



Department of **Biodiversity,
Conservation and Attractions**



**Biodiversity and
Conservation Science**

Metadata Statement

Threatened and Priority Flora Data

Boranga Flora Layer and WAHerb Layer

Custodian

Species and Communities Program
Department of Biodiversity, Conservation and Attractions

Description

Abstract: The Department of Biodiversity, Conservation and Attractions (DBCA) maintains a list of plant species which are threatened with extinction (Threatened flora) or extinct, as well as species that may be rare or threatened but for which there are insufficient survey data to accurately determine their status, or are regarded as rare but are not currently Threatened (Priority flora). Please note the definition of flora for the purposes of conservation listing (as Threatened or Priority) includes algae, fungi, and lichens.

Contact Information

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Data

The information provided in the data search results is extracted from the following two databases:

1. **Boranga** data consists of validated occurrences (previously known as populations) of threatened flora and some priority flora. Over 3,500 flora taxa are priority listed and validating new occurrences of all of these Priority flora in Boranga is not currently practicable, so this is why only some Priority flora data is available in Boranga. Information consists of species name, conservation status, boundary polygons, observation date, identification certainty, and plant count (if available). Boranga data is considered to be the most verified and Boranga records should reliably correspond to a real occurrence of plants occurring at the location specified.
2. The **WA Herbarium database (WAHERB)** contains data associated with the specimens contained within the WA Herbarium's collection, as shown through the department's [FloraBase](#) website. It includes historical and un-validated information on locations of where threatened and Priority flora have been collected and therefore should be used to give an indication of what species may potentially occur in the area or once occurred in the past. It should be used as the primary dataset for Priority flora occurrences that are not recorded in Boranga. Information consists of species name, conservation status, location coordinates, coordinate source, site (habitat information), vegetation information, locality description and observation date.

Geographic Extent

Western Australia

Currency and Status

Beginning date:	Historical records from early 1800's
End date:	Present day
Maintenance and frequency:	Continual, monthly
Metadata date:	July 2026

Access

Stored data format:	GIS shapefile
Coordinate System:	GDA_2020
Access constraints:	This data is sensitive. Access to this dataset is regulated by the DBCA Species and Communities Program.

Data Quality

Lineage:	Records may be from surveys, monitoring programs, translocations, opportunistic sightings, herbarium specimens or historical documents.
Positional Accuracy:	Polygon (Boranga) and Point (WAHerb) location data within occurrences generally taken from accurate GPS location.
Attribute Accuracy:	The attributes are generally accurate. Variability may result from observer differences, or the level of verification given to data sources utilised from outside the Program.
Logical Consistency:	Consistency of the Data varies between original data sources. Records from Boranga will be consistent. Other data sources may not be verified to the same level.
Completeness:	The completeness of records varies by species depending on the remoteness of their distribution and the survey effort within that area.

Further detailed information on desktop studies, as well as conducting reconnaissance and targeted surveys, is provided in the Environmental Protection Authority's *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Enquiries on data requests and interpretation should be directed to DBCA's Species and Communities Program or flora.data@dbca.wa.gov.au

Attribute List**Boranga OCC Boundary Active**

Attribute name	Field Type	Values	Field Description
OCC_NUM	Text (string)		Occurrence Number Boranga unique identifying number of the Occurrence (OCC)
OCC_NAME	Text (string)		Occurrence Name Name of the Occurrence
WLD_STATUS	Text (string)	Cultivated Flora Occurrence, Extinct Flora Occurrence, Flora Translocation, Unapproved Flora Translocation, Unconfirmed Identification	Wild Status Status of the occurrence

