

REPORT ON  
COMPILATION OF KIMBERLEY BIODIVERSITY AND NATURAL RESOURCE  
MANAGEMENT DATA  
AND ASSOCIATED INFORMATION.

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North Australian Fire Project (Developing knowledge-based  
fire management for Northern Australia savanna communities),  
Tropical Savannas Cooperative Research Centre.



Natural Heritage Trust  
*Helping Communities Helping Australia*

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Front cover: *Argusia argentea*. Photo - J.Moulden.  
Northern Quoll (*Dasyurus hallucatus*). Photo - A.Thomson.

## **BACKGROUND**

Although the Kimberley environment has evolved over thousands of years in association with fire, it is considered that changes in the fire regime since the arrival of Europeans have resulted in an increase in extensive late hot dry season fires. The impact of this changed fire regime and other threatening processes appears to be having a deleterious effect on the Kimberley's flora and fauna.

In the Northern Territory there is evidence of a fairly rapid to severe decline in some populations of mammal species (Woinarski, 2001), this being prior to the arrival of cane toads. Recent survey work undertaken in the Kimberley suggests similar declines may be happening here. The likely arrival of cane toads in the Kimberley will almost certainly further impact on some fauna species.

The compilation of previously recorded species data:

- enables this data to be displayed or assessed against current information
- enables the extrapolation of where else species might be found, if habitat classification of a suitable resolution is available
- helps in developing an understanding of change in species distribution associated with fire, feral animals, weeds, etc.
- can be useful in informing and directioning further surveys, research and management planning
- highlights areas for which there is limited recorded information
- can assist with identifying work undertaken that has been overlooked.

Development of a database of Kimberley biodiversity and natural resource management data was initiated by the Ord Bonaparte Program (a Land and Water Australia project) in 2003. The initial compilation of the biodiversity component of this work was undertaken by the Kimberley Regional Fire Management Project (KRFMP). Following the termination of the Ord Bonaparte Program at the end of 2003, this work continued under the KRFMP.

Biodiversity and natural resource management data has been produced or is held by a variety of sources. Fauna and flora specimens have been collected since the late 1800's and are held by the Western Australian Museum and the Western Australian Herbarium . These and Birds Australia records necessarily underpin any regional biodiversity database. There is much additional species data however, that has been recorded during research or surveys that can add significantly to the understanding of species distribution and changes that may occur in this.

Locating and uploading this data has been the focus of the work outlined in this report. Much of this additional data has required modification to enable it to be effectively reviewed or analysed against existing data. It is not a simple process therefore to draw together information from the various sources for analysis or to build a 'picture' to inform further understanding or research.

Appendix 16 lists the datasets that have been compiled by the Kimberley Regional Fire Management Project (KRFMP) and these records are displayed in context of their location in the Kimberley in Appendix 4 - 11.

## AIMS

- To compile available natural resource management and biodiversity data relevant to the Kimberley onto one system.
- To modify compiled data sets to enable them to be analysed or displayed in relation to each other in a database or Geographic Information System (GIS).
- To source additional information or data (student projects, mining company surveys, anecdotal records, etc.) for potential inclusion with compiled data.
- Additional to 'compiled data', a 'Kimberley Biodiversity Reference List' of data and references relevant to Kimberley biodiversity and natural resource management be compiled and made publicly available.
- That data and information compiled is retained as a resource in a location or manner that enables it to inform and be utilised by, subject to custodian agreements, biodiversity and natural resource management work undertaken in the Kimberley.
- That both the data and reference list remain dynamic and continue to be added to over time.
- That the data compiled by this project will enable:
  - △ the displaying or analysing of past and present (and potentially modelled) locations of fauna and flora occurrence to help assess change that may have occurred or be occurring in the landscape.
  - △ identification of change in species distribution to be assessed against other ecological parameters such as geology, vegetation communities, Interim Biogeographic Regionalisation for Australia (IBRA) and threatening processes such as fire, weed invasion, habitat modification and potentially the impact of cane toads.
  - △ prioritisation of areas for further research and survey work.
  - △ identification of information that has been overlooked.

## METHODS

Project method consisted of:

- Identifying relevant data and biodiversity work.
- Locating and acquiring data sets.
- As necessary, reformatting data to appropriate standards.
- Editing, entering and uploading data.

The initial work done with the OBP entailed a significant amount of time formatting data for a specific program. As support for this program eventually failed, a lot of the formatting work was of limited value. As funding for the continuation of data collation with the KRFMP was short term, the future of the data acquired and its eventual format was always uncertain. Therefore, the time consuming task of reformatting all data sets to an identical format for uploading into one program was not considered a priority.

It was not possible that the task of locating, acquiring and formatting all recorded biodiversity data for the Kimberley would be completed during the funding period, particularly as much of the data received required modification to make it compatible and available in the same system.

The priorities were therefore:

- Acquiring as much data as possible, particularly smaller but important datasets that had to be 'tracked down' and sometimes electronically entered.
- Converting coordinates into a compatible format (GDA94, decimal degrees) to enable data to be analysed or viewed spatially.
- Identifying and rectifying location errors that become evident when data was viewed in a GIS system.
- Applying precision codes where possible, to enable data with poor precision to be excluded from analysis where necessary. This is especially important when looking at data in more detail against country type, threatening processes such as fire, etc.
- Modifying survey and site names to overcome ambiguity.
- Checking and updating nomenclature to align with WA Herbarium and WA Museum 'master lists'.

## **RESULTS**

### ***Data.***

40 data sets have been acquired. These have been reformatted, modified or entered as necessary. They are listed in Appendix 16 along with their status of completion, modification, relevant data custodian, etc. Data sets are 'filed' under the directory 'PointData'. If data pertains to an agency (or agency estate) it is filed in a sub-directory identifying the agency. Otherwise data sets are filed in sub-directories under location or species, whichever is the most applicable. Custodian agreement details are located in associated sub-directories.

As discussed under Methods, data sets have been retained as separate files to minimise formatting required. This 'filing' method also allows data with restricted access to be easily excluded if necessary.

Some data sets only have site or survey data. The actual species data has not always been obtained.

The issue of duplicate data has not been addressed. This will occur when specimens are recorded in WA Museum or WA Herbarium data and also as part of a survey data set.

Appendix 4 – 11 show the location of many of the data sets collected against Interim Biogeographic Regions of Australia. Images and details of some additional spatial data or information, useful when considering biodiversity data, are identified in Appendix 12 - 15.

### ***Metadata*** ('data about data').

Each data set includes a 'metadata' sheet (Excel) or table (Access). This is not a formal metadata statement but has been included to record information as to where data came from, modifications made and any other information of relevance. This 'metadata' has been copied into a Word file in the same directory as the associated Excel or Access file so it can be easily viewed without need to open the data file.

### ***Arcview.***

The work undertaken to date with the data compiled has primarily utilised data in the GIS program Arcview. Arcview enables records for a particular property, IBRA region, etc. to be 'cut' from the required data set and then further reviewed for relevance, precision of location, age of record, etc. Displaying data in Arcview is also a good way of identifying record location errors.

So data can easily be uploaded into a new Arcview project, Arcview formatted 'shape' files of species data are stored in one sub-directory (Pointdata/Arcview\_PointData).

**'Kimberley Biodiversity Reference list'** (available in draft format only).

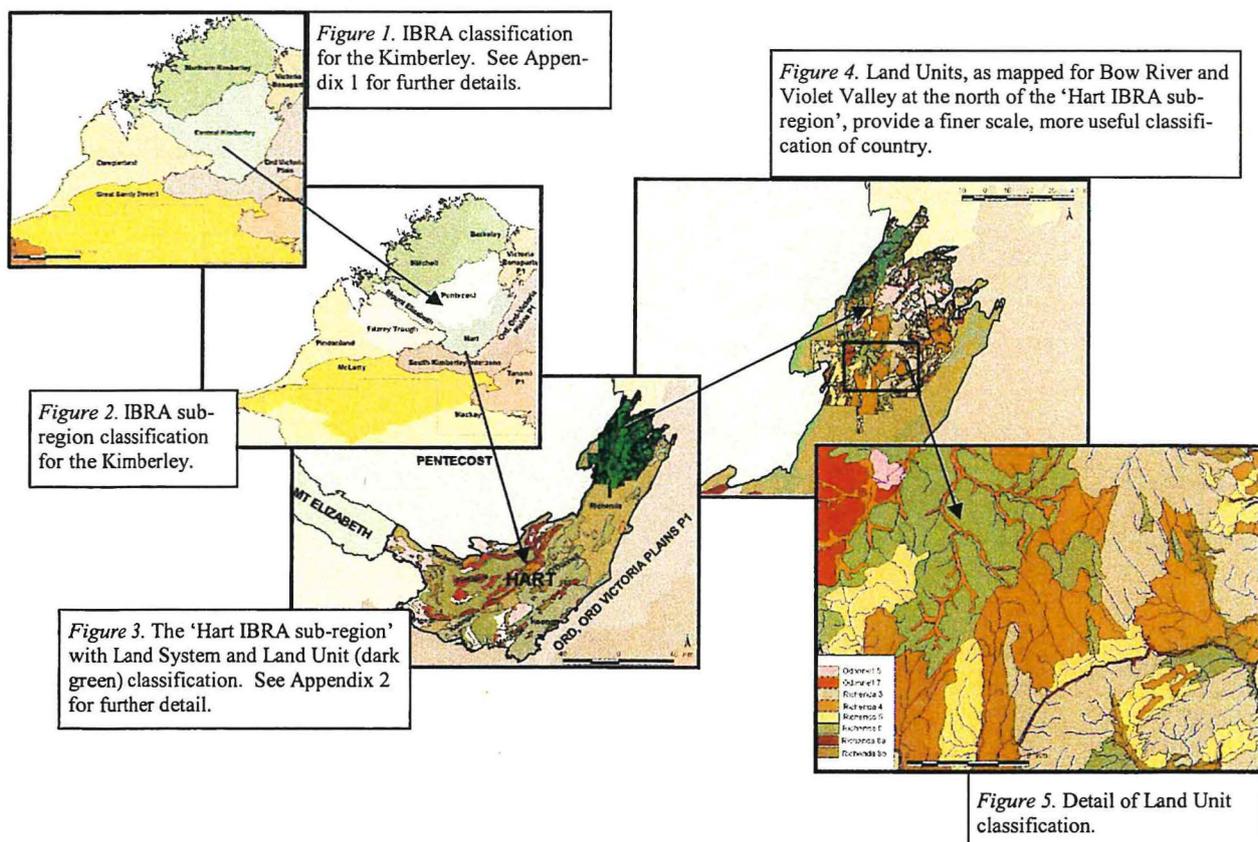
References and datasets encountered in the course of this work have been recorded in a 'Kimberley Biodiversity Reference List' (Appendix 17). This list was distributed to people involved in ecological work in the Kimberley for comment and additions. Significant additions to the list were received.

This list is currently still in draft format as an Excel spreadsheet. It is for the time being retained as 3 sheets within this spreadsheet until further formatting can be undertaken. These 3 sheets need to be queried separately and may contain some duplicate records. The 'Kimberley Biodiversity Reference List' will be retained as a publicly available resource. It is recorded as Appendix 17 to this document but due to it's size is stored separately from the report. See Page 30 (or Page 26 in digital version of this report) for how to obtain a copy).

## DISCUSSION

The potential and accuracy of using specimen records to extrapolate additional areas where species might be found, is in part determined by the scale of habitat classification. Current detailed land unit or vegetation classification is confined to only a few discrete areas in the Kimberley (Appendix 2). Country outside of this is classified at a more basic resolution.

*Figure 1* illustrates Interim Biogeographic Regions of Australia (IBRA), which are a broad classification of country type. This classification is refined into sub-regions (*Figure 2*). Further refinement into Land Systems are displayed, for the IBRA Hart sub-region in *Figure 3* whilst *Figure 4* identifies one of the few areas of detailed Land Unit mapping available for the Kimberley (see Appendix 2 for further detail).



There is still known data and information (research projects, mining company surveys, etc) that would be worthwhile adding to the compiled data. There is also a body of 'knowledge' held by indigenous people that potentially could significantly add to available biodiversity information. As well as current observations of flora and fauna species and changes in these, many indigenous people have been closely associated with particular country all their lives and still access a rich cultural history developed over many thousands of years.

Pastoralists and others who have had a close association with country also have a valuable contribution to make to biodiversity information. Given the variability in the Kimberley landscape and its seasons and that most surveys and research projects occur at specific sites over fairly brief periods of time, the addition of knowledge from those who live and work in the Kimberley could be quite significant.

A 'Terrestrial Fauna Survey Database' to be hosted by CALM will be launched by the beginning of 2006. This database will ensure that future fauna data from project work that has required permits from CALM, will be submitted to CALM via a particular interface. Data will therefore be in a format that can easily be incorporated with existing data. The importance of a system such as this, was highlighted in the course of this work when known digital data sets could not be located by the data custodians and therefore required re-entry.

A 'Shared Land Information Platform' (SLIP) is currently being developed under the Western Australian government. The natural resource management section of this (being developed by the Department of Agriculture) potentially provides a venue for the display of and access to much of the biodiversity and natural resource management data compiled by the KRFMP.

The permanent 'housing' of biodiversity data in a system with good GIS support such as SLIP, will overcome the issue of keeping current with updates to spatial data encountered by projects operating without a GIS support system. The permanence of a system such as SLIP should also result in an environment that is more appropriate for negotiating long term data access agreements with data custodians.

Currently however:

- A 'Shared Land Information Platform' that functions as an accessible database of Kimberley biodiversity and natural resource management data is likely to still be some way off.
- Some old and potentially valuable data contains errors that make the appropriateness of its inclusion in SLIP debateable.
- Issues of data duplication, 'dodgy records', etc. will be time consuming to resolve and may not be considered a priority in a state based system.
- The availability of Kimberley biodiversity and natural resource management data is considered an important resource by the Kimberley Natural Resource Management sub-committee of the Rangeland Coordinating Group (who select and oversee NHT funded projects).

Given the above, there exists a good case for the data compiled by this project to remain for the time being at least, regionally 'housed' as a resource for biodiversity and natural resource management work.

#### *Using the data.*

Data compiled by the KRFMP is not exhaustive. The focus of data acquired has been mammal records, particularly because mammals are considered to be more likely to identify change than other species (Woinarski, 1997). Considerable bird, reptile and flora data has also been compiled (and a small amount of invertebrate)..

The compiled data can serve as a tool to identify knowledge gaps and prioritise future research needs. Following are two examples demonstrating:

1. gaps in available data
2. targeting further research work.

**Example 1.**

Figure 6 illustrates IBRA regions (as a first level of country classification) overlaid with mammal records which clearly identifies areas with minimal data (many of the WA Museum data points are individual specimens only).

Figure 7 shows post 1989 mammal associated records. For the IBRA Hart sub-region the only known records are the Sally Malay mine survey and flora and fauna data recorded with Kija people for some of this area in 2003. Neither of these data sets have as yet been acquired.

Figure 8 shows that even if all compiled mammal, bird and reptile records are displayed, records for the Hart sub-region are minimal.

(Records shown can obviously be interrogated in more detail).

Figure 6. WA Museum mammal records and surveys that included mammal recording.

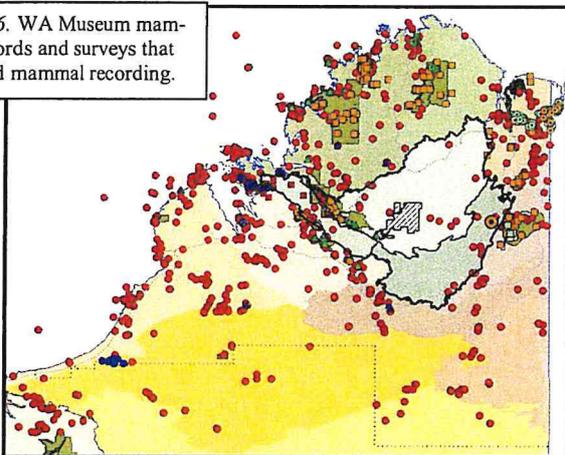


Figure 7. Post 1989 WA Museum mammal records and surveys that included mammal recording for Hart IBRA sub-region.

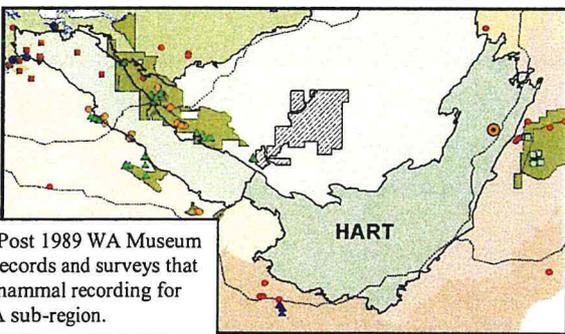
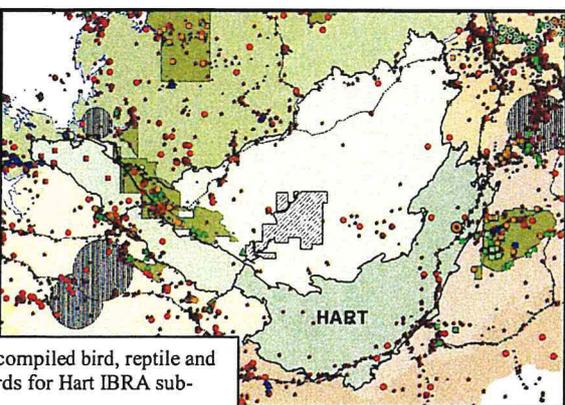


Figure 8. All compiled bird, reptile and mammal records for Hart IBRA sub-region.



