

Flora Survey Guidelines - Protected Plants

Nature Conservation Act 1992

Prepared by: Wildlife and Threatened Species Operations, Department of Environment and Science.

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Acknowledgements

These flora survey guidelines have been prepared by the Department of Environment and Science in consultation with relevant government agencies, industry representatives, ecological consultants and members of the public.

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1. Purpose

Section 142(1) of the Nature Conservation (Plants) Regulation 2020 (*Plants Regulation*) states that ‘the chief executive may, by gazette notice, approve or make guidelines (the flora survey guidelines) about the conduct of a flora survey’. This guideline constitutes the approved *flora survey guidelines*.

Section 142(2) of the *Plants Regulation* states that ‘the flora survey guidelines may, for example, contain requirements or provisions about the following—

- (a) who may undertake a flora survey;
- (b) the extent of an area to be surveyed;
- (c) information to be included in a flora survey report, including, for example, a map or plan showing the *clearing impact area*.’

The purpose of this *guideline* is to detail the requirements of the *flora survey guideline* regarding—

- Who is suitably qualified to undertake a flora survey (see section 4.2);
- The extent of the area that must be surveyed (see section 5.2);
- What flora survey methods must be used (see section 6.2); and
- What must be included in a flora survey report (see section 7.2).

This *guideline* also references some statutory requirements and provides some further information, however the statutory requirements and further information are provided herein for the purposes of context only.

Note: When interpreting this *guideline*, any words present in italics have a specific meaning and are defined in ‘section 9 - definitions’. Words in the singular include the plural, and words in the plural include the singular.

2. Background

Section 89 of the *Nature Conservation Act 1992* (the Act) includes that ‘a person, other than an authorised person, must not take a protected plant that is in the wild unless the plant is taken under—

- (a) a conservation plan applicable to the plant; or
- (b) a licence, permit or other authority issued or given under a regulation; or
- (c) an exemption under a regulation.

Maximum penalty—

- (a) for a class 1 offence—3000 penalty units or 2 years imprisonment; or
- (b) for a class 2 offence—1000 penalty units or 1 years imprisonment; or
- (c) for a class 3 offence—225 penalty units; or
- (d) for a class 4 offence—165 penalty units.

The Queensland Government has adopted a risk-based approach to the regulation of protected plants under the Act. The protected plants framework focuses regulatory, educational and compliance effort on activities that pose a high risk to plant biodiversity. Under the framework, when non-exempt clearing of protected plants that are in the wild is proposed within a high risk area, the proponent of that activity is required to complete a flora survey prior to any clearing. The main objective of a flora survey is to locate any extinct, extinct in the wild, critically endangered, endangered, vulnerable or near threatened plants (*threatened plants or near threatened plants*) that may be present in the *clearing impact area*.

More information on the [clearing of protected plants](#) is available on the Department of Environment and Science’s (the department) website, including whether a protected plants clearing permit may be required.

3. Determining the need for a flora survey and flora survey report

3.1 Statutory requirements

Nature Conservation (Plants) Regulation 2006

Section 139 'A person may check the flora survey trigger map before starting any clearing to find out if any part of the area to be cleared is within a high risk area';

Section 141 'If any part of an area to be cleared is within a high risk area, a flora survey must be undertaken of the clearing impact area before the clearing starts';

Section 140(1) 'A flora survey is a survey of a clearing impact area ... undertaken to identify whether *threatened plants or near threatened plants* are present within the clearing impact area';

However, a range of exemptions may apply, i.e. Plants) Regulation 2020 for full information.

3.2 Further information

Clearing activities may be exempt from this framework for a number of reasons. These exemptions include:

- Taking plants where necessary to avoid or reduce risk of death or injury (s22)
- Taking plants where necessary to avoid or reduce risk of serious damage to buildings or property (s23)
- Taking or using plants for authorised grazing activities on the land (s37) and fodder harvesting (s41)
- Taking plants for conservation or revegetation program (s45) or wildlife rehabilitation (s43)
- Clearing plants for particular maintenance activities (existing infrastructure, plantation management, existing cropping activity) (s49)
- Clearing plants for firebreaks and fire management lines (s24)
- Clearing plants in compliance with specific vegetation management clearing codes (s51)
- Clearing plants for a conservation purpose (s53)
- Re-clearing (for up to 10 years) of lawfully cleared plants under a clearing permit (s54)

4. Determining who may undertake a flora survey

4.1 Statutory requirements

Section 142(2) 'The flora survey guidelines may, for example, contain requirements or provisions about... who may undertake a flora survey'.