SPECIE_NUM	Text (string)		Species Number Boranga unique species number
SPECIES	Text (string)		Species Name
COMMON_NAM	Text (string)		Common Name
GEO_MODIFY	Text (string)		Updated Geometry Date Date geometry was last modified
GEOM_ID	Integer (64 bit)		Geometry ID
G_AREA_SKM	Decimal (double)		Geometry Area Polygon Area in km ²
G_AREA_SQM	Decimal (double)		Geometry Area Polygon Area in m ²
WA_LEG_CS	Text (string)	BCA	Western Australian Legislative List
WACONSCODE	Text (string)	CR, EN, VU, EX, P1, P2, P3, P4	Western Australian conservation status code
COMWLTH_CS	Text (string)	CR, EN, VU, EX	Commonwealth conservation status code
OBS_DATE	Date		Observation Date The date the observation of this OCC occurred
LOC_DESC	Text (string)		Location Description Detailed description of the OCC's location
LOCALITY	Text (string)		Locality Locality of the location of the ORF (or the nearest locality)
BOUND_DESC	Text (string)		Boundary Description Detailed description of the OCC's boundary and how it was created
COORD_SRC	Text (string)	GPS, GIS Data, Derived from Map, Differential GPS, Aerial Imagery, Specimen Record, Threatened and Priority Report Form, Other (specify in comments)	Coordinate Source How the location was determined
LOC_ACC	Text (string)	~5 - 10m, ~30 - 50m, ~300m, ~500m, ~1km, ~2km, Unable to determine, Not Assessed	Location Accuracy How accurate the location is
OBS_METHOD	Text (string)	Opportunistic, Translocation, Historical (written), Historical (oral), Survey (specify type in comments), Monitoring (specify type in comments), Collection, Translocation monitoring, Other (specify in comments)	Observation Method Method in which this occurrence was observed
AREA_ASSES	Text (string)	Edge Survey, Full Survey, Partial Survey	Area Assessment Extent of survey

SURVEY_SQM	Text (string)		Area Surveyed The total area that was surveyed for this record (m ²)
CNT_MTHD	Text (string)	Actual count - clonal stems, Actual count - clumps, Actual count - individuals, Extrapolated count - ground quadrat-based, Extrapolated count - look around, transect-based, Extrapolated count - traverse, Extrapolated count - virtual quadrat-based, Partial count of spatially defined area, Estimate, Unknown, Other (specify in comments)	Count Method How plants were counted
CNT_SUBJ	Text (string)	Plants, Clumps, Clonal Stems	Counted Subject What was counted for each plant count
PL_SMP_ALV	Integer (64 bit)		Simple Alive Plant Count If simple count undertaken, the number of plants alive
PL_ALV_MAT	Integer (64 bit)		Detailed Alive Mature Plant Count If detailed count undertaken, the number of mature plants alive
PLCNT_COMM	Text (string)		Plant Count Comment Any additional comments or information about the plant count
IN_FLOWER	Text (string)	Yes, No	Flowers Present If flowers were present
PLNT_COND	Text (string)	Healthy, Moderate, Poor, Senescent	Plant Condition Average condition of the plants for this occurrence
IDENT_CRTY	Text (string)	Very High, High, Medium, Low, Unassessed	Identification Certainty How certain is the identification of this species (see Interpretation notes for definitions of these values)
OCC_SOURCE	Text (string)	ORF, Non-ORF (describe in comments)	Occurrence Source If this OCC is sourced from a ORF (occurrence report form) or not
OCC_STATUS	Text (string)	Active, Draft, Historical	Occurrence Status Status of the OCC
OCC_MOD_DA	Text (string)		Occurrence Modified Date Date of the last time this OCC was modified
REGION	Text (string)	Goldfields, Kimberley, Midwest, Pilbara, South Coast, South West, Swan, Territories, Unknown, Warren, Wheatbelt	Region DBCA Region in which this OCC location occurs

DISTRICT	Text (string)	Goldfields Region, East Kimberly, West Kimberley, Gascoyne, Murchison, Turquoise Coast, Exmouth, Pilbara Region, Albany, Esperance, Blackwood, Wellington, Perth Hills, Swan Coastal, Donnelly, Frankland, Wheatbelt Region, Unknown	District DBCA District in which this OCC location occurs.
COMP_DEGRD	Decimal (double)		Completely Degraded Percentage of the area of the Occurrence that is in 'Completely Degraded' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
DEGRADED	Decimal (double)		Degraded Percentage of the area of the Occurrence that is in 'Degraded' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
GOOD	Decimal (double)		Good Percentage of the area of the Occurrence that is in 'Good' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
VERY_GOOD	Decimal (double)		Very Good Percentage of the area of the Occurrence that is in 'Very Good' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
EXCELLENT	Decimal (double)		Excellent Percentage of the area of the Occurrence that is in 'Excellent' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
PRISTINE	Decimal (double)		Pristine Percentage of the area of the Occurrence that is in 'Pristine' condition according to the Keighery Scale. Values in Pristine, Excellent, Very Good, Good, Degraded and Completely Degraded must total 100 or 0.
G_DATATYPE	Text (string)		Content Type Where the geometry is sourced from
GROUP_TYPE	Text (string)	flora	Group Type Which group (flora, fauna or communities) this occurrence belongs to

