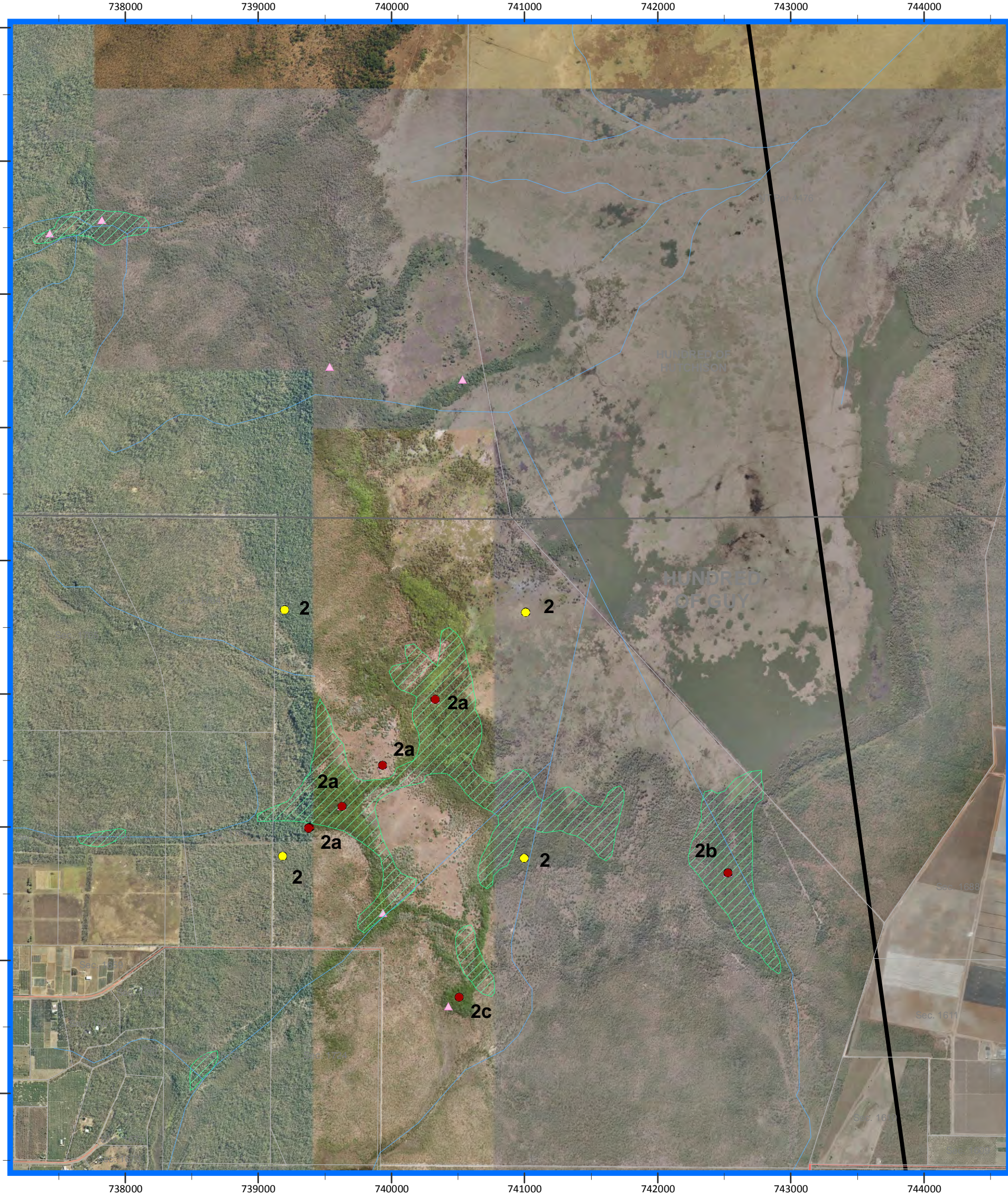
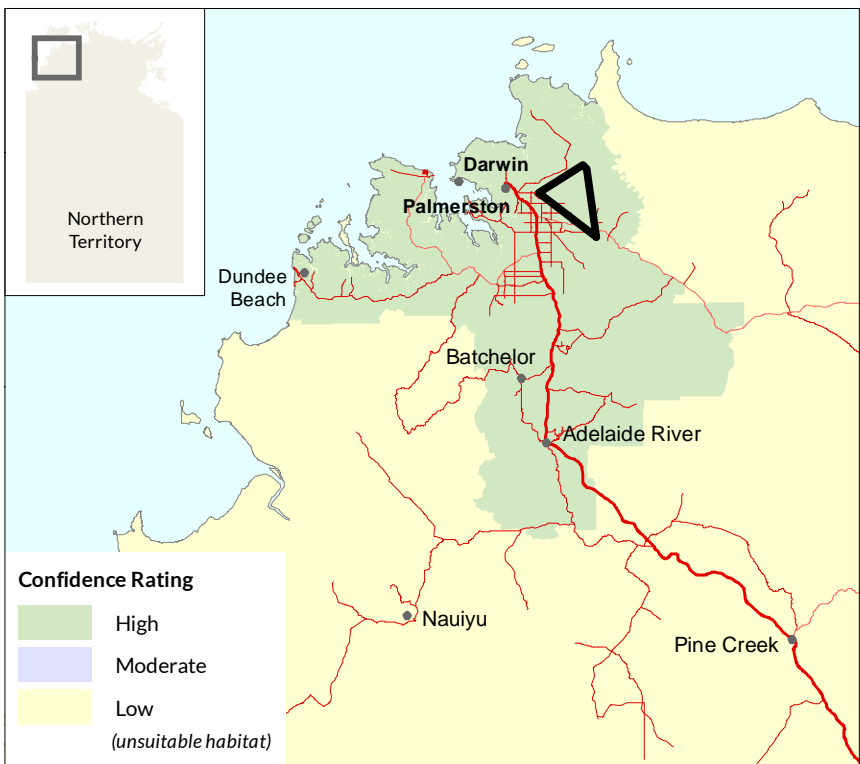