**Legend - Figure 6, 7, 8.**

- Purnululu - T.Partridge, PhD.
- Ningbing Range - Camaenid Land Snails.
- ⊙ Terrestrial Biological Assessment. Ecologia, 1999
- ⊙ Terrestrial Biological Assessment. Ecologia, 1997
- TSCRC/CALM Ord Riparian Zone Project.
- ▲ KRFMP, 2001 - 2002.
- ▲ TSCRC/CALM - MammalStatus surveys.
- NHT/CALM- Mandora Marsh survey.
- Kimberley '88 survey.
- Yampi Sound Defence training Area - ECOZ.
- Yampi Sound Defence Training Area - WAM.
- Drysdale/Kalumburu, 1997.
- Purnululu - Invertebrates and Fire, L.Barrow, PhD.
- Old F&W/CALM surveys.
- \* WAM reptiles
- WAM mammals
- WAM birds
- ▲ Birds Australia
- ⊙ Sally Malay mine survey.
- ▨ CALM, S.Halse - waterbird data.
- ▨ Australian Wildlife Conservancy survey area.
- Kimberley NRM southern boundary.
- Roads.
- CALM managed land.

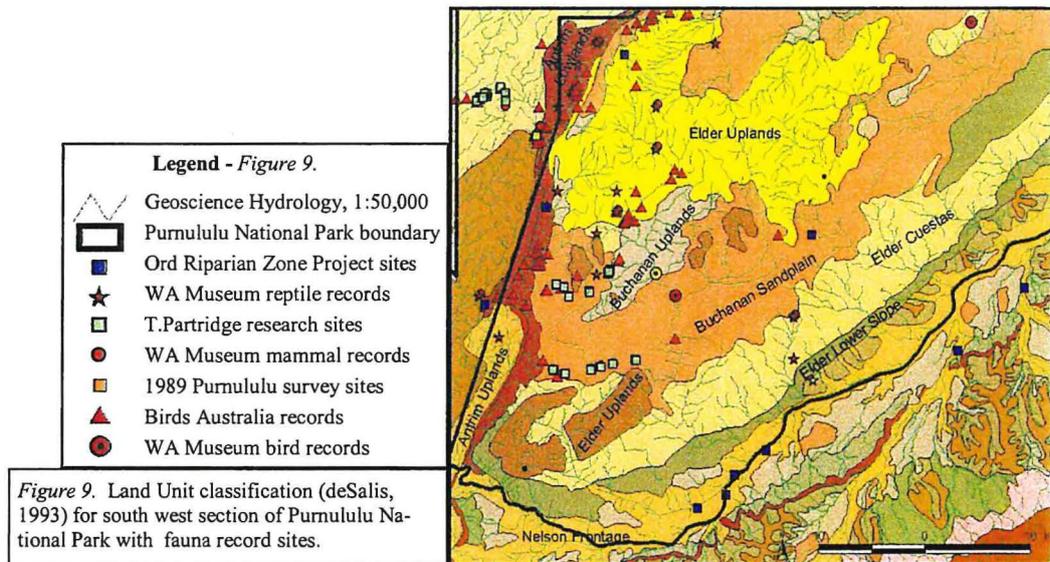
### Example 2.

Relating flora and fauna records to respective country types can assist in identifying:

- where survey or research is likely to be of most value
- change that may have occurred in habitat, due possibly to fire, feral animals, weeds, etc.

Purnululu National Park has detailed classification of country (deSalis, 1993) and a reasonable amount of fauna survey data. If data associated with Purnululu is considered (*Figure 9*), possible research questions which might be raised are:

- Is there information available elsewhere for Elder Lower Slope or does it require surveying?
- Are the species recorded at the sites on the Buchanan Sandplain  $\blacksquare$  also found on this same country to the north. If they are not, then why not?:
  - △ is the land classification correct?
  - △ what is the difference between the Buchanan Sandplain in the south west and that in the north east?
    - is the vegetation or the vegetation structure different?
      - if so is this natural or the result of fire, weeds, feral animals?



## CONCLUSIONS

Being able to align recorded species data with differing levels of country classification such as IBRA regions, Land Systems and (ideally) Land Units or similar resolution vegetation associations, enables further research or surveys to better target areas lacking in data.

A lack of fine scale mapping of country type or vegetation inhibits the potential to:

- extrapolate species occurrence to like country type elsewhere (for verification)
- develop an understanding of change in species abundance or distribution for particular country types
- develop an understanding of the possible role of fire or other threatening processes in such change.

Given the limited nature of recorded information, an important addition to the data compiled would be biodiversity related knowledge held by indigenous people and others who have knowledge of country and associated species.

The compilation of this data by the KRFMP provides a resource that can assist in the targeting of survey and research work to improve understanding of Kimberley biodiversity. As such it should also assist in the development of more effective management strategies.

## **REFERENCES**

- Department of Agriculture, WA. (2003). Kimberley Land System mapping - digital data.
- Department of Agriculture, WA. (2005). Land Unit mapping for Bow River and Violet Valley stations - digital data.
- De Salis, J. (1993). Digital data from mapping done for Resource inventory and condition survey of the Ord River Regeneration Reserve. WA Department of Agriculture Miscellaneous publication 14/93. Agdex 329.
- Environmental protection Agency, Qld. & Tropical Savannas Cooperative Research Centre. (2001). The Vegetation of the Australian Tropical Savannas - digital data.
- McKenzie, N. and Burbidge, A.A. (2002). Australian Mammal Audit. A component of the national Land and Water resources Biodiversity Audit. Western Australian Wildlife Research Centre, Department of Conservation and Land Management. (Unpublished?)
- Partridge, T. (2005). Fire and Fauna in Purnululu National Park. (PhD in progress).
- Woinarski, J. & Start, T. (1997). Comparison of fauna recorded at two sites in Drysdale River National Park, 1975 and 1997. (Unpublished).
- Woinarski, J.C.Z., Milne, D.J., and Wanganeen, G. (2001). Changes in mammal populations in relatively intact landscapes of Kakadu National Park, Northern Territory, Australia. *Austral Ecology* **26**, 260-370

## **ACKNOWLEDGEMENTS**

This work was funded by the Natural Heritage Trust, through the Kimberley Regional Fire Management Project and the North Australian Fire Project - 'Developing knowledge-based fire management for Northern Australia savanna communities' and by the Tropical Savannas Cooperative Research Centre.

Land and Water Australia's Ord Bonaparte Program first initiated a database of biodiversity data as part of their concept of a regional resource centre. Input and support from Carol Palmer, Jaki Richardson and Tom Stojanovic in this early work was critical. LWA continued to contribute to this work post Ord Bonaparte Program with the provision of office space and office equipment.

Support provided by the Biodiversity Unit of the Department of Planning and Environment, Scientific Services, Natural Systems Division, Darwin - John Woinarski, Owen Price, Alaric Fischer and most particularly Greg Connors was greatly appreciated.

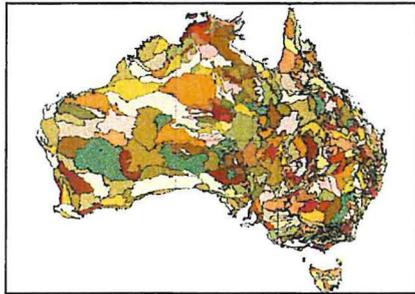
Thanks also to Tony Start and Stuart Gunning who assisted in negotiating access to data and to all of the data custodians without whose data this work would not have happened. In particular Norm McKenzie, Andrew Burbidge and Paul Gioia from CALM and Ric How, Norah Cooper and Ron Johnson from the WA Museum.

The 'Kimberley Biodiversity Reference List' of ecological data and references has been greatly expanded by additions provided by the Department of Conservation and Land Management's 'Woodvale' library and Regional Nature Conservation Leader, Gordon Graham, the Department of Agriculture Fire Ecologist, Andrew Craig and Tim Willing.

And thanks to Jeremy Russell-Smith, Felicity Heading and my KRFMP colleagues and management committee for support, Sarah Strutt for much appreciated editing assistance and John Moulden for coping with my devotion to a computer for the past 12 months.

## Appendix 1.

### Interim Biogeographic Regions of Australia (IBRA) Version 6.1



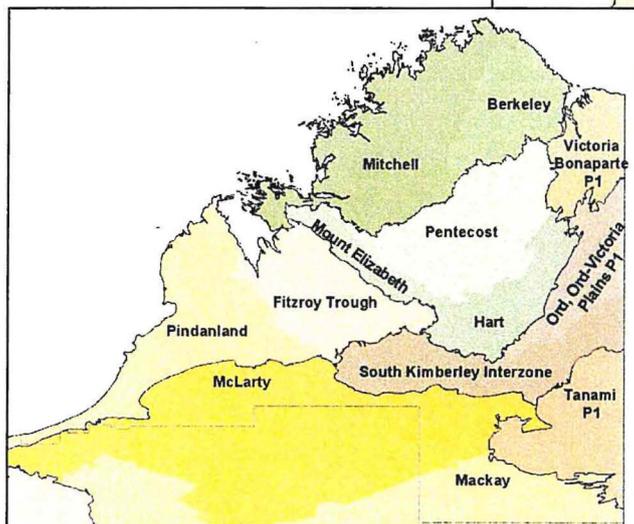
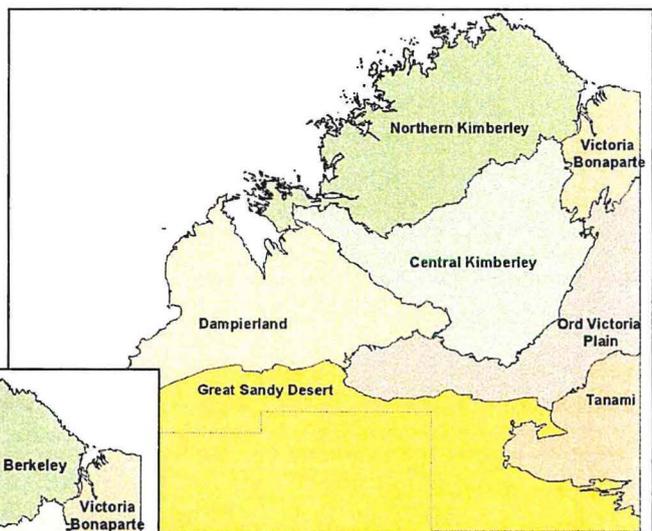
IBRA regions for  
Australia

<http://www.deh.gov.au/parks/nrs/ibra/>

“Abstract: Interim Biogeographic Regionalisation for Australia (IBRA) version 6.1 represents a landscape based approach to classifying the land surface of Australia. 85 biogeographic regions and 405 sub regions have been delineated, each reflecting a unifying set of major environmental influences which shape the occurrence of flora and fauna and their interaction with the physical environment across Australia.

The IBRA Version 6.1 data consists of two datasets. IBRA bioregions, which is a larger scale regional classification of homogenous ecosystems, and sub regions, which are more localised. “

IBRA regions for the  
Kimberley.

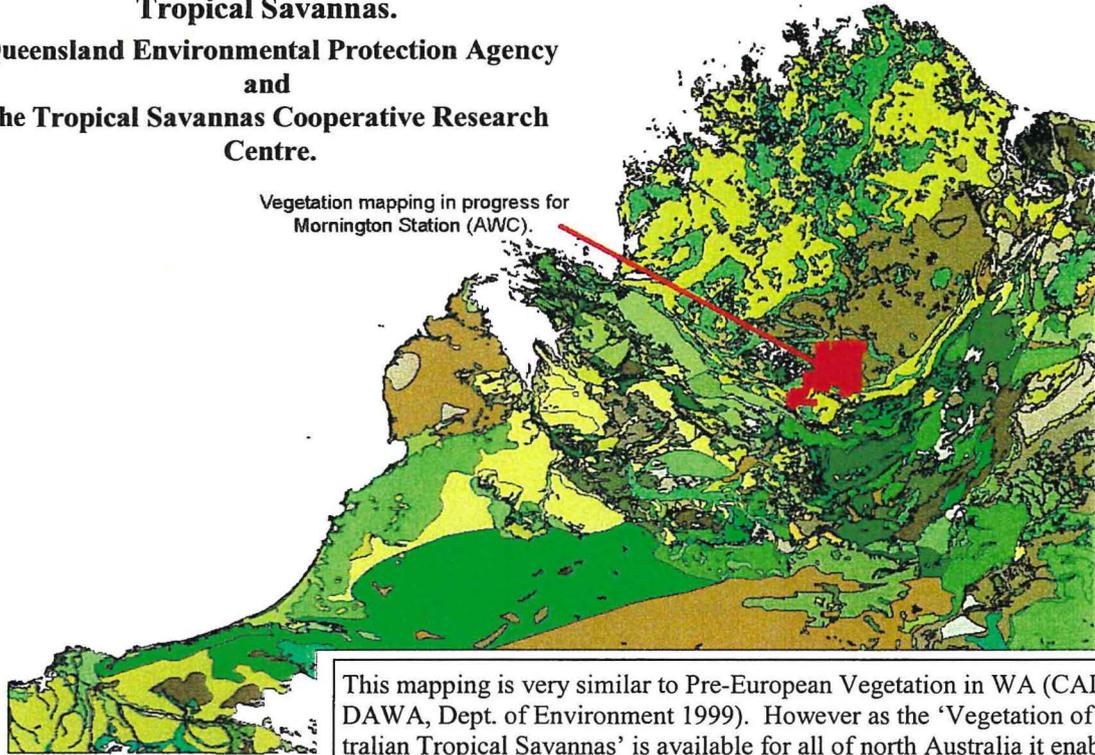


IBRA sub-regions for the  
Kimberley.