4.2 Guideline requirements

Flora surveys must be co-ordinated and led by a suitably qualified person.

4.2.1 Suitably qualified person

A suitably qualified person is—

- (a) a person who has 100 points or more, according to the self-assessment grading system in Table 1 below;
or
- (b) a person whom the relevant Director or Executive Director of the department has agreed in writing is a suitably qualified person, due to the person possessing other high-level skills or experience that are equivalent.

The self-assessment grading system is divided into two components:

- Component 1: Qualification knowledge and ability; and
- Component 2: Field Experience.

Table 1: Suitably Qualified Person Self-Assessment Grading System

COMPONENT 1: QUALIFICATION KNOWLEDGE AND ABILITY	Conditions	Points allocated
A relevant qualification from a recognised institution (e.g. University, TAFE) that results in a thorough knowledge of plant identification and flora surveys.	General training (not Aust. or QLD focussed); OR	30
	Australian focussed training; OR	40
	Queensland focussed training	50
Regional ecosystem training by a recognised and qualified institution, such as the Queensland Herbarium.		5
Member of a recognised group / certificate program relevant to ecology/botany, where skills/knowledge are demonstrated to be granted membership. E.g. Certified Environmental Practitioner (CEnvP) Program		5
Lead author of articles/papers published in peer reviewed journals in relation to Qld flora surveys, Qld plant identification, or Qld <i>threatened plants</i> or <i>near threatened plants</i> .	10 points per paper to a maximum of 50 points	10
COMPONENT 2: FIELD EXPERIENCE		
Experience within the last 2 years and a total of at least 5 years at leading flora surveys in a field-based environment at a rate of no less than 5 comprehensive botanical surveys that focus on locating and identifying <i>threatened plant</i> or <i>near threatened plants</i> , per year.	General (not Aust. based); OR	40
	Australian based survey experience; OR	50
	Qld based field flora surveys experience	60
Number of plant specimens you have collected that have been retained/incorporated into the Queensland Herbarium collection:	5 points per 5 plant specimens retained/incorporated, to a maximum of 40 points	5

4.2.2 Certifying that you are a suitably qualified person

The suitably qualified person must provide, with their flora survey report, either:

- Their curricula vitae, and any supporting documentation necessary to certify that they meet the requirements of the self-assessment grading system; or
- Where curricula vitae and supporting documentation have already been provided to the department through a previous process, a clear indication of which application this was previously provided with; or
- A copy of the written agreement from the relevant Director or Executive Director of the department that they are a suitably qualified person, which must be sought via a [Request form – Exceptions from the flora survey guidelines](#).

4.3 Further information

A 'relevant qualification' may include one focused on:

- Botany
- Environmental Science
- Environmental Management
- Ecology
- Natural Resource Management
- Horticulture
- Arboriculture.

A suitably qualified person is not required to be independent of the project proponent, provided that their skills and experience are appropriate.

Surveys may be conducted by teams that include members that do not meet the 100 point requirement, provided that they are working under the close supervision of a suitably qualified person.

Note: The suitably qualified person is accountable for the flora survey report and is required to certify the flora survey report as per section 7.2 of this *guideline*.

5. Determining the extent of the area to be surveyed

5.1 Statutory requirements

Nature Conservation (Plants) Regulation 2020

Section 141 'if any part of an area to be cleared is within a high risk area, a flora survey must be undertaken of the clearing impact area before any clearing starts,';

Section 133(1) 'A clearing impact area is— an area to be cleared to the extent it is within a high risk area; and the buffer zone for the area that is to be cleared' (that is an additional area of 100m...or less than 100m if agreed by the chief executive);

Section 134(2) The chief executive may agree to the request [to reduce the area of the buffer zone] if the chief executive is satisfied '(a) it is not reasonably practicable for a flora survey to be undertaken in the usual buffer zone for the area... or (b) the request to reduce the area is consistent with any requirements of the flora survey guidelines';

Section 142(2) 'The flora survey guidelines may, for example, contain requirements or provisions about...the extent of an area to be surveyed.