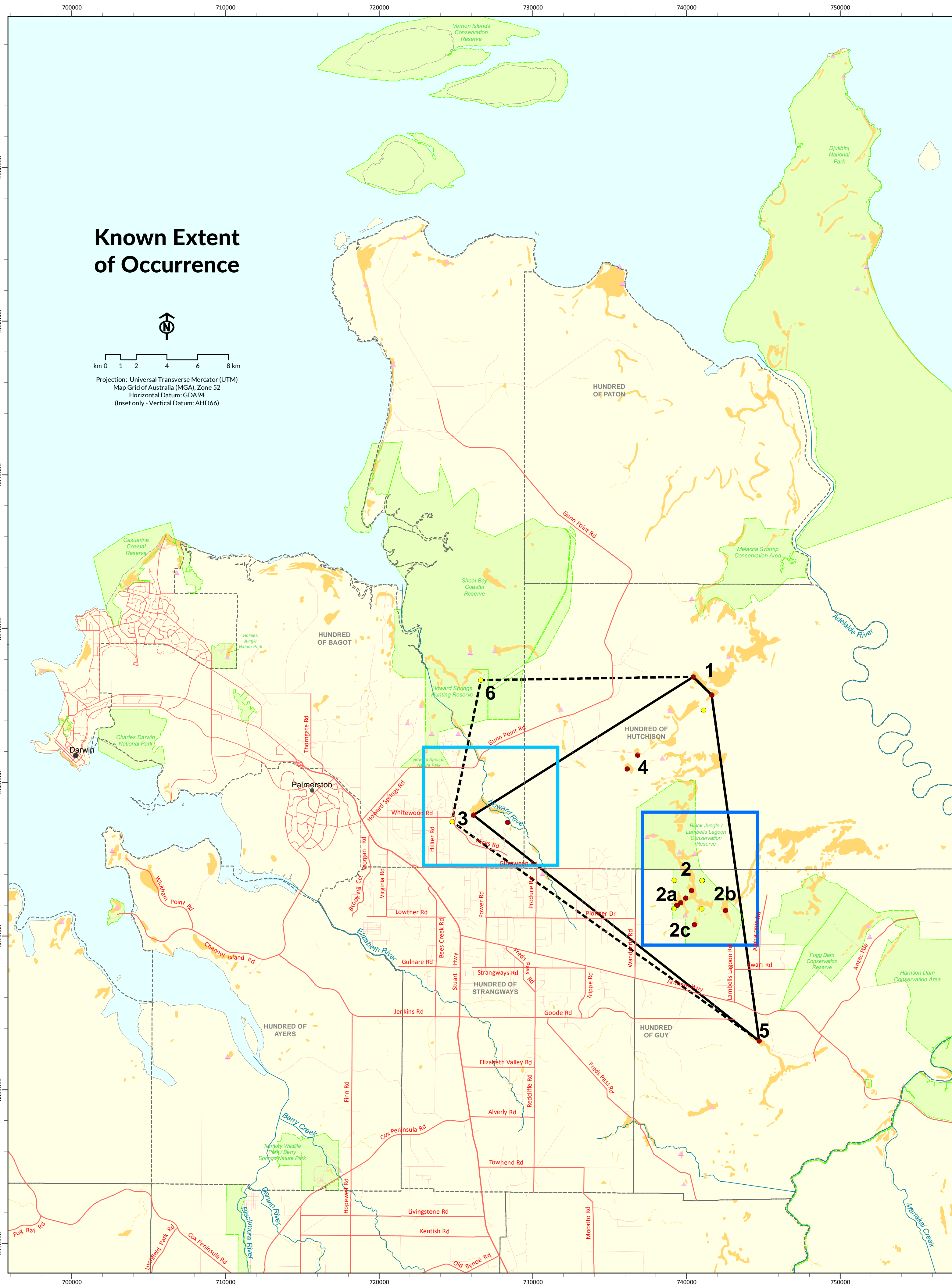