**Appendix 2.**

**Vegetation of the Australian  
Tropical Savannas.**

**Queensland Environmental Protection Agency  
and  
the Tropical Savannas Cooperative Research  
Centre.**

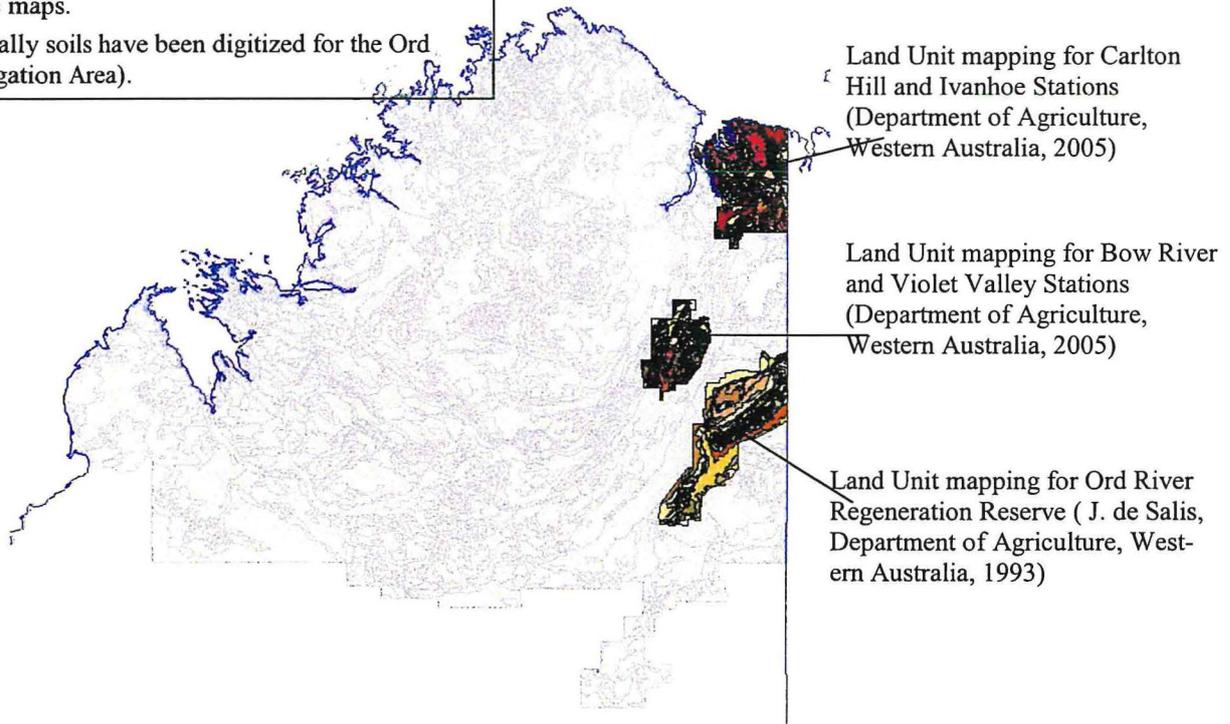


**Land System classification.**

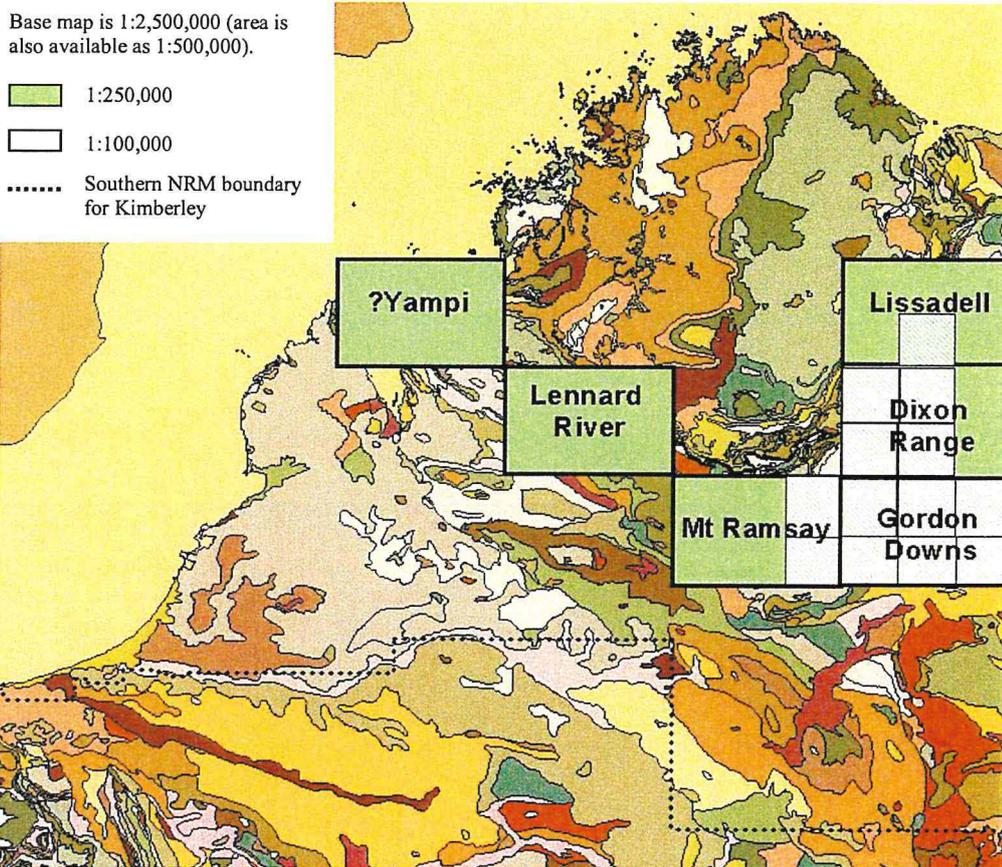
Department of Agriculture Western Australia Land System mapping for the Kimberley is available at 1:500,000.

Data is currently being updated utilizing 1:50,000 topographic maps.

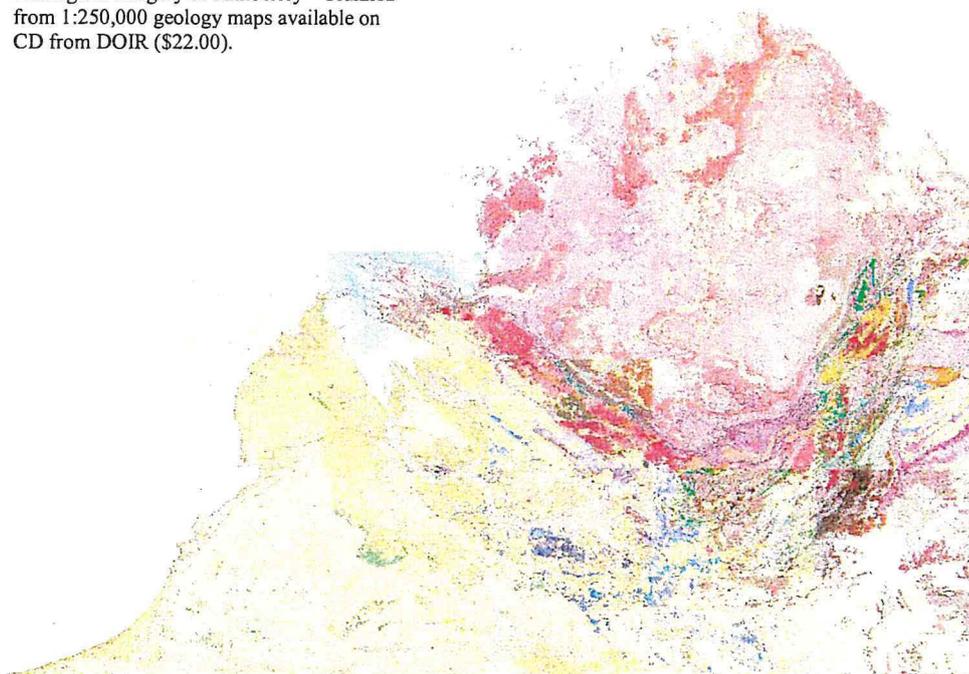
(Additionally soils have been digitized for the Ord River Irrigation Area).



**Appendix 3.**  
**State Geology mapping -**  
**Department of Industry and Resources**  
 (<http://mapserver.mpr.wa.gov.au/datacentre/>)

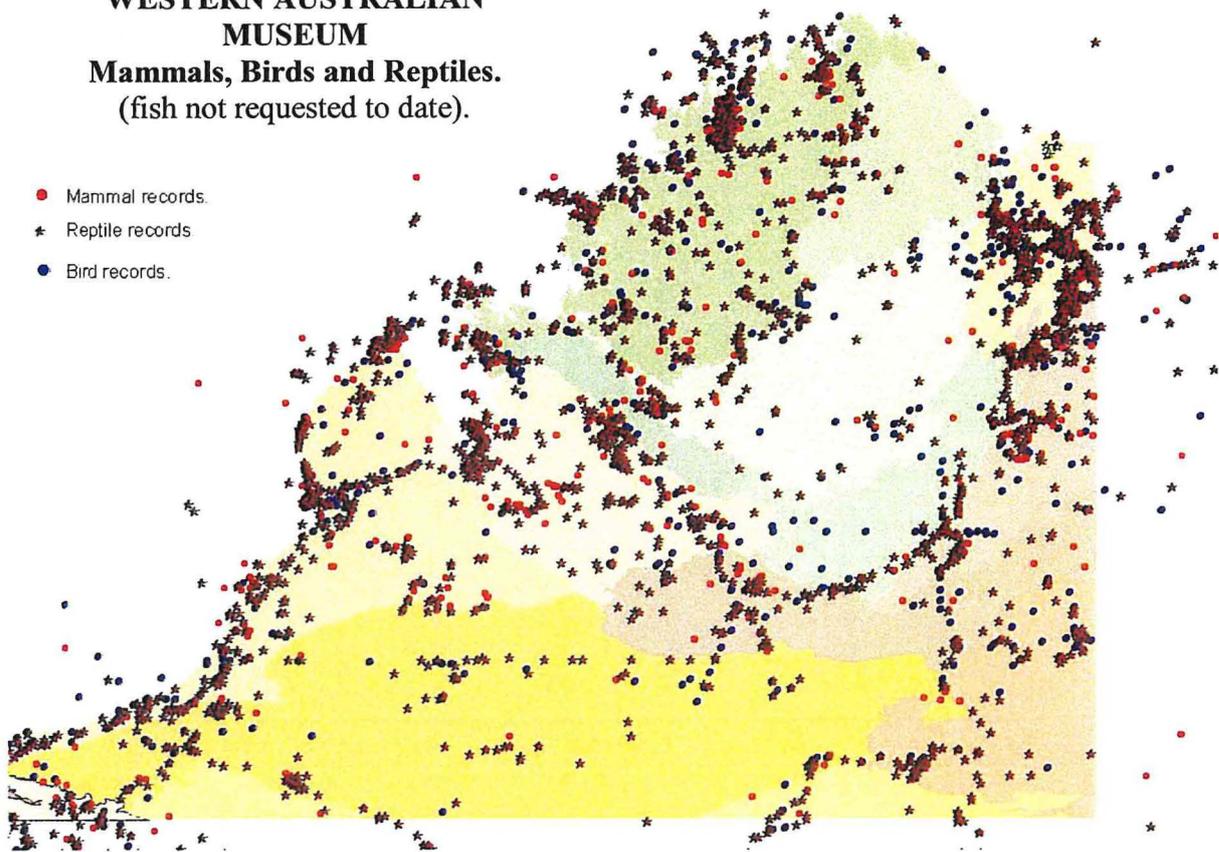


Geological imagery of Kimberley - scanned from 1:250,000 geology maps available on CD from DOIR (\$22.00).



## Appendix 4.

### WESTERN AUSTRALIAN MUSEUM Mammals, Birds and Reptiles. (fish not requested to date).



**FILE NAME:** WAMuseumData\_20050916.mdb (tables: WAMuseumMammals\_2005, WAMuseum\_Reptiles2003, WAMuseumBirds\_2003)

**NO OF RECORDS:** Mammals: 6028; Birds: 5663; Reptiles: 17915.

**RECORD DATES:** Mammals: 1895 – 9/2005; Birds: 1894 – 17/05/2003; Reptiles: 1910 – 4/2003

**CUSTODIAN:** Western Australian Museum.

**DATUM:** Mammal data converted to GDA94 (WAM data does not record Datum. Agreed with Norah Cooper that we assume records prior to July 2000 are AGD84/66. Records assumed to be WGS84/GDA94 after July 2000).

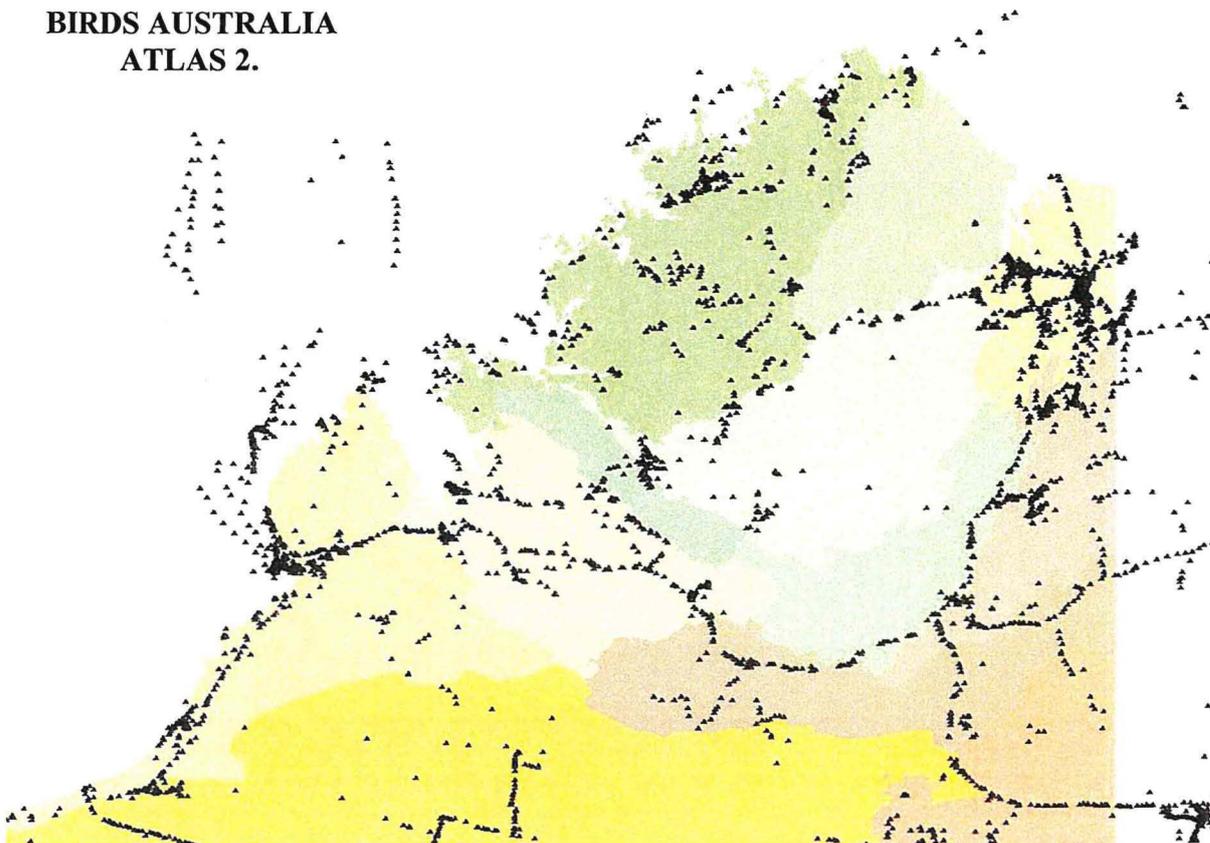
**ACCURACY/PRECISION CODE:**

- **Mammals:** Resolution as supplied by WAM: 0.08 indicates co-ord. from a GPS. 1=1km, 10=10km. 60km precision has been assigned by WAM to some records with poor resolution. 70km has therefore also been applied (in KRID data) to records with no resolution entry.
- **Reptiles:** Resolution field as supplied requires updating. Some 'Resolution' entries include 'D', 'M' and 'S'. (N.Cooper uncertain what these relate to - presumably Degrees, Minutes, Seconds?).
- **Birds:** Resolution as supplied by WAM: 0.08 indicates co-ord. from a GPS. 1=1km, 10=10km. 60km precision has been assigned by WAM to some records with poor resolution. 2106 records without resolution.

**COMMENT:** Extracted from WA Museum database on Latitude 119° and 132° and Longitude -21 and -13° 40'.

**Appendix 5.**

**BIRDS AUSTRALIA  
ATLAS 2.**



**FILE NAME:** KimberleyBirdsAustraliaAtlas2\_20050524.mdb

**NO OF RECORDS:** 143,756 (includes 16,772 NT records - between 130° and 132°).

**RECORD DATES:** 4/2/1996 – 3/8/2002

**CUSTODIAN:** Birds Australia

**NOMENCLATURE CHANGES MADE:** 12,049 records required nomenclature changes to conform with WA Museum 'master list'. Changes recorded in 'NameChangeHistory' field. (Discrepancies were first queried with WAMuseum and WAM Master List was updated).

**DATUM:** Data received converted to GDA94. (Original data had three datum codes. "1= AGD 84/66, 2=WGS 84 or GDA, 0 = "Datum not given". "Datum not given" and AGD84/66 considered to be AGD66. All co-ord's converted to GDA94 ).

**ACCURACY / PRECISION CODE:** Converted to 'Kilometres'. ('Code 9' checked and updated, 'Code 0' assigned 70km to standardise with precision code used for WAM data).

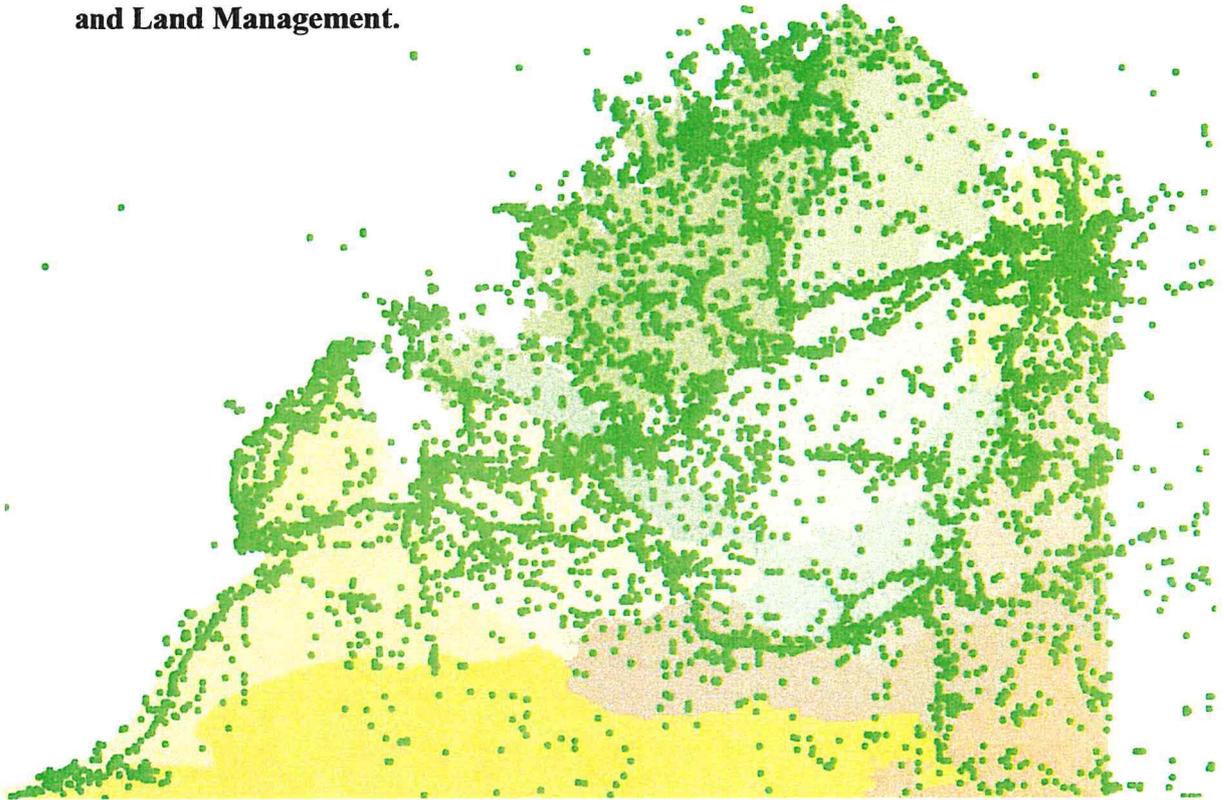
Code	Accuracy	Accuracy distance
0	1	not given
1	0.1	100m
2	0.5	within 500m
3	5	within 5km
4	50	Within 50km
9	1	coordinates to be checked

**COMMENT:** Extracted from Birds Australia\_2 dataset on Latitude 119° and 132° and Longitude -21 and -13° 40'. 'Bird Atlas\_1' data not purchased.

