Internal use only	
Reference Number	/

Nomination to change the conservation class of a species under the Queensland *Nature Conservation Act 1992*

Complete this form to nominate a species for assessment of its conservation class under the *Nature Conservation Act 1992* (NC Act). Any subspecies, variety, race, hybrid, mutation or geographically separate population (hereafter 'species') can be nominated. The appropriate conservation class will be selected during an expert assessment process and, following approval processes, reflected in the next suitable update of the NC Act.

A species may be nominated to an appropriate conservation class from any other conservation class. The nomination assessment process may result in a species being recommended to the conservation class as nominated, or to a class better supported by scientific data and expert opinion. Assessments and nominations will be shared with the Commonwealth and other Australian jurisdictions within the species' distribution.

All plant and vertebrate species native to Queensland are protected under the NC Act and classified as Least Concern unless found eligible for a different conservation class. Invertebrate species are only protected under the NC Act if specifically named under a conservation class. A species can be nominated for listing or reassignment from any conservation class to:

A national threat category:

- Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (E) or Vulnerable (V) if it meets at least one of the International Union for Conservation of Nature (IUCN) criteria for species at risk of extinction

A state threat class:

- Near Threatened (NT) if the species meets at least one of the criteria for species at risk of becoming threatened in the future based on concerns relating to population dynamics or threats
- Least Concern (LC) if evidence is provided that no criteria for a higher class have been met, and the species won't become eligible for a higher class in the foreseeable future should conservation actions cease due to reclassification.

The assessment of species against the national threat categories reflected in this form complies with the Memorandum of Understanding for the Common Assessment Method (CAM) between the Commonwealth and Australian states and territories. The objective of the CAM is for partner jurisdictions to adopt each other's national assessments as appropriate. Information about the CAM can be found at https://www.qld.gov.au/environment/plants-animals/wildlife-permits/common-assessment.

To nominate a species with an Australian distribution that is not restricted to Queensland, use the nomination form and guidelines at http://www.environment.gov.au/biodiversity/threatened/nominations/forms-and-guidelines and email the completed form to the Australian Government at EPBC.nominations@environment.gov.au.

Important notes for completing this form

- **To enable a species eligibility for listing to be assessed against the criteria, please complete the form as comprehensively as possible by providing a response in each box with an orange border.**
- Completing a nomination is a demanding task. Nominators are encouraged to seek advice from experts where appropriate to assist in completing the nomination form.
- The opinion of scientific experts may be cited as personal communication with their approval. Please provide the experts names, qualifications and contact details (including employment in a government agency if relevant) in the reference list at the end of the form.
- Include any available information and analysis or state when the required information is not available.
- Figures, tables and maps can be included at the end of the form or provided as separate electronic files or hardcopy documents (referenced as appendices or attachments in your nomination).
- Cross-reference relevant areas of the nomination form where needed.
- **Reference all information sources**, both in the text and in a reference list at the end of the form.
- Identify confidential material and the reason it is sensitive. With the exception of information you have identified as confidential, nominations under the CAM process may be made available by a state, territory or the Commonwealth Government to experts or the public for comment.
- If the species is listed nationally, the Australian Government will publish nomination information on its website. Your details as nominator will not be released and will be treated as confidential information.
- Guidance on interpreting this nomination form can be found in the "*Guidelines for Assessing the Conservation Status of Native Species*" developed by the Australian Government under the EPBC Act here http://www.environment.gov.au/biodiversity/threatened/nominations/forms-and-guidelines. Although not fully relevant under the NC Act, the guidelines provide assistance on several aspects of this form. Please email SpeciesTechnical.Committee@des.qld.gov for further advice on completing the nomination.

Further information on selected questions

INTRODUCTION

Species native to Queensland may be nominated to any conservation class under the NC Act, including to transfer between classes. If the taxon at risk is a population or hybrid, or if you wish to know if it has been unsuccessfully nominated under the NC Act in the past, please contact the Queensland Department of Environment and Science for advice at SpeciesTechnical.Committee@des.qld.gov.au.

To search for a species' conservation class under the NC Act please refer to the *Nature Conservation (Wildlife) Regulation 2006*: https://www.legislation.qld.gov.au/view/html/inforce/current/sl-2006-0206.

You can also search the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) list of threatened species in the Species Profile and Threats Database (SPRAT) at www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

The full lists of threatened fauna and flora under the EPBC Act are available here:
www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=fauna
www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora.

