

**User Documentation for the Australian National
Herbarium Specimen Information Register
(ANHSIR)**

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Introduction:

The Australian National Herbarium Specimen Information Register (ANHSIR) is a relational database built in Oracle to house information relating to the collections of the Australian National Herbarium (ANH). It is a hierarchical system, allowing information from related collections to be linked together.

The Australian National Herbarium (herbarium code CANB) currently houses collections from two main sources:

- CSIRO's research based herbarium (herbarium code CANB), and
- the Australian National Botanic Gardens (ANBG) voucher collection (herbarium code CBG).

These two collections were merged to create the current ANH, which retains the herbarium code CANB. Use of the CBG code ceased in 1999.

The information currently contained in ANHSIR consists of data from each of these original collections. It combines specimen information from:

- CSIRO's original specimen register (also known as ANHSIR), and
- the ANBG's original register (known as, and part of IBIS: Integrated Botanical Information System).

The current ANHSIR is part of IBIS, which also includes living collections databases (stock, planting, seed), the ANBG photographic database and associated electronic images of plants, as well as the Australian Plant Name Index (APNI) and the Australian Plant Census (APC). See Appendix 2 for web addresses.

As well as voucher specimen and label data for CBG and CANB accessions, ANHSIR also contains Australian National Botanic Gardens living collections without vouchers

(codes CBG and ANBG), collections of the Australian Tropical Herbarium at Cairns (codes QRS and CNS), some entries of Kew specimens (code K) for which electronic images are held in CANB, and some entries of specimens from other herbaria (e.g. codes MEL, NSW, PERTH). The latter group are not available to external users via the ANHSIR on-line query:

<http://www.anbg.gov.au/cgi-bin/anhsir>

The five screens in ANHSIR: LABEL, EVENT, UNIT, ITEM and DET

ANHSIR consists of five screens, four of which are utilised during data entry and two of which may be used to query existing information. Data is entered into the EVENT, UNIT, ITEM, and DET screens. When querying an existing record, the information from each of these screens is combined on the LABEL screen. Only the LABEL and EVENT screens may be used to query existing records.

Query Screens	Data entry Screens
Label	Event
Event	Unit
	Item
	Det

The Data Entry Screens: EVENT, UNIT, ITEM and DET

The four data entry screens are arranged hierarchically such that general information is housed at the top of the hierarchy, more specific information at the bottom. We may think of each of the four data entry screens in the following generalised way:

- **EVENT:** contains information relating to the locality, the collector and the date. This included geographic information such as Latitude and Longitude.
- **UNIT:** contains information relating to a particular collection, such as the collector number and habit information.
- **ITEM:** contains information representing a particular part of the collection, for example, an individual herbarium sheet, a specimen preserved in alcohol, or living material such as cuttings.
- **DET:** contains all of the information relating to the naming of the collection, including its entire determination history.

ANHSIR is thus designed to allow for more than one DET to be attached to any ITEM, for more than one ITEM to be attached to any UNIT and for more than one UNIT to be attached to any EVENT (see Figure 1).

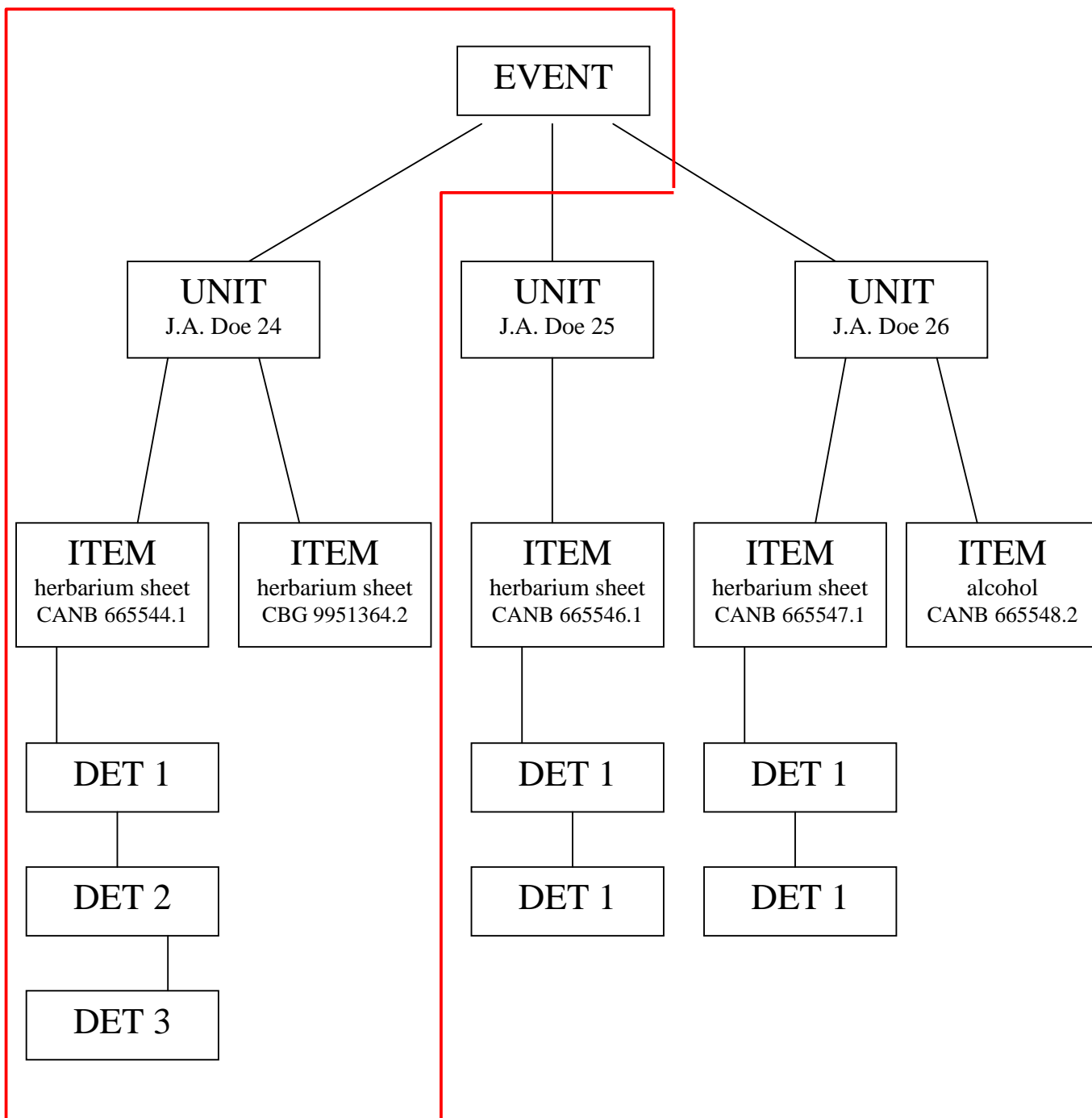


Figure 1: The hierarchical nature of the ANHSIR database. The red line indicates the information that would be returned by a LABEL screen query. An EVENT screen query would return all of this information.

The Query Screens: LABEL and EVENT

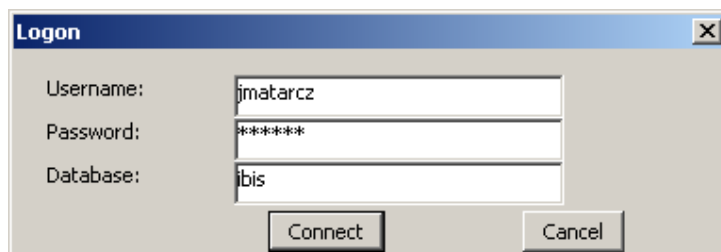
Both the LABEL and the EVENT screens may be used to query information already existing in ANHSIR, thus retrieving records for viewing or editing. The LABEL screen shows data from all four entry screens in a format similar to an herbarium sheet label. The LABEL screen query allows users to frame their query in terms of any of the information that is presented on that screen, while the EVENT screen query restricts users to that information which is present on the EVENT screen. This means that querying the LABEL screen allows more flexibility than querying the EVENT screen.

Every record in ANHSIR includes a unique 'herb code' and 'accession number' combination and this forms the basis of the most common method of querying. Any record that is retrieved via a LABEL screen query will display only the information that is attached to the particular 'herb code', 'accession number' combination that is queried. An EVENT screen query on the other hand will retrieve the record to which the 'herb code' and 'accession number' belong, as well as any other information that is attached to that particular EVENT record. For example, if there are several UNITS attached to a particular EVENT, a LABEL screen query will only retrieve the information relevant to the desired UNIT, while an EVENT screen query will retrieve the information relevant to each and every one of the UNITS attached to that unique EVENT. Using the scroll bar located towards the top left of the UNIT screen will reveal the other UNITS, each with its attendant ITEM screens which show the additional accession numbers associated with the EVENT.

NOTE: to query successfully on the EVENT screen, the LABEL screen must be blank.

Basic Data Entry – A single Herbarium Specimen

To log on to ANHSIR it is necessary to open <http://www.anbg.gov.au/ibis/menu.html> in your browser, select 'Data entry menu' (usually most useful) or 'Herbarium data entry', click 'run' and then enter a User name, Password, and 'ibis'. Click 'Connect'.



If you have initially selected 'Data entry menu' you can click the 'ANHSIR' button more than once and have several ANHSIR screens open and available for use as well

as having easy access to the 'stock' screen if you need to check details of living plants at ANBG.

The LABEL screen is not used during data entry. As described previously it can only be used to query records, or sets of records, for viewing or editing.

General data entry advice for all screens:

1. the use of single quotes '...' is preferable to double "... " even if these are present on the label, as double quotes cause problems when using data extracts for GIS applications.
2. many keyboard functions from Microsoft applications work in ANHSIR (e.g. 'Ctrl' + 'End' to reach the end of a line) and these permit reduced mouse use when editing and correcting records and fields.

The EVENT Screen

Data entry commences with the EVENT screen, shown below:

Herb + Accession No. CANB 641792

Collector: O'Sullivan, W.
Coll. Others: Huxtable, D.
flora of: country: AUSTRALIA
region_code: W state: W.A.
day: 29 month: Apr Year: 2001 day2: month2: year2:
locality: On rabbit proof fence road, 2.5 km S of Spencer road (W of Lake Monger).
habitat: Sub soil of brown sandy loam, top soil of yellow brown sandy loam. Topography gently undulating upper mid landscape. Growing with {Melaleuca eleutrostachya} and {Acacia} sp.

latitude: deg: 27 min: 38 sec: 31 dir: S
longitude: deg: 116 min: 37 sec: 11 dir: E
geocode accuracy: in metres: 200 Method: Site located on map source: 1
altitude in feet: in metres: altitude2: datum:
altitude accuracy in metres: altitude method: source:
depth in metres: depth2:

Standard code identifying the institution issuing the Accession Number.
Record: 5/5

• **Herb + Accession No.** – The herbarium code and accession number are entered here, e.g. CANB 625278 or CBG 8734976.

NOTE: although the herbarium code and accession number are entered on the EVENT screen, these two pieces of information are not actually stored here. They are stored at the ITEM screen level. Entering this information here allows the database to check whether that particular combination of herb code and accession number already exist in the database, thus preventing the record from unnecessarily being entered twice.

- **Collector** – The collector field houses the name of the person who collected the specimen, in the following format ‘Doe, J.A.’¹. There is a look up table associated with the Collector field, which lists collectors and associated collectors. If the collector you require is not listed in the look up table you can add their name, being sure to follow the specified format. Where there are also associate collectors, their names can be added in the following format ‘Brown, P.M.; Smith, F.E.; Jones, D.R.’. It is preferable to list a single ‘Primary Collector’ and list associated collectors in the ‘Other Collectors’ column, however there are occasions where there is more than one Primary Collector and they may be entered accordingly. This is mandatory when the collector team has a unique field number series for the expedition e.g. Lazarides and Palmer at Uluru in 1988.

NOTE: Where there is a look up table associated with a field, ANHSIR will not accept any entry that is not listed in the look up table. Wildcards (%) may be used when querying look up tables, although they are not necessary at the end of an entry. Use F9 to query any look up table.

Where no collector name is provided this field should be filled with the abbreviation ‘leg. ign.’ which means ‘collector unknown’.

- **Coll. Others** – The names of associate/other collectors are listed in this field. This field is filled automatically according to the selection made from the Collector look up table. Contact the Herbarium Registrar to find out how to enter new collector teams.

- **field number** – the field number (often referred to as the ‘collector number’), is the number allocated by the collector to each particular plant collection they make in the field. This field should display the field number as it is given on the label. For example 873A, 9873, 23b, ANU 487, NGF 29987. **There are two instances where we alter a field number: (1) where it contains a full stop or comma which simply indicates thousands, this is left out; and (2) where the letters preceding the number are the collector’s initials.** For example, if the collector is D.L.Jones and the field number is DLJ5897, we would enter the field number as 5897. If the collector is J.H.Whinray and the field number is DLJ5899, the letters DLJ must be entered as part of the field number. Entries into this field should appear as they appear on the label, for example, if there is a space between the letters and the numbers on the label, then there should be a space entered between them in the field number field.

Where no field number is provided this field should be filled with the abbreviation ‘s.n.’ which represents the Latin words ‘sine numero’ which mean ‘without number’. The field number field should never be left blank in the first instance (but see below).

NOTE: as for the Herb + Accession No., although the field number is entered on the EVENT screen, it is not actually stored here. It is stored at the UNIT screen level.

¹ Doe, J.A. is the preferred format for entering names throughout the ANHSIR database (with the exception of the Donor field), and multiple names should always be separated by a semi-colon. The database is designed to recognise this format when generating labels.

Entering this information here allows the database to check whether that particular combination of collector and field number already exists in the database. If the combination already exists, there may have been an error in numbering, or the record may be databased already. This is an excellent way to check for other sheets of the same collection already existing in the ANH collection/database. A few collectors (usually from minor donating herbaria) have commenced number series each year or expedition and some different collections have the same number. After checking that existing records represent different collections, it is necessary to remove the field number at the EVENT screen and enter it at the UNIT screen only.

QRS/CNS duplicates of the same collection as that being entered will not be revealed in this manner, because field numbers are preceded by zeroes. (To retrieve QRS/CNS and CANB records of the same collection by querying on the LABEL screen, use the wild card '%' before the field number .)

- **flora of** – This field indicates the area where the specimen was collected, but is only filled in where that information differs from the State, region, and other locality information. As a result this field is rarely used.

- **country** (default 'AUSTRALIA') – The Country of origin of the collection is listed in this field. Note: country should always be filled out in full, e.g. UNITED STATES OF AMERICA not USA; PAPUA NEW GUINEA not PNG. A list of former and current country names is available at
P:\ANH\ANH_Resources\country_list_current.xls

on CSIRO machines, or by emailing the Herbarium Registrar.

HINT: the country field is defaulted to capitals, so it is not necessary to hit Caps Lock, or hold down the Shift key when filling in this field.

- **region_code** – A three letter code for the region where the collection was made (or four letters for QRS/CNS accessions **only**). There is a look up table associated with this field. Most Australian region codes commence with the letter which represents the state in which the region occurs, and contain a further two letters to indicate the region, e.g. NST = NSW, Southern Tablelands. Where the region code is not indicated or implied from the label, the letter that indicates the appropriate State is entered into this field. For Papua New Guinea collections, enter 'P' in the region field, or a code for the province (starting with 'P') if available from the look up table (e.g. PWH for PNG Western Highlands province). For collections where Australia is the only information given AUS should be entered. For collections made outside of Australia and Papua New Guinea, an F is entered to indicate that the collection is foreign.