5.2 Guideline requirements

Note: The extent of an area to be surveyed is the *clearing impact area*, which includes both the 'area to be cleared' (to the extent it is within a high risk area) and a 'buffer zone'.

5.2.1 Agreed reduced buffer zones

Under this *guideline*, when requested in the approved form (s134(1)—[Request form – Exceptions from the flora survey guidelines](#)—and in accordance with section 134(2) of the *Plants Regulation* the chief executive agrees a reduced buffer zone in the following circumstances:

- it is not reasonably practicable for a flora survey to be undertaken in an area of the buffer zone because landholder consent to access the area cannot be obtained despite all reasonable attempts (s 134(2)(a)); or
- the request to reduce the buffer area is consistent with any requirement of this guideline (s134(2)(b)).

However, only where the suitably qualified person certifies in the flora survey report, and includes supporting information.

In this *guideline*, a **highly modified environment** is only:

- (a) a gravel or bitumen road;
- (b) an impervious surface;
- (c) land that is regularly being mowed, slashed or ploughed; or
- (d) any combination of (a), (b) and (c) in this list.

5.2.2 Other reasons for reduced buffer zones

Under section 134(2), other reasons for a reduced buffer zone may be agreed to by the chief executive from time to time. To apply to remove an area from a buffer zone, other than the types of areas the chief executive agrees to under section 5.2.1 of this *guideline*, you must complete and submit a [Request form – Exceptions from the flora survey guidelines](#).

5.3 Further information

An example of how reduced buffer zones can apply is provided as Attachment 1.

'Reasonable attempts' to gain landholder consent to access an area includes, for example:

- sending a letter of request and, if no reply, door knocking.

'Supporting information'—

- (a) For 'reasonable attempts', may include—
 - a completed [Landholder access approval tool](#); or
 - a copy of a letter sent to the relevant landholder/s, plus a file note regarding the door-knocking.
- (b) For 'a property of less than 1,000m² that has a permanent dwelling or building', may include satellite imagery with an overlay of the property boundaries, clearly showing the permanent dwelling or building;
- (c) For 'highly modified environment', may include satellite imagery or photographs, clearly showing the current land use.

Extra cost and time delays to survey the buffer area or to obtain landholder consent to access the buffer area are not sufficient justification.

6. Determining the most appropriate flora survey method

6.1 Statutory requirements

Section 141 'If any part of an area to be cleared is within a high risk area, a flora survey must be undertaken of the clearing impact area before the clearing starts';

Section 143 'A flora survey...must comply with the flora survey guidelines or an alternative survey methodology agreed to by the chief executive';

Section 148 'if it is necessary for a protected plant to be identified...for a flora survey...a person may take up to 2 parts from a protected plant (under an exemption under s39)...The person must complete a specimen label for each part taken before leaving the place where the specimen is taken; and give each specimen to the Queensland Herbarium within 28 days after taking it'.

6.2 Guideline requirements

The suitably qualified person must first undertake a desktop assessment (refer 6.2.1).

The suitably qualified person must then undertake a field assessment using one or more of the following methods:

- (a) a timed meander survey (refer 6.2.2); or
- (b) a systematic transect search (refer 6.2.3); or
- (c) an alternative survey methodology (refer 6.2.4), however an alternative survey methodology may not be used unless agreed to in advance by the chief executive.

Where a *threatened plant or near threatened plant*, or a *possible threatened plant or near threatened plant*, is identified during field assessment, the suitable qualified person must adhere to the requirements regarding:

- (a) unidentified plant species (refer 6.2.5); and
- (b) threatened plants or near threatened plants population surveys (refer 6.2.6) or threatened plants or near threatened plants plot surveys (refer 6.2.7).

6.2.1 Desktop assessment

The suitably qualified person must commence a flora survey with a comprehensive desktop assessment of the area. The desktop assessment must include creating a list of all habitat types in the area, and a list of all *threatened plants or near threatened plants* that may occur in these habitat types. The suitably qualified person must design a field assessment based on the record of habitat types and list of *threatened plants or near threatened plants* that may occur there.

The suitably qualified person must determine the most appropriate time of the year to undertake the flora field survey, i.e., when there is the highest possible chance of detecting *possible threatened plants or near threatened plants*. The report is to include a statement to justify the timing of the survey.

6.2.2 Timed meander survey

Each habitat type (not just those that are known to be habitat for *threatened plants or near threatened plants*) must be sampled as per the following steps.