You can find a list of nominated species that did not meet the assessment criteria for listing under the EPBC Act at www.environment.gov.au/biodiversity/threatened/unsuccessful-species.html.

A nomination to transfer a species from a threatened conservation class to Least Concern or Near Threatened under the NC Act need not address sections marked with an asterisk (*).

SCIENTIFIC AND COMMON NAMES OF NOMINATED SPECIES

- Provide the currently accepted scientific and common name(s) for the species (including Indigenous names, where known). Note any other scientific names that have been used recently such as superseded names.

TAXONOMY

- Record the species' authority and the taxonomic group to which it belongs (Family name is sufficient for plants; both Order and Family name are required for fauna).
- Is the species known to hybridise with other species? Describe any cross-breeding with other species in the wild, indicating where and how frequently this occurs.

DISTRIBUTION

- In accordance with the CAM, the Commonwealth is the default assessment 'lead' for species occurring across multiple Australian jurisdictions, and the nomination will be subject to the prioritisation and assessment process under the EPBC Act. Download the nomination form here http://www.environment.gov.au/system/files/pages/d72dfd1a-f0d8-4699-8d43-5d95bbb02428/files/nomination-form-species.pdf, and email it to epbc.nominations@environment.gov.au. Further information on the EPBC Act nomination, prioritisation and assessment process is available at http://www.environment.gov.au/biodiversity/threatened/nominations.
  Note: where the relevant jurisdictions agree, a State or Territory (rather than the Commonwealth) may take the lead on assessing a cross-jurisdictional species, in consultation with the Commonwealth and other jurisdictions.
- A nomination for a species endemic to Queensland or with its only Australian distribution in Queensland, for example a species only occurring in Queensland and Papua New Guinea, can be assessed under the NC Act. Please submit your completed nomination form to SpeciesTechnical.Committee@des.qld.gov.au.
- Describe the species' current geographic distribution within Queensland, and where applicable, outside Australia.
- Provide a map, if available, indicating latitude, longitude, map datum and location names
  - Indicate the percentage of the global population that occurs in Queensland, and what is its significance?
  - Is the Queensland population distinct, geographically isolated, or does part or all of the population migrate into/out of the Queensland jurisdiction?
  - Explain the relationship between the Queensland population and the global population.
  - Do global threats affect the Queensland population?
- Give locations of other existing or proposed populations such as populations that are captive, propagated, naturalised outside their range, recently re-introduced to the wild, and planned to be re-introduced. Note if these sites have been identified in recovery plans. Provide latitude, longitude, map datum and location name, where available, in an attached table.
- Give details of fauna species' home ranges/territories including any relevant daily and seasonal or irregular movement patterns, such as arrival/departure dates if migratory.
- Does the species occur within an EPBC Act listed ecological community? You will find a list of EPBC Act listed ecological communities here: www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl.

BIOLOGY/ECOLOGY

- **Life cycle**: Provide detail on the age at sexual maturity, average life expectancy, natural mortality rates, and generation length
  - "*Generation length*" is defined as the average age of parents of the current cohort (i.e. newborn individuals in the population), and reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in species that breed only once. Where generation length varies under threat, use the more natural pre-disturbance generation length. It is often calculated as = (longevity + age at maturity)/2. Provide details of the method(s) used to calculate the generation length.
- **Reproduction**: Provide detail on the reproductive requirements of this species.
  - **Flora**: When does the species flower and set fruit? What conditions are needed for this? What are the pollinating and seed dispersal mechanisms? If the species reproduces vegetatively, describe when, how and what conditions are needed. Does the species require a disturbance regime (e.g. fire, cleared ground) to reproduce?
  - **Fauna**: provide an overview of the species' breeding system and breeding success, including: when it breeds; what conditions are needed for breeding; whether there are any breeding behaviours that may make it vulnerable to a threatening process.
- **Habitat**
  - Provide information on aspect, topography, substrate, climate, forest type, associated species, sympatric species and anything else that is relevant to the species' habitat.
  - Explain how habitats are used (e.g. breeding, feeding, roosting, dispersing, basking, etc.).
  - Does the species use refuge habitat (e.g. in times of fire, drought or flood)? Describe this habitat.
- **Feeding (fauna):**

- Summarise the feeding behaviours, diet, and the timing/seasonality associated with these. Include any behaviour that may make the species vulnerable to a threatening process.

- **Movement (fauna)**: provide information on daily and seasonal movement patterns.