NOTE: (1) Since N is used to indicate NSW, the letter D is used at the beginning of codes representing the Northern Territory.

(2) CJB is the code used for Jervis Bay Territory, which is Australian Commonwealth Territory and includes Booderee National Park and Botanic Garden, the town of Jervis Bay, HMAS Creswell, and a Defence 'prohibited area'. The ANHSIR state field is automatically filled with 'NSW' but this does not show on specimen labels.

See Appendix 3A for three-letter Australian and Papua New Guinean region codes.

- **state** – State is the two or three letter abbreviation for each State or Territory. This field is filled in automatically according to the entry made in the region_code field.

- **day/month/Year** – These three fields are used to indicate the day on which the collection was made. All fields may be entered numerically (the month field will convert to a letter abbreviation upon advancement to the Year field), and where the day and Year field are filled to completion (essential for the Year field) the cursor will advance automatically to the next field. So for a collection made on the 5th of the month, an entry of 05 into the day field will result in the cursor automatically advancing to the month field.

- **day2/month2/year2** – These field are available for use where a label indicates a range of time in which the collection was made rather than a specified day, month or year. For example, a label showing 1802-1804 in the date field may be entered as 1802 in the ‘Year’ field and 1804 in the ‘year2’ field. The second date does not print on labels, and it may be necessary to repeat some information in the ‘notes’ field – see UNIT screen.

- **locality** – This field is used to describe the location of the collection in plain English. For example, ‘23 km from Braidwood towards Bungendore on the Kings Highway.’ or ‘Near bore # 3, Tintarra Homestead.’

NOTE: Information in multi-line fields such as locality should always be entered in sentence case: Capitals at the start of sentences and full stops to terminate. See Appendix 6 for standard abbreviations which should be used when abbreviations appear on the label. Words such as ‘road’ also may be typed in full – be aware that information may be viewed by users in non-English speaking countries, who will need to translate.

- **habitat** – This field is used to describe the aspect, substrate, vegetation type, and associated vegetation of the area where the collection was made.

- **latitude. deg/min/sec/dir** – These fields are used to enter the latitude information associated with the collection site. As with the date fields the cursor will advance automatically through these fields where they are filled.

HINT: the ‘latitude dir.’ field is defaulted to S, and will need to be edited for collections made in the Northern hemisphere.

- **longitude. deg/min/sec/dir** – These fields are used to enter the longitude information associated with the collection site. As with the date fields the cursor will advance automatically through these fields where they are filled.

HINT: the ‘longitude dir.’ field is defaulted to E, and will need to be edited for collections from Western longitudes.

NOTE: latitude and longitude information together constitutes what is referred to as a ‘geocode’ or more correctly, as a ‘georeference’. See geocoding section for further information.

- **geocode accuracy** – This field contains a code to indicate geocode accuracy (often referred to as a ‘precision code’. See appendix 3 for a list of available precision codes. This field should only be used where the code entered relates exactly to the desired value in metres. Otherwise this field should be left blank and the value entered manually in the ‘in metres’ field.

- **in metres** – This field indicates geocode accuracy in metres.

- **Method** – This field is used to indicate the method used to calculate the geocode. There is a drop down list associated with this field that may be accessed by the arrow keys, or by using the first letter of the entries within it.

- **source** – This field contains a code used to indicate the source of the geocode. See appendix 3 for a list of available sources.

- **geo. grid** - This field is used to house information related to grid references, e.g. 3857 38764 AMG. Any information provided should be copied verbatim into this field. Sometimes grid references also should be included in the locality field when labels are to be produced (e.g. where they are more precise than the locality and geocode supplied by the collector). See section **Converting grid references to geocodes** for information on converting metric grid references to geocodes, where the latter are absent.

- **datum** – Where datum is indicated on a label or in a field book it may be entered here. If datum is not specified for GPS readings, the accuracy should be 250 m, not 50 m, but the latter has been the convention in the past and shows on many records.

- **altitude in feet** – This field is used to enter altitude where it is given in feet.

NOTE: When altitude is entered in feet the value is automatically converted and given in metres as well.

- **in metres** – This field is used to enter altitude where it is given in metres.

- **altitude2** – This field is used to indicate where an altitudinal range is given. The lower limit is indicated in either ‘altitude in feet’ or ‘in metres’ and the upper limit is indicated in this field in metres. Both values of the range will print on labels.

- **altitude accuracy in metres** – This field is used to indicate the accuracy of the given altitude. This field is only filled in where the accuracy is indicated on the label, e.g. 50 +/- 20.

- **altitude method** – This field is used to indicate the method used to calculate the altitude. There is a drop list on this field that may be accessed by the arrow keys, or by using the first letter of the entries within it.

- **source** – This field contains a code used to indicate the source of the altitude. See appendix 3 for a list of available sources.

- **depth in metres/depth 2** – These fields are used to indicate depth for aquatic plants.

The UNIT Screen

Once all information relevant to the EVENT screen has been entered we continue down to the UNIT screen, shown below.

The screenshot shows the ANHSIR UNIT screen. The window title is "[AUSTRALIAN NATIONAL HERBARIUM (CANB)]". The menu bar includes Action, Edit, Block, Field, Record, Query, Labels, Window, and Help. The toolbar contains icons for file operations and help. The main area is divided into sections: Label, Event, Unit (selected), Item, and Det. The Label section shows herb_code: CANB, Acc_no: 641792, collector: O'Sullivan, W., and field number: 1363. The Event section shows habit, notes, and comment. The Unit section shows a Collection detail box with fields for Plant origin (W), herb.items (1), herb.material (H), replicate no., gardens material, replicates to (PERTH), local abundance (Frequent), and checkboxes for naturalized, ethno?, vernac?, exsic?, and rotap voucher. The status bar at the bottom shows "Record: 1/1" and navigation buttons.

NOTE: Some important pieces of information are *displayed* on several screens, not just the screen where they are entered. Where this occurs the information is displayed in grey rather than black as an indicator that that particular field is not editable on this screen.

- **field number** – if the field number was entered at the EVENT screen level it should appear automatically on the UNIT screen. If not, it can be entered at this level.
- **habit** – the habit field traditionally has been used to enter a brief (usually one word) description of the plants habit e.g. tree; shrub; herb. As the database has developed over the years it has been acknowledged that the information entered into the habit field would usually be qualified or repeated in the 'notes' field (see below). As a result, currently no information is entered into the habit field, and this is reflected by the cursor skipping the habit field. The habit field is maintained in the database to accommodate records that are exchanged electronically from other institutes where the habit field is still in use, and to accommodate records where information was entered into the habit field in the past.

- **notes** – all information which is descriptive of the plant being collected is entered in the notes field. For example ‘Tree to 40 m tall with yellow flowers and large woody fruit’. This field also houses a variety of additional information such as voucher information (including that added at a later date), common names, ethnobotanical information etc.

- **comment** –this field has been used differently in different periods. Previous advice was: ‘the comment field is used to house other information which is relevant to the collection, but perhaps is not specific to the particular collection, or is seen to be additional to the notes. For example, if a collection was made as part of specific expedition for which there is information given about funding or support; or if the collection was made as part of specific study, e.g. ‘Collected as part of the White-tailed Black Cockatoo Survey...’, this information would be entered in the comment field.’

*Current policy is that only the compiler’s own comments on the specimen or accession process etc. should go in the **comment** field.* The reason is that the comment field is not searchable with the on-line web-query version of ANHSIR, which is the most frequently used and accessible vehicle for compiling lists and tables of specimens and their label information. In the above example, it would not be possible to identify and report upon all the vouchers for the White-tailed Black Cockatoo Survey where that voucher information has been entered in the comment field rather than the notes field. However, data from a large number of specimens has been entered according to the previous advice in the paragraph above, and sometimes information about expeditions and surveys has not been entered at all. The change in policy has created inconsistencies in ANHSIR entries, which may be misleading, and large amounts of updating would be required to remove these inconsistencies.

- **plant origin** – this field is used to indicate the origin of the material from which the collection was made. This is indicated with a single letter code; w = material is of wild origin, c = material is of cultivated origin with no information as to the source, o = material is of cultivated origin with information available (in ANHSIR or other IBIS records) as to the wild origin, u = origin of material is unknown or ambiguous.

- **herb items** – a number is placed in this field to reflect the number of herbarium items which exist for a particular collection in CANB. The most common scenario is a single herbarium sheet, therefore the most common entry in this field is ‘1’. However, any number of items may exist, for example, a collection may consist of 2 herbarium sheets and a specimen stored in alcohol, which would require a number of ‘3’ in the herb items field.

- **herb material** – letters representing the types of herbarium material which exist (in CANB) are placed in this field (see appendix 3 for codes). Letters are entered in upper case, without spaces. For example, a collection that consisted of a herbarium sheet, a specimen in alcohol and a floral card would be coded as ‘HAK’.

NOTES: Items mentioned on the label as being held in donating herbaria are mentioned in ‘notes’).

Cryptogam (i.e. lichen) collections are coded ‘V’. Some older ones may have ‘B’.

- **gardens material** – letter representing the types of living material taken as part of the collection are entered here (see appendix 3 for codes). Letters are entered in upper case, without spaces. For example, a collection that consisted of cuttings and seed

would be coded as 'CS'. It is important to note that the gardens material field should only be filled in where living material has been passed on to the Australian National Botanic Gardens. Therefore this field will rarely be used when databasing exchange specimens, since any living material that was collected was more than likely kept locally.

- **replicate no.** – this field allows a compiler to indicate how many replicate labels will be required, to send out with duplicate specimens. Generally this field will be used only when entering data from field books.
- **replicates to** – the destination of duplicate specimens of this collection which were distributed to other herbaria or institutions is recorded here. It is preferable to use herbarium codes (as per Index Herbariorum) where possible. Codes are entered in upper case, separated by a comma and a space. For example if 4 duplicates were sent to herbaria in Melbourne, Sydney, Brisbane and Kew this field would be filled as 'MEL, NSW, BRI, K'. (Do not add a full stop at the end, despite its presence in the prompt line at the base of the database screen when the cursor is on the field.)

NOTE: The information in the replicates to fields should reflect that which is provided on the label. It is not necessary to make assumptions about replicates e.g. we have a specimen so there must have been one sent to CANB. The only replicate information that is not entered into these fields is where it is indicated that there is a specimen in 'CANB only'. Where this is the case the fields should be left blank.

- **local abundance** – information which relates to the abundance of the taxon which was collected is entered in this field. This can range from a single word description such as 'common' or 'occasional', to more detailed descriptions such as 'rare, only 2 plants found in this area'. Where possible these descriptions should be separated from habitat information, provided that this does not result in a loss of information due to a lack of context. Occasionally it is necessary to repeat this information in both the notes field and the local abundance field for clarity. For examples, if a label stated 'common in this area but none seen in similar habitat a few kilometres up the road', it would be best to put this whole statement into the notes field and put 'common in this area' into the local abundance field.

NOTE: the local abundance field has character restriction, which also may necessitate the inclusion of information in the notes field.

- **naturalized** – this field is a tick box which should be checked if the label states that the species collected is naturalized in the area.
- **ethno?** – this field is a tick box which should be checked if there is some ethnobotanical information provided for the plant collected. For example if a label states 'this species used for medicinal purposes by local tribes' the information should be entered in the notes field and the ethno? box should be ticked.
- **vernac?** – where common, vernacular or local names are given for the collection, the information should be entered in the notes field and the vernac? box ticked.
- **exsic?** – commonly used in cryptogams this box should be checked when the collection is part of an exsiccatae set.
- **rotap voucher** – ROTAP stands for Rare Or Threatened Australian Plants. Although the ROTAP list is no longer in use, this check box is present in ANHSIR to accommodate historic information. It is not used in contemporary data entry.

The ITEM Screen

Once all information relevant to the UNIT screen has been entered we continue down to the ITEM screen, shown below.

The screenshot shows the ANHSIR software interface for the ITEM screen. The window title is '- [AUSTRALIAN NATIONAL HERBARIUM (CANB)]'. The menu bar includes Action, Edit, Block, Field, Record, Query, Labels, Window, and Help. The toolbar contains various icons for file operations and help. The main form area is divided into sections: 'Label' (CANB, 641792, 1), 'Event' (coll.: O'Sullivan, W., field no.: 1363), 'Unit' (type of item: herbarium sheet, type specimen?:), 'Item' (item description: , donor inst.: BRI, donor accno.: AQ65489132, donor type: Herbarium), and 'Specimen detail' (checkboxes for leaves?, buds?, bark?, dummy?, juvenile?, flowers?, roots?, fruit?, seed?, fertile?, sterile?, voucher purpose: , voucher ID:). A 'Close' button is at the bottom left. A status bar at the bottom indicates 'Record: 1/1' and '<OSC> <DBG>'.

- **Herb + Accession No.** – if the herbarium code and accession number were entered at the EVENT screen level they should appear automatically on the ITEM screen. If not, they can be entered.

- **type of item** – there is a drop box associated with the type of item field which allows a choice of the type of item being entered. The most common selection from this box is 'herbarium sheet'. For cryptogams (i.e. lichens, bryophytes, fungi), select 'Vertically stored specimen' as the default, or occasionally 'boxed specimen' if directed.

- **type specimen** – if the item being databased is a TYPE specimen it is indicated in the type specimen field. Options such as HOLOTYPE, ISOTYPE and LECTOTYPE are available from the drop box associated with this field.

- **item description** – this field should be used to indicate anything particular or peculiar about the item being databased which will not be apparent from the fully databased record. For example, if a herbarium sheet has photographs attached to it a comment such as 'photographs attached' could be added.

- **donor inst** – this field is used to indicate the donor institute where the specimen being databased was not collected by the home institute, for example, material which has been donated via exchange with another institute. Where possible, this should be indicated by the formal herbarium code of the donor institute, such as MEL, BRI, K, or L (see Appendix 7 or <http://sweetgum.nybg.org/ih/>). Where the donor does not have a formal herbarium code there are a number of options available to indicate who the donor was. Where the donor is an individual this should be indicated by the person's name in the following format 'J.A.Doe'. If the donor does not fall into any of these categories there is a Donor Institutions list that may be accessed for alternatives (see end of Appendix 7).

- **donor accno** – this field is used to house the accession number used by the donor institute for this particular collection. The accession number should be entered as it appears on the label. For example, many BRI labels list their accession number and generally they are preceded by an 'AQ', therefore a BRI accession number should be entered as 'AQ28576'. Eliminate leading zeroes in donor accessions numbers unless preceded by letters.

- **donor type** – the type of institute which donated the specimen should be indicated in this field. There is a drop box available listing many institute types, including herbarium, botanical garden, and university.

NOTE: Any institution that has an Index Herbariorum code should be listed as an Herbarium, even if it is a University, Botanic Garden etc. For other donor types, see end of Appendix 7.

- **leaves?** – flag this box if the specimen has leaves. (Mouse click or <space bar> to tick).

- **juvenile?** - flag this box if the specimen consists of juvenile material.

Note: a specimen may be flagged as being juvenile either because it is apparent from the material on the herbarium sheet or because it is indicated on the label.

- **buds?** - flag this box if the specimen has buds.

- **flowers?** - flag this box if the specimen has flowers.

- **fruits?** - flag this box if the specimen has fruit.

- **seed?** - flag this box if the specimen has seed.

- **fertile?** - flag this box if the specimen is fertile.