1. Choose a starting point within a habitat type and record the time. The choice of starting point is determined by the suitably qualified person based on their experience.
2. Traverse the habitat type in a random manner so as to maximise the coverage of habitat and the encounter rate of different species.
3. Record the identities of any *threatened plants or near threatened plants* observed and collect specimens and locational data. Also collect specimens and locational data for any *possible threatened plants or near threatened plants*.
4. Record the time every two to five minutes. If the survey needs to be interrupted, do not include this time in the results.
5. Continue searching a habitat type until no new *threatened plant or near threatened plant* species has been recorded for 30 minutes or when the entire area of habitat type is surveyed, whichever happens sooner.
6. Meanders must be undertaken (at a minimum) at the following rate per area of habitat type:
 - <2ha, one meander;
 - between 2ha and 10ha, two meanders;
 - between 10ha and 100ha, four meanders; and
 - >100ha, six meanders.

6.2.3 Systematic transect search

1. If the survey area is very large, divide it into blocks of approximately 10ha and search each block as per the following steps.
2. Start at one end of a block and systematically move across the block in a series of parallel search lines.
3. Search lines must be close enough together, and walking pace must be slow enough, that any *threatened plant or near threatened plant* is identified.
4. Record the identities of any *threatened plants or near threatened plants* observed and collect specimens and locational data. Also collect specimens and locational data for any *possible threatened plants or near threatened plants*.
5. Continue until all blocks are searched.

6.2.4 Alternative survey methodology

It is recognised that in some circumstances an alternative survey methodology may more successfully identify *threatened plants or near threatened plants*. Prior to using an alternative survey methodology, the chief executive must be satisfied that the alternative survey methodology:

- has previously been used to successfully identify the presence of *near threatened plants and threatened plants*;
- is a methodology (or part of a methodology) that is described in a paper published by a peer reviewed journal; and
- would be equal to, or better than, the methods outlined in this guideline at identifying the presence of *possible near threatened plants and threatened plants* in the area.

Approval of an alternative survey methodology must be applied for via a [Request form – Exceptions from the flora survey guidelines](#).

6.2.5 Unidentified plant species

If a plant cannot confidently be determined to not be an *threatened plant or near threatened plant*, for the purpose of this *guideline* it is a *possible threatened plant or near threatened plant*. *Possible threatened plant or near threatened plant* specimens must be collected for identification with specimen collection and vouchering done in accordance with the Queensland Herbarium (2016) [manual](#). This includes providing a [Botanical specimens – cover sheet](#) for each specimen.

Where a *possible threatened plant or near threatened plant* remains unidentified after all investigations, the specimen must be lodged with the Queensland Herbarium for formal identification. Flora survey reports must not be submitted until all specimens are identified, or 20 working days have passed since receipt of all specimens by the

6.2.6 Threatened plants or near threatened plants population survey

Where a *threatened plant or near threatened plant*, or a *possible threatened plant or near threatened plant*, is recorded during a field survey, the population extent and

density must be determined. With regards to the population extent, mapping of the population within the *clearing impact area* must be undertaken by traversing the periphery of the population whilst capturing GPS points of the population extent. With regards to population density, the total number of individuals comprising the population must be recorded.

Where a population of *threatened plants or near threatened plants*, or a *possible threatened plants or near threatened plants*, is too dense for this to be practical, the density of the population must be estimated by conducting a plot survey.

6.2.7 Threatened plants or near threatened plants plot survey

Plot surveys must follow the Queensland Herbarium's methodology (Neldner et al., 2012), using a plot measuring 50m by 10m; or an alternative plot size provided it can be demonstrated that an alternative plot size is appropriate for the *threatened plant or near threatened plant*, or a *possible threatened plant or near threatened plant*. Within the plot, the following information must be recorded and described:

- the GPS location of each plot;
- the number of individuals of the *threatened plant or near threatened plant*, as well as any other observations such as the age structure (if possible), reproductive state and health;
- a description of the vegetation structure, including noting the Regional Ecosystem (where relevant);
- the identities and locational data for all other the *threatened plants or near threatened plants*, and descriptions and locational data for all *possible threatened plants or near threatened plants* found in the plot;
- the landscape attributes including the landform type, soil type, geology, slope, aspect and altitude; and
- any specific habitat or micro-habitat features associated with *threatened plants or near threatened plants*, or a *possible threatened plants or near threatened plants*.