IDENTIFICATION OF KNOWN THREATS AND IMPACTS OF THE THREATS

- For each threat, describe:
  a. whether it is actual or potential
  b. how and where it impacts on this species
  c. what its effect has been so far (is the threat known or suspected?, does it only affect certain populations?) Present supporting information/research).
  d. its expected effect in the future (is the threat known or suspected?, does it only affect certain populations?, is there supporting research/information?) Present supporting information/research).
  e. its relative importance or the magnitude of the impact on the species.

- Identify and explain any additional biological characteristics particular to the species that are threatening to its survival (e.g. low genetic diversity).
- If subject to natural catastrophic events, i.e. events with a low predictability that are likely to severely affect the species, identify the type of event, its likely impact, and its likelihood of occurrence (e.g. a drought/cyclone in the area every 100 years). If **climate change** is an important threat to the species, provide referenced information on how climate change might significantly increase the species' vulnerability to extinction. Please refer to the *Guidelines for Assessing the Conservation Status of Native Species*: http://www.environment.gov.au/system/files/pages/d72dfd1a-f0d8-4699-8d43-5d95bbb02428/files/tssc-guidelines-assessing-species-2018.pdf.

*CONSERVATION ADVICE: THREAT ABATEMENT AND RECOVERY ACTIONS

- Describe how threats are or could be abated and/or species recovered.
- Identify who is undertaking these activities and how successful the activities have been to date.
- Describe any mitigation measures or approaches that have been developed specifically for the species at identified locations. Identify who is undertaking these activities and how successful the activities have been to date.
- For species nominated as Extinct in the Wild, provide location details for any naturalised or captive populations and the level of human intervention required to sustain the species.

IMPACT OF TRANSFERRING A THREATENED SPECIES TO NEAR THREATENED OR LEAST CONCERN

- Only complete this section if you are nominating a species for transfer to Near Threatened or Least Concern from a class of nationally threatened wildlife (Extinct, Extinct in the Wild, Critically Endangered, Endangered or Vulnerable).
- Provide details of the expected impact on the species if conservation actions ceased following its transfer out of a threatened wildlife class.

CURRENT LISTING CLASS AND CATEGORY

- Note: The term 'class' under the NC Act is equivalent to the term 'category' under the EPBC Act.
- Select the species' current class under the NC Act where applicable. Search the species' NC Act class here: https://www.legislation.qld.gov.au/view/html/inforce/current/sl-2006-0206.
- Select the species' current category under the EPBC Act where applicable. Search the Australian Government SPRAT Database here: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

NOMINATED LISTING CLASS

- **After completing the section 'Eligibility against the criteria'** sufficient evidence should be available to determine your response to this section. Please select the NC Act class to which the species is being nominated.

REASONS FOR A NOMINATION TO TRANSFER TO ANOTHER CLASS

Please describe why the species is being nominated to transfer to another conservation class in Queensland:

- *Genuine.* The change in class is the result of a genuine status change that has taken place since the previous assessment. For example, the change is due to an increase in the rate of decline, a decrease in population or range size or habitat, or declines in these for the first time (owing to increasing/new threats).
- *Knowledge.* The change in class is the result of new knowledge, e.g. owing to new or newly synthesised information about the status of the taxon (e.g. better estimates for population size, range size or rate of decline).
- *Taxonomy.* The change in class is due to a taxonomic change adopted during the period since the previous assessment. Such changes include:

- *newly split* (the taxon is newly elevated to species level)
- *newly described* (the taxon is newly described as a species)
- *newly lumped* (the taxon is recognised following lumping of two previously recognised taxa)
- *no longer valid/recognised* (either the taxon is no longer valid, e.g. because it is now considered to be a hybrid, variant form or subspecies of another species, or the previously recognised taxon differs from a currently recognised one as a result of a split or lump).

- *Mistake*. The previous class was applied in error.
- *Other.* The change in class is the result of other reasons not easily covered by the above, and/or requires further explanation. Examples include change in assessor's attitude to risk and uncertainty.

INITIAL LISTING

- The reasons for the initial NC Act listing may be available in the original nomination for the species. This can be obtained by emailing the Department of Environment and Science's Species Technical Committee at SpeciesTechnical.Committee@des.qld.gov.au.
- The reasons for EPBC Act listing may also be available. Search for the species' EPBC Act listing and conservation advice for threatened species in the SPRAT Database www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.
- If there is insufficient information to provide details of the reasons for the original listing, please state this.