Note: this field is now flagged automatically if any of the buds, flowers, fruits, or seed fields are flagged, but can be flagged independently if the nature of the fertile material is not apparent, such as with grasses. When updating older entries, the fertile field may need to be manually flagged even though the field(s) above it are flagged.

- **sterile?** - flag this box if the label on the specimen indicates that the material is sterile.

- **bark?** - flag this box if the specimen has bark.

Note: this field should only be flagged if there is a substantial piece of bark attached to the sheet, where the bark is present on a stem the field is not flagged.

- **roots?** – flag this box if the specimen has roots.

- **dummy?** – flag this box if the sheet is a dummy sheet, for example, a marker for a Type specimen, floral card, spirit or fruit separate specimen in the collection (see Appendix 5).
- **more data** – flag this box if there is some form of data presented on the sheet which cannot be represented in the database record. For example, if there is a map on the label showing where the specimen was collected, or sketches or drawings made on the herbarium sheet. Where this occurs the type of data presented may be described in the ‘item description’ field.
- **voucher purpose** – if the specimen is a voucher for DNA, an illustration, a phytochemical study etc, it should be indicated in this field. The type of voucher can be selected from a drop down list.
- **voucher ID** – where a voucher identification number is indicated on the label or slip it should be entered in this field.

The DET Screen

Once all information relevant to the ITEM screen has been entered we continue down to the DET screen, shown below.

Enter value for taxon name - list of values available
Record: 1/2

NOTE: The DET screen is quite different from each of the other screens we have looked at previously in that it is able to display multiple records on a single screen. This is so that we can view several or all of the taxon names that make up the determination history at once. Each individual taxon name entered here is associated with its own det. detail and this detail is displayed when the relevant taxon name is highlighted.

- **taxon name** – each of the taxon names which have been applied to the specimen being databased are entered here. They should be entered one at a time, in chronological order from earliest to most recent. There is a large look up table associated with this field, called the Plant Name Table (PNT).

NOTE: The Plant Name Table is important as it is related to another database known as APNI, the Australian Plant Name Index. All APNI names are on the PNT but the converse is not true (e.g. the PNT has foreign plant names also if there are corresponding specimens in the ANH). Consult APNI if the correct choice of name/format/authorship is not clear in the PNT.

- **det type** – there is a drop box associated with the det type field which allows a choice of the type of det being entered. The most common selections from this box are 'det.' and 'conf.' for specimens, and 'field' or 'det' for field books..

- **by** – the name person who applied the determination should be entered here, in the same format as for collectors e.g. Doe, J.A.; or Doe, J.A.; Smith, F.E.; Jones, D.R.
- **day/mon/year** – the date that the name was applied should be entered here.
- **det notes** – any notes associated with the determination should be entered here. For example, comments such as ‘this specimen has rather long leaves for this species, perhaps a hybrid’. It also may be used to record the actual spelling of the determination on the specimen, where this is incorrect and doesn’t match the correct name on the plant name table, e.g where the name on the specimen is an orthographic variant. Precede the incorrect name by ‘[as]’.
- **Flora of Aust.** – flag this box where the det slip indicates that the specimen was determined as part of a study contributing to the Flora of Australia project.
- **AVH project** – flag this box where the det slip indicates that the specimen was determined as part of the Australias Virtual Herbarium project.
- **Name of type** – flag this box where the specimen being databased is identified as being a type of the taxon name being entered.
- **ids ?** – this box is used when databasing redeterminations and is not relevant to basic dataentry.
- **qual.** – there is a drop box associated with the qual. field which allows any qualifiers of the taxon name, such as ‘aff.’, ‘?’, ‘c.f.’, to be indicated.
- **sp. agg.** – abbreviation for the latin term sens. lat. and sens. stricto (in the broad sense, and in the narrow/strict sense respectively) as contained in the drop box associated with this field.
- **curr.** – this box is flagged automatically for the most recently entered, and therefore current, determination. This field may be altered manually where required.
- **det. no.** – this field is filled automatically as determinations are entered to indicate the order in which they were entered.

When the DET screen is complete pressing F10 will save the entire record. To enter a new record, return to the EVENT screen and press F6, and a new set of entry screen will be presented.

Basic Data Entry – More than one sheet/item

It is fairly common for a herbarium collection to consist of more than one sheet. If a collection consists of two herbarium sheets it should be entered in to ANHSIR in the following way: the first sheet of the collection should be entered as per the instructions for a single sheet with the exception that the 'herb.items' field on the UNIT screen should be entered with a 2 rather than a 1.

Once all four screens have been completed, return to the ITEM screen and insert a new item by pressing F6. This creates a second ITEM screen and subsidiary DET screen within the record. This second ITEM may then be completed with regard to the second sheet. Where there is information common to both sheets, for example the donor institute and donor accession number, this information may be copied from the previous ITEM by pressing F3 at the appropriate fields. Where there is little difference between the two ITEMS the entire record may be copied by pressing F4. Once the ITEM information has been entered the DET screen information may be entered. Pressing F10 (to save) will make the item number correct on the ITEM screen (e.g. .2 rather than .1 as it first appears).

NOTE: DET screen information should only be entered where it differs from that on the first sheet. If the determination histories are identical the information need not be entered a second time.

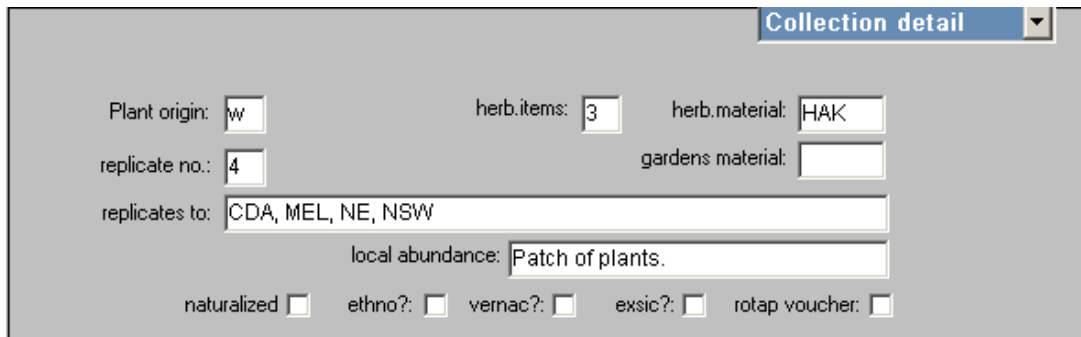
These basic adaptations apply to any collection with multiple sheets (or other herbarium material such as A,V, R, etc.), whether it be 2 sheets or 12. ANHSIR will allow the addition of as many new ITEMS as are necessary.

A CANB herbarium sheet should be made item .1 if possible, i.e. do not make an 'alcohol' (A) collection, 'fruit separate' (F), 'reference herbarium' sheet (R) etc. into item .1 if there is a CANB sheet.

Basic Data Entry – Multiple ITEMS, not all herbarium sheets

Where a collection consists of multiple items which are not all herbarium sheets, some small adaptations, similar to those described for multiple sheets, may be used to reflect this.

Usually there will be at least one herbarium sheet associated with a collection and this should be entered as per the instructions for basic data entry of a single sheet with the exception that 'herb.items' on the UNIT screen should reflect the total number of herbarium items in the collection, and 'herb.material', also on the UNIT screen, should reflect each type of item in the collection. For example:



The screenshot shows a form titled "Collection detail" with the following fields and values:

- Plant origin:
- herb.items:
- herb.material:
- replicate no.:
- gardens material:
- replicates to:
- local abundance:
- naturalized:
- ethno?:
- vernac?:
- exsic?:
- rotap voucher:

Where H = an herbarium specimen

A = a specimen stored in alcohol (spirit collection)

K = a floral card

Once the herbarium sheet has been entered, return to the ITEM screen and create a new ITEM by pressing F6. The new ITEM screen should then be completed with regard to the next item.

NOTE: it is important to complete the 'type of item' field correctly by selecting alcohol specimen or floral card or herbarium sheet from the drop box as appropriate.

There are also other options for this field – R,J,B,F,I,L,V,W – see Appendix 3.

As for multiple sheets, the DET screen should only be completed where the determination history differs from the first item. This process should be repeated for each item of the collection.

Data Entry from Field Notebooks

There are a few things to note when data is being entered from a field notebook rather than a herbarium specimen. Firstly, where latin or scientific plant names are used in fields such as habitat and notes, they must be placed inside curled brackets { } so that when labels are printed the names appear in italics.

Secondly, where a name is given for the plant collected, but is not qualified with a determinative or a determination date, 'field' should be selected from the 'det type' drop box to indicate that it is a field determination. The determinative need not be added, as for a field determination it is assumed that the collector/s is/are the determinative/s.

Thirdly, it should be noted that it is possible when entering from a field notebook, to come across a collection which consists of only living material, such as cuttings or a transplant. This should be reflected by leaving 'herb.items' and 'herb.material' blank and filling in the appropriate codes in the 'gardens material' field on the UNIT screen. Where this occurs there are appropriate options, such as plant, cutting, and seed in the 'type of item' field on the ITEM screen.

NOTE: where a collections consist of living material only, draft labels will be produced, but final labels will not.

Linking Records

When entering data from field notebooks it is often highly appropriate to link records together. For example, if the collector has collected several plants from a single location it is possible to link these collections together. This is achieved by entering the first collection fully, but when entering the second collection, rather than returning to the EVENT screen and pressing F6, it is possible to return to the UNIT screen, press F6 and enter the second collection from that point. Pressing F6 at the UNIT screen level creates a new UNIT, ITEM and DET attached to the previously entered EVENT.

NOTE: this should only be done where the EVENT screen details are identical for both records.

This process can then be repeated for all of the collections taken from that location. The result will be several sets of UNIT, ITEM and DET attached to a single EVENT.

NOTE: this method of linking records can also be used when entering data from herbarium sheets, however, it is highly unusual to encounter consecutive collections by a single collector when entered data from herbarium specimens.

Data Verification

Data entry also includes editing and updating existing records. There are several things to be aware of when verifying specimen data. The best general rule of thumb is to ask the question ‘which parts of this record differ from the way that I would have databased them?’ Most of the time these differences need to be rectified. Generally the need for verification arises from errors which were generated when data from the previous ANHSIR and IBIS databases was loaded into our current ANHSIR database. The following lists highlight common changes which should be made to existing records.

NOTE: records without geocodes must have a geocode added where possible.

Common changes to CANB records:

- insert spaces where they have been omitted.
- insert the region code for foreign specimens.
- transfer regions from the written locality information into the region code field.
- move habitat information from the notes field to the habitat field.
- add lat. long. data to the georeference area and delete from the notes field.

NOTE: the previous ANHSIR database did not have fields to accommodate seconds. As a result, geocodes which were accurate to seconds had to be repeated in full in the notes field.

- insert geocode accuracy, method and source.
- insert altitude method and source.
- check the field number.*
- move information in the habit field into the notes as appropriate.
- check all information in the ‘Collection Detail’ box. Usually plant origin, herb items, herb material, replicates no, and replicates to will need to be edited.
- if the donor accession number is exactly the same as the CANB number, and does not appear on the label, remove it.
- tick the appropriate boxes under specimen detail.
- re-build the determination history if necessary, by removing the current determination and entering each determination chronologically (the previous ANHSIR only retained the most recent determination).
- check that dates on determinations appear in full.

(*There are some conventions for dealing with field numbers that are not apparent from labels processed in isolation. See ‘field number’ under ‘The Event Screen’ section earlier concerning NGF, ANU (and also LAE) numbers, which are institutional collecting (field) number series, not donor accession numbers. Also, the field numbers of G. Chippendale are also NT herbarium accession numbers and

should be entered in both the **field number** and the **donor accno.** fields. Many records have been entered with 's.n.' as field number, and this should be corrected.)

Common changes to CBG records:

- add geocodes to records which don't have them, if possible and part of your job.
- check the field number.
- cut and paste abundance information from the notes field to the local abundance field.
- complete the plant origin field if not done so already.
- tick the appropriate boxes under specimen detail.

Linked Records

When the data from the old ANHSIR system was loaded into the new ANHSIR database (in c. 1998), part of the process was for records containing the same information to be linked together. In most cases this linking was valid and useful, however, there were occasions where this resulted in inappropriate linking of records, either at the EVENT or UNIT level. A common example is that for s.n. numbers. When a collector does not provide a field number we complete the database with the abbreviation 's.n.' to indicate that the collection is without a number. There are many cases in the database when several different collections, all with s.n. numbers, have been linked together at the UNIT level in the database. The inappropriate linking becomes apparent when we see that each of the individual ITEMS which are linked to the UNIT in question have different DETs, thus indicating that they are different species and different collections. In such cases it is necessary to separate these records so that each individual collection is represented by a unique UNIT.

As currently it is not possible for data entry staff to delete records other than at the DET screen, it is necessary to ask the ANBG IBIS User Support Officer (currently John Hook) to separate these records.

(Note on **deleting records**: Since the adoption of web-based forms in 2008 it has been necessary to request deletions for all record types except DET's. Where whole records are being deleted or UNITS are being separated, screens to be deleted should be listed in the **comment** field of the UNIT screen, along with 'to be deleted <month year>' e.g. where month is written as a 3 letter code (e.g. Aug) and year as 4 digits. Items of records to be deleted may be given 00 at the end of the accession number, and these longer numbers listed in the deletion request list, to permit entry of correct records pending deletion.)

Records may require separation at one of two different levels. Multiple ITEMS may each require their own UNITS, or multiple UNITS may each require their own EVENTS. It is important to specify the necessary level of separation if utilising the automated method of separation.

Recognising Linked Records...

There are several occurrences which may indicate to you that you are dealing with linked records. If you have retrieved your record via a LABEL screen query it will not be apparent from the resulting screens that the record is linked. However, if you

happen to be editing a series of records which are linked together it will usually become apparent that the edit has 'already been made', or you may recognise an EVENT or UNIT as being 'familiar'. Although it is difficult to describe, such 'warning bells' are easily recognised by technicians who have undertaken large amounts of data entry. (Different habitats typed into the **habitat** and **notes** fields for C.W.E. Moore collections are one such 'warning bell'. In the old ANHSIR, habitat information was entered in **notes** (now on UNIT screen) and may already have been moved to **habitat** (now on EVENT screen) for a particular linked record, but another linked record still has its habitat information (often slightly different) in the **notes** field and thus appears to have two sets of habitat information.)

An easier way of identifying linked records is to retrieve your record via an EVENT screen query rather than a LABEL screen query. Under these circumstances, all of the information attached to the record you are interested in will be displayed, including any inappropriately linked records.

NOTE: it is important to note that because an EVENT screen query retrieves all of the information attached to the desired record, it is possible to find yourself editing the wrong record. For queries of this type it may be necessary to scroll through a number of UNITS or ITEMS to find the desired record.

Databasing living collections:

Wild collections of plants, cuttings or seed, to be added to the ANBG living collection or seed bank, are databased similarly to herbarium vouchers (see above), except:

- boxes on the UNIT screen for 'herb. Items' and 'herb. Material' are only filled in if an herbarium voucher has been collected (which should be most cases these days).
- 'Gardens material' is always filled in, with 'P', 'C', and/or 'S' as appropriate.

The herbarium sheet (voucher) should always be the first ITEM, if it exists. The plant, cuttings or seed are subsequent items, or may be first if there is no herbarium voucher for the original collection.