6.3 Further information

See Attachment 2 for a number of reference materials and additional resources in relation to survey methods

7. Flora survey reports

7.1 Statutory requirements

Nature Conservation (Plants) Regulation 2020

Section 140(2)(a) 'A report about the results of a flora survey for a clearing impact area is a flora survey report';

Section 140(2)(b) 'A...flora survey report must comply with the flora survey guidelines or an alternative survey methodology agreed to by the chief executive';

Section 142(2) 'The flora survey guidelines may, for example, contain requirements or provisions about...information to be included in a flora survey report, including, for example, a map or plan showing the clearing impact area';

Section 144 'A person must not (a) state anything in a flora survey report that the person knows is inaccurate or misleading in a material particular; or (b) omit, from a flora survey report, information known to the person about the presence of an *threatened plant or near threatened plant* and its *supporting habitat* in an area. Maximum penalty—165 penalty units'.

Note also the requirements and penalties under Section 89 of the *Nature Conservation Act 1992*, as outlined in 'section 2 – background'.

Section 141) 'The person must give a flora survey report to the chief executive before the person starts clearing; and (b) no later than 12 months after the flora survey undertaken for the report was completed.'

7.2 Guideline requirements

In relation to protected plants clearing permit applications, it is a requirement of the flora survey guidelines that a flora survey report for a protected plant clearing permit application must be completed in the 12 months immediately preceding the protected plants clearing permit application.

If any *threatened plants* or *near threatened plants* were identified during the flora survey, it is a requirement of the flora survey guideline that a [WildNet data](#) entry form, completed in accordance with the [WildNet Data Entry Form Guidelines](#), and including all identified *threatened plants* or *near threatened plants*, be submitted to WildNet@science.dsitia.qld.gov.au

All flora survey reports must include:

7.2.1 Certification by suitably qualified person

- On the front cover, the full name and signature (and date of signing) of the suitably qualified person, and one of the following two certifications:

(1) "I certify that:

- a. I have adhered to all statutory requirements and flora survey guideline requirements; and
- b. In the area surveyed I have not found any plants that are currently listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable or near threatened in the Nature Conservation (Plants) Regulation 2020; and
- c. The flora survey report is an accurate and full account of the flora survey.

Or

(2) "I certify that:

- a. I have adhered to all statutory requirements and flora survey guideline requirements; and
- b. In the area surveyed I have found plants (as detailed in this report) that are currently listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable or near threatened in the Nature Conservation (Plants) Regulation 2020;; and
- c. The flora survey report is an accurate and full account of the flora survey.

- Accompanying documentation to support that they are a suitably qualified person (refer section 4.2.2).

7.2.3 Extent of the area surveyed

- A detailed map or plan of the area, showing the area to be cleared, the buffer zone, the properties included and excluded from the survey area.
- Justification/s for removing any area/s from the buffer zone under section 134(2), or section 5.2 of this *guideline*.
- A GIS shapefile showing the area to be cleared, the *clearing impact area* and the extent of the on-ground surveys undertaken.

7.2.4 Flora survey methods and findings

- The lists compiled during desktop assessment of habitat types and *threatened plants or near threatened plants* that may occur in these habitat types.
- The flora survey method selected and justification that the method was appropriately comprehensive considering the lists compiled during desktop assessment.
- A detailed map or plan of the area, showing the habitat types, the location of *threatened plants or near threatened plants* and *possible threatened plants or near threatened plants* found.
- A copy of the [WildNet data](#) entry form that was submitted to WildNet@science.dsitia.qld.gov.au, completed in accordance with the [WildNet Data Entry Form Guidelines](#), and including all identified *threatened plants or near threatened plants*.
- Details from threatened plants or near threatened plants population/plot surveys for each *threatened plant or near threatened plant* and *possible threatened plant or near threatened plant* found.
- A description of all *possible threatened plants or near threatened plants* found, including their *supporting habitat*.
- Justification of the timing of the flora survey and detail of any limitations associated with the timing of the survey
- Justification for any alternative plot size used.

7.2.5 Other

- The date or dates any clearing is proposed to occur.