CHANGES IN SITUATION LEADING TO THE NOMINATION TO TRANSFER TO ANOTHER CLASS

- Describe the changes that have occurred or are likely to occur to the species' population, range or habitat that influence the nomination to change the species' conservation class.

ELIGIBILITY AGAINST CRITERIA

- For a species to be eligible as Near Threatened or a class of threatened wildlife, it must be assessed as meeting **at least one** of the five 'criteria' on this nomination form. For example, for a species listed as Vulnerable to be transferred to the Endangered class, it must meet the threshold/s for at least one of the five criteria for Endangered.
- A species does not have to be found eligible for the same class under all criteria; however, all questions must be answered. If information is not available for a particular criterion, a statement to this effect is required.
- If you hold unpublished data that support assessment of a criterion, you must provide them with the nomination.
- Standards for assessing a species' conservation status in Australia align with the IUCN Red List Criteria and Categories. Please refer to the IUCN guidelines for explanations of how to address the criteria http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3151/redlistguidelines.pdf.

DECLARATION

In signing this nomination form, you agree to grant the Queensland Government (as represented by the Department of Environment and Science) a perpetual, non-exclusive, worldwide, royalty-free licence to use, reproduce, publish, communicate and distribute information that you have provided in the nomination form that is not referenced to other sources with the exception of information specifically identified by you as confidential, in websites and publications and to promote those websites and publications in any medium.

As nominator, your details are automatically subject to the provisions of the *Privacy Act 1988* and will not be divulged to third parties. The Commonwealth, State and Territory governments have agreed to collaborate on national threatened species assessments using the CAM. As part of this collaboration, your nomination, including your details as nominator, may be provided to other government jurisdictions, who will also observe these privacy and confidentiality arrangements.

If you subsequently agree to be cited as the author of specific, cited information, you will be acknowledged in all publications and websites in which that information appears, in a manner consistent with the *Style Manual for Authors, Editors and Printers* (latest edition).

Nomination form to change the conservation class of a species in Queensland

Details of the nominated species

SCIENTIFIC NAME OF SPECIES (SUBSPECIES, VARIETY, ETC. TO BE SPECIFIED WHERE RELEVANT)

Marsdenia araujacea, current accepted name in Queensland in *Leichhardtia araujacea* (Forster, 2021).

COMMON NAME(S)

TAXONOMY

Provide any relevant detail on the species' taxonomy (e.g. authors of taxon or naming authority, year and reference; synonyms; Family and Order).

Family: Apocynaceae: Gentianales: Magnoliopsida: Magnoliophyta: Plantae

Marsdenia araujacea F.Muell., Fragm. 6: 135 (1868). Type: Queensland. Cook District: Stone River, 24 October 1866, J. Dallachy s.n. (holo: MEL 113385, 113386); iso: BRI [AQ333092]).

Superceded:
Vincetoxicum pachylepis F.M.Bailey, Bot. Bull. 8: 78 (1893). Type: Queensland. Cook District: Kamerunga, Barron River, January 1893, E. Cowley s.n. (holo: BRI [AQ333088]).
Cynanchum pachylepis
Additional specimen examined: Queensland. Cook District: 26.1 km N of Hope Vale on Biniirr NP (CYPAL), Sep 2016, Thompson SLT16602, McConnell, McClean, Nipper, D., Nipper, B. & Nipper, H. (BRI).

*CONVENTIONAL ACCEPTANCE OF TAXONOMY

Is the species' taxonomy conventionally accepted?

☒Yes
☐No

If the species is not conventionally accepted, please provide the following information:

- a taxonomic description of the species in a form suitable for publication in conventional scientific literature

OR

- evidence that a scientific institution has a specimen of the species, and a written statement signed by a person who is a taxonomist and has relevant expertise (has worked with, or is a published author on, the group of species nominated) that the species is considered to be a new species.

Click or tap here to enter text.

*DESCRIPTION

Provide a description of the species. Include where relevant its distinguishing features, size and social structure.
How distinct is this species in its appearance from other species? How likely is it to be misidentified?

Marsdenia araujacea is a woody vine. The stems have a covering of fine yellow-brown hairs. The large leaves (up to 13 cm long and 10 cm wide) are elliptic or oval in shape, heart-shaped at the base and pointed at the tip, with scattered hairs on the underside. The leaf veins are prominent on the underside of the leaf and the leaf stem is 2–3 cm long.