When the plant has always been cultivated, e.g. a seedling or cutting from a wild collection grown on at the ANBG, or an accession obtained from another nursery:

Assign new accession numbers to the cultivated collections and database the relevant collection information, ensuring that the linking fields in the ITEM screen are filled in correctly:

Locality (EVENT screen): commence with 'CULTIVATED:' followed by the locality where grown when the plant or cutting was collected

Latitude and longitude of cultivation locality (EVENT screen) in the appropriate fields.

Notes (UNIT screen): 'ORIGIN:' then a description of original location/collection, and/or Provenance of original material (if known, otherwise use 'ORIGIN:

unknown'). (If appropriate:) 'Original parent: [wild CANB or CBG or ANBG accession no., wild Collector & no., wild collecting date].' (Sometimes this has been entered as 'opar...'). Add in plant habit notes here e.g. 'Shrub, 1 m high; flowers red'.

Plant origin (UNIT screen): should be filled in with 'o' if original wild provenance is known, or 'c' if not.

Gardens material (UNIT screen): P, C, S, or L – see **Appendix 3**.

For all collections which are living, John Hook (IBIS User Support) should be informed of new entries, and he will create relevant IBIS living collections screens, at least until the combined herbarium + living collections database is available,.

ANBG Living Collections Vouchers

These are herbarium specimens collected from plants which are currently cultivated but may have been obtained from the wild as cuttings or transplants, or may have been cultivated since propagated from seed or by cuttings from another cultivated plant. Assign new accession numbers to the cultivated collections and database the relevant collection information, ensuring that the linking fields in the ITEM screen are filled in correctly:

Locality (EVENT screen): commence with 'CULTIVATED:' followed by the locality where grown – often this will be 'Australian National Botanic Gardens, Canberra;' possibly with a section number. Do not abbreviate this to ANBG.

Latitude and longitude of cultivation locality (EVENT screen) in the appropriate fields. For ANBG, use 35 deg 17' S, 149 deg 07' E, accuracy 1600 m, unless a more precise georeference is given.

Notes (UNIT screen): Cultivated voucher for <CODE number> (e.g. ANBG 760216). Often this has been entered simply as 'Ex ANBG 760216'. 'ORIGIN:' then a description of original location/collection, and/or provenance of original material (if known, otherwise use 'ORIGIN: unknown'. Provenance information is especially important if the parent collection record is not on ANHSIR e.g. if it is very old, or is a repropagation – check the STOCK screen of IBIS for lineages). (If appropriate:) 'Original parent: [wild CANB or CBG or ANBG accession no., wild Collector & no., wild collecting date].' Add in plant habit notes here.

Plant origin (UNIT screen): should be filled in with 'o' if original wild provenance is known, or 'c' if not.

Gardens material (UNIT screen): P, C, S, or L – see **Appendix 3**.

Voucher purpose (ITEM screen): select 'ANBG prop id'.

Voucher ID (ITEM screen): add the 'ANBG prop id' number or 'opar prop id' number or wild CANB accession no.

DET screen: the first determination will be the name from the plant tag at ANBG, and this will be a 'field' det.

Advanced ANHSIR options

Public Access Herbarium (Reference Herbarium) ‘duplicates’.

For specimens with a **sheet** in the main CANB collection here and one in the Australian National Botanic Gardens **Public Reference Herbarium** (located in the ANBG Botanical Resource Centre, north of the café in the same building):

1. Type ‘2’ in the ‘herb.items’ and ‘HR’ in the ‘herb.material’ field on the UNIT screen (or higher numbers/more materials as appropriate). The ‘R’ will cause ‘Reference Herbarium’ to be printed at the end of the label.
2. Make the .1 item ‘herbarium sheet’ and the .2 item ‘reference herbarium’.

For **cryptogam** specimens, the ‘reference herbarium’ 2nd item will produce a herbarium sheet label which is used for the reference sample (unlike the CANB sample which has a ‘vertical packet’ or ‘Boxed specimen’ label):

1. Type ‘2’ in the ‘herb.items’ and ‘VR’ in the ‘herb.material’ field on the UNIT screen. (‘B’ is not used much at present).
2. On the ITEM screens, make the .1 item ‘vertical packet’ or ‘boxed specimen’ as appropriate, and make the .2 item ‘reference herbarium’. (One packet or box label will print, and two sheet labels).

For specimens with a sheet in the main CANB collection here and one at **Booderee Botanic Gardens** Reference Herbarium:

1. Put ‘2’ in the ‘herb items’ and ‘HJ’ in the ‘herb materials’ field on the UNIT screen. Don’t put ‘R’ unless there’s also a specimen in the ANBG reference set (see above).
2. Put ‘Specimen at CANB and at Booderee (Jervis Bay) Botanic Gardens Reference Herbarium.’ at the end of the **notes** field on the UNIT screen, so that it shows on the label.
3. Make the .1 item ‘herbarium sheet’ and the .2 item ‘reference herbarium’ (no other option).

Label Printing:

One of the primary reasons for entering collection data into ANHSIR is to record information for new accessions to the collection and print standard labels for new specimens before they are stored in the collection. The data may have been entered from field books or have come in hard copy or digital form from other herbaria or individual collectors. ANHSIR facilitates the printing of a number of different label types from the ‘Labels’ option on the main menu at the top of the main form. Use www.anbg.gov.au/ibis/menu.html, select ‘labels’ and then ‘draft labels’ to check your entries (or have the collector or herbarium group curator check them); after checking select the appropriate type of final label.

Types of labels:

The labels menu includes the following options:

Draft labels: Herbarium sheet labels (with herb code and accession number but not the barcode) used for checking data entry, geocodes and determinations before the final labels are printed. These labels can be printed on non archival paper or paper already printed on one side as they are normally destroyed when the final labels are printed. No duplicate labels are printed when using this option, and a draft label is produced for every type of collection, not only sheets.

Herb Labels: Corrected labels normally attached to a herbarium sheet. Final labels contain the herb code and accession number with barcode at the bottom of the label. These labels should be printed on archival grade paper. Duplicate labels are printed according to the number of replicates specified in the 'Replicate no.' field of the unit screen. This allows labels to be printed without the need for knowing the destination of the specimen, but it is necessary to put '.' in the 'replicates to' field, or the duplicate labels will not print and the number of duplicates will not show on the main label. Duplicate labels have the word 'Ex' in front of the herbarium name at the top of the label. For each collection the printing order is the original .1 label first followed by the specified number of duplicates and then any subsequent CANB sheet or other specimen labels (i.e. items xxxxxx.2, xxxxxx.3 etc.)

There are also options for printing cryptogam packet labels, seed collection labels etc. These latter types are printed in the cryptogam herbarium and seed bank respectively, and appropriate staff should be advised of the pertinent collection records when initial data entry and checking is complete.

Running the Labels:

Herbarium code. A drop down list allows selection of the herb code.

Accession No./Accession No. last. These fields give a number of options for printing labels using the Accession number. Enter the number of the specimen for which you want to print the label.

-For a single label enter the accession number into the 'Accession No' field.

-For multiple labels where the accession numbers are sequential (e.g. 640234,630235,630236) you can enter the first number into the 'Accession No' field and the last number in the sequence into the 'Accession No. last' field.

- For multiple labels where the accession numbers are NOT sequential you can enter the numbers into the 'Accession No.' field with the numbers separated by a comma (eg 640234,642218,231459). Do not put any other form of punctuation in the field or put a period at the end of the sequence. Approximately 20 labels can be safely printed at a time using this procedure.

- Click 'Submit Query' to run the labels after codes and numbers have been entered.

Note: The 'back' button will return you to the label specification screen, permitting the labels to be rerun after any data entry mistakes are corrected in another browser

opening. However, it may be wise to construct your list in Word or a text editor such as Notepad and then to paste it into the field. This will avoid having to retype the whole list in the event of an interruption. Labels are produced as a PDF file, which may be saved and emailed if desired.

Collector/Field Number/Field Number last. Labels can be printed using a combination of Collectors names and field numbers, but only a single number or a range may be used, and NOT a discontinuous list with commas.

Note: The report will attempt to run even if you enter incomplete data. For example if you just type in a collector's name and no field numbers the system attempts to run a report on ALL collections by that collector. This may run to many thousands of collections and will almost certainly fail. This should be avoided.

Query clause. Labels may be generated using the equivalent of the 'where' clause used in SQL database queries. To use this mode you must be familiar with the field names used in the database. An example of this would be to leave 'CANB' in the 'herbarium code' field to type in 'ACC_NO=558345' into the query clause field. This produces the same result as typing '558345' into the 'Accession number' field. It returns all records that have a herb code 'CANB' and accession number '558345'.

Labels are usually displayed 4 or 6 to a page depending on the amount of text on the label. Final labels are never more than 4 to a page. If there are more labels than can be displayed on a single page they are spread over the required number of pages and the first page is displayed. To view other pages use the scroll bar at the side of the PDF file. You can also zoom in and out to make the font size more readable.

Note: It is useful at this stage to check all the labels before printing. Often errors that were not obvious during data entry are visible at this stage. If errors are found then you can fix the error on the ANHSIR forms, use the 'back' button from the label PDF, and repeat the label creation process.

Printing Labels: Once you are satisfied that the information displayed on the labels is correct, print the labels using the 'File' menu, as in Microsoft applications. This button should open the printer dialog box that will allow you to choose the correct printer and page set-up. Remember also to change the paper or paper source to print out on archival or recycled paper as required.

Geocoding

What is a geocode/Why calculate geocodes?

A geocode (more correctly known as a georeference) is a locality represented in a numeric format. Descriptive locality data is a vital component of information provided with a herbarium specimen, but geocodes are a far more useful tool for investigating geographic patterns, such as species distributions. Geocoding refers to calculating a numeric latitude and longitude from a written locality description. The following information will assist in the calculation of accurate, precise and useful geocodes.

Which regions to geocode

All specimens collected from Australia (including all Australian territories) and Papua New Guinea (which includes New Britain, New Ireland, Bougainville and Admiralty Island) should be geocoded prior to their entry into ANHSIR. Specimens collected from the western half of the island that contains mainland PNG (the entire island is called New Guinea) also should be geocoded. This portion of land is part of the country of Indonesia. It is currently called West Papua, but may be recorded on labels as West New Guinea, Netherlands New Guinea, Irian Jaya or West Irian.

The nature of geocoding is such that the more you do, the easier it becomes, as you start to gain a familiarity with the areas you are working with. It can be very useful in the early stages of geocoding to seek the advice of people who are more familiar with certain areas than yourself. For example, if you have a locality in Tasmania and one of your colleagues lived in Tasmania for ten years they are likely be able to provide assistance. It is also useful to seek advice from colleagues who have a lot of geocoding experience when difficulties arise. Thirdly, ANHSIR queries using collector and date and/or a string from the locality text also can prove helpful, as it is likely that most Australian localities, or a place near them, have been geocoded previously.

Geocode accuracy and precision

When calculating a geocode, use all the written locality information available to get as near as possible to the actual collection location. Sometimes habitat information is also helpful. Using all of the information will increase the accuracy of the geocode. Also, a measure of precision should be allocated to the geocode, to indicate a distance from the calculated geocode, within which the actual collection locality may fall. For example, a suitable geocode for Port Jackson would be 33 deg 50' S, 151 deg 15' E with a precision of 5000 m, as the geocode must be on land for terrestrial plants (most collections) but the exact location on the shores of Port Jackson is unknown – it may be anywhere within 5 km of that point geocode (note that 'method' in ANHSIR is 'generalized arbitrary point' in this case – see below). It is important to note that the precision allocated to a geocode is as important than the geocode itself. The 'usefulness' of a geocode is largely dependant upon the precision.

If the written locality data could not produce a geocode accurate to within, for example, 100-200 km (e.g. if the collection locality is simply 'Inland Queensland', 'Central

Australia', 'Tasmania' etc), it may not be worth calculating a geocode, as a distribution 'point' on a map representing the specimen could be vastly different to the actual collection locality. This could place the specimen outside of its normal distributional range and in a completely different habitat. To calculate a geocode in such cases is more likely to be misleading than to provide meaningful information. Also worth considering is that a geocode accurate to 200 km in arid Australia is likely to be more useful than a geocode accurate to 200 km on the east coast of Australia. This is because 200 km on the east coast will encompass a wide range of altitudes and climates, and therefore habitats and distributional ranges, while 200 km in Central Australia, generally speaking, will encompass a more uniform range of habitats and distributional ranges.

NOTE: the precision codes currently in use at the ANH are listed in appendix 3.

A precision of 1000 km (e.g. from entering precision code 3) indicates that a circle of 1 km radius, centred on the calculated geocode, will encircle the actual collection locality.

It is not necessary to limit yourself to these codes when entering geocodes into ANHSIR. They are designed to automate the production of a precision value in metres. You are encouraged to allocate a precision value in metres, especially where you have calculated a geocode with a precision which falls somewhere in between those represented by the codes. For example, it would be preferable to enter an accuracy of 3000 m (3 km) than to allocate the precision code of 3 (effectively 10 km) which such an accuracy would necessitate if relying on the codes alone. By entering 3000 m into the 'in metres' field in ANHSIR, the geocode is allocated a much higher precision than the autofill 10 000 m associated with code 3. Needless to say, a geocode precise to within 3 km is far more useful than one deemed precise to within 10 km. The Geocode Ready Reckoner provided in Appendix 4 may be useful when allocating precision. However, if the **datum** is not specified in the note-book entry or label, smaller '(accuracy) in metres' values (up to 1000 m) should be increased by 200 m, especially for collections made before the late 1990's, as the on-ground difference between geocodes calculated with the AGD66 datum and the GDA94 datum is about 200 m.

Geocoding resources

Three of the most useful resources when geocoding are:

- NATMAP RASTER and ENCARTA - software that can be installed on your PC
- Google Earth – uses satellite images and may be downloaded to your PC
- Geoscience Australia Place Names Search: <http://www.ga.gov.au/map/names/>
- Readers Digest Atlas of Australia.

Other resources for Australian localities include:

- Decimal Latitude/Longitude converter: www.geology.enr.state.nc.us/gis/latlon.html
Or <http://www.environment.gov.au/erin/tools/>
- Grid Reference (UTM coordinates) to Latitude/Longitude converter: NATMAP RASTER or http://www.ga.gov.au/geodesy/datums/redfearn_grid_to_geo.jsp

- P:\ANH\ANH_Resources\Australian Extra Localities.XLS – an in house EXCEL file on your (CSIRO) PC (can be emailed to DEWHA staff)
- Hard copy ‘Gazetteer of Australia’ book.

For PNG and West Papua localities, two websites may be very useful

- Global Gazetteer – <http://www.fallingrain.com/world>
- Worldwide Directory of Cities and Towns - www.nima.mil/gns/html/

You can also try:

- Microsoft Encarta – a software programme that can be installed on your PC,
- ‘Complete PNG Gazetteer’ – a zip file that can be emailed to you,
- P:\ANH\ANH_Resources\New Guinea localities\New Guinea localities.DOC – an in house WORD file on your (CSIRO) PC (can be emailed to DEWHA staff)
- or search the LAE database for a duplicate which may be geocoded:
<http://www.pngplants.org/search.htm>

An excellent website / documents explaining geocoding concepts in detail, can be found at <http://www.gbif.org/prog/digit/Georeferencing> ; the Global Biodiversity Information Facility, specifically the webpage for downloading the BioGeomancer ‘Guide to Best Practices for Georeferencing’.