**Note:** data broken into 3 tables for export to EXCEL/Arcview.

**Appendix 6.**

**WESTERN AUSTRALIAN  
HERBARIUM  
Department of Conservation  
and Land Management.**



**FILE NAME:** Kimberley\_WAHerb\_Data\_20041126.mdb

**NO OF RECORDS:** 55,533

**RECORD DATE:** 1818 – 11/2004

**CUSTODIAN:** WA Herbarium, Perth (Department of Conservation and Land Management).

**NOMENCLATURE CHANGES MADE:** not required

**DATUM:** GDA94 (received as).

**ACCURACY/PRECISION CODE:** Incomplete (WAHerb code).

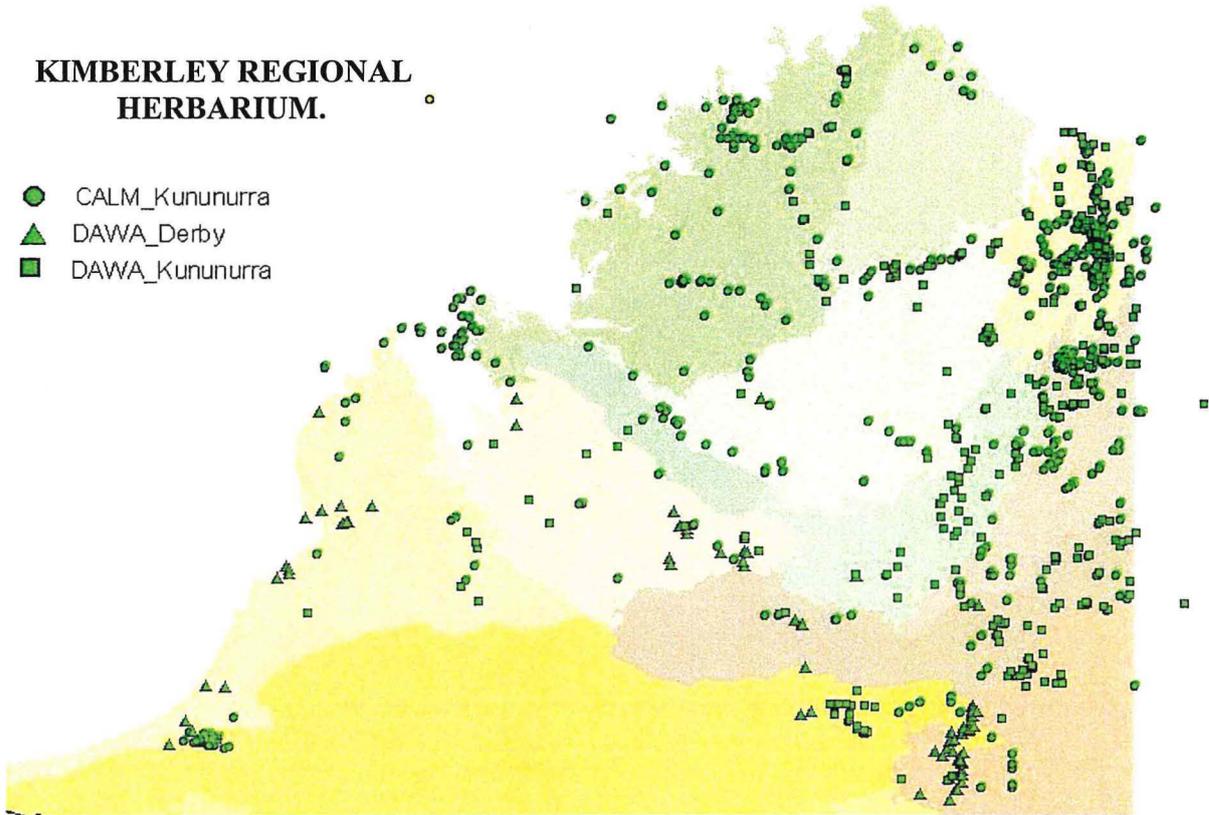
**COMMENT:** Extracted from WAHerb on Latitude 119° and 132° and Longitude -21 and -13° 40'.

**NOTE:** Data in good order when received.

## Appendix 7.

### KIMBERLEY REGIONAL HERBARIUM.

- CALM\_Kununurra
- ▲ DAWA\_Derby
- DAWA\_Kununurra



**File name:**

- (1) CALMKun\_Herbaria\_20050714.mdb
- (2) DAWADerby\_Herbaria\_200505.mdb
- (3) DAWAKun\_Herbaria\_20050211.mdb

**No of records:**

- (1) 2823 (includes 199 records without co-ordinates).
- (2) DAWADerby 866 (753 records without co-ordinates)
- (3) 2078 (half of these do not have co-ordinates, it would be possible to calculate co-ordinates for some).

**Record(s) date:**

- (1) 1963 - 2004
- (2) 1963 - 2003
- (3) 1971 - 2003

**Custodian:** WA Department of Conservation and Land Management & WA Department of Agriculture.

**Nomenclature changes made to data:** Yes (recorded in 'Notes' field).

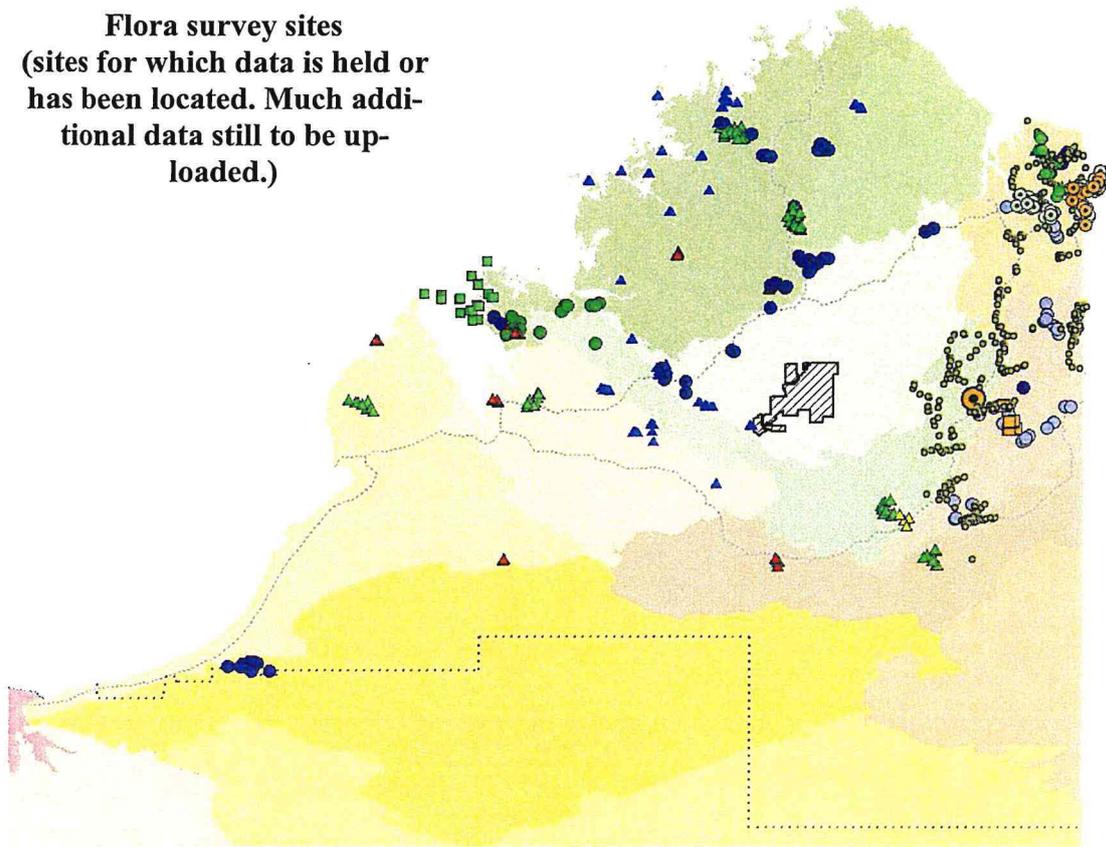
**Datum:** See files.

**Accuracy/Precision code:** Various – see file.

**Comment:** approx. half of CALMKun specimens & some of DAWA specimens duplicated in the  
WA Herbarium.

Appendix 8.

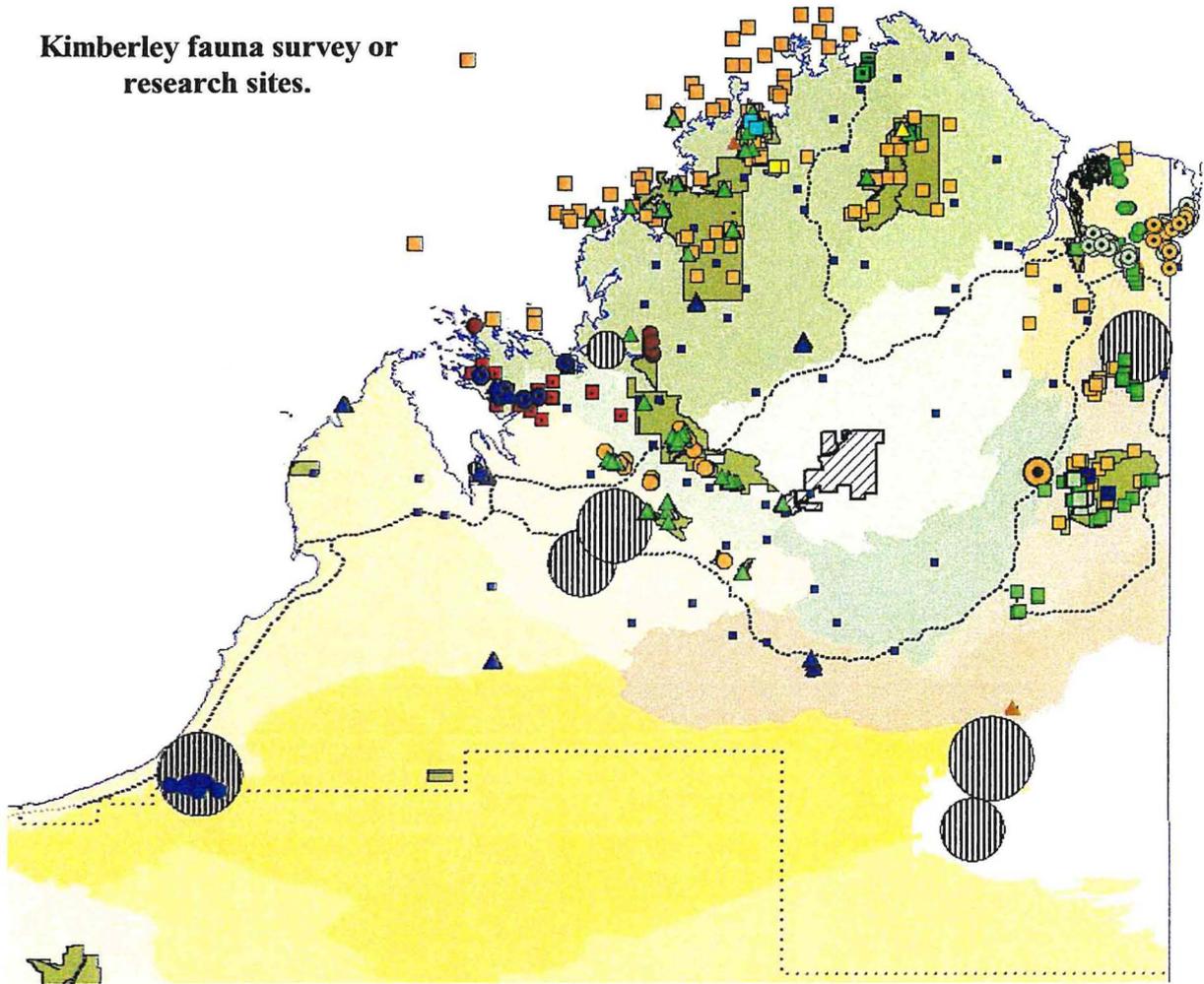
**Flora survey sites**  
 (sites for which data is held or  
 has been located. Much addi-  
 tional data still to be up-  
 loaded.)



- Ningbing Range\_2001.
- ⊙ Terrestrial Biological Assessment. Ecologia, 1999
- ⊙ Terrestrial Biological Assessment. Ecologia, 1997
- ⊙ TSCRC/CALM Ord Riparian Zone Project.
- DAWA/OBP land unit mapping survey sites.
- ▲ CALM - Northern Forests survey sites.
- ▲ TSCRC/CALM Mammal Status survey sites.
- ▲ KRFMP, 2001 - 2002.
- NHT/CALM- Mandora Marsh survey.
- Yampi Sound Defence Training Area - Kings Park.
- CALM - Cypress pine survey sites.
- AQIS survey.
- Purnululu - T.Partridge, PhD.
- ⊙ Sally Malay mine survey.
- ▨ Australian Wildlife Conservancy.
- ⋯ Kimberley NRM southern boundary.
- ⋯ Roads.

## Appendix 9.

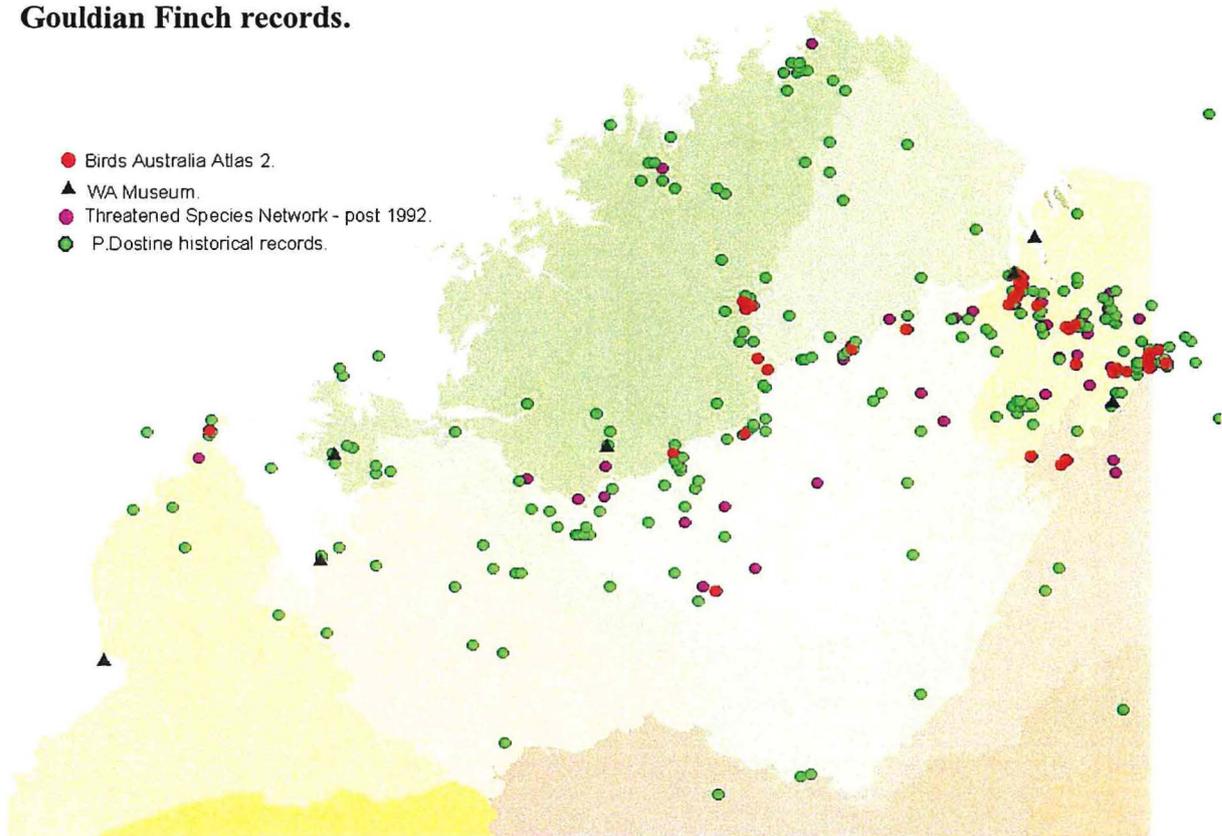
### Kimberley fauna survey or research sites.