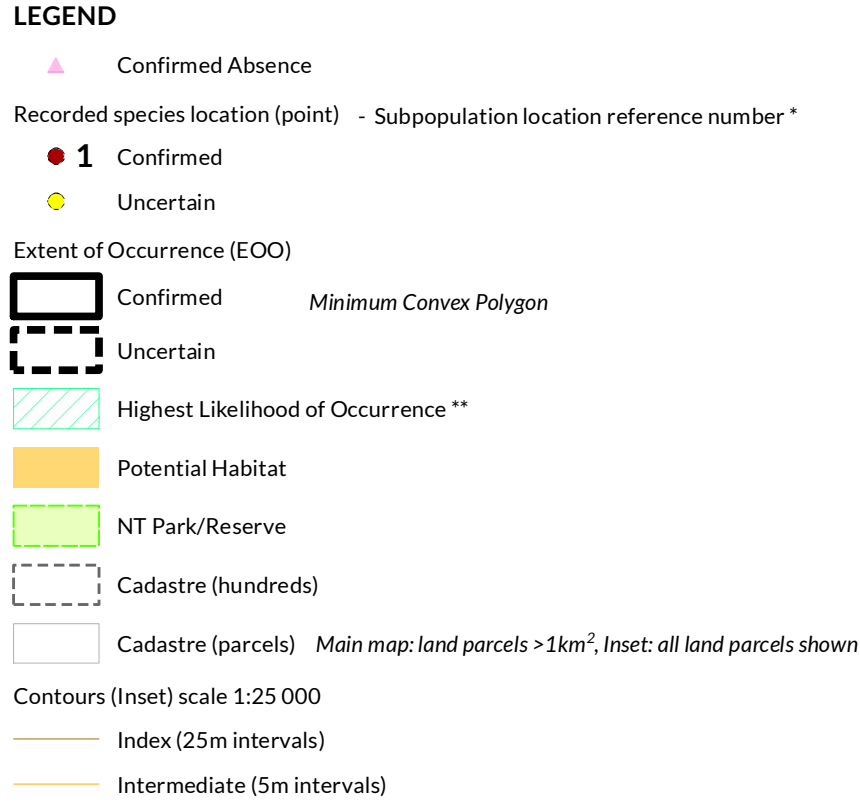
Inset - Intensive Survey Area: Howard River Catchment