Always use standard geocodes where they are available, eg

- CSIRO glasshouse: 35 deg 16 min S, 149 deg. 07 min E; precision code 2 (1 km).
- Australian National Botanic Gardens: 35 deg 17 min S, 149 deg 07 min E; precision code 2 (1 km), or more correctly 1600 m; the ANBG nursery is closer to 35 deg 16 min S.

For those locations where you want to get a very detailed latitude/longitude (i.e. localities that are frequently encountered and well described), download Google Earth or use the many detailed maps available in the map room.

For troublesome locations, try querying the database. There may be other collections from the same locality already databased and geocoded – be sure to examine the whole range and check the geocode. In some cases you may need to use a combination of resources to track down a useful geocode, that you are confident is representing the true locality. When all else fails an internet search may be useful.

Geocoding hints

A common problem in calculating geocodes is interpreting the label, especially when it is handwritten. If you are having trouble reading a label, ask someone else for a second interpretation opinion, as they’ll often read it differently to your interpretation.

Sometimes labels have incorrectly spelt place names, especially where double letters are involved; either having two letters when there should only be one, or having a single letter when there should be two, e.g. Amaroo and Ammaroo. Also, when using gazetteers, places such as Mount (Mt) Wellington may need to be searched for under ‘Wellington’ rather than, or as well as, ‘Mount’ or ‘Mt.’ Think similarly for places like Lake Argyle, Wallaga Lake etc. ‘S’ may be included or excluded erroneously, e.g. ‘Williams Creek’ on a label may be a place usually called ‘William Creek’, and place names written as two words may be only 1, or vice versa.

Think about localities such as ‘Port Melbourne’ (found on some old collections) and ‘Sydney Harbour’. A geocode for these locations from a gazetteer will give you a point in the water. Try to find a point around the body of water and then allocate a suitable precision code. Think similarly for inland water features.

The age of a label often needs to be taken into account. Old labels (pre early to mid 1900’s) simply saying, for example, ‘Dubbo’, need to be tackled with caution. Examples such as these should be read as ‘Dubbo area’ and probably need a precision code of 4 (25 km). Labels saying ‘80 km west of Esperance’ probably mean 80 km west by road, and presumably by the main road. We assume distances to be land distances (not as the crow flies), and assume them to be by road, unless there is a reason to believe otherwise.

Entering the Geocode Related Fields into ANHSIR

As already discussed, the geocode and a precision value need to be entered into ANHSIR. Also, the method used to obtain the geocode and a geocode source should be entered.

Only use ‘GPS’ (Global Positioning System) for geocodes where it is stated on the label that a GPS has been used. Such geocodes are almost always quoted to the nearest second, but may be in a decimal form (eg 23.6587 deg S or 23 deg 39.522 min S – both of these are equivalent to 23 deg 39 min 31 sec S). GPS readings can be allocated a precision code of 1 (50 m) if the datum is known or can be determined, or an accuracy of **250** m otherwise. (Most GPS readings post-mid-1990’s can be assumed to be WGS84/GDA94 (equivalent for Australia), and sometimes this can be checked using Google Earth, which uses WGS84.) ‘Generalised arbitrary point’ can be used when a midpoint between two localities is used as the geocoded point, or where you cannot trace the fine locality details provided on the label, or if the collector only provided a generalised locality (e.g. a National Park or Nature Reserve) - particularly for older collections. ‘Site located on map’ should be selected if you have traced a locality on a map and read off a geocode, or if you have used a gazetteer. ‘Vector from a named place’ is not commonly used, but if this is how you have traced a collection locality on a map, or if the label says, for example ‘13 km E of Mt Isa by air’, select this option. Select ‘Unknown’ when you aren’t sure how a geocode has been calculated, which will be the case for most specimens from other institutions where a geocode is printed on the label. In some unusual geocoding cases you may wish to add a comment in square brackets in the locality field, indicating how the geocode was calculated. You should enter a comment in square brackets if you have chosen not to calculate a geocode, so as to indicate that the geocode has not been overlooked. Something like [insufficient locality details for a useful geocode] or [no further locality details given, not geocoded] would be appropriate.

It can be difficult to decipher an appropriate precision code for specimens geocoded by other organisations. It may be best to consider the written locality description provided and estimate how precise a geocode you would be able to calculate, if one hadn’t been provided.

It is important to use 'local knowledge' when considering how to populate the geocode related fields. For example: C.W.E. Moore always allocated geocodes to his own collections, H. Streimann also allocated his own geocodes very carefully but sometimes gave incorrect (opposite) bearings in his localities, A. Fraser calculates her geocodes from a map and gives distances by air, and AD (State Herbarium of South Australia) staff have often allocated a specimen the geocode of the nearest named place, not the collection locality.

Converting grid references to geocodes

Grid references with the form 54,758053,5828497 (2 digits, 6 digits, 7 digits) may be converted to latitude and longitude coordinates using Natmap Raster software or:

(1) for MGA projection (GDA94 or WGS84 datum):

<http://www.environment.gov.au/erin/tools/mga2geo-gda.html> or

http://www.ga.gov.au/geodesy/datums/redfearn_grid_to_geo.jsp

(2) for AMG projection (AGD66 datum):

<http://www.environment.gov.au/erin/tools/amg2geo.html>

A second step to convert decimal coordinates to degrees, minutes and seconds (use <http://www.geology.enr.state.nc.us/gis/latlon.html>) is required when using the websites above, therefore using Natmap Raster software is quicker if you have it (use the 'Coordinates' page).

Grid references with the form 580284 (6 digits) or 7622-580284 (the first 4 digits are a map number) may be converted to latitude and longitude coordinates using Natmap software (or the websites above) if an approximate locality is also given. Find the approximate locality using Natmap or <http://www.ga.gov.au/map/names> clicking on locality when found (e.g. it may be 'SE of Ballarat' in this example: use 'Ballarat'), and take note of the zone (54) and the first digit of the easting (7) and the first 2 digits of the northing (58). Split the grid reference into 2 lots of 3 digits, precede each with the extra digits from Natmap, and make up to 6 and 7 digits respectively with zeroes i.e. **758000** and **5828400**. These become the easting and northing, and can be used with the zone number to find a more precise locality and its geocode by keying into the Natmap 'Coordinates' page and using appropriate options on the map view which comes up (click on the button next to 'System', lower left, to convert 'Grid' to 'Lat/Long'). The result will be less than 200 m from the point which would be obtained if full eastings and northings had been provided (e.g. 54,758053,5828497 in the example above). Add another 200 m (making 400 m) to the geocode accuracy value on the EVENT screen to allow for different datums. (Usually 6 digit grids will be AMG/AGD66, but Natmap plots assume GDA94/MGA94.)

If you are very proficient with the mouse, once the approximate locality is obtained, you may be able to move the map until the grid windows for 'E' and 'N' show the correct values (i.e. with 580 and 284 in the middle positions as explained above). Usually rekeying the coordinates (as directed above) is easier. However, using minute mouse movements after changing the datum from 'GDA94' to 'AGD66' in Natmap will enable you to find AMG map grid references, and convert them to AGD66 or GDA94 lat/long coordinates, as required. If this is done, fill the 'datum' field in ANHSIR (with GDA94 or AGD66), and reduce the 'accuracy' to 200 m.

NOTE: if a 6 digit grid reference seems totally out of range for the area, it was probably obtained from an imperial map and used for an older collection (pre late 1960's). Alternatively, the collector may have specified the easting and northing in the wrong order, e.g. 284580 instead of 580284.

See <http://www.environment.gov.au/erin/tools/mga2geo-gda.html> for a map showing the (2 digit) zones of Australia.

Troubleshooting

Advanced querying options

Most records in ANHSIR can be retrieved by querying the herbarium code and accession number on either the LABEL screen or the EVENT screen. However, there will be times when neither of these query options appear to work, even though you know the record has been entered, or have a strong reason to suspect that the record has been entered. When this occurs there are a couple of slightly more advanced querying options which can be helpful. The first is to query for information other than the herbarium code and accession number on the LABEL screen. For example, you might try a combination of the collector and field number, or collector and date. It is advisable to use the wild card '%' in front of the field number in case leading zeroes have been entered (as is currently the case with QRS/CNS records) or a collector's initials precede the number (in cases where the collector's number series has been used by another person). However, if the reason that the record is not being retrieved is that it does not have a determination flagged as being current, no LABEL screen query will be successful in retrieving the record.

If LABEL screen queries are unsuccessful there are some variations on the EVENT screen query which may help. (*Remember that for any EVENT screen query to be successful the LABEL screen must be blank). Try querying the EVENT screen using the collector name and some details from the locality field. Or, if you were the person who entered the record you may choose to query by compiler. To do this, press F7 to query, change from 'Georeference' to 'Meta' (towards the lower right of the screen) and enter your user name, in capitals (e.g. LHALASZ), and the date the record was entered (e.g. 10-NOV-2002). If you are unsure of the exact date it is possible to use a wildcard (%) here. Press F8 and all the records you entered on that date should be returned, including any unfinished records. (*Remember that each EVENT screen retrieved may have more than one UNIT attached, and editing the EVENT screen therefore may affect more than one specimen record on ANHSIR.)

Appendix 1: Function Keys

Most commonly used function keys:

Accept/Save	F10
Cancel	Esc
Copy field	F3
Copy screen	F4
Delete record	Shift F6
Enter Query	F7
Execute Query	F8
Exit	Ctrl q
Help	F1
Insert Record	F6
List of Values (lookup table)	F9
Next field	Tab
Next screen	Ctrl Page Down
Previous field	Shift Tab
Previous screen	Ctrl Page Up

NOTE: by pressing F1 anywhere within in the database and selecting 'keys' a full list of the available function keys will be displayed.

NOTE: there are field specific hints located throughout the database. These hints are displayed across the bottom of the screen and relate to the field in which the cursor is currently located.

Appendix 2: Useful web addresses

Unit Converter – www.digitaldutch.com/unitconverter

Merriam-Webster online Dictionary - www.m-w.com

Foreign language translator – www.wordreference.com or Google language tools

Index Herbariorum - www.nybg.org/bsci/ih/ih.html

ANHSIR online Query - www.anbg.gov.au/cgi-bin/anhsir

Worldwide Directory of Cities and Towns - www.fallingrain.com/world/

Geoscience Australia (formerly Auslig) Online Gazetteer -

<http://www.ga.gov.au/map/names/>

Australian Plant Census (APC) - <http://www.cpbr.gov.au/chah/apc/index.html>

Australian Plant Name Index (APNI) - www.anbg.gov.au/cgi-bin/apni

International Plant Name Indices - www.uk.ipni.org , <http://www.tropicos.org/> ,

http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl

Decimal lat long Converter - www.geology.enr.state.nc.us/gis/latlon.html

For other useful websites, see ‘Websites for AVH’ on P:\ANH\ANH_Resources, on CSIRO computers or ask a CSIRO-based staff member to email it to you.

There are also many other useful resources in P:\ANH\ANH_Resources and in P:\ANH\ANH_Resources\Manuals

Some Search Engines:

Google - <http://www.google.com>

AltaVista - <http://www.altavista.com>

Vivismo - <http://www.vivisimo.com/>

Appendix 3: Precision Codes/Source codes/ Herb material codes/Gardens material codes

Precision codes (insert the accuracy in metres only if appropriate e.g. it is often 2000-5000 m for small towns and distances from them):

- 1 – within 50 m or 1'
- 2 – within 1 km or 1'
- 3 – within 10 km or 5'
- 4 – within 25 km or 10'
- 5 – greater than 25 km or 30'
- 6 – indefinable within the Australian Continent

Source codes:

- 1 – collector
- 2 – compiler
- 3 – automatically generated
- 4 – records of another institution
- 5 – unknown

Herb material codes:

- H – herbarium sheet
- A – specimen stored in alcohol
- F – fruit separate
- K – floral card
- V – vertical packet (cryptogam)
- B – box (cryptogam)
- W – wood sample
- R – public access herbarium sheet at ANBG, Canberra
- J – public access herbarium sheet at Booderee (Jervis Bay) Reference Herbarium

Gardens material codes:

- P – plant
- C – cuttings
- S – seed
- L – unspecified living material

Appendix 3A: Region codes used in ANHSIR (Australian National Herbarium Specimen Information Register) for CANB and CBG records (compiled from ANHSIR 10 Aug 2007). Additional 4 letter codes were added in early 2009 for QRS/CNS records, but these are not presented here.

Australia, Northern Territory, Island Territories

The screenshot shows a dialog box titled "Region" with a search field containing "%". Below the search field is a table with the following columns: region code, district, req.type, state abbrev., and Region Id.

region code	district	req.type	state abbrev.	Region Id
AAT	Australian Antarctic Terr			151
AUS		country		150
CAN			ACT	1
CJB	Jervis Bay Territory		NSW	12
D			NT	96
DBT	Barkly Tablelands	district	NT	2
DCN	Central Australia North	district	NT	3
DCS	Central Australia South	district	NT	5
DDG	Darwin & Gulf	district	NT	4
DVR	Victoria River	district	NT	6
F		foreign		7
IAS	Ashmore & Cartier Islands			8
ICH	Christmas Island			93
ICK	Cocos (Keeling) Islands			9
ICS	Coral Sea Islands Territo			10
IHE	Heard & McDonald Islands			11
INO	Norfolk Island			135
N			NSW	13

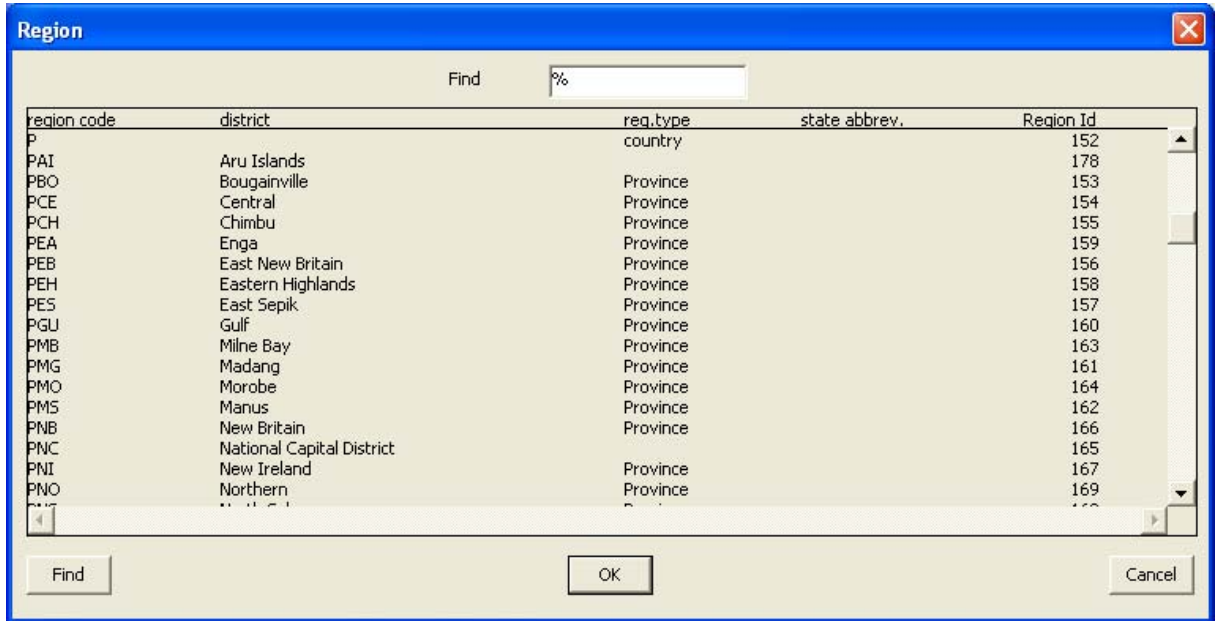
New South Wales

The screenshot shows a dialog box titled "Region" with a search field containing "%". Below the search field is a table with the following columns: region code, district, req.type, state abbrev., and Region Id.

region code	district	req.type	state abbrev.	Region Id
N			NSW	13
NCC	Central Coast	region	NSW	98
NCS	Central Western Slopes	region	NSW	14
NCT	Central Tablelands	region	NSW	15
NLH	Lord Howe Island		NSW	16
NNC	North Coast	region	NSW	17
NNF	North Far Western Plains	region	NSW	18
NNP	North Western Plains	region	NSW	19
NNS	North Western Slopes	region	NSW	20
NNT	Northern Tablelands	region	NSW	21
NSC	South Coast	region	NSW	99
NSF	South Far Western Plains	region	NSW	22
NSP	South Western Plains	region	NSW	23
NSS	South Western Slopes	region	NSW	24
NST	Southern Tablelands	region	NSW	25
P		country		152
PAI	Aru Islands			178
PBO	Bougainville	Province		153

Papua New Guinea

The country Papua New Guinea (eastern half of the island New Guinea) is an amalgamation of the old Australian 'territory' Papua, and the German 'territory' New Guinea. Specimens collected in PNG may have Papua, East New Guinea, Territory of New Guinea (TNG), Territory of Papua and New Guinea, NE New Guinea or just New Guinea recorded on their labels. PNG includes the Admiralty Islands (Manus Province), the Bismarck Archipelago (New Britain and New Ireland), Bougainville, and other smaller island archipelagos of Milne Bay Province.