Attributes and Values in the Western Australian Herbarium Database (WAHerb)

Geocode Method:	The method that was used to record the latitude and longitude.
Auto:	Indicates that the coordinate data in the record was created automatically (i.e. by software), usually by creating a coordinate from information provided in the <u>Nearest Named Place</u> or Locality textual description fields.
GAP:	Acronym for "Generalised Arbitrary Point" as used in HISPID. GAP indicates that the coordinate data was obtained manually from the Nearest Named Place or Locality textual description fields.
GPS:	Acronym for "Global Positioning System". GPS indicates that the coordinate data in the record was obtained from a GPS unit by the collector of the specimen.
MAN:	Shorthand for manual. MAN indicates that the coordinate data was created by hand using some method not allowed for by one of the other manual Geocode Method values, in particular, TOPO, GAP, or GPS.
TOPO;	Shorthand for topographic map. TOPO indicates that the coordinate data was obtained by plotting textual locality details against a topographic map.
None:	Indicates that no coordinate data has been supplied by the collector.
Unknown:	Indicates that there is no known method for determining the coordinate data. Should be used if the collector provided no indication of how they sampled the specimen's coordinate data.

Data interpretation

Boranga data

Boranga is the Department's corporate dataset for validated occurrences of Threatened flora. This database also contains some occurrences of Priority flora. Boranga replaced the Threatened and Priority Flora Database (TPFL) in 2026 and TPFL data was migrated to Boranga.

Data Collection:	Data is collected from Threatened and Priority Flora Report Forms (TPRFs), Herbarium specimen records, or survey reports. Therefore, the level of accuracy and completeness of the data depends on the person recording the information.
Subgroup Occurrences:	DBCA has split many occurrences (previously known as populations) into subgroups (previously known as subpopulations) for management purposes, sometimes differentiated by the tenure of the land they occupy. This is because different tenures can imply different threats, management practices, land access, and subsequent management requirements. These occurrences (OCC) and subgroups (SubOCC) are referred to as Occurrences in Boranga and information relating to each SubOCC is therefore recorded in the database. Occurrence Numbers (formerly Pop ID in TPFL) are unique to each occurrence and are automatically generated by the Boranga database, whereas Occurrence Names (formerly Pop Number in TPFL) are assigned by the administrators of Boranga. Subgroups of Occurrences (SubOCC) are generally named with the same numerical number and differing letter values i.e., 1A and 1B.

In biological terms, an occurrence is a discrete group of interbreeding individuals of a species. In the current situation of fragmented vegetation remnants, it is difficult to say which groups of individuals were once interconnected as an occurrence and which were not. For the purposes of Threatened flora management and monitoring in Boranga, plants more than 500m from a known occurrence are considered to be a new occurrence; plants within 500m of a known occurrence are considered to be part of that occurrence; and within a recognised occurrence, plants that occur on different land tenure parcels, or those that have considerable, recognisable separation between them (e.g. plants occur on either side of a river, or on close but distinct peaks or outcroppings) are considered to be separate subgroup occurrences (see figure 2). Note that these guidelines are applied flexibly based on practical management outcomes.