Inset - Intensive Survey Area: Adelaide River Catchment



Broad Mapping Reliability



*** Subpopulation location reference number**
Details about species population density are described in the table, *Population Status of Ptychosperma macarthurii*, July 2016 in the attached Guidelines for Map Use.

**** Highest Likelihood of Occurrence**
Represent the most suitable areas for *Ptychosperma macarthurii* within the Top End and are thought to represent the largest possible area within which the species could conceivably be encountered (based on current collection data and ecological knowledge). These suitable areas have been delineated primarily on the basis on the distribution of 'Spring Fed' forests in the Monsoon Vine-Forests of the Northern Territory mapping data.

Data Source
Flora Data and Surveys:
- Flora and Fauna Division, Department of Land Resource Management
- ECo Environmental Consultants Pty Ltd 2015
Potential Habitat:
- Flora and Fauna Division, Department of Land Resource Management
Monsoon Vine-Forests in the Northern Territory (scale 1:100 000 to 1:250 000)
Major, Minor Streams (scale 1:250 000)
- © Commonwealth of Australia (Bureau of Meteorology) 2012
NT Parks and Reserves:
- Parks and Wildlife Commission of the Northern Territory
Cadastral/Roads/Placenames/Contours/Imagery:
- Department of Lands, Planning and Environment
Aerial Photography - NT LIS WMS Image Server, DLPE

CONTENTS
Page 1 of this document contains an Interactive PDF Map.
Use Adobe Reader and open the left panel to review individual map layers.
Users are encouraged to hide/show layers to find out more about this species distribution, particularly in the inset maps, where some layers may mask layers underneath.
Scroll to Page 2 to read the Guidelines for Map Use.

USE OF MAP
Maps of Threatened Species Distributions in the Greater Darwin Area should be interpreted with the attached Guidelines for Map Use. Scroll to page 2.
This map provides the most up to date available information regarding the known distribution and extent of the species at the time of publication.
Refer to the [NT GOV website](http://nt.gov.au) to view Threatened Species Information Sheets.
Refer to <http://eflora.nt.gov.au> our online resource for Northern Territory's flora.

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Map compiled: 6/07/2016
Caroline Green and Nicholas Cuff, Department of Land Resource Management



NORTHERN TERRITORY GOVERNMENT
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Web: <https://landresources.nt.gov.au/>

Threatened Species Distribution in the Greater Darwin Region
Ptychosperma macarthurii

Department of Land Resource Management

[Flora and Fauna Division](#)

July 2016, Version 1.0

Threatened Species of the Greater Darwin Region – *Ptychosperma macarthurii*

Guidelines for Map Use

Data used to compile this map product is current at the date of publication. Users are encouraged to check the project [Metadata record](#) for more recent versions of this map product.

1. **Potential habitat mapping** is derived from mapping of Northern Territory rainforest vegetation between approximately 1978 and 1989, produced from aerial photograph interpretation of black and white hardcopy prints. Vegetation types were delineated at scales between 1:100 000 and 1:250 000 and subsequently transferred to digital media; consequently the accuracy of this data at fine scales may be limited by the resolution of the original data. For the purposes of this map product, only 'Spring Fed' and 'Riparian' forest types were considered to represent potential habitat for the species. Site based assessment at an appropriate intensity should accompany use of this map data for all areas.