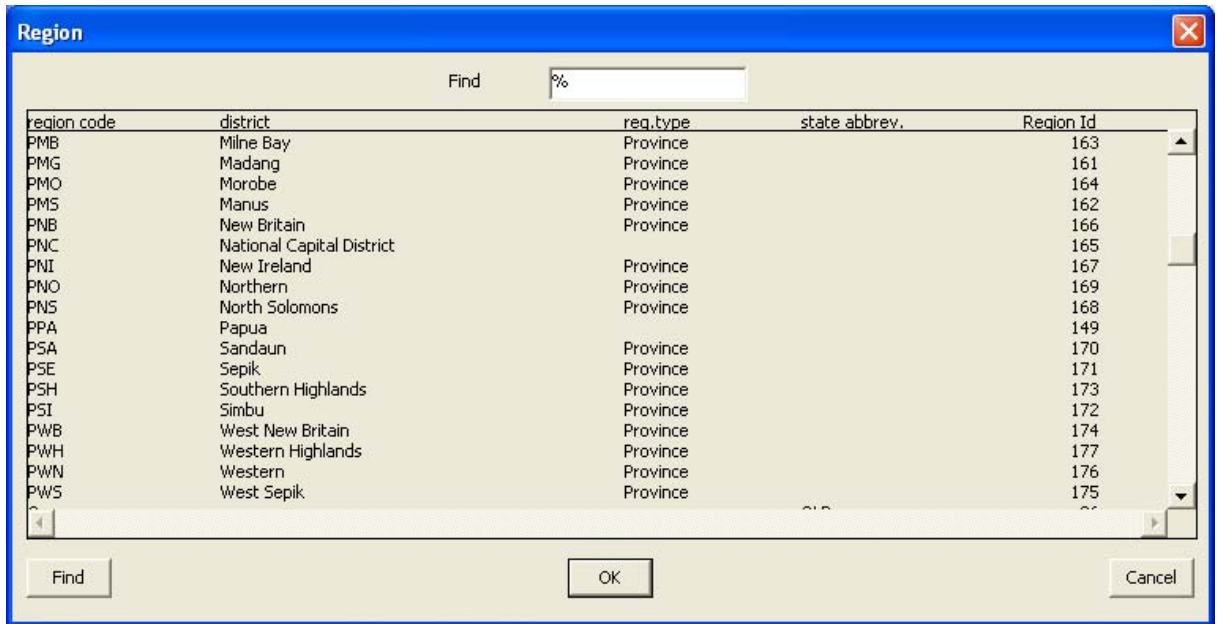


The screenshot shows a 'Region' dialog box with a search field containing '%'. Below the search field is a table with the following columns: 'region code', 'district', 'reg.type', 'state abbrev.', and 'Region Id'. The table lists various regions and their details.

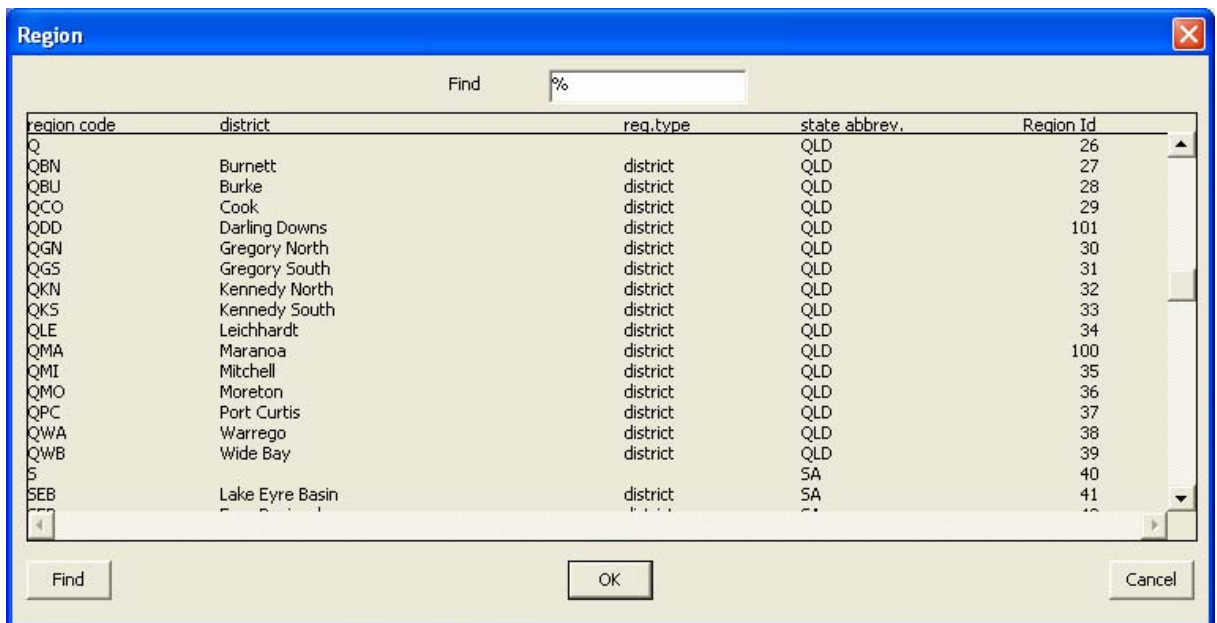
region code	district	reg.type	state abbrev.	Region Id
P		country		152
PAI	Aru Islands			178
PBO	Bougainville	Province		153
PCE	Central	Province		154
PCH	Chimbu	Province		155
PEA	Enga	Province		159
PEB	East New Britain	Province		156
PEH	Eastern Highlands	Province		158
PES	East Sepik	Province		157
PGU	Gulf	Province		160
PMB	Milne Bay	Province		163
PMG	Madang	Province		161
PMO	Morobe	Province		164
PMS	Manus	Province		162
PNB	New Britain	Province		166
PNC	National Capital District			165
PNI	New Ireland	Province		167
PNO	Northern	Province		169

Papua New Guinea (cont.) and Papua

Papua (western half of the island New Guinea) is the current province name for the land parcel previously known as Irian Jaya and West Papua. Specimens collected from Papua province may have West Papua, Irian Jaya, West New Guinea, Division of West New Guinea, Netherlands (Dutch) New Guinea, West Irian or just New Guinea on their labels. Papua province incorporates many small islands adjacent to the island of New Guinea, the main ones being: Yos Sudarso, Biak, Japen, Waigeo and Misool.



Queensland



South Australia

Region

Find

region code	district	req.type	state abbrev.	Region Id
S			SA	40
SEB	Lake Eyre Basin	district	SA	41
SEP	Eyre Peninsula	district	SA	42
SFR	Flinders Range	district	SA	102
SGT	Gairdner-Torrens Basin	district	SA	43
SKI	Kangaroo Island	district	SA	44
SLN	Lofty North	district	SA	45
SLS	Lofty South	district	SA	46
SMB	Murray Basin	district	SA	47
SNE	North-east	district	SA	48
SNJ	Nullarbor	district	SA	49
SNW	North-west	district	SA	50
SSE	South-east	district	SA	103
SYP	Yorke Peninsula	district	SA	51
T			TAS	52
TBL	Ben Lomond	region	TAS	54
TCH	Central Highlands	region	TAS	55
TEC	East Coast	region	TAS	94
			TAS	...

Find OK Cancel

Tasmania

Region

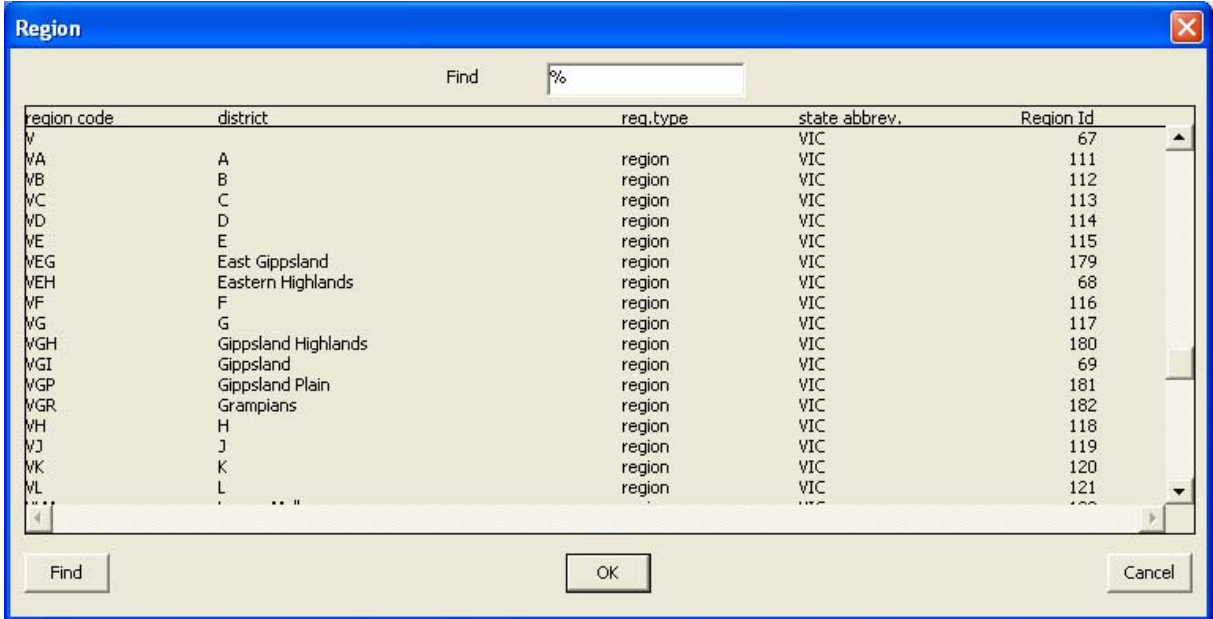
Find

region code	district	req.type	state abbrev.	Region Id
T			TAS	52
TBL	Ben Lomond	region	TAS	54
TCH	Central Highlands	region	TAS	55
TEC	East Coast	region	TAS	94
TFU	Furneaux Group	region	TAS	56
TKI	King Island	region	TAS	57
TMA	Macquarie Island		TAS	58
TMF	Mount Field	region	TAS	59
TML	Midlands	region	TAS	61
TMW	Mt Wellington	region	TAS	62
TNE	North East	region	TAS	63
TNW	North West	region	TAS	64
TSD	South West (dolerite)	region	TAS	65
TSQ	South West (quartzite)	region	TAS	66
TSW	South West	region	TAS	148
TWC	West Coast	region	TAS	95
V			VIC	67
VA	A	region	VIC	111
			VIC	...

Find OK Cancel

Victoria

some areas have more than one region name – use the ones on the specimen label/
packet, or the map if none on label. Letters normally not used but are part of ‘Vic.
Grid’ data for ‘geo grid’ field



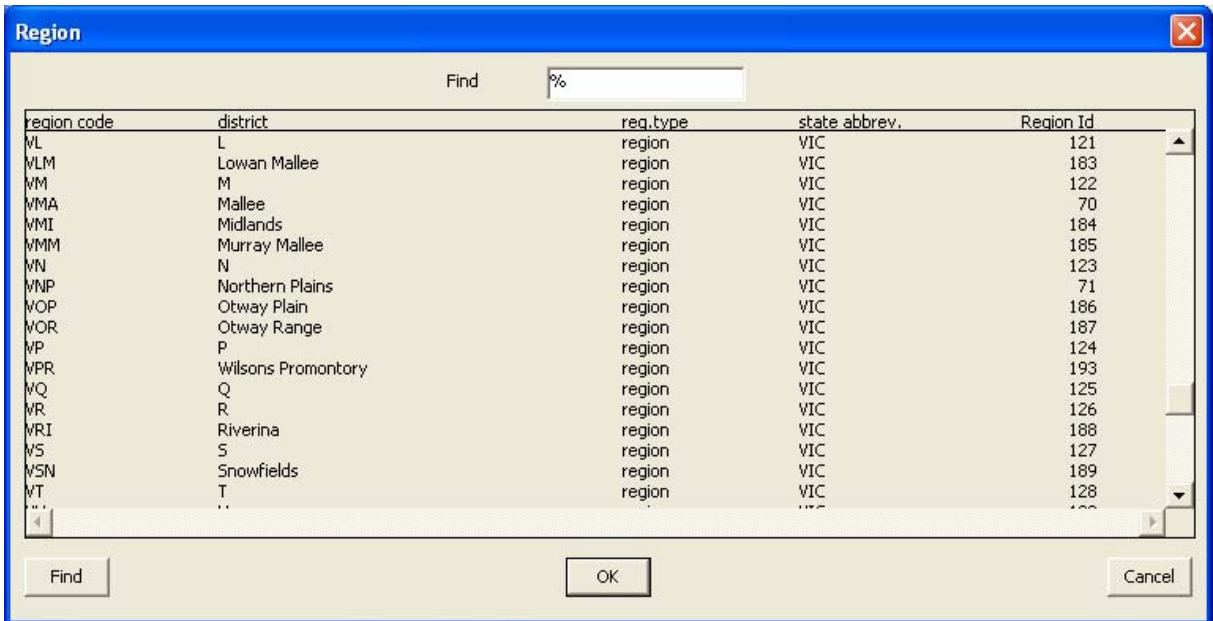
Region

Find

region code	district	req.type	state abbrev.	Region Id
V			VIC	67
VA	A	region	VIC	111
VB	B	region	VIC	112
VC	C	region	VIC	113
VD	D	region	VIC	114
VE	E	region	VIC	115
VEG	East Gippsland	region	VIC	179
VEH	Eastern Highlands	region	VIC	68
VF	F	region	VIC	116
VG	G	region	VIC	117
VGH	Gippsland Highlands	region	VIC	180
VGI	Gippsland	region	VIC	69
VGP	Gippsland Plain	region	VIC	181
VGR	Grampians	region	VIC	182
VH	H	region	VIC	118
VJ	J	region	VIC	119
VK	K	region	VIC	120
VL	L	region	VIC	121

Find OK Cancel

Victoria (cont.)