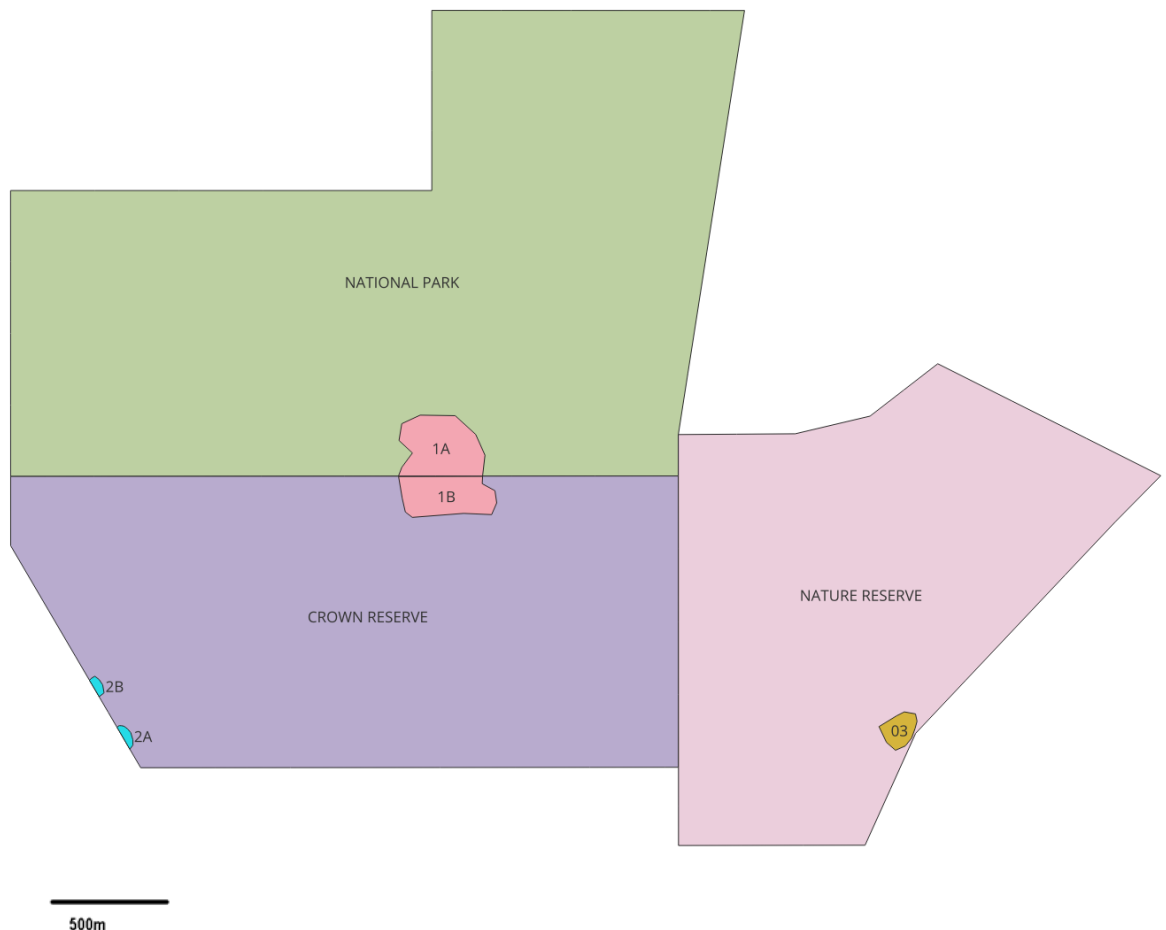


Figure 2. Example of OCCs and SubOCCs. Occurrences 1 is broken into two SubOCCs according to different land tenure. Occurrence 2 is broken into two SubOCCs based on individuals occupying two discrete areas (less than 500m apart) and unsuitable habitat existing between the two areas. Occurrence 3 has not been split into SubOCCs.

Occurrence Boundaries:

Each occurrence is represented by a spatial occurrence boundary (ie. one polygon), which can be mapped using GIS. In the previous database (TPFL), only point data was recorded, with one point being recorded for each occurrence. The TPFL point data was converted to polygons by adding a 1m buffer to each point, for migration into Boranga. Since data migration, some occurrences have had their true spatial boundaries mapped using survey data.

If the boundary has not been mapped the polygon is simply a 5m buffered point, which may be recorded from anywhere within the occurrence, and the occurrence may extend several metres/kilometres from this polygon. If an occurrence only contains one plant, the boundary polygon is created by adding a 5m buffer to the plant coordinate (see figure 3). The boundary description can help determine if the boundary provided represents the true extent of the occurrence, or if the boundary has not been mapped.

The location description and plant count (previously known as population size) may help

determine the extent of the occurrence. The boundary of Environmentally Sensitive Areas (ESA), as defined under the *Environmental Protection Act 1986*, displayed in GIS programs represents the 50m radius around the coordinates of the occurrence, not the individual plants, and therefore cannot be used as an accurate indicator of the extent of an occurrence and should only be used for initial desktop analysis.