More detail: Potential habitat mapping is derived from mapping produced to define the distribution of Monsoon Vine-Forests in the Northern Territory at scales ranging between 1:100 000 in the Darwin region and up to 1:250 000 elsewhere. These map products were derived using aerial photography interpretation and digitized on a range of mapping bases between the late-1970's and 1980's. It should be noted that the potential habitat mapping has an inherent level of spatial inaccuracy associated with the scale and methods of production used to derive the original mapping. These spatial inaccuracies are principally a function of the age of the surveys and the technology available at the time to produce the ORIGINAL maps, the mapping base (topographic or cadastral) on which the original hard-copy mapping was produced and the process of transferring these products to digital media at a later date. The scale of the original mapping was at best 1:100 000 and enlarging the mapping beyond this scale does not provide further detail.

2. **The extent of potential habitat displayed on the map** is current at the publication date of the latest available land use data for the region.

More detail: Areas of remaining potential habitat were identified by intersecting the most up-to-date land-use information to exclude areas of intensive land-use and/or cleared areas now unlikely to support viable potential habitat for the species. Data on the extent of remaining potential habitat is current to 2008 and it is likely that the area of remaining intact viable habitat differs from that indicated on the map. This is particularly true in the peri-urban region of Darwin where current land uses do not reflect the historic mapping of the area. This may result in areas of indicated potential habitat no longer existing or conversely transitional vegetation regrowing after historic land-use changes may provide additional habitat not accounted for by the mapping data.

3. **The map should be used as a guide to identifying the probability that the species is present** in any particular area and not a definitive assessment of distribution. The map can be used to assess the risk associated with a particular activity at a location and the

likelihood that the activity may result in a significant impact upon a (sub-) population of a threatened species.

More detail: The vegetation communities identified as potential habitat on the map represent those most likely to support populations of *Ptychosperma macarthurii* based on current ecological knowledge at the date of publication. They do not identify all areas where the species may occur and conversely *P. macarthurii* is highly unlikely to occur in all the areas identified on the map as potential habitat. The map should be used as a guide to identifying the probability that the species is present in any particular area and not a definitive assessment of distribution. The map can be used to assess the risk associated with a particular activity at a location and the likelihood that the activity may result in a significant impact upon a population of a threatened species.

4. **Highest likelihood of occurrence** of *Ptychosperma macarthurii* is known to be strongly associated with spring-fed rainforest patches on the margins of riverine floodplains with an ongoing water supply that results in free-water or saturated soil moisture conditions at/near the land surface for an extended part of the year. For mapping purposes, 'Spring Fed' forest identified in the potential habitat mapping was considered the vegetation community with the highest likelihood of supporting *P. macarthurii* in the greater Darwin Region. Inherent inaccuracies in the mapping data, discussed previously, may result in known locations of *P. macarthurii* falling outside of the potential and most suitable habitat areas.

More detail: At a finer spatial resolution, current understanding of the site level distribution of *P. macarthurii* indicates that the occupancy envelope for the taxon appears to be centred on those parts of the landscape where saturated soil profiles (Hydrosols) or free surface water persist into the mid-late dry season.

A buffer was not applied to the boundaries of the potential habitat polygons in this instance as the potential habitat is considered to significantly limit the likelihood that the species occurs beyond the boundaries of these polygons and is more likely to be restricted to core central areas within the potential habitat where water persists in the landscape for longer periods. Currently available spatial information regarding water body persistence does not correlate well with the hypothesised distribution of the species due to omission errors resulting from high tree canopy cover over the areas of spring fed water supply. Consequently, a precautionary approach was adopted in identifying areas of highest likelihood of *P. macarthurii* occurrence and all potential habitat was considered of uniform significance in his assessment. Consequently, occurrences of *P. macarthurii*, may fall outside the mapped areas inferred as most likely support the species as a result of issues associated with inaccuracies in the potential habitat mapping and site-scale variations in habitat conditions and/or error associated with the positional accuracy of the species record. As with any natural resource spatial product, it is recommended that this information be used as a guide to the most likely areas in which *P. macarthurii* may be encountered and should be accompanied by appropriately timed field survey to clarify the presence or absence of the species from a particular location more definitively.