Region

Find

region code	district	req.type	state abbrev.	Region Id
WL	L	region	VIC	121
WLM	Lowan Mallee	region	VIC	183
WM	M	region	VIC	122
WMA	Mallee	region	VIC	70
WMI	Midlands	region	VIC	184
WMM	Murray Mallee	region	VIC	185
WN	N	region	VIC	123
WNP	Northern Plains	region	VIC	71
WOP	Otway Plain	region	VIC	186
WOR	Otway Range	region	VIC	187
WP	P	region	VIC	124
WPR	Wilson's Promontory	region	VIC	193
WQ	Q	region	VIC	125
WR	R	region	VIC	126
WRI	Riverina	region	VIC	188
WS	S	region	VIC	127
WSN	Snowfields	region	VIC	189
WT	T	region	VIC	128

Find OK Cancel

Western Australia

Region

Find

region code	district	req.type	state abbrev.	Region Id
VU	U	region	VIC	129
VV	V	region	VIC	130
VVP	Victorian Volcanic Plain	region	VIC	190
VW	W	region	VIC	131
VWA	Wannon	region	VIC	191
VWH	Western Highlands	region	VIC	72
VWI	Wimmera	region	VIC	192
VWP	Western Plains	region	VIC	73
VX	X	region	VIC	132
VZ	Z	region	VIC	133
W			WA	74
WAS	Ashburton	district	WA	75
WAU	Austin	district	WA	76
WAV	Avon	district	WA	104
WCA	Carnegie	district	WA	106
WCG	Canning	district	WA	77
WCO	Coolgardie	district	WA	78
WCV	Carnarvon	district	WA	79

Find OK Cancel

Western Australia (cont.)

Region

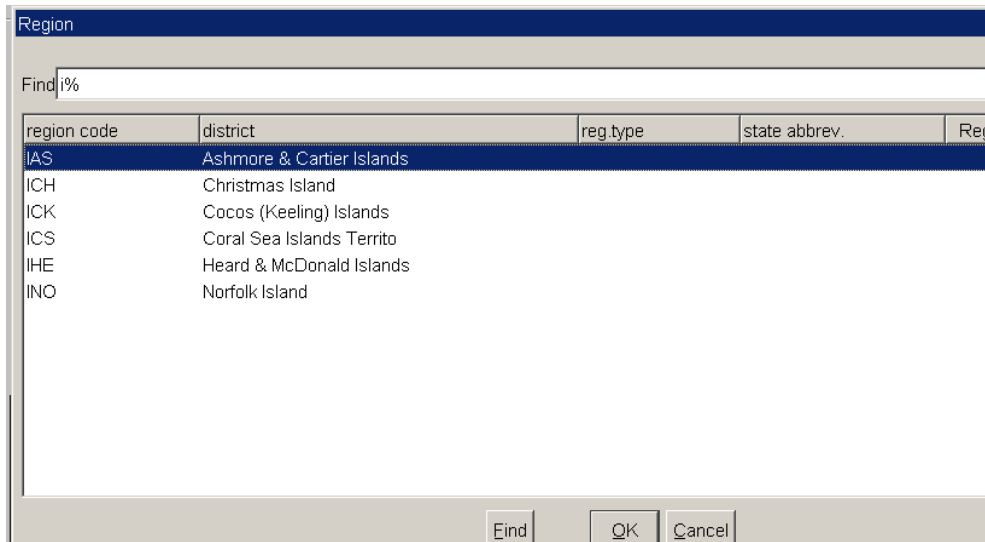
Find

region code	district	req.type	state abbrev.	Region Id
WDA	Darling	district	WA	80
WDL	Dale	district	WA	108
WDM	Dampier	district	WA	81
WDR	Drummond	district	WA	107
WEU	Eucla	district	WA	82
WEY	Eyre	district	WA	83
WFI	Fitzgerald	district	WA	84
WFO	Fortescue	district	WA	105
WGA	Gardner	district	WA	85
WGI	Giles	district	WA	86
WHA	Hall	district	WA	87
WHE	Helms	district	WA	88
WIR	Irwin	district	WA	89
WKE	Keartland	district	WA	90
WMLU	Mueller	district	WA	91
WMZ	Menzies	district	WA	109
WRO	Roe	district	WA	92
WWA	Warren	district	WA	110

Find OK Cancel

Off -shore islands

(Others close to the coastline of Australia are allocated to the nearest state or have their own region commencing with the letter of the state e.g. SKI is Kangaroo Island in South Australia, but Moreton Island and Stradbroke Islands near Brisbane are in QMO.



The screenshot shows a dialog box titled "Region" with a search field containing "Find i%". Below the search field is a table with the following columns: "region code", "district", "reg.type", "state abbrev.", and "Reg". The table lists several off-shore islands:

region code	district	reg.type	state abbrev.	Reg
IAS	Ashmore & Cartier Islands			
ICH	Christmas Island			
ICK	Cocos (Keeling) Islands			
ICS	Coral Sea Islands Territo			
IHE	Heard & McDonald Islands			
INO	Norfolk Island			

At the bottom of the dialog box are three buttons: "Eind", "OK", and "Cancel".

Appendix 4: Geocode Ready Reckoner

Accuracy	Distance	Arc	m value	Rule-of-thumb
Class 1	3.1 m	0.1 sec	3 m	or nearest 3 m
	31 m	1 sec	30 m	or nearest 30 m
	50 m	1.61 sec	50 m	or nearest second
Class 2	100 m	3.23 sec	100 m	or nearest 3 seconds
	200 m	6.45 sec	200 m	or nearest 6 seconds
	250 m	8.07 sec	250 m	or nearest 8 seconds
	310 m	10 sec	300 m	or nearest 300 m
	500 m	16.23 sec	500 m	or nearest 15 seconds
	930 m	30 sec	1000 m	or nearest km
	1 km	32.26 sec	1000 m	or nearest minute
Class 3	1.86 km	1 min	2000 m	or nearest 2 km
	2 km	1.06 min	2000 m	or nearest minute
	5 km	2.66 min	5000 m	or nearest 2.5 minutes
	10 km	5.31 min	10000 m	or nearest 5 minutes
Class 4	11.13 km	0.1 deg	10000 m	or nearest 10 km
	18.53 km	10 min	20000 m	or nearest 20 km
	20 km	10.63 min	20000 m	or nearest 10 minutes
	25 km	13.25 min	25000 m	or nearest 10 minutes
Class 5	> 25 km			
	37.06 km	20 min	40000 m	or nearest 40 km
	50 km	26.57 min	50000 m	or nearest 25 minutes
	55.56 km	30 min	50000 m	or nearest 50 km
	100 km	53.13 min	100000 m	or nearest degree
	111.33 km	1 deg	100000 m	or nearest 100 km
	200 km	1.8 deg	200000 m	or nearest 2 degrees
	250 km	2.25 deg	250000 m	or nearest 2 degrees
	500 km	4.49 deg	500000 m	or nearest 5 degrees
	1000 km	8.98 deg	1000000 m	or nearest 10 degrees
1112 km	10 deg	1000000 m	or nearest 1000 km	
2000 km	17.96 deg	2000000 m	or nearest 20 degrees	
Class 6				indefinable

NOTE: measurements calculated from degrees of latitude around Canberra, Sydney.

Appendix 5: Data-basing spirit (and fruit separate) collections with a dummy sheet. (contributed by Theresa Orchard in 2005-6)

Sometimes a specimen consists only of plant material in alcohol and there is no herbarium sheet voucher. In this instance a dummy herbarium sheet is created for the main (sheet) collection shelves to indicate that the specimen exists only as material in alcohol in the Spirit Room. The procedure for databasing the alcohol specimen and the dummy is as follows:

Allocate a CANB Accession number.

Data base the spirit collection in the normal manner but:

UNIT screen: Herb items = 2; Herb. material = AH; (A = spirit collection)

ITEM screen: Type of item = alcohol; tick 'flowers' or 'fruit' as appropriate to the material.

DET screen: Det. history of specimen as usual. Save – F10.

ITEM screen: (for dummy sheet – 2nd item): Type of item = herbarium sheet and tick 'Dummy'.

Delete any ticked items such as 'leaves'.

DET screen: Leave blank as usual for a 2nd item

This will enable a label to be printed to be attached to the dummy sheet which automatically appears as a 'point 2.' to the accession number.

The label is glued on the bottom right hand corner of a blank mounting board. The board is then annotated on the top right hand corner with the accession number, and on the bottom of the board next to the label with '**Material in spirit only**' and then placed within a flimsie. The flimsie is labelled with the Collector's name and number, State, and the plant name, and incorporated into the collection.

In summary, the spirit collection is CANB *****.1 and the dummy sheet is CANB *****.2.

At this stage, only one label is printed (automatically) and attached to the dummy sheet.

*NOTE: This procedure also should be used for producing a dummy sheet for separate carpological material where there is no herbarium specimen, with the following variations:

- The UNIT screen should be annotated with 'F' (fruit separate) rather than 'A';
- The ITEM screen should have Type of item = fruit, for item CANB *****.1;
- The dummy sheet CANB *****.2 should have an annotation next to the label, such as 'Material as fruit separate only' or 'Entire specimen in carpologics'; and
- A label should be printed for both items, with the CANB *****.1 label being added to the bag containing the fruit specimen, which is found in the 'Fruit Separate' box at the top of the compactus.

Appendix 6: Standard Abbreviations when Databasing

We generally follow the label when databasing. However, if a label contains abbreviations, the following conventions should be used. For example, if a label states 'Mount Thomas' type 'Mount Thomas' but if the label abbreviates 'Mount' then always use the form 'Mt', not 'Mt.' or 'Mnt'.

Generally, abbreviations should only be used only when they are already on the label. Please do not abbreviate information.

Abbreviation	Meaning	Notes
Mount		
Mt	Mount	
km	kilometres	Always leave a space between the number and units
cm	centimetres	e.g. 12 km, not 12km
m	metres	
m.*	miles	*While these are accepted abbreviations it is
mi.*	miles	recommended that miles be typed in full to
ft	feet	distinguish it from metres.
'	feet	
in.	inches	
'	inches	
S	south	
N	north	
E	east	
W	west	
sp.	species	
spp.	species (plural)	e.g. Hakea spp. = more than one species of Hakea
var.	variety	
f.	forma	
c.	circa	Anywhere in a sentence
Ca	circa	At the beginning of a sentence
ca	circa	In the middle of a sentence
rd	road	

Expansions

For clarity into the future, some abbreviations should be expanded at data entry. The following are the commonly encountered ones. Please see (CSIRO machines) P:\ANH\ANH_Resources\ Databasing abbreviations2.xls for a more complete list.

CP	Conservation Park	HS	Homestead
FR	Forest Reserve or Flora Reserve	hstd	Homestead
NP	National Park	RH	Roadhouse
NR	Nature Reserve	RS	railway station
SF	State Forest	TSR	Travelling Stock Route
SFR	State Forest Reserve	T/O	turnoff
LA	Logging Area	dsf	dry sclerophyll forest
Porn	Portion (logging term)	wsf	wet sclerophyll forest
T.R.	Timber Reserve	d.b.h.	diameter at breast height

Appendix 7: Donor institutes

Specimen Loans & Exchange Program

The Australian National Herbarium (CANB) has an extensive specimen loan and exchange program with many other national and international herbaria. The 164 institutions with whom the Centre interchanges material are widespread throughout the world. The majority of interactions relate to research projects, while others are specifically targeting exchange programs with herbaria in regions of related floras.

Australia - Australian Capital Territory

- Department of Botany and Zoology, Australian National University, Canberra (GAUBA)
- Chemistry Department, Australian National University, Canberra (ANUC)

Australia - New South Wales

- Botany Department, University of New England, Armidale (NE)
- National Herbarium of New South Wales, Royal Botanic Gardens, Sydney (NSW)
- School of Biological Sciences, Macquarie University, Sydney
- School of Biological Sciences, University of Sydney (SYD)
- John T. Waterhouse Herbarium, School of Botany, University of NSW, Kensington (UNSW)

Australia - Northern Territory

- Northern Territory Herbarium, Conservation Commission of the Northern Territory, Palmerston (DNA)
- Northern Territory Herbarium, Conservation Commission of the Northern Territory, Alice Springs (NT)

Australia - Queensland

- Australian National Herbarium, previously at Atherton (QRS), now at Cairns (CNS)
- Botany Department, James Cook University of North Queensland, Townsville (JCT), now at CNS
- Botany Department, University of Queensland, Brisbane (BRIU)
- Queensland Herbarium, Department of Environment and Heritage, Indooroopilly (BRI)

Australia - South Australia

- Adelaide Botanic Gardens and State Herbarium, Adelaide (AD)
- Botany Department, University of Adelaide (ADU)
- Waite Institute, University of Adelaide (ADW), now at AD

Australia - Tasmania

- Herbarium, Antarctic Division, Hobart (ADT)
- Tasmanian Herbarium, Hobart (HO)

Australia - Victoria

- Botany Department, LaTrobe University, Melbourne (LTB)
- Botany Department, Monash University, Clayton (MUCV)
- Botany Department, University of Melbourne, Melbourne (MELU)
- National Herbarium of Victoria, Melbourne (MEL)
- The Royal Melbourne Zoological Gardens, Parkville

Australia - Western Australia

- Botany Department, University of Western Australia, Perth (UWA)
- Herbarium, Kings Park and Botanic Garden (KPBG)
- Western Australian Herbarium, Department of Conservation and Land Management, Perth (PERTH)
- Western Australian Dept. of Agriculture, South Perth

New Zealand, Papua New Guinea, Pacific

- Auckland Institute and Museum, Auckland, New Zealand (AK)
- Botany Department, Bernice P. Bishop Museum, Honolulu, Hawaii (BISH)
- Dept of Plant and Microbial Sciences, University of Canterbury, Christchurch, New Zealand (CANU)
- Herbarium, Centre ORSTOM, Noumea, New Caledonia (NOU)
- Herbarium, Forest Research Institute, Lae, Papua New Guinea (LAE)
- Herbarium, University of Auckland, Auckland (AKU)
- Landcare Research, Manaaki Whenua, Christchurch, New Zealand (CHR)
- National Museum of New Zealand, Te Papa Tongarewa, Wellington, New Zealand (WELT)
- University of Otago, Dunedin, New Zealand (OTA)
- University of Waikato Herbarium, Hamilton, New Zealand (WAIK)
- Herbarium, Dept of Plant Biology and Biotechnology, Massey University, Palmerston North, NZ (MPN)
- H.D. Gordon Herbarium, School of Biological Sciences, Victoria University of Wellington, Wellington, NZ (WELTU)
- Laboratoire des Plantes Medicinales, Noumea, New Caledonia
- NZ Forest Research Institute, Rotorua, New Zealand
- Herbarium, Centre ORSTOM de Tahiti, Papeete, Tahiti, French Polynesia (PAP)