In the past some coordinates were generated manually using maps (before there were GPS and GIS programs), therefore these points may not always plot accurately. When assessing the location of an occurrence it is therefore important to consider the age of the record, the tenure of the land and the written location description (if available) to interpret if the coordinates are plotting correctly. The location accuracy field can also be used to help assess this.

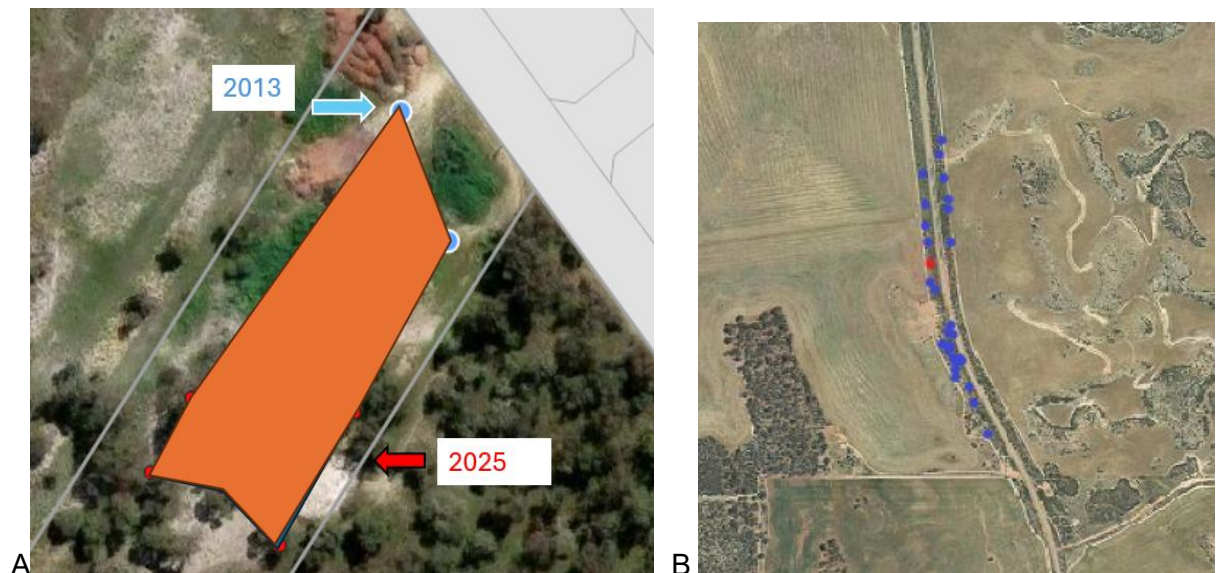


Figure 3. **A)** An occurrence boundary in Boranga. The polygon is made using the convex hull tool on all recorded plant locations (which can be accumulated across different surveys) to capture the full occurrence extent or through mapped boundaries in the field. **B)** Boranga data migrated from TPFL may display the occurrence as a 1m radius polygon (red polygon), not individual plants (blue dots). Location description notes the plants extend along the road verge for several hundred metres and on the eastern side of the verge. Overtime, the occurrence boundaries in Boranga will be updated to capture the extent of each occurrence – this will take time.

Identification
Certainty:

Very High: identification confirmation via a specimen.

High: identification confirmation via a taxonomic expert recognised by the Western Australian Herbarium.

Plant Count:

When quoting a plant count always refer to the number of mature individuals, as used under IUCN criteria. Seedlings and juveniles are not included as they are not yet capable of reproduction. The database may indicate the accuracy of the number of plants recorded i.e. actual count or estimated. A zero may not necessarily mean there are no plants at that occurrence, but instead that plants were not counted/recorded. Please note the "PL_SMP_MAT" field includes plant counts of the total of mature plants and the "PL_SMP_ALV" is the simple plant count (i.e. where observers have not specified if the plants are mature/juvenile/seedlings).

Record Date:

The date of the record is the date that the occurrence was observed. This information will only give an indication of the plant count at the time of the observation and may not reflect the current status of the occurrence as some occurrence may widely fluctuate over time.