5. **Confirmed absence locations** represent detailed floristic survey sites sampled at an appropriate time of year where *Ptychosperma macarthurii* was not recorded.

More detail: Targeted search locations (absence) data are full-floristic sites sampled within the expected distribution of *Ptychosperma macarthurii* over a number of years between June and August. These sites represent locations sampled at an appropriate time of year where *P. macarthurii* was not recorded and collection data suggests the species should be present and most detectable. Surveyed sites were largely sampled using a standardised methodology (Brocklehurst et al. 2007) by experienced NTG botanical staff and represent the best available information on the known distribution of the. This does not definitively imply that the species was not present at the location given the cryptic life history of the taxon and the seasonal conditions at the time of

sampling. However, it can be considered to represent the temporal 'window' of maximum-likelihood that the species would have been detected if it was present at the time of sampling.

6. **'Point' data on the occurrence** of *Ptychosperma macarthurii* represent vouchered individual specimens or discrete locations at which the species has been recorded in the field. This data has been critically evaluated and refined for the purposes of this map product to represent locations at which the species presence is confirmed or otherwise.
7. **Extent of Occurrence** has been calculated using both the complete set of record data and the refined data with confirmed geocodes (see above). This is to allow a more thorough analysis of the species IUCN status based on the most reliable information available for the species. Both sets of results are presented on the following pages for comparison purposes.
8. **Mapping reliability (Confidence Rating)** has been assigned to areas in which varying intensities of field assessment have been undertaken or are considered to represent suitable habitat for the species. These generically range from 'High' being high-intensity, targeted, species specific surveys or areas in which confirmed sub-populations are known to occur through to 'Low' where reconnaissance level or incidental surveys have been undertaken or habitat is considered unsuitable.

More detail: In the broader regional context (represented on the location map) areas within the greater Darwin region where appropriately timed general surveys have not encountered the species are considered a moderately reliable indication of species presence/absence based on the intensity of field data collection. No distinction is made between site-level reliability at this scale for display purposes and more detail is provided in the insets (see below)

At the finer scale within the Extent of Occurrence (EoO – represented by the inset maps), the confidence levels have been combined with the potentially suitable areas (i.e. highest likelihood of occurrence) to give an indication of the confidence in not only the level of survey undertaken, and therefore, the presence/absence of the species, but also the presence of habitat suitable for the species. Areas where targeted surveys have been undertaken within highly suitable habitat are considered highly reliable, whereas areas of unsuitable habitat within the EoO are indicative of unsuitable habitat (e.g. wetlands or built up areas) and are also considered highly reliable (as absences) but not displayed on the inset maps. Areas of potentially suitable habitat with a general level of field survey are given a moderate reliability.

References

Name	More Information
Mapped Distribution for Threatened Species of the Greater Darwin Region Project description, metadata record	<ul style="list-style-type: none"> • Metadata
Kerrigan, R., I. Cowie & B. Baker (2002d) <i>Threatened species of the Northern Territory</i> - <i>Ptychosperma bleeseri</i> (P. <i>macarthurii</i>) Burret, Darwin Palm Parks & Wildlife Commission, NT. (sourced from Flora NT website)	<ul style="list-style-type: none"> • Web Details • Information sheet
Brocklehurst, P., Lewis, D., Napier, D. and Lynch, D. (2007) <i>Northern Territory Guidelines and Field Methodology for Vegetation Survey and Mapping</i> . Technical Report No. 02/2007D, Department of Natural Resources, Environment and the Arts, Palmerston, Northern Territory.	<ul style="list-style-type: none"> • Report (NT Library)

<p>Liddle, D.T., Brook, B., Matthews, J., Taylor, S.M. and Caley, P. (2006). <i>Threat and response: A decade of decline in a regionally endangered rainforest palm affected by fire and introduced animals.</i> Biological Conservation 132, 362-375.</p>	
<p>Anon. (1998). <i>A Management Program for Ptychosperma bleeseri Burret in the Northern Territory of Australia.</i> Parks and Wildlife Commission of the Northern Territory, Palmerston.</p>	