Asia and South East Asia

- Department of Natural and Environmental Sciences, Kyoto University, Kyoto, Japan (KYO)
- Herbarium, Institute of Botany, Academia Sinica, Beijing, People Republic of China (PE)
- Herbarium, Hattori Botanical Laboratory, Miyazaki, Japan (NICH)
- Herbarium, Hiruzen Research Institute, Okayama University of Science, Okayama, Japan (HIRU)
- Herbarium, Museum of Nature and Human Activities, Sanda, Hyogo, Japan (HYO)
- Herbarium, National Science Museum, Tokyo, Japan (TNS)
- Herbarium Bogoriense, Bogor, Indonesia (BO)
- Singapore Botanic Gardens, Singapore (SING)
- Herbarium, Laboratory of Wood Science, Forest Products Dept, Kyushu University, Fukuoka, Japan (FU)
- Herbarium, Biology Dept, Kumamoto University, Kumamoto, Japan (KUMA)
- Herbarium, Dept of Botany, University of Malaya, Kuala Lumpur, Malaysia (KLU)
- Herbarium, Institute of Chinese Materia Medica, Beijing, China (IMM)
- Herbarium of South China Institute of Botany, Chinese Academy of Sciences, Guangzhou, China (IBSC)
- Botanical Institute, Hiroshima University, Hiroshima City, Japan (HIRO)
- Herbarium, Biological Laboratory, Nara University of Education, Nara, Japan
- Biological Institute, Tottori University, Tottori, Japan
- Herbarium, Dept of Biology, Sung Kyun Kwan University, Suwon, Korea (SKK)

United States of America

- Auburn University, Alabama, Auburn (AUA)
- California Department of Food and Agriculture, Scramento, California (CDA)
- Botany Department, Arizona State University, Tempe, Arizona (ASU)
- Botany Department, University of California, Davis, California (DAV)
- Department of Biological Sciences, N Arizona University, Flagstaff, Arizona (ASC)
- Eastern Michigan University Herbarium, Department of Biology, Ypsilanti, Michigan (EMC)
- Harvard University Herbaria, Harvard University, Cambridge, Massachusetts (HUH, incl A, FH & GH)
- Herbarium, University of California, Berkeley, California (UC)
- Herbarium, Museum, University of Colorado, Boulder, Colorado (COLO)
- Herbarium, Plant Resources Centre, Department of Botany, University of Texas, Austin, Texas (TEX)
- Herbarium, University of Michigan, Ann Arbor, Michigan (MICH)
- Herbarium, Missouri Botanic Garden, St Louis, Missouri (MO)
- Herbarium, New York Botanical Garden, Bronx, New York (NY)
- Rancho Santa Anna Botanic Garden, Claremont, California (RSA)
- US Department of Agriculture, Beltsville, Maryland (BARC)
- US National Herbarium, Department of Botany, Smithsonian Institution, Washington, DC (US)
- Herbarium, University of Alaska Museum, Fairbanks, Alaska (ALA)

- Botanical Research Institute of Texas, Fort Worth, Texas (BRIT)
- Herbarium, Biology Dept, Sul Ross State University, Alpine, Texas, (SRSC)
- S.M. Tracy Herbarium, Texas A&M University, College Station, Texas, (TAES)
- Colville National Forest, Colville, Washington,
- Herbarium, Dept of Botany, University of Wisconsin, Madison, Wisconsin, (WIS)
- Herbarium, Biology Dept, Boise State University, Boise, Idaho, (SRP)
- Dept of Biology, Ithaca College, Ithaca, NY
- Botany Dept, Duke University, Durham, North Carolina (DUKE)
- John G. Searle Herbarium, Field Museum of Natural History, Chicago, Illinois (F)
- Herbarium, Biological Sciences Dept, University of Central Florida, Orlando, Florida (FTU)
- Herbarium, Botany Dept, University of Georgia, Athens, Georgia (GA)
- Herbarium, Dept of Biology, University of Southwestern Louisiana, Lafayette, Louisiana (LAF)
- Herbarium, Plant Biology Dept, University of Minnesota, St. Paul, Minnesota (MIN)
- Herbarium, Biological Sciences Division, University of Montana, Missoula, Montana (MONTU)
- Herbarium, Botany and Plant Pathology Dept, Michigan State University, East Lansing, Michigan (MSC)
- Herbarium, Botany Dept, Academy of Natural Sciences, Philadelphia, Pennsylvania, (PH)
- San Diego Natural History Museum, San Diego, California, (DS)
- Herbarium, Selby Botanical Gardens, Sarasota, Florida, (SEL)

Canada

- Botany Department, University of Guelph, Guelph, Ontario, Canada (OAC)
- Cryptogamic Herbarium, University of Alberta, Edmonton, Canada (ALTA)
- Herbarium, Botany Dept, University of British Columbia, Vancouver, BC, Canada (UBC)

Central and South America

- Universidad del Valle, Valle del Cauca, Cali, Colombia (CUVC)
- Herbario - Hortorio, Colegio de Postgraduados en Ciencias Agrícolas, Montecillo, Texcoco, Mexico (CHAPA)
- Herbario, Departamento de Botánica, Universidad de Concepción, Concepción, Chile (CONC)
- Herbario, Instituto de Botánica del Nordeste, Corrientes, Argentina (CTES)
- Herbario Nacional del Instituto de Biología, Universidad Nacional Autónoma de México, México (MEXU)
- Herbario, Museo Botánico Municipal, Curitiba, Paraná, Brazil (MBM)
- Summit Herbarium, Smithsonian Tropical Research Institute, Balboa, Panama (SCZ)
- Herbario, Departamento de Ciencias Biológicas, Universidad de Buenos Aires, Buenos Aires, Argentina (BAFC)

United Kingdom

- Botany Department, National History Museum, London, England (BM)
- Forest Herbarium, Plant Science Department, University of Oxford, Oxford, England (FHO)
- Herbarium, Botany School, University of Cambridge, Cambridge, England (CGE)
- Herbarium, Royal Botanic Gardens, Kew, England (K)
- Herbarium, Royal Botanic Garden, Edinburgh, Scotland (E)
- Herbarium, Botany Dept, National Museum of Wales, Cardiff, Wales (NMW)
- Herbarium, Dept of Botany, School of Plant Sciences, University of Reading, Reading, England (RNG)
- Herbarium, Manchester Museum, University of Manchester, Manchester, UK (MANCH)
- Herbarium, School of Botany, Trinity College, Dublin, Ireland (TCD)

Europe

- Herbarium, Abteilung Spezielle Botanik, Universität Ulm, Germany (ULM)
- Botanical Museum, Lund, Sweden, (LD)
- Botanical Museum, Uppsala University, Uppsala, Sweden (UPS)
- Botanical Museum and Herbarium, University of Copenhagen, Copenhagen, Denmark (C)
- Herbarium, Botanischer Garten und Botanisches Museum, Berlin-Dahlem, Berlin, Germany (B)
- Herbarium, Institut für Systematische Botanik, University of Zurich, Switzerland (Z)
- Herbarium, Department of Botany, Naturhistorisches Museum Wien, Wien, Austria (W)
- Herbarium, Botanické oddelení, Moravské muzeum, Přelov, Czechoslovakia (BRNM)

- Herbarium, Botanical Museum, University of Helsinki, Helsinki, Finland (H)
- Herbarium, Botanische Straatsammlung, Munchen, Germany (M)
- Herbarium, Botany and Ecology Department, Tartu State University, Tartu, Estonia (TU)
- Herbarium, Botany Department, Ho Si Minh Teacher's College, Eger, Hungary (EGR)
- Herbarium, Botany Department, National Museum in Prague, Praha, Czech Republic (PR)
- Herbarium, Botany Departments, Swedish Museum of Natural History, Stockholm, Sweden (S)
- Herbarium, Conservatoire et Jardin botaniques, Geneva, Switzerland (G)
- Herbarium, Estonian Natural History Museum, Tallinn, Estonia (TAL)
- Herbarium, Forschungsinstitut Senckenberg, Frankfurt, Germany (FR)
- Herbarium, Laboratory of Plant Systematics, State University of Gent, Gent, Belgium (GENT)
- Herbarium, National Botanical Garden of Belgium, Meise, Belgium (BR)
- Herbarium, Universitat Essen, Essen, Germany (ESS)
- Herbarium Jutlandicum, Institute of Botany, University of Aarhus, Aarhus, Denmark (AAU)
- Herbarium, Institut fur Allgemeine Botanik, Hamburg, Germany (HBG)
- Herbarium Haussknecht, Sektion Biologie, Friedrich-Schiller-Universitat, Jena, Germany (JE)
- Herbarium of the Botanical Institute of the Polish Academy of Sciences, Cracow, Poland (KRAM)
- Herbarium, V.L.Komarov Botanical Institute of the Russian Academy of Sciences, St Petersburg, Russia (LE)
- Kholodny Institute of Botany, Academy of Sciences of the Ukraine, Kiev, Ukraine (KW)
- Museum National d'Histoire Naturelle, Laboratoire de Phanerogamie, Paris, France (P)
- Herbarium, Universiteit Utrecht, Utrecht, The Netherlands (U)
- Rijksherbarium, Leiden, The Netherlands (L)
- Technische Hochschule Darmstadt, Institut fur Botanik, Darmstadt, Germany
- Museum National d'Histoire Naturelle, Laboratoire de Cryptogamie, Paris, France (PC)
- Herbarium, Botanical Institute, University of Bergen, Bergen, Norway (BG)
- Botanical Institute, Czechoslovak Academy of Sciences, Brno, Czechoslovakia
- Botanisches Institut de Universitat Bonn, Bonn (BONN)
- Herbarium, Botanical Museum, Goteborg, Sweden (GB)
- Herbarium, Systematisch-Geobotanisches Institut, Universitat Gottingen, Gottingen, Germany (GOET)
- Herbarium, Institut fur Botanik, Karl-Franzens-Universitat Graz, Graz, Austria (GZU)
- Geobotanical Section, Heinrich Heine University, Dusseldorf, Germany
- Herbario, Instituto Asturiano de Taxonomia y Ecologia Vegetal, Pravia, Spain (IBA)
- Institut fur Botanik und Botanischer Garten, Westfalische Wilhelms-University, Munster, Germany (MSTR)
- Herbario, Departamento de Biologia Vegetal (Botanica), Universidad de Murcia, Murcia, Spain (MUB)
- Herbier, Laboratoire de Botanique, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium (NAM)
- Lichenologische Institut Neumarkt, Neumarkt, Germany
- Herbarium, Lehrstuhl fur Pflanzensystematik, Universitat Bayreuth, Bayreuth, Germany (UBT)
- Herbarium Vadense, Dept of Plant Taxonomy, Wageningen Agricultural University, Wageningen, The Netherlands (WAG)
- Herbarium, Lehrstuhl Botanik III der Universitat Wurzburg, Wurzburg, Germany (WBM)

Africa

- Bolus Herbarium, University of Cape Town, Rondebosch, South Africa (BOL)
- Herbarium, Botany Department, University of Natal, Pietermaritzburg, South Africa (NU)
- Herbarium, National Museums of Kenya, Nairobi, Kenya (EA)
- National Herbarium, Botanical Research Institute, Pretoria, South Africa (PRE)
- National Herbarium, National Museum, Monuments and Art Gallery, Gaborone, Botswana (GAB)
- Compton Herbarium, National Botanic Gardens of South Africa, Kirstenbosch, Republic of South Africa (NBG)
- Herbarium, Botany Dept, National Museum, Bloemfontein, Orange Free State, South Africa (NMB)
- Herbarium, Agriculture Dept, National Collection of Fungi, Pretoria, South Africa (PREM)

See also: P:\ANH\ANH_Resources\Donor Institutes.xls for the correct format for entry into ANHSIR of institutions and individuals without accepted acronyms.
ANBG / DEWHA staff: ask a CSIRO-based person to email this to you.

Frequently asked questions:

Q: I know that this specimen is databased, but I can't seem to retrieve the record from a LABEL screen query?

A: If there is no determination for the record, or none of the determinations is flagged as being current, the record will not be retrieved from a LABEL screen query. To retrieve the record try querying from the EVENT screen instead (but remember to add a det or flag an existing det as being current before leaving the record again!).

Q: I know that this specimen is databased, but I can't seem to retrieve the record from an EVENT screen query?

A: To successfully query from the EVENT screen it is essential that the LABEL screen is blank. Check your LABEL screen, clear it if necessary, and try again.

Q: What should I do if there is no collector identified for the specimen I'm databasing?

A: Since the collector field must be filled in to proceed, we use the latin abbreviation 'leg. ign.' to indicate that the collector is unknown.

Q: What should I do if there is no field number shown on the specimen I'm databasing?

A: It is important that we don't leave the field number field blank, so where there is not number given we use the latin abbreviation 's.n.' to indicate that the collection has no number.

Q: Why do I have the option of entering the 'field number' on the EVENT screen as well as the UNIT screen?

A: If the field number is entered at the EVENT screen level the database has a chance to check whether or not that particular combination of Collector and field number already exists in the database. This can be useful for identifying whether a version of this collection has already been databased, for example, if there is another sheet of the same collection already on the system.

Q: Do I need to enter the 'point' associated with the accession number on the ITEM screen?

A: No. The 'points' .1, .2, .3 etc are generated automatically as a way of identifying unique ITEMS of collections which have multiple ITEMS with the same accession number. Currently it is standard practice to allocate only one accession number per collection, which means that several ITEMS/sheets may have the same accession number.

NOTE: It was not always standard practice to have the same accession number for different ITEMS/sheets of a collection, and it is possible for such ITEMS to have different accession numbers, however it is worth noting that the 'points' still will be automatically allocated.

Q: What is a dummy sheet?

A: A dummy sheet is a marker in the collection. For example, type specimens are not housed in the general collection, they are kept in a separate Type Room where they are protected from fire and over-handling. There is a dummy sheet in the collection for each specimen in the Type Room, and they serve to indicate to anyone using the

collection that there is a Type specimen housed in another location that they may like to examine. Dummy sheets are used as markers for Type specimens, specimens in alcohol/spirit, fruit separate (carpological) collections and floral cards.

Q: Why would 2 sheets of the same collection end up with different determination histories?

A: Often when herbaria close down, or individuals collections are donated, previously separated duplicates of the same collection are brought back together. It is usually the case in these instances that being housed in different locations and curated by different people has caused these two sheets to have different determination histories. Even if the determinations are the same, the person making the determination is usually different.

Q: Sometimes I need to query the database for information, but when I do I lose all the records I've entered during that session. How can I query but still keep those records?

A: It can be very useful to have all of the records entered in a particular session available on the screen for reference or editing. The best way to query for other information is to have two versions of ANHSIR open on the desktop at the same time. This also enables you to cut and paste from the queried record to the one being entered.

Q: Sometimes when I enter collections with two sheets they have the same herb code and accession number and sometimes they are different. Why is that?

A: The current Australian National Herbarium (ANH) contains specimens from both CANB and CBG, and prior to their amalgamation these two herbaria used different accessioning systems. The protocol at CANB was to allocate a unique herbarium code and accession number combination to every sheet in a collection. The protocol at CBG was to allocate a unique herbarium code and accession number to each collection, regardless of the number of sheets it contained. To cope with these two methods ANHSIR employs a system of 'points'. Any ITEM that is saved in the database is allocated a point e.g. **.1, .2, .3**. If there are two sheets with the same accession number they will be distinguished by their unique points e.g. 628148.1 and 628148.2. If the accession numbers are different, they are still allocated points, even though it is unnecessary e.g. 628148.1 and 628149.2

NOTE: at the time of dataentry the points should be added to the herbarium sheets where the accession numbers are the same. It is advisable to use an archival pen for this purpose.