The flower-heads are flat-topped, with individual flowers approximately 10 mm long by 17 mm in diameter. The flower stalks are approximately 4 mm long. The petals are bell-shaped, cream in colour, with oval or lance-shaped lobes approximately 7 mm long and 2 mm wide. The lobes are smooth on the inside. Flowers have been recorded in January with the fruits forming 3-4 months later.

The stamens (male reproductive part) are fused to the petals for most of their length. The anthers (pollen producing part) have oval-shaped appendages. The style (slender part between the ovary and stigma) is elongated and beak-like in shape at the upper end. The pollen grains are not visible to the naked eye (Forster 1996).

The fruit is fusiform-ovoid, glabrous, 13.5–15 cm long, 5–8 cm wide (fully expanded), slightly warty near tip and with the tip slightly incurved.

DISTRIBUTION

Provide a succinct overview of the species' known or estimated current and past distribution, including international/national distribution. Provide a map if available.

Is the species' habitat protected within the reserve system (e.g. national parks, Indigenous Protected Areas, or other conservation estates, private land covenants, etc.)? If so, which populations? Which reserves are actively managed for this species? To your knowledge, which reserves are being actively managed in way that provides incidental benefits for this species? Give details.

Marsdenia araujacea is endemic to the north east Queensland Wet Tropics, occurring between approximately Hope Vale and Townsville. Collection sites span 600 km from Biniirr National Park (Cape York Peninsula Aboriginal Land) in the north to the Stone River, west of Ingham, in the south.

The type specimen was collected from Stone River in 1866. Other recorded localities include the Endeavour River near Cooktown (1866), Rockingham Bay near Cardwell (1870) and Barron River (1893). The 2016 specimen was collected from Biniirr NP (CYPAL), north of Hope Vale and approximately 40 km NNW of Cooktown, slightly to the north of the species previously known distribution.

Prior to the collection of the specimen in 2016, *M. araujacea* had not been seen for 123 years (Forster 1995), with only seven specimens having been collected since 1866: five in 1866, single specimens in 1870 and 1893. Only one specimen was observed at the Biniirr NP (CYPAL) site in 2016. The species is still apparently uncommon.

This group of *Marsdenia* species (*M. glandulifera* C.T.White, *M. hemiptera* Fl.Rchb., *M. paludicola* P.I.Forst.), are patchily distribution in Australia, often in spring fed rainforest systems from northern New South Wales through eastern Queensland and across into the Northern Territory (Forster 2019).

BIOLOGY/ECOLOGY

Provide a summary of biological and ecological information.

Include information on:

- life cycle including age at sexual maturity, life expectancy and natural mortality rates
- specific biological characteristics
- the species' habitat requirements
- for fauna: feeding behaviour and food preference and daily/seasonal movement patterns
- for flora: pollination and seed dispersal patterns

Habitat: Lowland *Blepharocarya involucrigera* F.Muell. gallery rainforest invariably associated with permanent water, often by tapping underground springs or aquifers. *Blepharocarya* dominated communities are widespread and strongly associated with water. They may be located immediately around a water source or are linear following water courses (Forster 1995).

Soil: The 2016 specimen was noted as occurring on conglomerate soil.

Phenology: *Marsdenia araujacea* flowers in January with fruits appearing three to four months later (Forster 1996), however 2016 specimen was noted as having green fruit in September. There is no information on generation length for the species.

Threats

IDENTIFICATION OF KNOWN THREATS AND IMPACT OF THE THREATS

Identify any known threats to the species in the table below. Describe **past, current or future** threats, whether the threats are **actual or potential**, and the **type and level of impact** you believe each threat is having on the species.

Past threats	Impact of threat
Unknown	According to the *Marsdenia araujacea* profile on the Australian Government's Species Profile and Threats (SPRAT) database,"The reasons for the decline and extinction of *Marsdenia araujacea* are unknown". Forster discusses patchy distribution as characteristic of this species group. The species may have rarely occurred in high numbers, or with a wider or more consolidated distribution. If so, by its nature the species will remain at risk of

	extinction, particularly in the face of human induced habitat loss and fragmentation, and disruption of seed distribution relationships and/or processes. The species is highly associated with free water therefore any impacts on water courses (human disturbance for infrastructure and development, feral pig disturbance) or water levels (lowered water tables or artesian spring failure due to water extraction, low rainfall cycles/drought, flooding and climate change Hilbert et al. 2014, Hoffman et al. 2019) in its habitat will put additional pressure on its persistence (DoEE 2019).
Current threats	**Impact of threat**
Click or tap here to enter text.	As above
Future threats – actual	**Impact of threat**
Click or tap here to enter text.	Click or tap here to enter text.
Future threats – potential	**Impact of threat**
Click or tap here to enter text.	As above

*CONSERVATION ADVICE: THREAT ABATEMENT AND RECOVERY ACTIONS

Give an overview of recovery and threat abatement/mitigation actions that are underway, have been formally proposed or that you would like to recommend. Address all threats listed or state threats that lack conservation advice.

