🐵 Welcome	3				
PILBARA BIOLOGICAL SURVEY DATABASE					
Browse Reports	List All Reports				
Add Reports	List New Reports				
Export Data	Statistics				
Q	uit				

Pilbara Biological Survey Database

(Phase III)

Project Documentation (v1.0)

Project number: GR004Prepared by: Piers HiggsPrepared for: Stephen van LeeuwenDate: 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					
🐵 Welcome	8				
PILBARA BI SURVEY D	OLOGICAL DATABASE				
Browse Reports	List All Reports				
Add Reports	List New Reports				
Export Data	Statistics				
Q.	uit				

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.

-8	Browse Repor	ts								🛛
	Report	(andi Stage II Iron Ore Project Bio	ological	Assessment Su	rvey				Submitted	N
	Bibliographi	c Information		Report Info	rmation					
	Author Publication Date	Ecologia Environmental Consultants Unpublished Materic Edition		Abstract	A complete biological su Ecologia Environmental given to the presence of	rvey of the Consultant f any ende	e Yandi Stage II p Is in May-June 199 Imic, rare, localise	roject area v 95. Special d or threate	was carried out by emphasis was ned flora and	
	Series Name			Purpose	Inventory survey		Supplemental			
	Issue			Туре	Field		Taxonomy			
	Public. Place			Methodology	FLORA AND VEGETATION. The survey combined tw site/association assessme	: vo basic me ents and 2) ,	ethodological app broad scale veg	oroaches; 1 etation map) detailed oping. In addition,	
	Detail Description Credit Nati∨e Dataset	Unpublished report commissioned for B Ecologia Environmental Consultants Excel spreadsheet on a Mac	HP Ir	Procedures	Rora and Vegetation: Vegetation type, life form strata and percentage o	n cover	Keywords	Life fo	eyword_Name orm density clas al Position Syste	•
	Metadata In	formation	Conto	act Informat	ion	Spatia	l Extent			
	Completeness	Some species are marked with	Person		•	Extent	Marillana Creek	(Yandi) Iron	Ore Mine	•
	Progress	Complete	Organis	atio BHP Iron Or	e Pty. Ltd.	North	-22.65	West	119 🚍	
	Update	None planned		· ·		South	-22.75	East	119.1	
	Metadata Date	17/01/2001	Positi	ion			,		,	-
	Reviewed Date	26/03/2001	Feren	non« [
	Future Review		Facsi			<u>-</u>				
	Security	Unclassified 🗾	Emai	· .					Clo	se
	Standard Name	FGDC Biological Data Profile o]				
Re	cord: 🚺 🔳	1) * of 792								

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 (M). 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	3: Find and Replace Dialo	<u>ogue Box</u>
Find and Re	eplace		? 🛽
Find			
Find What:			Eind Next
Look In:	Report	•	Cancel
Matc <u>h</u> :	Whole Field	•	
Search:	All 🔻		
	☐ Match <u>C</u> ase	✓ Search Fields As Formatted	

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.

Data Entry Report		Submitted	
Bibliographic Information	Report Information		
Author	Abstract		
Publication Date Edition			
Presentation			_
Series Name	Supplemen	ental	_
lssue	Type Taxonomy	у	_
Public. Place	Methodology		
Publisher			
Detail Description	Propeduirer	Kayword Nama	_
Credit			_
Native Dataset		-	
		,	
Metadata Information	Contact Information New Spatial Extent	New Extent	
Completeness	Person Extent		-
Progress	Organisatio		
Update			
Metadata Date			
Reviewed Date			
Future Review			
Security		New Report	
Standard Name Cut-down FGDC specific to Pt		new kepon Close	

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.

🕄 New Conta	ict 🖃 🛛 🔊
Contact	×
Organisation	
Position	
Telephone	
Facsimile	
Email	
	Close

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.

	<u>rigure o.</u>		
🔠 New	Extent		
Name			
North		West	
South		East	
			Close

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.

<u>Fig</u>	ure 7: Duplicate record warning b	<u>x o c</u>
	Microsoft Access 🛛 🛛	
	Report exists, loading record for editing	
	OK	

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.

