
MR_Security_Class	Any security classification	Text	YES
Metadata_Date	The date that the metadata was compiled.	Date/Time	YES
Review_Date	The date that the metadata was	Date/Time	YES

[1] For those fields designated "Text" the maximum length is 255 characters.

	reviewed.		
Future_Review_Date	The intended date for review – currently blank for all.	Date/Time	YES
Procedures	Any taxonomic procedures that were used in this report.	Memo	YES
Completeness	The completeness of the taxonomic identification.	Memo	YES
General_Tax_Coverage	Any general statements on the taxonomic identification and methodologies used.	Text	YES
Submitted	Determines if the report has gone to the WAH	Yes/No	YES
Contact_ID	A unique number linking to contacts	Number	NO
Spatial_Extents_ID	A unique number linking to spatial extents	Number	NO

Contacts

Field Name / Heading	Description	Format	Data Entry
ID	A link back to core data	Autonumber	NO
Person_Name	The contact person for the report	Text	YES
Organization_Name	The contact organisation for the report	Text	YES
Person_Position_Title	The contact person's title	Text	YES
Telephones_Voice	The contact person's phone number	Text	YES
Telephones_Facsimile	The contact person's facsimile	Text	YES
Email_Addresses	The contact person's email address	Text	YES

Spatial Extents

Field Name / Heading	Description	Format	Data Entry
ID	A link back to core data	Autonumber	NO
Geographic_Extent	A textual description of the geographic extent of the report.	Text	YES
West_Coordinate	The western bounding co-ordinate.	Number	YES
East_Coordinate	The eastern bounding co-ordinate.	Number	YES
North_Coordinate	The southern bounding co-ordinate.	Number	YES
South_Coordinate	The northern bounding co-ordinate.	Number	YES

General Keywords

Field Name / Heading	Description	Format	Data Entry
ID	A link back to core data	Autonumber	NO
Keyword	A Keyword describing the report	Text	YES