- |   |  |
|---|--|
| ● ANZSES - Munja-Walcott Inlet 1983.                | ● Yampi Sound Defence Training Area - WAM.           |
| □ Purnululu - T.Partridge, PhD.                     | ■ Yampi Sound Defence training Area - ECOZ.          |
| ● Ningbing Range - Camaenid Land Snails.            | ■ Drysdale/Kalumburu, 1997.                          |
| ● Terrestrial Biological Assessment. Ecologia, 1999 | ■ Purnululu - Invertebrates and Fire, L.Barrow, PhD. |
| ● Terrestrial Biological Assessment. Ecologia, 1997 | ■ Old F&W/CALM surveys.                              |
| ■ TSCRC/CALM Ord Riparian Zone Project.             | ● Sally Malay mine survey.                           |
| ■ Mitchell Plateau - J.A.Kerle, 1987                | ■ CALM - MRHI Sites, S.Halse.                        |
| ▲ KRFMP, 2001 - 2002.                               | ■ CALM - Waterbird records, S.Halse.                 |
| ▲ Miscellaneous mammal records.                     | ■ Australian Wildlife Conservancy .                  |
| ▲ TSCRC/CALM - MammalStatus surveys.                |  |
| ● NHT/CALM- Mandora Marsh survey.                   |  |
| ● Kimberley '88 survey.                             |  |
|   | --- Kimberley NRM southern boundary.                 |
|   | --- Roads.   |

## Appendix 10.

### Gouldian Finch records.



**FILE NAME:**

- (1) GouldianF\_PDostineHistSorted.xls - 357 records
- (2) GouldianF\_TSN\_WA\_post 92.xls - 209 records
- (3) Gouldians extracted from BirdsAustraliaAtlas2 - 107 records
- (4) Gouldians extracted from WAMuseum\_Birds - 17 records

**RECORD DATE:**

- (1) 1839 - 1998
- (2) 1993 - 2004
- (3) 1998—2001
- (4) 1960-1975 & not recorded.

**CUSTODIAN:** (1) & (2) Threatened Species Network, WWF/NHT. (3) Birds Australia , (4) WA Museum.

**NOMENCLATURE CHANGES MADE:** N/A

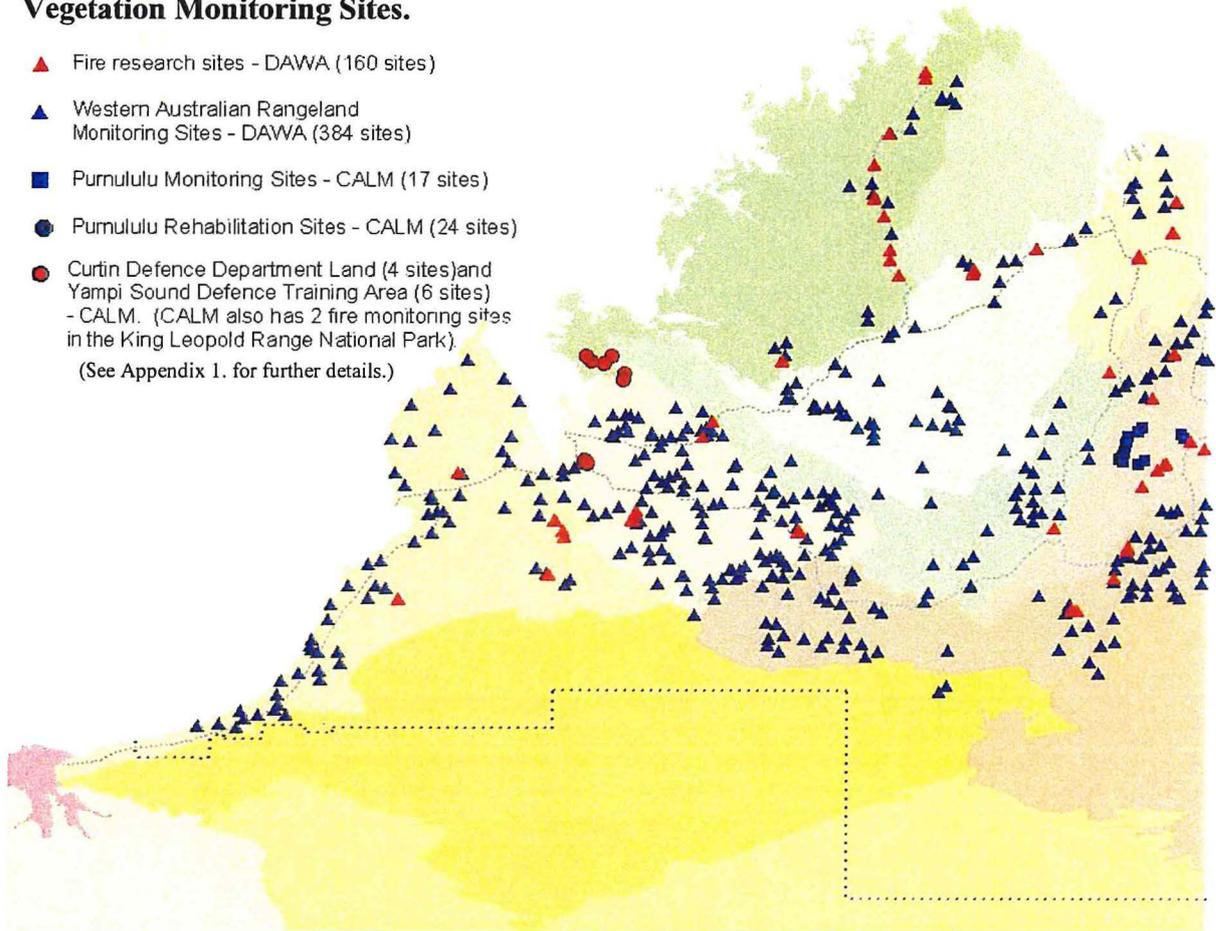
**DATUM:** AGD

**ACCURACY/PRECISION CODE:** See files.

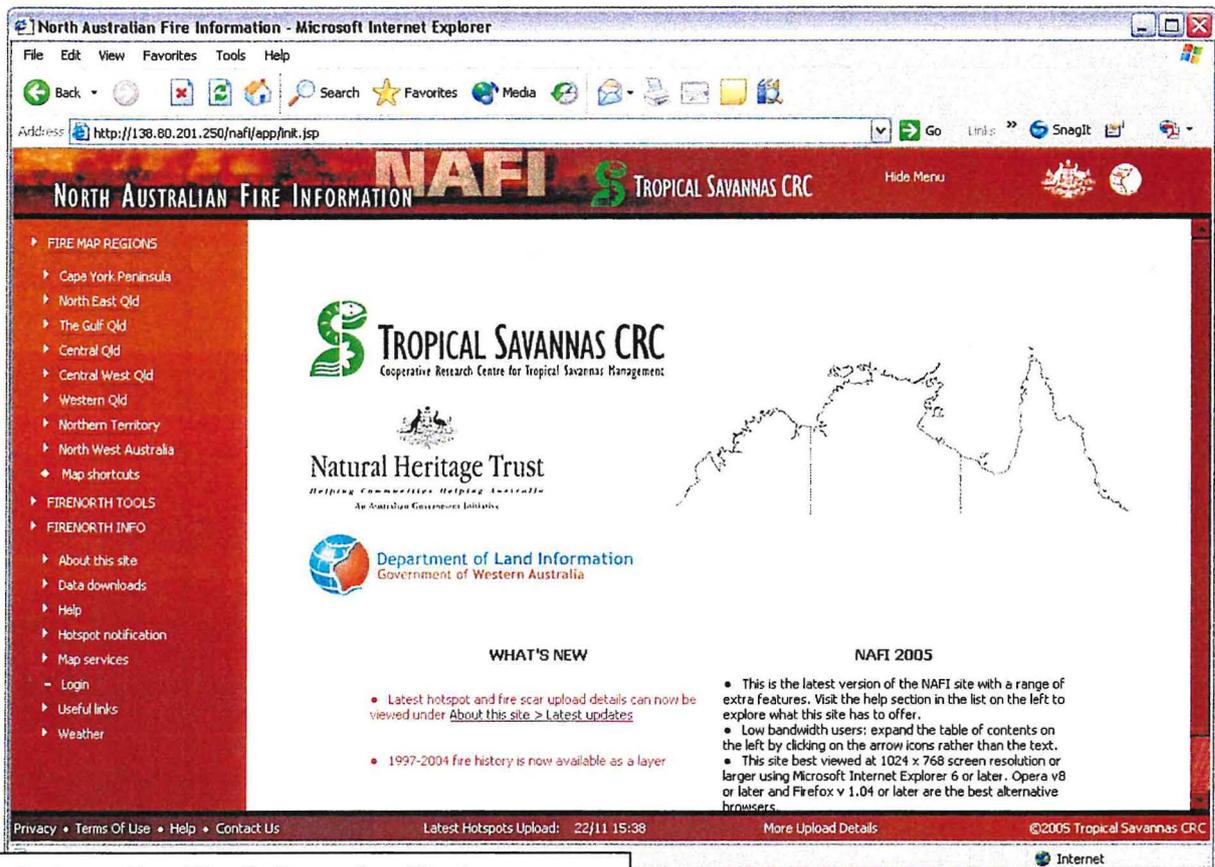
## Appendix 11.

### Vegetation Monitoring Sites.

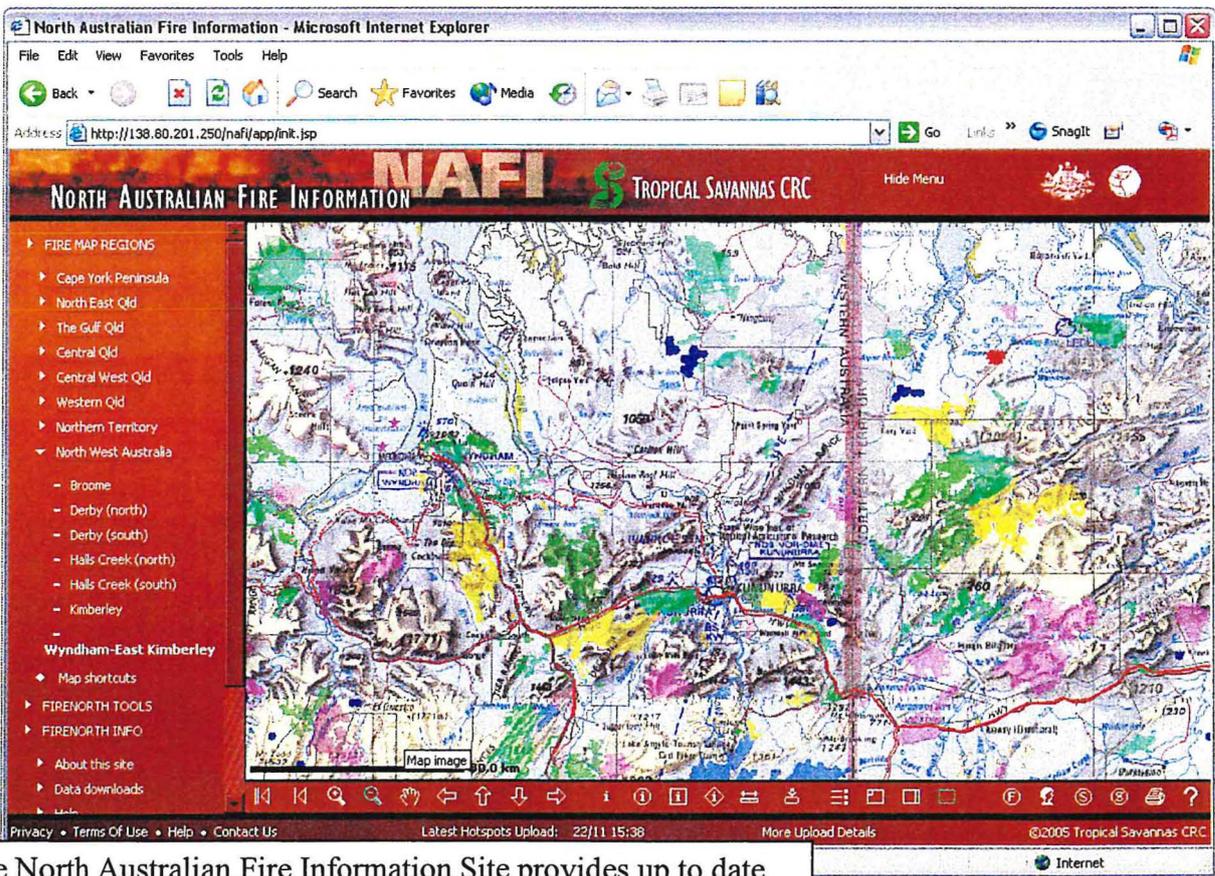
- ▲ Fire research sites - DAWA (160 sites)
- ▲ Western Australian Rangeland Monitoring Sites - DAWA (384 sites)
- Purnululu Monitoring Sites - CALM (17 sites)
- Purnululu Rehabilitation Sites - CALM (24 sites)
- Curtin Defence Department Land (4 sites) and Yampi Sound Defence Training Area (6 sites) - CALM. (CALM also has 2 fire monitoring sites in the King Leopold Range National Park).  
(See Appendix 1. for further details.)



**Appendix 12. North Australian Fire Information Site.**  
 www.firenorth.org.au



North Australian Fire Information Site home page.

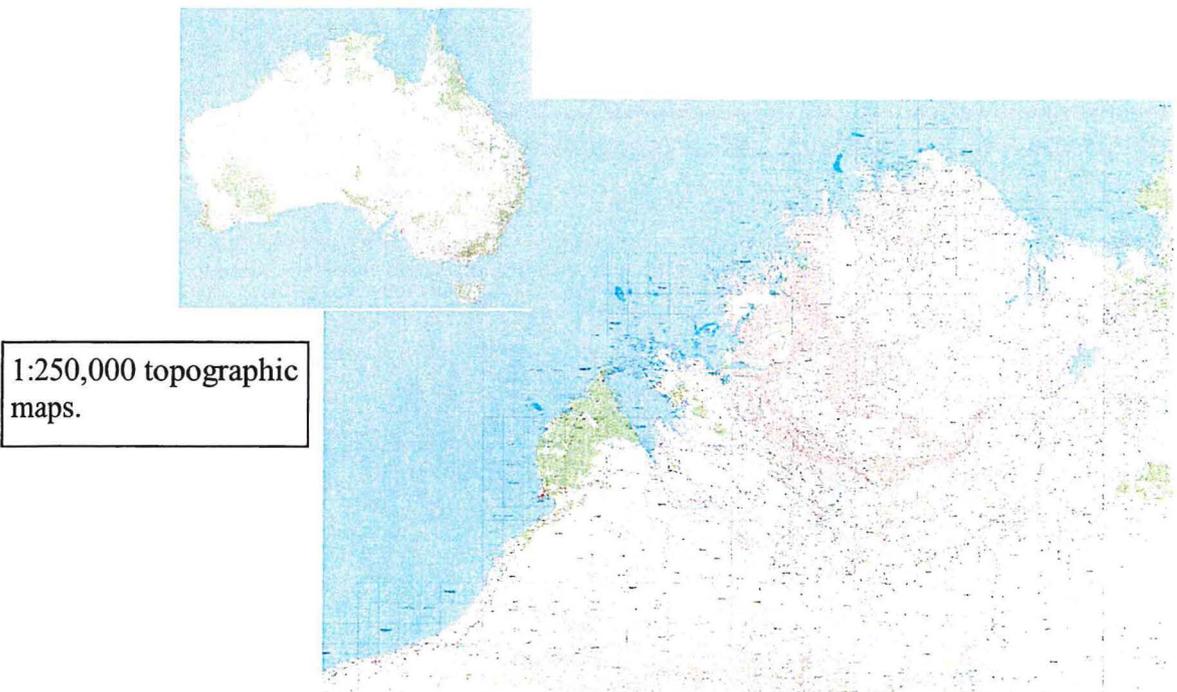
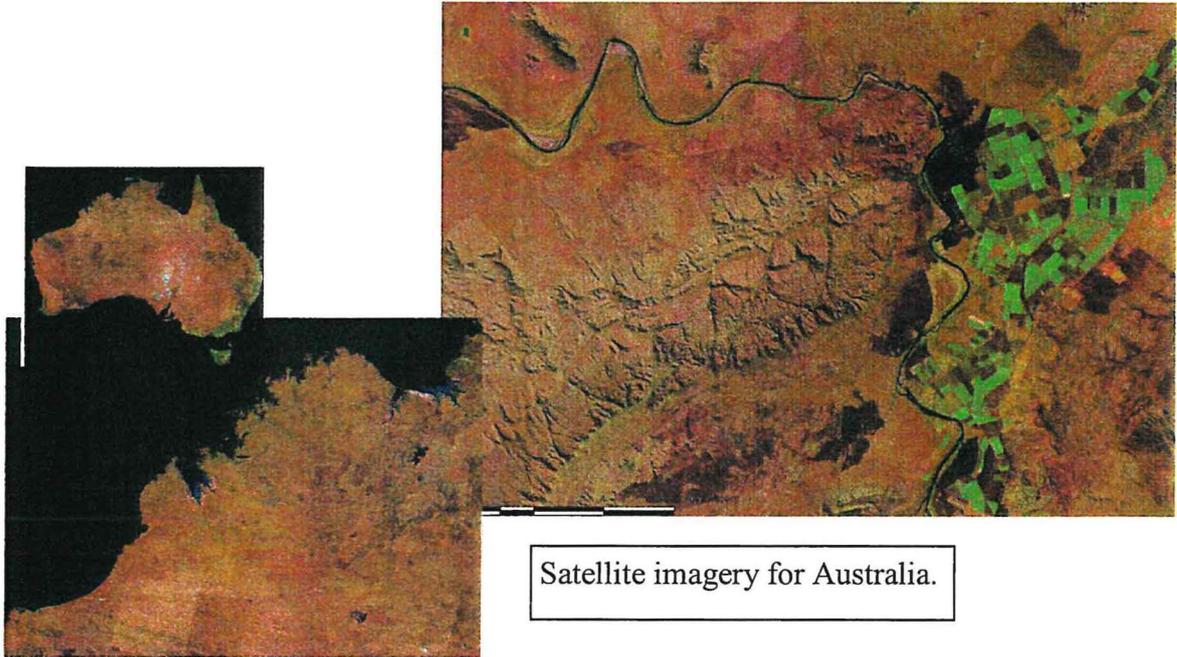


The North Australian Fire Information Site provides up to date 'hot spot' information showing the current and previous location of fires, and 'fire affected areas' mapping. Information recorded from NOAA and MODIS satellite imagery.