8. Contact details

Questions regarding this *guideline* can be addressed to the department via email or telephone. Details are:

Email: palm@des.qld.gov.au

Telephone: 1300 130 372

9. Definitions

In this *guideline*:

“**clearing impact area**” is defined in the same way as in the *Plants Regulation*, as follows: ‘(1) A clearing impact area means—

(a) an area to be cleared to the extent it is within a high risk area; and

(b) a buffer zone that is—

(i) an additional area of 100m in width around the boundary of the area mentioned in paragraph (a); or

(ii) an additional area of less than 100m in width around the boundary of the area mentioned in paragraph (a) agreed to by the chief executive under subsection (2).

(2) The chief executive may agree to a buffer zone for a clearing impact area that is less than 100m in width around the boundary of the area mentioned in subsection (1)(a) if the chief executive is satisfied—

(a) it is not reasonably practicable for a flora survey to be undertaken of a buffer zone that is an area of 100m in width around the boundary of the area mentioned in subsection (1)(a); or

(b) a reduction in the width of the buffer zone is consistent with any requirements of the flora survey guidelines.

“**the department**” is the Queensland Department of Environment and Science.

“**threatened plant**” is defined as ‘threatened wildlife’ a plant of a species listed as extinct, extinct in the wild, critically endangered, endangered, or vulnerable in the Nature Conservation (Plants) Regulation 2020.

“**flora survey guideline**” and “**guideline**” are the *flora survey guidelines* referred to in section 142 of the *Plants Regulation*.

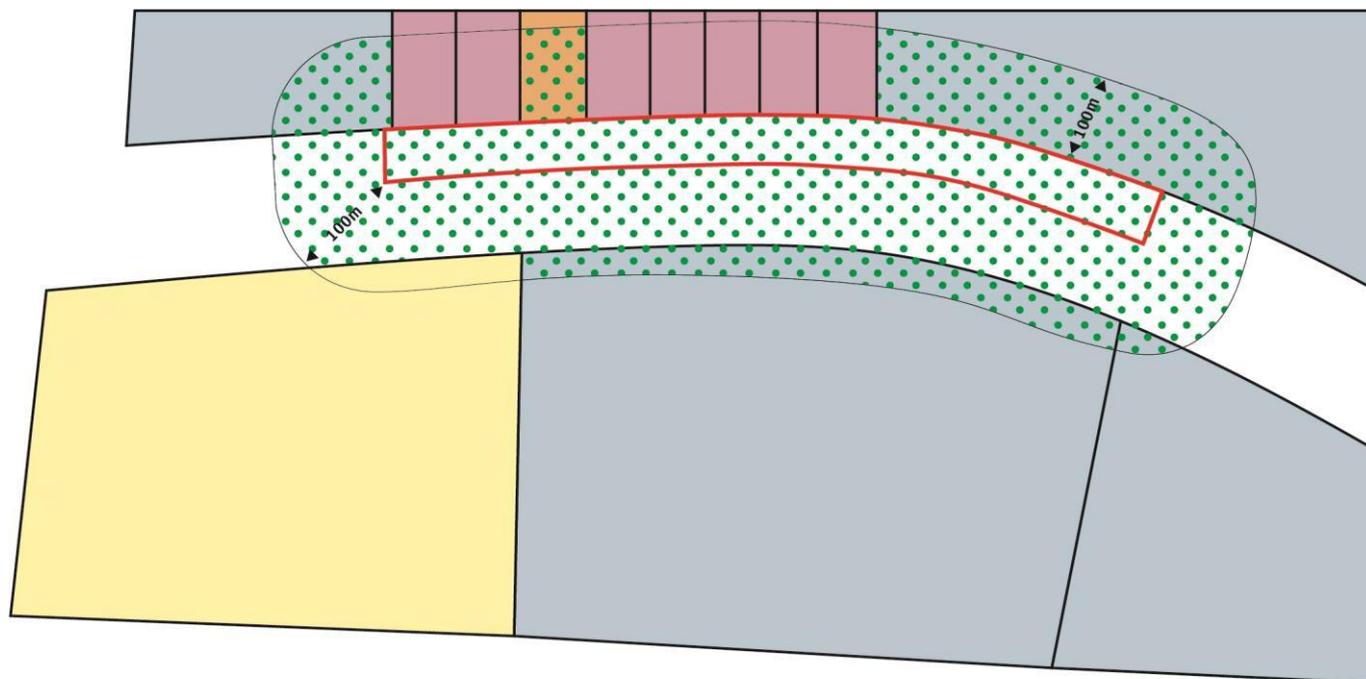
“**near threatened plant**” is a plant listed as near threatened in the *Nature Conservation (Plants) Regulation 2020*

“**possible threatened plant or near threatened plant**” is defined as a plant that cannot confidently be determined to not be an *threatened plant or near threatened plant*.