Export folder	X
Please enter a folder to store the export file:	ОК
	Cancel
C.V.	

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.



🗏 All Reports 📃 🗆 🖾
Pilbara Biological Survey Database
Report Listing - All Reports
nte
144 IPG services Shipf uning Bath SaliDirgo tal Programme watherwarkaring Programme
144 Sebablic for Survey of the Yorks Borow Pits and Soliv or Distingue Sto dowing
1447 Stone of the Final Demonstration Courty Drov Mining Pagest Section 1
A baseline biologica (many or Thereina to biologica)
A raino curver or Earlini korlonal Park. Warren, Aurralia
A Fourie Saverier the Horverder Porgel-Porterial Part Verrem Auron Io. 1980
A tex-general envotion the vegets for all certain colors of ferts setted is and trade expectative (it north-
v - eta in transc A ríos o na venes lon savevor o monosar sil - contexentrita koreasia v Sonce neor Yondoco Akv
a tion on avecasion provides the monose bowields contaction models and are the second
a de antrege entrere e la parte de la de la company parte
a das strategies antenies of the veneral data and and a second so is constrained for a called the data
A viso anew of the valence the language Creek and these all optimatising into the existing Cobeline from A mandate relieve
A tarvel agent an conservation on al naurry bole a entitely on the Barow Idana Cilifeira
A koup Many Record force of Large- and Homebala Manas
A Marus (Mary Records bonce of Tarow and Warehald Marat, 193)
A konst Dessence whether the kont-Went Shek
A new macies of Posso and a Reservice Marianel York Western Autoritie
A Population Super at the Banavi Mana Avisana
A pair hav accesses or vinecten shall be fan in the Pibers ion are portice using any conversifier as a calle just index as
A pairy harv quar a reargement the Dav planeth belogs. We can survais
A practicana liana unit classificazione: the warana coProject Alexa
A Departor the Wold Area Clearance Survey or Rick?) and the Werten Carlour or Woldmana
A report on a title adopted work in the colored Pilboro. We new Auto its rind aplan
A reportante lacted for a guide car free mana local frechigo normaniara in the viorance or no
A report on taileaned foreignedies or investministic watercase area
A report on the digit loans loss or a series or barrow pitch the south-earned container was not an digit loans wagen stanting the barrow pitch and the soil alignment.
A report on the vegetation or aniharing on its strate bland. With
x Beglarra vasatrika Prograttor 1407 Bese genetian Workson rhere ha Operation Centre on al+orh Stack Pile Site and Darther vasatrier or the 144+ Dir Seading + Vietrana + Γασ Depolitic
Page Lor Se

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.

🔳 New	Reports	- 🗆 🛛
	Pilbara Biological Survey Database Report Listina - New Reports (not submitted) International	٦
	Page for f	
Page: K		

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.



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.

References - Access9db	×
<u>A</u> vailable References:	ОК
Visual Basic For Applications Microsoft Access 10.0 Object Library	Cancel
Microsoft DAO 3.6 Object Library IAS Helper COM Component 1.0 Type Library	Browse
IAS RADIUS Protocol 1.0 Type Library Acrobat Access 2.0 Type Library Acrobat Access 1.0 Type Library	
Active DS Type Library Active Setup Control Library	Help
ActiveMovie control type library Apple QuickTime Control	
And The Library	
Microsoft DAO 3.6 Object Library	
Location: C:\Program Files\Common Files\Microsoft Shared\ Lapourage: Standard	DAO\dao36C



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).

BSD_10.m	db Properties 🔹 🕄
General Summ	nary
	PBSD_10.mdb
Type of file:	Microsoft Access Application
Opens with:	Microsoft Access
Location:	C:\Documents and Settings\Piers Higgs\My Docume
Size:	3.07 MB (3,227,648 bytes)
Size on disk:	3.07 MB (3,227,648 bytes)
Created:	Monday, 12 July 2004, 08:14:45 AM
Modified:	Today, 15 July 2004, 11:02:04 AM
Accessed:	Today, 15 July 2004, 11:02:04 AM
Attributes:	Read-only Hidden Advanced
	OK Cancel Apply

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 (\Join) to open the form in design view and get access to other buttons. Then click on the **Code** button (\bigstar) 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.