**Appendix 13. .**

GEOSCIENCE AUSTRALIA (Australian Government).  
NATMAP  
RASTER PREMIUM

Cd with satellite and 1:250,000 topographic data for Australia.

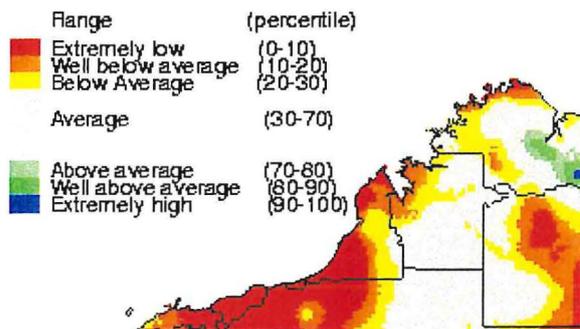


**Appendix 14.**

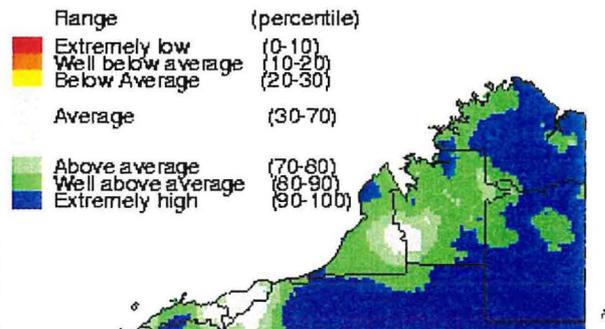
The Long Paddock website is provided by the Qld. Government  
<http://www.longpaddock.qld.gov.au/RainfallAndPastureGrowth/>

"The rainfall maps on this site are produced by NR&M's grid interpolation techniques ( "Using spatial interpolation to construct a comprehensive archive of Australian climate data". *Environmental Modelling & Software* 16 (January 2001) pp 309-330. Stephen J. Jeffrey, John O. Carter, Keith B. Moodie, Alan R. Beswick). We also draw the users attention to the Bureau of Meteorology's official rainfall maps on their website [www.bom.gov.au/climate/austmaps/](http://www.bom.gov.au/climate/austmaps/) "

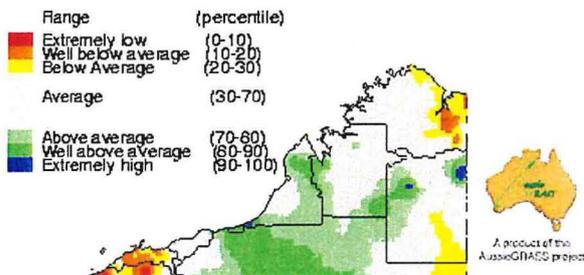
**Rainfall Relative to Historical  
November 2004 to April 2005**



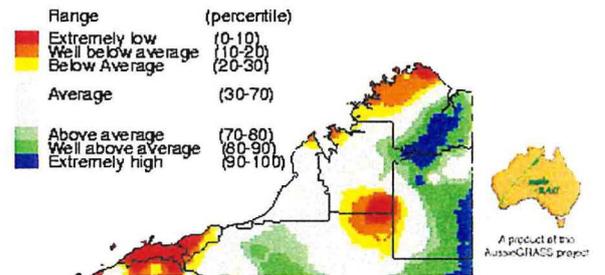
**Rainfall Relative to Historical  
November 2003 to April 2004**



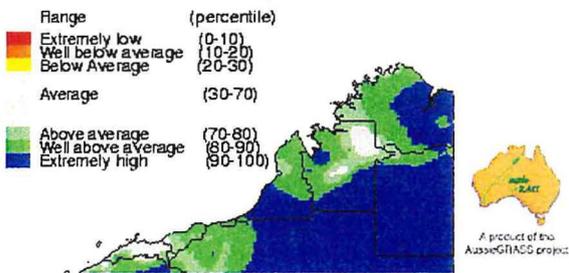
**Rainfall Relative to Historical Records  
November 2002 to April 2003**



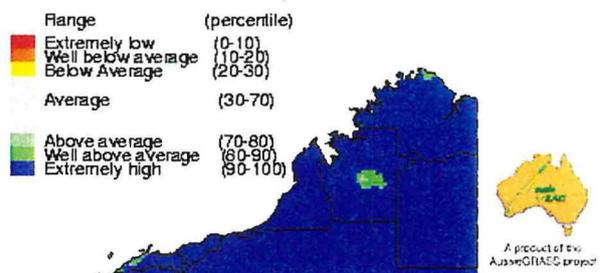
**Rainfall Relative to Historical Records  
November 2001 to April 2002**



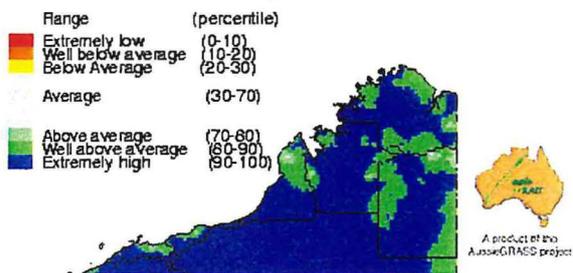
**Rainfall Relative to Historical Records  
November 2000 to April 2001**



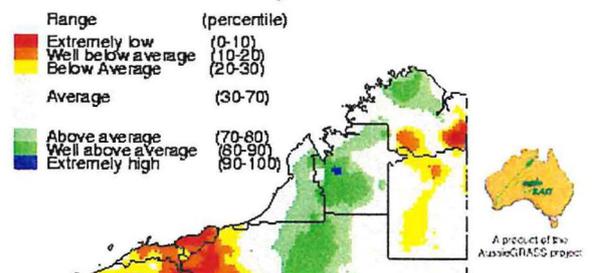
**Rainfall Relative to Historical Records  
November 1999 to April 2000**



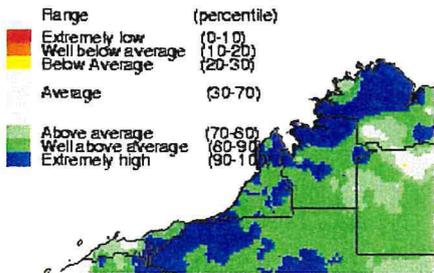
**Rainfall Relative to Historical Records  
November 1998 to April 1999**



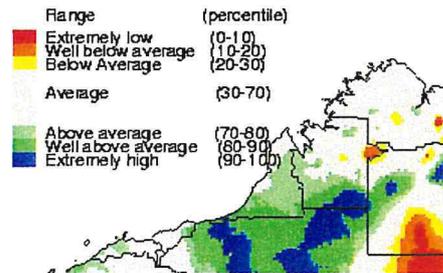
**Rainfall Relative to Historical Records  
November 1997 to April 1998**



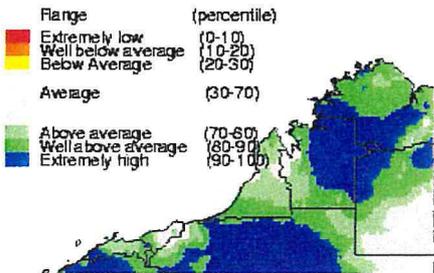
### Rainfall Relative to Historical Records November 1996 to April 1997



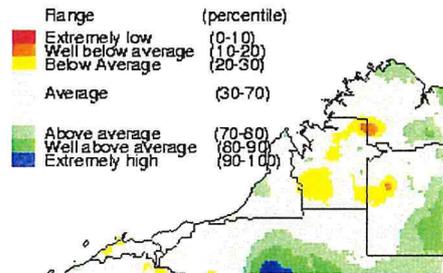
### Rainfall Relative to Historical Records November 1995 to April 1996



### Rainfall Relative to Historical Records November 1994 to April 1995



### Rainfall Relative to Historical Records November 1993 to April 1994



## Appendix 15.

### Standards used and data issues associated with data compiled by the KRFMP.

#### STANDARDS.

##### *Master Lists*

- Western Australian Museum (fauna)
- Western Australian Herbarium (flora)

##### *WA Herbarium 'master list' - WAHerb*

The Herbarium 'master list' WAHerb is updated on a regular basis. This can be accessed by the CALM and DAWA Kununurra branches of the Kimberley Regional Herbarium, which both receive the updated WAHerb list as support from CALM for the WA Herbarium MAX program. In discussion with Paul Gioia from the WA Herbarium it was agreed that this list could be used as the flora 'Master List'. (No mechanism has been put in place as yet to automatically adjust plant names in accordance with updates made to WAHerb).

##### *WA Museum 'master list'.*

The WA Museum 'master list' is updated on a 'needs' basis. Maintaining communication with the WA Museum (Nora Cooper) will be necessary to stay current with changes made to this list.

Both the Museum and the Herbarium are keen for their 'master lists' to be used to help maintain nomenclature standards across the state.

#### DATA ISSUES.

##### *Standards/Original Data.*

- To simplify data interchange as much as possible, where applicable standards used by the Herbarium and/or the Museum have been adopted.
- All original fields received are maintained in the dataset. This allows original data to be checked should any anomalies become apparent.
- The data received is in many and varied formats. Much of the Museum and Herbarium data is quite old. There are therefore a number of issues, that need to be dealt with. Error in coordinates entered and precision of location become apparent as the data is used particularly when displayed in Archview.

##### *Specimen/Observation data.*

There are two types of point based data:

- Specimen data. Records of actual specimens held, primarily by the WA Museum, the WA Herbarium and the Kimberley Regional Herbarium.
- Species Observation data. Records of species occurrence recorded in surveys, etc.

A 'species observation record' may have been sent to the Museum or Herbarium as a 'specimen'. Therefore at this stage, it may exist twice in the compiled database (ie as a specimen record in the Museum data and as an observation records for a survey). It should be possible to locate this duplication via Museum or Herbarium Registration numbers however these have not always been included against the observation record. This issue of duplication has not to date been addressed.

The disadvantage of Species Observation data is that its identity cannot be verified. Additionally if a species is split, it is often not possible to ascertain what the 'species observation' should become.

However, given the limited nature of actual specimen data for the Kimberley, the 'Species Observation data' is quite valuable.

##### *Datum*

AGD 84 to GDA 94 – this officially occurred in July 2000 (Department of Planning and Infrastructure).

- A position recorded in AGD 84 would appear to be approx. 200m to the north east of its correct position if placed on a GDA 94 map.

- A position based on WGS 84 differs only marginally from one based on GDA 94.
- WGS 84 is the datum commonly available in most GPS (rather than GDA 94).
- Much of the data we have received does not record the datum used.
- Prior to July 2000 GPS data is likely to have been recorded in AGD 84.
- A position based on AGD 66 differs from one based on AGD 84 by only 1-2m.

Therefore with regard to data compiled:

- Unless otherwise stipulated data dated pre – July 2000 is assumed to be based on the datum AGD 66\* (AGD 66 is used rather than AGD 84 in an attempt to avoid confusion between AGD 84 and WGS 84).
- Unless otherwise identified all data collected after July 2000 is assumed to have been recorded in WGS 84.
- All AGD data entered to be converted into GDA 94 (original Lat/Longs entries to be retained with the data so that changes made can be verified if necessary).

***Precision (Resolution).***

- Much of the data received from the Museum and the Herbarium is quite old. The precision of these records (the WAMuseum uses the field RESOLUTION, WA Herbarium uses Precision) can be difficult to determine.
- The WA Museum, where it has assigned Lat/Long's on the basis of a fairly non-specific description (i.e. an entry such as 'Moola Bulla Station') has assigned a 'RESOLUTION' of 60km.
- There are also quite a number of WA Museum records that have Latitude and Longitudes with only degrees and minutes but no seconds. This can entail an error of around 1800m.
- Some of the WA Museum records do not have a 'RESOLUTION' recorded. These have been assigned a "RESOLUTION" of 70km to indicate the resolution is unknown.

(\*Until the 1<sup>st</sup> of May 2000 the United States Defence Department had the ability to 'turn on' a scrambling device known as 'Selective Availability'. This could create additional and sometimes quite significant error in GPS readings).

Appendix 16. (Page 1)

List of Kimberley biodiversity data compiled by the Kimberley Regional Fire Management Project

(\*signifies data not acquired).