Migration Notes: For migrated data Occurrence Name (OCC_NAME) corresponds to TPFL population number (PopNumber and SubPopCode); Occurrence Number (OCC_NUM) corresponds to TPFL POP ID; Occurrences that have a Boundary Description recorded as "Boundary not mapped, migrated point coordinate has had a 1 metre buffer applied" indicate that the occurrence polygon has been created from a migrated coordinate from the previous database (TPFL).

New occurrences are constantly being added to Boranga and existing occurrences are also updated and reviewed as new information is forwarded to the Species and Communities Program. This also includes the removal of species which are no longer listed as threatened or priority. It is therefore recommended Threatened and Priority Flora database searches are undertaken as close as possible to when the survey will be undertaken to ensure the data is the most up to date. New database searches may be required where there has been a significant time between the initial enquiry, and the preparation of the associated report.

WA Herbarium's specimen collection data

- The WA Herbarium's specimen collection data (WAHERB) database contains records of all specimen labels for the entire WA Herbarium collection. The data relates to the specimen collected from an individual plant (not an occurrence, although some occurrence information may be included). Duplicate specimens may be collected and therefore multiple records in an area may not necessarily represent separate occurrence but rather separate individuals / specimens within the same occurrence. The WAHERB data provided by the Species and Communities Program consists of an extract of all records of Threatened and Priority flora only and includes un-validated historical specimens.
- The development of flora collecting, as represented in the WA Herbarium collection, was not originally intended for electronic mapping (e.g. GIS). It is only in recent years that collections have been submitted to the WA Herbarium with GPS-recorded coordinates. Therefore, be aware when mapping this data that many older records may not plot to the locality description given with each collection. WAHERB data should be taken as an indication of the flora that is likely to occur in the area.
- When interpreting the data, the date of the record should be first considered regarding the accuracy of the information supplied. Note that some historical records date back to the 1800's and may refer to locations such as the 'Swan River colony' and the coordinates may plot to the Swan River (Perth), rather than anywhere between Geraldton and Esperance. Therefore, check the Geocode Method field to see how the coordinates were generated (e.g. was it manually or by GPS) and also the precision rating of the coordinates.

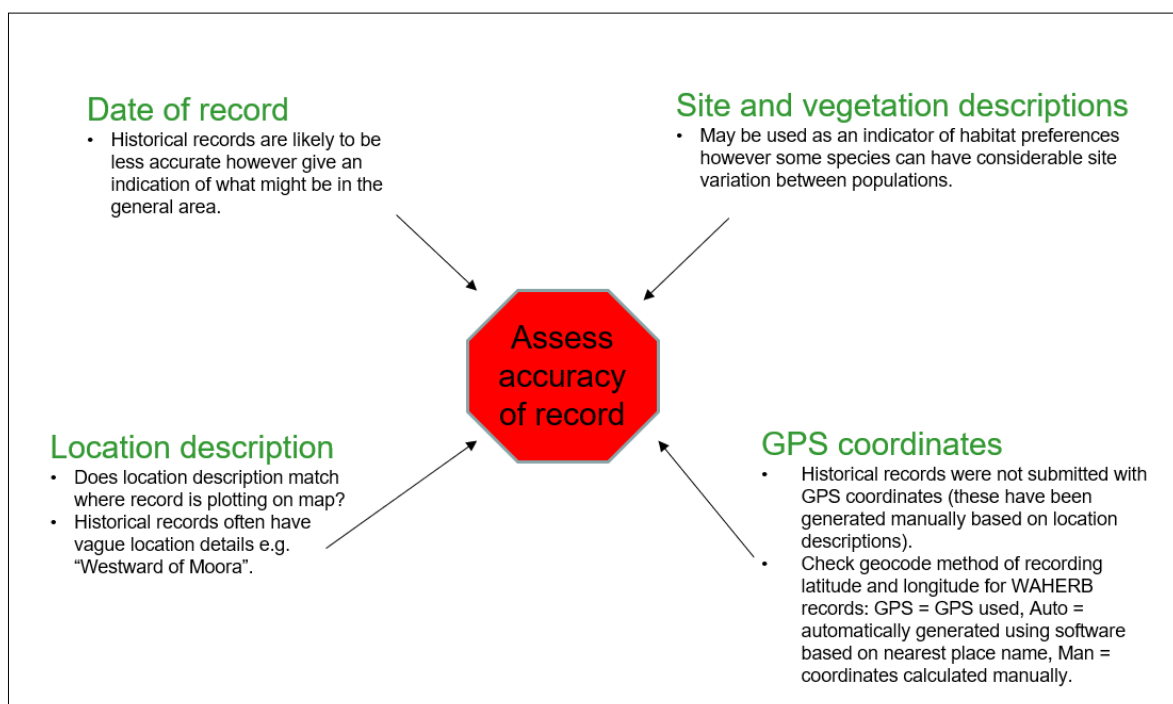


Figure 4. Factors to consider when assessing the accuracy of a WA Herbarium specimen record.