“**supporting habitat**” is defined in the same way as in the *wildlife management regulation*, as follows: ‘supporting habitat, for a protected plant, means the components, including other plants, of the habitat of a protected plant necessary for the plant’s survival at any stage of its life cycle located within 100m of the protected plant.’

“**Plants Regulation**” means the *Nature Conservation (Plants) Regulation 2020*.

Attachment 1 – Example of how a suitably qualified person may determine the extent of an area to be surveyed.



- | | |
|--|---|
|  Property > 1000m ² |  Landholder did not provide consent |
|  Property < 1000m ² with permanent building |  Area to be surveyed ('area to be cleared' plus 'buffer zone') |
|  Property < 1000m ² without permanent building |  Area to be cleared |

Attachment 2 – Reference materials and additional resources

Commonwealth Government (2013) Survey guidelines for Australia's threatened orchids: guidelines for detecting orchids listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999, Commonwealth Government, Canberra.

Cropper, S. (1993) Management of endangered plants, CSIRO Publications, Melbourne.

Department of Environment and Conservation (2004) Threatened biodiversity survey and assessment: Guidelines for developments and activities, Department of Environment and Conservation, Hurstville.

Department of Environment and Natural Resources (1997) Guide to a native vegetation survey: using the biological survey of South Australia, Department of Environment and Natural Resources, Adelaide.

Environmental Protection Authority (2004) Guidance for the assessment of environmental factors: terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia, Environmental Protection Authority, Perth.

Eyre, T.J., Kelly, A.L., Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2011) BioCondition: a condition assessment framework for terrestrial biodiversity in Queensland. Assessment Manual. Version 2.1. Department of Environment and Resource Management, Biodiversity and Ecosystem Sciences, Brisbane.

Fitzpatrick, M., Preisser, E., Ellison, A., Elkinton, J. (2009) Observer bias and the detection of low-density populations, *Ecological Applications* 19: 1673-1679.

Gerrard, G., Bekessy, S., McCarthy, M. and Wintle, B. (2008) When have we looked hard enough? A novel method for setting minimum survey effort protocols for flora surveys, *Austral Ecology* 33: 986 - 998.

Goff, F.G., Dawson, G.A. and Rochow, J.J. (1982) Site examination for threatened and endangered plant species. *Environmental Management* 6: 307-316.

Keith, D. A. (2000) Sampling designs, field techniques and analytical methods for systematic plant population surveys, *Ecological Management and Restoration* 1: 125 - 139.

Kery, M. and Gregg, K. (2003) Effects of life-state on detectability in a demographic study of the terrestrial orchid *Cleistes bifaria*, *Journal of Ecology* 91: 265-273.

McArdle, B. (1990) When are rare species not there? *Oikos* 57: 276-277.

McCaffrey, N., Blick, R., Glen, V., Fletcher, A., Erskine, P. and van Osta, J. (2014) Novel stratified-meander technique improves survey effort of the rare Pagoda Rock Daisy growing remotely on rocky cliff edges, *Ecological Management and Restoration* 15: 94 - 96.

Moore, J., Hauser, C., Bear, J., Williams, N., McCarthy, M. (2011) Estimating detection-effort curves for plants using search experiments, *Ecological Applications* 21: 601-607.

Neldner, V.J. and Butler D.W. (2008). Is 500 m² an effective plot size to sample floristic diversity for Queensland's vegetation? *Cunninghamia* 10: 513–519.

Neldner, V.J., Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (2012) Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland, Version 3.2, Queensland Herbarium, Queensland Department.

Queensland Herbarium (2016) Collection and preserving plant specimens, a manual. Department of Science, Information Technology, Innovation and the Arts.

Wintle, B., Walshe, T., Parris, K. and McCarthy, M. (2012) Designing occupancy surveys and interpreting non-detection when observations are imperfect, *Diversity and Distributions* 18: 417 - 424.