Theme 1	Theme 2	Theme 3	Location	Project	Publication	Author / project coordinator	Project Completion Date	Data coll. Date	Further Project description/ other details.	Custodian	Licence Agreement/ Data source	Date data received	Metadata received with file.	File name	Datum	Precision	Nomenclature Updates.	Further work required on data.	Other comment
FAUNA		Birds	Kimberley. (Extracted from Birds Australia dataset on Latitude 119° and 132° and Longitude -21 and -13° 40').	Bird Atlas 2		Birds Australia	Atlas completed but work is on-going.	February 1996 August 2002	Data collected for the second Bird Atlas only (DNA Biodiversity Unit did not use 'Bird Atlas 1' data as precision not adequate, so was not purchased for Kimberley).	Birds Australia	OBP/KRFMP bought a copy of this data for use in regional database. Agreement will need to be updated to reflect new project.	Aug-03	No	KimberleyBirdsAustraliaAtlas2_20050524.mdb	Original data had three datum codes. "1= AGD 84/66, 2=WGS 84 or GDA, 0 = "Datum not given". All co-ords converted to GDA94 ("Datum not given" and AGD84/66 considered to be AGD66).	Below table supplied by Birds Australia. 'Accuracy' field data converted to 'Precision_Km'.	Nomenclature Errors sent to Museum and updates returned. Data updated and changes recorded in 'NameChangeHistory'.	2 NT species names still to be added to 'master list' (see MetaData file).	File had to be split in 3 for export to Excel/Arctview (data>129°=NT)
FAUNA		Birds	Kimberley	Gouldian finch work		P.Dostine		1839-1998		WWF_P.Dostine	File received from C.O'Malley, WWF. OK to make publicly available. Will be passed on to Birds Australia. (C.O'Malley, WWF).			GouldianF_P.DostineHistSorted.xls (orig. 'dostine hist sorted.xls')	Assume AGD66.	"Geoprec field" in file = km? need to check. Lat/Longs (Degrees/Minutes only) converted to decimal degrees.		126 records require Lats/Longs (will be possible to calculate many of these from notes). Check 'Precision' code.	
FAUNA		Birds	Kimberley	Gouldian finch work	Post 1992 Gouldian Finch records for Kimberley.	WWF - TSN		Post 1992			File received from C.O'Malley, WWF. OK to make publicly available. Reference to the Gouldian Finch Recovery team. (C.O'Malley, WWF.)			GouldianF_TSN_WA_post92.xls (orig. 'GF WA records post 92.xls')	Lats/longs converted to decimal degrees for Arcview. Need to check fields with query on Lat/Long.			Check fields with query on Lat/Long. Enter precision code, take into account no seconds. Some records are probably GDA (2001) check if need converting or all to rough. Is one Elquesto record with a 132deg longitude - fix.	
FAUNA		Birds	Kimberley	Water bird records for Kimberley.		Stuart Halse, CALM		1977 - 2001	2,500 waterbird records for Kimberley. Coordinates not assigned. An example of data available. Contact S.Halse for further detail.	S.Halse, CALM				SHalse_WaterBirds.mdb					
FAUNA		Birds	Ord River	Ord Riparian Zone Project - Tropical Savannas CRC/CALM.		Tony Start, CALM	Write-up in progress.	March 1999- June 2002		Tropical Savannas CRC/CALM	CALM	31/04/2003		OrdRiparian_Birds_030609.mdb	WGS 84	See data	Hasn't been checked	Site codes in species data still to be modified to assign against co-ords. Nomenclature check.	
FAUNA		Birds, Reptiles, Mammals, Amphibians.	Kimberley. (Extracted from WA Museum dataset on Latitude 119° and 132° and Longitude -21 and -13° 40').	Western Australian Museum specimen data.				1890 - 2003 (Mammals 1890-2005)		Western Australian Museum.	Agreement will need to be renewed by new project.	13/06/2003 (all) & 15/9/2005 (mammals)	No	WAMuseumData_20050916.mdb	Museum Data does not record Datum. Data converted to GDA94 (agreed with N.Cooper we assume prior to July 2000 are AGD84/66).	See MetaData.	Nom.Errors (data) sent to Museum. Modifications returned. Mammal data updated - (change detail in 'NameChangeHistory' field). See MetaData for Rept & birds.		Fields 'SITE_modif', 'NEAREST_modif' & 'Site_Nearest_Precision_Comment' created to record changes made to 'kim88' mammal data.
FAUNA		Old Survey - 1.	Argyle Diamond Mine; Bungles; Drydale River NP; Islands; Kimberley Rainforests; Mitchell Plateau; Prince Regent River.	Old Kimberley Surveys (*see individual files below).					This file was compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin. It consists of data extracted from old Kimberley survey reports. These old reports are recorded individually (* below), the data then being combined in		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	Apr-03	OBPdata sources_able.xls; OBP metadata-(basic)draft.xls	OldKimberleyFaunaRecords20050730.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Some reports from which data was copied have Lat/Longs as only Degrees and Minutes. This would create a precision error of up to 2km on top of any other error.	Nomenclature check' run on data (except birds which are common names only) and errors fixed	Birds are common names only.	
FAUNA		Old Survey - 2	Argyle Diamond Mine.	Old Kimberley Surveys. Fauna Survey of the Argyle Diamond Project.*		G. Harold	1981	1980/1981	286 records entered from old report. Birds (common names), Reptiles, Frogs, Mammals. And some site data in 'SiteDataFrom_XLS_FilefromReport&DNA' table.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	Apr-03	OBPdata sources_able.xls	OldKimberleyFaunaRecords20050730.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Darwin has assigned a 1km precision to 145 records and 20km precision to the other 142 records.	Nomenclature check' run on data (except bird) and errors fixed (record of change recorded in 'NameChangeHistory' field).	Bird data has only common names, these therefore are not included in upload table. Some habitat data has been entered.	File compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.
FAUNA		Old Survey - 3	Dampier Peninsula.	Old Kimberley Surveys. Wildlife of the Dampier Peninsula.					Dept. of Fisheries and Wildlife		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.			Dampier.xls	Some Lat/Longs with Mammal records - not sorted.	Not recorded.	Not checked.	Assign coordinates. Nomenclature check.	Birds are common name only.
FAUNA		Old Survey - 4.	Drysdale River National Park.	Old Kimberley Surveys. A Biological Survey of the Drysdale River NP, North Kimberley, WA.*		Eds. Kabay & Burbidge	1977	Aug-75	1266 records entered. Birds (common names), Reptiles, Frogs, Mammals. Site description.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	Apr-03	OBPdata sources_able.xls	OldKimberleyFaunaRecords20050730.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Not checked.	Nomenclature check' run on data (except bird) and errors fixed (record of change recorded in 'NameChangeHistory' field).	Habitat data has not been entered. Birds are common name only.	File compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.
FAUNA		Old Survey - 5.	Islands of the Nth. West Kimberley	Old Kimberley Surveys. Islands of the Nth. West Kimberley		Burbidge & McKenzie	1978		Birds (common names), Reptiles, Frogs, Mammals, on separate sheets.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	3/04/2003	OBPdata sources_able.xls	Islands.xls (Islands_TH.xls) & tbl in KimFaun_DBF.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Various. See data.		Habitat data has not been entered. Birds are common name only.	Site location have been entered from consultation with N.McKenzie & Aaburbridge. Waiting on comment from R.Johnson before finalising.
FAUNA		Old Survey - 6.	Mitchell Plateau and Admiralty Gulf.	Old Kimberley Surveys. Biological Survey of Mitchell Plateau and Admiralty Gulf, Kimberley.*		WA Museum.	1976/1977		528 records entered. Birds (common names), Reptiles, Frogs, Mammals, on separate sheets. And some site data 'SiteDataFrom_XLS_FilefromReport&DNA' table.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	3/04/2003		OldKimberleyFaunaRecords20050730.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	200m (taken from 1:100,000 maps) (AAB)	Data has been checked for nomenclature errors and these have been checked with WA Museum where necessary (record of change recorded in 'NameChangeHistory' field).	Birds are common names only.	File compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin. Is compilation of data extracted from old Kimberley survey reports.
FAUNA		Old Survey - 7.	Prince Regent River Reserve.	Old Kimberley Surveys. A Biological Survey of The Prince Regent River Reserve.*		Eds. J.M.Miles & A.A.Burbidge	1974		830 records entered. Birds (common names), Reptiles, Frogs, Mammals. Some site data in 'SiteDataFrom_XLS_FilefromReport&DNA' table.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	3/04/2003		OldKimberleyFaunaRecords20050730.mdb	Not sure. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Good resolution. Taken from air photo's and 1:250,000 topo's (AAB)	Data has been checked for nomenclature errors and these have been checked with WA Museum where necessary.	Birds are common name only. Data needs to be transferred into format for updated KSIMS.	File compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin. Is compilation of data extracted from old Kimberley survey reports.
FAUNA		Old survey - 8	Pumululu National Park.	A Survey of the Wildlife and Vegetation of Pumululu (Bungle Bungle) National Park and adjacent areas.*				Dec-89	768 records in OldKimberleyFaunaRecords20050730.mdb. Need to check how these relate to 3 .xls files (filed under Pumululu).		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	3/04/2003		OldKimberleyFaunaRecords20050730.mdb; Bunglesarea.xls; Bunglesquad.xls; Bungles.xls.	Not sure if datum in data has been converted. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	2000m (assigned by Darwin)	Data has been checked for nomenclature errors and these have been checked with WA Museum where necessary (record of change recorded in 'NameChangeHistory' field).	File compiled by the Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin. Is compilation of data extracted from old Kimberley survey reports.	
FAUNA		Old survey - 9.	Kimberley	Kimberley Rainforests Survey.		Eds McKenzie, Johnston, Kendrick. 1991 Surrey Beatty & Sons	1991	1987/88	2233 records have been entered by Darwin, however Lat/Longs have only been recorded in database for east Kimberley sites (dates and Lat/Longs for EK01 - EK11 only). Only 12 reptile records have Lat/Long details. There are approx. 200 bird's with site details (east Kimberley), these have still to be converted to scientific names.		Digital data received from Biodiversity Section of the 'Dept of Planning and Environment/Scientific Services/Natural Systems Division', Darwin.	3/04/2003	OBPdata sources_able.xls	OldKimberleyFaunaRecords20050730.mdb (Only 10 east Kimberley sites from Rainforest Report have details entered).	Not sure if datum in data has been converted. Queried Greg Connors, DNA and he's not sure either. Need to check against old report, however as locations are pretty basic anyway possibly not worth worrying about.	Not assigned.	Data has been checked for nomenclature errors and these have been checked with WA Museum where necessary.	Birds are common names only. Many Lat/Longs still to be entered.	
FAUNA	FLORA		Bachsten Creek area on Walcott Inlet track. Unallocated Crown Land.	Kimberley Regional Fire Management Project: Bachsten Creek Wildlife Survey.		Carol Palmer		19/07/2001 - 23/07/2001		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.	
FAUNA	FLORA		Beagle Bay. Approx. 3km east of Middle Lagoon.	Kimberley Regional Fire Management Project: Beagle Bay Wildlife Survey.		Carol Palmer		01/06/2001 - 16/06/2001		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.	
FAUNA	FLORA		Bohemia Downs Station. 5km north of homestead close to main access road.	Kimberley Regional Fire Management Project: Bohemia Downs Wildlife Survey		Carol Palmer		15/05/2001		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.	

Appendix 16. (Page 2)

List of Kimberley biodiversity data compiled by the Kimberley Regional Fire Management Project  
(\*signifies data not acquired).

Theme 1	Theme 2	Theme 3	Location	Project	Publication	Author/ Project co-ordinator	Project Completion Date	Date coll. Date.	Further Project description/ other details.	Custodian	Licence Agreement/ Data source	Date data received	Metadata received with file.	File name	Datum	Precision	Nomenclature Updates	Further work required on data.	Other comment	
FAUNA			Drysdale/Kalumburu.	Comparison of fauna recorded at two sites in Drysdale River National Park.	Comparison of fauna recorded at two sites in Drysdale River National Park, 1975 and 1997. (Unpublished).	Woinarski, J & Start, A.N.		1997	396 records entered by Darwin. Birds are common name only.	Digital data received from Biodiversity Section of the Dept of Planning and Environment/Scientific		Apr-03		Drysdale_Kalumburu_1997.mdb	100m (assigned by Darwin).		Not checked, Queried Greg Connors.DNA and he's not sure either. Need to check against old report, however as	Nomenclature still to be checked.		
FAUNA	FLORA		Edgar Range. South of Mt Anderson close to GGully Creek.	Kimberley Regional Fire Management Project: Edgar Range Wildlife Survey		Carol Palmer		12/08/2002 - 16/08/2002		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.		
FAUNA	FLORA		Joon Joon Trail. Shire of West Kimberley Reserve. West side of Derby.	Kimberley Regional Fire Management Project: Joon Joon Wildlife Survey		Carol Palmer		26/05/2002 - 30/05/2002		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.		
FAUNA			Kimberley, east. Ningbing Range, Jeremiah Hills.	Camaenid Land Snail work.	Camaenid Land Snails of the Interim Recovery Plan 2005 - 2010. Pearce, K. Patterns in the Biodiversity of the Limestone Ranges East of Cambridge Gulf, Western	N.McKenzie		see report.		CALM	CALM	2005		CamaenidCollections_VKessner.doc, CamaenidRecoveryPlan.shx				Data not formatted.		
FAUNA	FIRE		Kimberley, east. Purnululu.	Fire and Fauna in Purnululu (Bungle Bungle) National Park, East Kimberley - in progress.	Fire and Fauna in Purnululu (Bungle Bungle) National Park, East Kimberley - in progress.	Thalie Partridge	2006	2003-2004	Research work (PhD) - Thalie Partridge											
FAUNA	FIRE		Kimberley, east.Mirima	Fauna/Fire in Mirima National Park. Honours project, McQuarie University.	Short report with data.	T.Partridge	2001	2001	31 records, 17 specimens vouchered in WA Museum.	T.Partridge	OK to make available.	1/11/2005		MirimaFaunaAndSites_TP_200108.xls	WGS84	0.05km	Not checked	Assign coordinates to data. Nomenclature check.		
FAUNA			Kimberley, east. Ord River area.	ORD RIVER STAGE 2: Terrestrial Biological Assessment.	ORD RIVER STAGE 2: Terrestrial Biological Assessment.	Garry Connell, Ecologia		1997	2114 records. Data extracted from 'OBPAuditSpeciesData.mdb'	Kinhill Pty Ltd		Yes	OBP metadata (basic)draft.doc.	OrdStage2_1999_FromDNA.xls	AGD66/84 - assume.			All Ecologia reports will have species/location data & in most cases abundance re animals caught and plant % coverage. G.Connell, Ecologia 14/6/2017	Digital data entered by Biodiversity Section of the Dept.of Planning and Environment/Scientific	
FAUNA	FLORA		Kimberley, east. Ord River area.	ORD RIVER STAGE 2: M2 Development Area: Terrestrial Biological Assessment - Addendum A: Regional	ORD RIVER STAGE 2: M2 Development Area: Terrestrial Biological Assessment - Addendum A: Regional	Garry Connell, Ecologia		06/1999	154 records. Data extracted from 'OBPAuditSpeciesDataFromDNA.mdb'.			Yes	OBP metadata (basic)draft.doc.	OrdStage2_1997_FromDNA.xls	AGD66/84 - assume.			All Ecologia reports will have species/location data & in most cases abundance re animals caught and plant % coverage. G.Connell, Ecologia 14/6/2017	Digital data entered by Biodiversity Section of the Dept.of Planning and Environment/Scientific	
FAUNA	LAND Inventory		Kimberley, west. Yampi Defence Department Land.	Biological survey of Yampi Defence Department Land.	Mammals, birds, reptiles and amphibians. Also includes habitat data including veg. which has not yet been entered.	ECOZ: Preece N., et al?		Jun-95		ECOZ	Spoke to Noel Preece (4/2005) said there would be no problem in using data (reference ECOZ)			ECOZ	GDA94			Nomenclature checks done.		
FAUNA			Kimberley, west. Yampi Defence Department Land.	ASSESSMENT OF VERTEBRATE FAUNA OF THE YAMPI SOUND DEFENCE TRAINING AREA (YSTA), DERBY, WA.	ASSESSMENT OF VERTEBRATE FAUNA OF THE YAMPI SOUND DEFENCE TRAINING AREA (YSTA), DERBY, WA.	Department of Terrestrial Vertebrates, Western Australian		2001	Site data only entered. Species data in report (YampiSDT_Fauna_WAMuseum_2001.doc) or contact WAM.				WA Museum	YampiSDTA_Fauna_2001.xls; YampiSDT_Fauna_WAMuseum_2001.doc	GDA94?			Species data still to be acquired.		
FAUNA	FLORA		Kimberley.	Mammal Status Survey	In Progress. Kimberley Mammal Status Survey, CALM/Tropical Savannas CRC.	Start A.N.		May/June 2003 & May/June 2004	Mammal surveys to attempt to compare current mammal status in the Kimberley with previous (1970's '80's) surveys (flora data also collected).	Dept. of Conservation and Land Management VTS_CRC.	CALM agreement with Kimberley Regional Fire Management Project.	25/06/1905	Report in progress.	see 'MetaData_KimMamStatus_2003_2004.doc'	GDA94	See file.	not checked	'Trapline' codes still to be modified to match 'Trapline' code in 'All Trap locations & effort.xls' so that specimen data can be aligned with site coordinates (which are still in 'All Trap locations & effort.xls'). See 'MetaData_KimMamStatus_2003_2004.doc'	Mammal and flora collections recorded as digital data.	
FAUNA	FLORA		King Leopolds/Oscars Ranges	Kimberley '88 - Royal Geographic Society/Linnaean Society		Maryane (Sawle) Mills			Records entered from report. Co-ords assigned. WAM data checked and field added with modifications.	Maryane (Sawle) Mills								Records entered from report. Co-ords assigned. Fields with modifications added to WAM.		
FAUNA	FLORA		Koolan Island	Biological Inventory of Koolan Island	Biological Inventory of Koolan Island. WA Museum 17 (1) 237 - 248, (2) 249 - 266	Keighery, G.J., et al & McKenzie, N.L.			Hard copy only.				Hard copy only.					Not checked.	Hard copy only. Not checked	
FAUNA			Mitchell Plateau.	Ecological comparison of three species of tree-rat on the Mitchell Plateau (includes other species trapped).	Kerle, J.A. n.d. Ecological comparison of three species of tree-rat on the Mitchell Plateau, WA. Unpublished report to the Science and Industry Endowment Fund.	Anne Kerle			24 records. Data extracted from "Ecological comparison of three species of tree-rat on the Mitchell Plateau, WA." Kerle, J.A. n.d. Unpublished report to the Science and Industry Endowment Fund.					KerleJA_1987.xls	GDA94					
FAUNA			Mitchell River	Movements, nest sites and feeding behaviour of the tropical cscaly-tailed possum (Wyluda squamicaudata).	Runcie, M.J. 1999 Movements, nest sites and feeding behaviour of the tropical cscaly tailed possum (Wyluda squamicaudata). Wildlife Research 26, 367-373 and Runcie, M.J. 2002 Behaviour and Ecology of tropical rock-possums, (Petropseudes dahl & Wyluda squamicaudata). PhD Thesis Northern Territory University.	Runcie, M.J.				Runcie, M.J.	Yes - see file.	15/07/2003				200m				
FAUNA	FLORA		Mt Elizabeth Station. Approx. 5km north of homestead on Walcott Inlet track.	Kimberley Regional Fire Management Project: Mount Elizabeth Wildlife Survey		Carol Palmer		10/07/2001		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.		
FAUNA	FLORA		Ningbing Range	Ningbing Range survey.	Patterns in the Biodiversity of the Limestone Ranges East of Cambridge Gulf, Western Australia. Unpublished.	N.McKenzie		2001	Bird, Flora and Camaenid Land Snail data.	CALM	CALM	2005		NingbingBirds_200106.xls, NingbingFlora 2001.xls, NingbingSites.xls, CamaenidCollections_VKessner.doc				Data not formatted. Site data from Biodiversity Unit is in decimal degrees. Need to be assigned to species data.		
FAUNA	FLORA		Yampi Defence Department Land. Approx. 10km east of Kimbolton homestead.	Kimberley Regional Fire Management Project: Yampi 2 (Eucalypt) Wildlife Survey.		Carol Palmer		28/06/2002		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.		
FAUNA	FLORA		Yampi Defence Department Land. Approx. 5km west of Kimbolton homestead.	Kimberley Regional Fire Management Project: Yampi 1 (Rock) Wildlife Survey		Carol Palmer		22/07/2002		Kimberley Regional Fire	Data provided by Carol Palmer.	6/08/2003	No	KRFMP(CPalmer)SurveyData2001_2002.mdb	WGS 84	100m	Completed (any name changes recorded in 'Name Change History' in KSIMS).	Finalised.		
FAUNA*		Antilopine Wallaroos	Kimberley.	The macroecology and conservation of the antilopine wallaroo (Macropus antilopinus). School of Tropical Biology, James Cook University.		Ritchie, E.		2005	Data not acquired.			Not held.								
FAUNA*		Golden Bandicoot	Kimberley	Golden bandicoot survey work.	GBandicoot_FinalReport_1996.doc	G. Graham	1996	1995 - 1996	Hard copy only.	G. Graham, CALM.			Hard copy only.						Data to be entered.	
FAUNA*		Rock Ringtail Possum	Kimberley Region including Windjana Gorge National Park and King Leopold Conservation Park.	Rock Ringtail Possum - genetic relatedness (University of Hawaii).		Berryman, J.R.		Current	Data not acquired.				Not held.							
FAUNA*	CULTURAL	Sharks. Sawfish.	Fitzroy River, King Edward River.	Freshwater fish research (sharks, sawfish).	<a href="http://www.scieng.murdoch.edu.au/centres/fish/cures/Freshwater.html">http://www.scieng.murdoch.edu.au/centres/fish/cures/Freshwater.html</a>				Data not acquired.				Not held.							
FAUNA*		Turtle (freshwater).	Kimberley.	Freshwater Turtle research work		Nancy Fitzsimons/T. Tucker, University of Canberra.	Ongoing	10 years (approx.)	Data not acquired.											
FAUNA*		Turtle (freshwater). Dugong.	North Kimberley.	Freshwater turtle and dugong management research (Masters project, Edith Cowan University).		Z.Evans.		Current	Data not acquired.				Not held.							