Data limitations

The results of the Species and Communities Program database searches do not represent a comprehensive list of the Threatened and Priority flora within the locality in question. The comprehensiveness of the search is dependent on the amount of survey carried out within that locality, and relevant surveys or specimens being forwarded to the department. The database search results should only form part of a desktop study. A search which results in no records in a locality does not necessarily mean that there are no Threatened or Priority flora in that locality. It may mean that no surveys have been undertaken in that locality, that surveys were not undertaken appropriately, that survey results were not reported to the Department or that the data has yet to be incorporated into the relevant database. There may be many reasons for a null database search result.

Other sources of flora data may include publicly available biological surveys, such as those made available through environmental impact assessment processes, some of which may be searched through the Department of Water and Environmental Regulation's Index of Biodiversity Surveys for Assessments. Such reports are often a valuable source of detailed occurrence data for Priority flora which are not recorded in Boranga. There are also other State and National scale databases, such as The Australasian Virtual Herbarium (AVH) and the *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool. Searches of AVH are particularly important with respect to flora that occur near the Northern Territory or South Australian border, as often the distribution of flora in the eastern part of Western Australia extends into adjoining states, and there may also be records of flora collected within Western Australia in herbaria in other states. When using other data sources, the currency of the data/frequency of updates should be checked to ensure the data reflects the current taxonomy and conservation status.

Boranga and WAHERB data, as well as other biological data is publicly available to ascertain (via a species list area search) on the DBCA Biodiversity Information Office's (BIO) statewide biodiversity data platform, Dandjoo. However, provisions have been installed to ensure the sensitive (conservation significant) data is obfuscated, so precise locations of threatened and priority flora are not accessible. Therefore, confidentiality of the data can be maintained while some information is still accessible to the public. Although the data is regularly extracted from the source databases and uploaded into Dandjoo, the most up to date data will always be acquired through a direct search of the Boranga and WAHERB databases.

When conducting a desktop assessment for the purpose of environmental impact assessment, a specialist biological or environmental consultant may be required to source appropriate Threatened and Priority flora information, to analyse and interpret data, and to provide appropriate local and regional context. The results of the database search should be used to collate information on the habitat requirements (e.g. soil type, landform, vegetation type and associated species) of each species and when it is likely to be in flower. This desktop study should be presented in the survey report to demonstrate that a risk assessment has been undertaken to determine the likelihood of any Threatened and Priority flora occurring in the target area. This information can then be used to support reconnaissance and targeted surveys.

Further detailed information on desktop studies, as well as conducting reconnaissance and targeted surveys, is provided in the Environmental Protection Authority's *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*

(https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf).

Further information

- DBCA website for threatened species and ecological communities

<https://www.dbca.wa.gov.au/management/threatened-species-and-communities>

- Flora, Fauna and Ecological Community Data Searches:
<https://www.dbca.wa.gov.au/media/7002/download>

- Threatened and Priority Flora Report Form: <https://www.dbca.wa.gov.au/media/1104/download>
- Threatened and Priority Flora Report Form - Field Manual: <https://www.dbca.wa.gov.au/media/1032/download>
- Conservation Codes Definitions for Western Australian Flora and Fauna: <https://www.dbca.wa.gov.au/media/792/download>
- FloraBase: <https://florabase.dbca.wa.gov.au/>
- Dandjoo: <https://bio.wa.gov.au/dandjoo>
- Index of Biodiversity Surveys for Assessments (IBSA): <https://biocollect.ala.org.au/ibsa#max%3D30%26sort%3DdateCreatedSort>
- EPBC Act 1999 Protected Matters Search Tool: <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>
- EPBC Act List of Threatened Flora: <https://environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora>
- The Australasian Virtual Herbarium: <https://avh.chah.org.au/>