References - Access9db	×
<u>A</u> vailable References:	ОК
✓ Visual Basic For Applications ✓ Microsoft Access 10.0 Object Library	Cancel
 ✓ OLE Automation ✓ Microsoft DAO 3.6 Object Library IAS Helper COM Component 1.0 Type Library 	Browse
IAS RADIUS Protocol 1.0 Type Library Acrobat Access 2.0 Type Library	
ActroIEHelper 1.0 Type Library Active DS Type Library Active DS Type Library Active Setue Control Library	Help
Active Secup Control Lorary ActiveMovie control type library ActiveMovie control	
ASFChop 1.0 Type Library	
Microsoft DAO 3.6 Object Library	
Location: C:\Program Files\Common Files\Microsoft Shared\I	DAO\dao36C
Language: Standard	

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
_	A unique number identifying each	AutoNumbe	r
Primary_ID	report		NO
Title	The title of the report.	Text	YES
Originator_Names	The name of the author or authoring organisation.	Text	YES
	The date it was published. This is set to "Unpublished Report (YEAR)" for some reports, hence	Text	
Publication_Date	the text value.		YES
Edition	The Edition of the report.	Text	YES
	The form of the report (usually	Text	
Presentation_Form	blank, or "Map")		YES
	The name of the series, such as	Text	
Series_Name	the name of the Journal.		YES
	Identification for the issue, such as	Text	
	the volume number, issue number		
lssue_Identification	and page numbers.		YES
Publication_Place_Desc	The place of publication.	Text	YES
Publisher_Name	The name of the publisher.	Text	YES
	A description of the report details;	Text	
	usually stating information such as		
	who the report was for, internal		
Detail_Description	report identification, etc.		YES
Abstract	The abstract for the report.	Memo	YES
Purpose_Description	The purpose of the report.	Memo	YES
	Any additional text information	Text	
Supplemental_Desc	required for the report.		YES
	Progress indicates if this was a	Text	
	progress report or a completed		
Progress	report.		YES
	This is the intended update for the	Text	
Update_Frequency	report.		YES
Credit_Description	A description of who did the work.	Text	YES
	The native environment of any	Text	
	datasets that were used in the		
	report, such as "Excel		
Native_Environment	spreadsheet", etc.	_	YES
	A description of what the	Text	
Methodology_lype	following field pertains to.		YES
	This is the complete description of	Memo	
	the methodology used in the		
ivietnoaology_Description	Treport.	T I	YES
	Inis is the name of the standard to	lext	
Standard Name	compiled		VEC
MD Socurity Class		Toxt	IES VEC
IVIR_SECULITY_CI922	The date that the metadate was	Doto /Times	YES
Motadata Dato	compiled	Date/IIme	VEC
Poviow Data	The date that the metadate was	Dato/Timo	TES VEC
Neview_Date			IES

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

	reviewed.		
	The intended date for review -	Date/Time	
Future_Review_Date	currently blank for all.		YES
	Any taxonomic procedures that	Memo	
Procedures	were used in this report.		YES
	The completeness of the	Memo	
Completeness	taxonomic identification.		YES
	Any general statements on the	Text	
	taxonomic identification and		
General_Tax_Coverage	methodologies used.		YES
	Determines if the report has gone	Yes/No	
Submitted	to the WAH		YES
	A unique number linking to	Number	
Contact_ID	contacts		NO
	A unique number linking to spatial	Number	
Spatial_Extents_ID	extents		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
	The contact organisation for the	Text	
Organization_Name	report		YES
Person_Position_Title	The contact person's title	Text	YES
	The contact person's phone	Text	
Telephones_Voice	number		YES
Telephones_Facsimile	The contact person's facsimile	Text	YES
	The contact person's email	Text	
Email_Addresses	address		YES

Spatial Extents

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