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List of Kimberley biodiversity data compiled by the Kimberley Regional Fire Management Project

(\*signifies data not acquired).

Theme 1	Theme 2	Theme 3	Location	Project	Publication..	Author / project co-ordinator	Project Completion Date	Data coll. Date.	Further Project description/ other details.	Custodian	Licence Agreement/ Data source	Date data received	Metadata received with file.	File name	Datum	Precision	Nomenclature Updates.	Further work required on data.	Other comment
FAUNA*	FLORA	Vert/veg	Kimberley, east. Mirima National Park.	A biological Survey of Mirima National Park. December 1993 - January 1994	A biological Survey of Mirima National Park. December 1993 - January 1994	G. Graham	1994	Dec 1993-Jan 1994	Hard copy only.	G. Graham, CALM.		Hard copy only.						Data to be entered.	
FAUNA*			Kimberley, east. Cockburn Range.	A Biological Survey of the Cockburn Ranges. February - April 1994.	A Biological Survey of the Cockburn Ranges. February - April 1994.	G. Graham	1994	1994?	48 individual? pit-fall traps with fence (chk. GG). Trapping - approx 14 days each trap. Birds, reptiles, bats, veg.	G. Graham, CALM.		Hard copy only.						Data to be entered.	
FAUNA*			Purnululu National Park.	Purnululu Fauna Monitoring (fauna monitoring and feral cat assessment).		A.Thomson			Approx. 8 sites. Some data entered by T.Partridge. See Metadata file.	A.Thomson, CALM.			PNP_Monitoring_AThomson_2002.xls						
FLORA	LAND	Inventory	Kimberley, east.	Land unit mapping site information	Location details of sites assessed for Ord Bonapart Program/Dept. of Agriculture, Land Unit mapping in 2003. Land Unit mapping for Carlton Hill, Ivanhoe, Bow River and Violet Valley completed. Survey sites encompass a wider area than these properties and should enable the 'desktopping' of further	Noel Schoknecht - Manager, Land Resource Assessment and Monitoring, Department of Agriculture Western Australia		2003				17/08/2005	InventorySiteDetails_OBP_2003.xls						
FLORA	FIRE	Cypress Pine	Kimberley	"Assessment of the Distribution and Status of Arnhem Cypress Pine <i>Callitris intratropica</i> (R.T.Baker & H.G.Sm.) in the Kimberley Region of Western Australia".	"Assessment of the Distribution and Status of Arnhem Cypress Pine <i>Callitris intratropica</i> (R.T.Baker & H.G.Sm.) in the Kimberley Region of	G. Graham	Oct-01	1998 - 2000	47 survey sites (143 quadrats) were assessed throughout the Kimberley. Site data entered digitally.	Gordon Graham/CALM			CypressQuadrats_GG_1999.xls	GDA94	0.5km				
FLORA		Monitoring	Kimberley	Western Australian Rangeland Monitoring System (WARMS) data. Site data is used to derive trends in vegetation (based on species recorded on 5 x 50m transects). Photographic record kept of each site.		Department of Agriculture, WA. (Andrew Craig/Phil Thomas).	Ongoing	First sites installed and assessed in 1993 - sites are re-assessed every 3 years.	384 WARMS sites (there are an additional 736 Pastoralists Photo Monitoring sites however many of these do not have co-ordinates). bio-physical data for each site. 6900 plant species records from sites. See WARMS Sysman 2-3-	Department of Agriculture WA	On file.	5/12/2003	See WARMS Sysman 2-3-1.doc for data information	WARMS_Sites_all_G_classes.xls; WARMS_Species_050203-1.mdb		Data is taken from 50m transects and site Lat/Long is recorded from GPS. Precision therefore should be within 100m	Hasn't been checked	WGS84	
FLORA	FIRE	Monitoring	Kimberley	Fire research sites.		A.Craig	On-going	1993-2005	160 fire research sites throughout the Kimberley.	A.Craig, DAWA		Site data received 20/3/2003	FireSites_DAWA_20030315.xls	GDA94	0.1km			Species data not acquired.	
FLORA	LAND	Monitoring	Kimberley, east. Purnululu.	Purnululu rehabilitation sites.					24 sites. Photo sites of rehabilitation areas.	CALM			PurnululuMonSites_CALM.xls	GDA94					
FLORA		Monitoring	Kimberley, east.Purnululu.	Purnululu monitoring sites.			Ongoing	1986-2000	17 sites. Originally installed as Department of Agriculture reangeland monitoring photo sites.	CALM		Data entered 2005.	PurnululuMonSites_CALM.xls	GDA94	1km				
FLORA		Monitoring	Kimberley, west. Curtin Defence Department Land, Yampi Sound Defence Training Area and King Leopold Range National Park	CALM monitoring (fire) sites on Curtin Defence Department Land, Yampi Sound Defence Training Area and King Leopold Range			Ongoing		Yampi - 6 sites (4 years data and photos), Curtin - 4 sites. King Leopold - 2 sites.	CALM/Defence Department.		Not held.	Curtin_Yampi_KingLeopold_MonitoringSites.xls	GDA94	0.1km				
FLORA			Bachsten Creek	List of plant specimens recorded at Bachsten Creek, (additional to specimens held in WA Herbarium and Kimberley Regional Herbarium Kununurra ).		T.Handasyde		19-23/7/2003		Kimberley Regional Herbarium, Kununurra - CALM		2005		WGS84	See data.	Not checked.			
FLORA			East/North Kimberley	Kimberley Regional Herbarium (Kununurra, CALM) data.		Department of Conservation and Land Management.	Ongoing.		Data list for plant specimens held at Department of Conservation and Land Management, Kununurra. Some of this data is quite old. Lat and Longs may not therefore be available and ID of many specimens has not been verified. 2823 records (includes 199 records without co-ordinates).	Department of Conservation and Land Management	Kimberley Regional Herbarium MOU.	28/10/2005	KunHerbariumCALM_030505.xls	GDA94	Various. See file.	Yes			
FLORA			East/North Kimberley	Kimberley Regional Herbarium (Kununurra, DAWA) data.		Department of Agriculture, Kununurra	Ongoing.		2079 plant specimens held at Department of Agriculture, Kununurra with coordinate data. Are additional records without coordinates. Some data is quite old. ID of many specimens has not been verified.	Department of Agriculture, Kununurra	Kimberley Regional Herbarium MOU.	3/12/2003	DAWA_Herbarium_Database.mdb	WGS 84	Various. See file.	Not checked.		Coordinates need to be calculated for specimens without them.	
FLORA			Kimberley	WA Herbarium specimen records		WA Herbarium	On-going	1900 - 2004		CALM	CALM agreement and email on file.	26/11/2004	Kimberley_WAHerb_data_041126.mdb	GDA 94	Various - see data.	Checked by WA Herbarium			
FLORA	FIRE		Kimberley, east. Mirima National Park.	Flora/Fire sites in Mirima N.P.		A.N.Start	In progress.	2000 -2002	Mirima Flora Site locations received from Darwin, 2003. Coordinates have been converted to dec. degrees for OBP Audit (site location data has been truncated). Site data received from T.Start in 'KimberleySites_TSstart.xls'	T.Start, CALM.	CALM	Oct-05	MirimaFlora_TS_200_2002.xls	WGS84	0.5km			Flora data still to be obtained (120 records in Kim.Regional Herbarium data, CALM).	
FLORA			Kimberley.	Kimberley Regional Herbarium (Derby, DAWA) data.		Department of Agriculture,			866 records (753 records without co-ordinates)	DAWA	Kimberley Regional Herbarium MOU.	1/07/2005	DAWADerby_Herbarium_200505.mdb	AGD66/84	Various. See file.	Yes		Coordinates need to be calculated for specimens without them. Convert coordinates to GDA94.	
FLORA			Kimberley.	Vegetation mapping	Field data for - 'Northern Australia Forest and Woodland Vegetation Survey and Mapping (NORFOR), Progress Report.'	Tanya Vernes		Feb-99				2003		WGS 84	Various. See file.	Not checked.		Still to be checked and formatted.	
FLORA			North Kimberley Coast.	Observational records of plant species recorded on north Kimberley AQIS survey, 2002 (additional to specimens held in WA Herbarium and Kimberley Regional Herbarium Kununurra ).					Collected between Karacutta (Karakatta) Bay and Koolan Island	CALM/AQIS/THandasyde		2003		WGS 84	Various. See file.	Not checked.		Still to be checked and formatted.	
FLORA			Ord River	Ord Riparian Zone Project - Tropical Savannas CRC/CALM.		Tony Start, CALM	Write-up in progress.	March 1999- June 2002		Tropical Savannas CRC/CALM	CALM agreement on file.	31/04/2003	OrdRiparian_Flora_030609.mdb	WGS 84	See data	Hasn't been checked		Site codes still to be modified to assign site code with co-ords (as converted to decimal by DNA). Nomenclature check.	
FLORA			Yampi Defence Department Land.	Flora of the Yampi Sound Defence training Area.	Flora of the Yampi Sound Defence Training Area, (YSTA), Derby, Western Australia. Report to Australian Heritage Commission. Botanic Gardens and Parks Authority. Perth. 2001	Barrett, R.L., Barrett, M.D., Start, A.N. and Dixon, K.W.	2001			Rusel Barrett from Kings Park forwarded us a copy of data.		17/06/2003	No	Kimbolton_030617.xls; Yampi_LaT_Long.doc	Should be WGS84 - email checking sent to R.Barrett	GPS	Not checked.		Still to be checked and formatted.
FLORA*			Kimberley	Ord Stage 2 Conservation area and Wolf Creek Crater National Park.		T.Vernes			Flora lists for work done for Ord Stage 2 conservation Areas and Wolf Creek Crater N.P. various sites. Data not entered. Reports filed under PointData/CALM/TVernes			Jun-03						Data to be formatted.	

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List of Kimberley biodiversity data compiled by the Kimberley Regional Fire Management Project  
 (\*signifies data not acquired).

Theme 1	Theme 2	Theme 3	Location	Project	Publication	Author/ project co-ordinator	Project Completion Date	Data coll. Date	Further Project description/ other details.	Custodian	Licence Agreement/ Data source	Date data received	Metadata received with file.	File name	Datum Precision	Nomenclature Updates.	Further work required on data.	Other comment
HYDROLOGY		Kimberley	Kimberley River Health sites	Kimberley River Health site location and data		Stuart Halse, CALM			Kimberley River Health site location and data collected received from S.Halse, CALM.					SHalseCALM_MRHI.mdb			For further details speak to S.Halse.	
LAND	Mapping - inventory.	Kimberley, east. Ord River Regeneration Reserve.	Resource inventory and condition survey of the Ord River Regeneration Reserve.	Resource inventory and condition survey of the Ord River Regeneration Reserve.		de Salis, J., Department of Agriculture Western Australia.	1993		Land unit maps form part of this report.	DAWA	KRFMP		Report	ord_river_regeneration_sois_lalalong_gda94.shp	GDA94			
LAND	Mapping	Kimberley	Land System mapping	Currently being upgraded against 1:50,000 topo's.		DAWA	In progress		Currently being upgraded against 1:50,000 topo's.	DAWA	New agreement with DAWA will be required.	Yes		GDA-94				
LAND	Mapping	Kimberley, east.	Inventory sites for land unit mapping of Carlton Hill, Ivanhoe, Bow River and Violet Valley stations. Inventory sites encompass significantly more area than these properties and would be good resource for further land unit mapping.			A.Payne & Noel Schoknecht - Manager, Land Resource Assessment and Monitoring, Department of Agriculture	2005	2003	LandUnitMappingInvSiteForms&Standards_OBP_2003.xls has standards and forms used for work Details of work, methodology, issues, etc. recorded in '20030911_Ord_LandUnit_Mapping Progress report.doc'.	DAWA/LWA	New agreement with DAWA will be required.	2005		LandUnitMappingInvSites_OBP_2003.xls				
LAND	Mapping	Kimberley, east. Bow River, Violet Valley, Carlton Hill, Ivanhoe stations.	Land unit mapping	Land Unit mapping for Carlton Hill, Ivanhoe, Bow River and Violet Valley stations.		A.Payne & Noel Schoknecht - Manager, Land Resource Assessment and Monitoring, Department of Agriculture	2005	2003		DAWA/LWA	New agreement with DAWA will be required.	2005	Yes	Data no longer held.	GDA-94			
VEGETATION	Mapping	Kimberley. North Australia.	Vegetation mapping	The Vegetation of the Australian Tropical Savannas		Tropical Savannas CRC/EPA				CRC Trop. Sav./EPA	Agreement to be modified.		Yes		WGS-84			
VEGETATION	Mapping	Kimberley. Western Australia.	Vegetation mapping	Pre-European Vegetation mapping from "A Database on the Vegetation of Western Australia. Stage 1" Calm Science		DAWA & CALM	2001	1995		DAWA & CALM	New agreement with DAWA will be required.		Pre-European Vegetation Theme Metadata.pdf	GDA-94				

**Appendix 17.**  
**'Kimberley Biodiversity Reference List'**

References and datasets encountered in the course of this work have been recorded in a 'Kimberley Biodiversity Reference List'. This list was distributed to people involved in ecological work in the Kimberley for comment and additions. Significant additions to the list were received from Department of Conservation and Land Management's 'Woodvale' library and Regional Nature Conservation Leader, Gordon Graham and Department of Agriculture Fire Ecologist, Andrew Craig.

This list is currently still in draft format as an Excel spreadsheet. It is for the time being retained as 3 sheets within this spreadsheet until further formatting can be undertaken. These 3 sheets need to be queried separately and may contain some duplicate records. The 'Kimberley Biodiversity Reference List' will be retained as a publicly available resource. It is recorded here as Appendix 17 but due to it's size is stored separately from the report as 'KimberleyBiodiversityReferenceList.xls'.

A copy of this Excel file can be obtained from:

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Tropical Savannas CRC (Darwin)  
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Any additions or corrections to this reference list will be much appreciated.

Please forward same to:  
triciah@westnet.com.au