Population status of *Ptychosperma macarthurii* (July 2016)

Sub-population Reference no	Status	Size*	Trend	Pressures	Uncertainties	Current Knowledge State
1 Bankers Jungle	Extant	c. 50 plants	Documented Decline	Introduced animal management Weed incursion	Ongoing subpopulation trend Effectiveness of management actions	Loss of significant numbers of adult individuals from sub-population between 1990 and 2001.
2	Extant	>1000 plants	Stable?	Hydrology Fire management Weed incursion	Location of specific records	General area of records are known to be Black Jungle, however the specific location is uncertain.
2a Crocodile Creek, Black Jungle	Extant	>1000 plants	Stable	Hydrology Fire management Weed incursion	Ongoing subpopulation trend Effectiveness of management actions	Largest known population with relatively skewed size class distribution toward juveniles. Evidence suggests good levels of recruitment to adult size classes over time in the absence of major disturbance. Sub-population appeared relatively stable at time of last survey.
2b Black Creek, Black Jungle	Extant	<100 plants	Stable?	Hydrology Fire management Weed incursion	Ongoing subpopulation trend	Sub-population appeared relatively stable at time of last survey.
2c BJ3 Rainforest, Black Jungle	Extant	<10 plants	Stable?	Hydrology Fire management Weed incursion	Ongoing subpopulation trend	Sub-population appeared relatively stable at time of last survey.
3 Whitewood Road Jungle	Extant	<250 plants	Documented Decline	Hydrology Fire Management Weed incursion	Current status of population. Maintenance of hydrology with increasing development pressure	Only currently known subpopulation outside the Adelaide River catchment. Documented decline between 1990 and 2001 representing approximately 60% of the population.
4 7 and 8 km	Extant	<50 plants	Stable?	Introduced animal	Ongoing subpopulation trend Maintenance of hydrology with	Considered as a single sub-population for the purposes of this analysis.

Sub-population Reference no	Status	Size*	Trend	Pressures	Uncertainties	Current Knowledge State
Jungles, Sandy Creek				management Potential development Hydrology Fire Management Weed incursion	increasing development pressure, particularly sand and gravel extraction	Sub-population appeared relatively stable at time of last survey.
5 Daminmin Jungle	Extant	>1000 plants	Stable	Management Weed incursion	Ongoing subpopulation trend Drivers of sub-population demographics and structure	Sub-population appeared relatively stable in terms of overall numbers at time of last survey. Skewed demographics toward juvenile size classes although some evidence to suggest that recruitment to adult size classes is occurring albeit at low rates.
6 Shoal Bay Conservation Reserve	Unknown	Unknown	Unknown		Geocode of collection appears incorrect	Population unlikely to be extant at location if the original geocode was correct. location.

***Includes juvenile plants as of 2000-2001.**

Extent of Occurrence (excluding ocean)

200 km² (281 km²)**

Total EoO;

4.30 km² (7.40 km²)

Conservatively estimated potential habitat within currently known extent; &

4.00 km² (6.95 km²)

Potential habitat with highest likelihood of occurrence within the currently known extent.

Area of Occupancy 10 (13) Number of 2 km² cells within which mapped records occur (brackets represent ALL historical records*)

Estimated Area of Occupancy at Reference Scale: 40 (52) km²

Estimated Area of Occupancy at Ecological Scale (200m grid cell): 17 cells /0.68 km² (19 cells/0.76 km²)

¹ International Union for Conservation of Nature (IUCN) Standards and Petitions Subcommittee. (2014). *Guidelines for using the IUCN Red List categories and criteria*. Version 11. Prepared by the Standards and Petitions Subcommittee. <http://www.iucnredlist.org/documents/RedListGuidelines.pdf>

** Figures in brackets represent the total EoO including all uncertain records.