Current threats	**Abatement or recovery action underway**
Click or tap here to enter text.	There is currently no Recovery Plan for this species or Threat Abatement Plan relevant to this species.
	Abatement or recovery action proposed
Click or tap here to enter text.	
Future threats – actual	**Abatement or recovery action underway**
Click or tap here to enter text.	
	Abatement or recovery action proposed
Click or tap here to enter text.	Click or tap here to enter text.
Future threats – potential	**Abatement or recovery action underway**
Click or tap here to enter text.	Click or tap here to enter text.
	Abatement or recovery action proposed
Click or tap here to enter text.	Click or tap here to enter text.

IMPACT OF TRANSFERRING A THREATENED SPECIES TO NEAR THREATENED OR LEAST CONCERN

Omit this section and proceed to 'Listing class/category' if the nomination does not involve transferring a species from a threatened class to Least Concern or Near Threatened.

If the threatened species (Extinct, Extinct in the Wild, Critically Endangered, Endangered or Vulnerable) were moved to Least Concern or Near Threatened, what would be the impact if conservation actions for the species were reduced or ceased? Would the species decline at such a rate that it would be eligible for listing under a threatened class again in the foreseeable future? Provide evidence, expert advice and appropriate references to support your response.

Conservation action	**Impact on the species if abatement/recovery action is reduced or ceases**
NA	Click or tap here to enter text.

Listing class/category

CURRENT LISTING CLASS/CATEGORY

[Please mark the boxes that apply by double clicking them with your mouse.]

In what class is the species currently listed under the **NC Act**?

☐Extinct	☒Extinct in the Wild	☐Critically Endangered	☐Endangered
☐Vulnerable	☐Near Threatened	☐Least Concern	☐Not listed

In what category is the species currently listed under the **EPBC Act**?

☒Extinct	☐Extinct in the Wild	☐Critically Endangered	☐Endangered
☐Vulnerable	☐Conservation Dependent		☐Not listed

NOMINATED LISTING CLASS

To what class under the **NC Act** is the species being nominated?

☐Extinct	☐Extinct in the Wild	☒Critically Endangered	☐Endangered
☐Vulnerable	☐Near Threatened	☐Least Concern	☐Not listed

Nominating a species to transfer to another class

REASON FOR A NOMINATION TO TRANSFER TO ANOTHER CLASS

What is the reason for the nomination?

☐Genuine change of status	☒New knowledge	☐Mistake	☐Other
Taxonomic change - ☐'split'	☐newly described	☐'lumped'	☐no longer valid

INITIAL LISTING

Describe the reasons for the species' initial listing under the NC Act and/or the EPBC Act and, if available, the criteria under which it was formerly considered eligible.

In his review of the genus *Marsdenia*, Forster (1995) reports the species had not been collected or reported since 1893 (102 years). The species was subsequently listed under the EPBC in 2000, and under the NCA in 2006.
The species is recorded only 7 times between 1866 and 1995 (a possible 8th record is discounted due to inadequate location information). Collection occurred from a patchy distribution over a large distance without evidence of the species being frequently encountered or having a high density within that range.

Original nomination details for EPBC Act and NC Act are not available. The reason for species decline is unknown (Commonwealth SPRAT database).

CHANGES IN SITUATION LEADING TO THE NOMINATION TO TRANSFER TO ANOTHER CLASS

Please complete (a), (b) OR (c) as appropriate to the nomination.

(a) Critically Endangered, Endangered, Vulnerable or Near Threatened

Describe the change in circumstances that make the species eligible for listing in a class other than Extinct and Extinct in the Wild.

Systematic sampling across all bioregions and vegetation communities in Queensland conducted as part of the Queensland Herbarium Regional Ecosystem Survey and Mapping program did not record the species (Neldner, 2014).
However the identity of the specimen collected in 2016 was confirmed in a publication in 2019 (Forster) and the species conservation status under the NC Act was assessed as Critically Endangered by the Queensland STC in September 2019.

This species has only been collected 8 times since 1866 and does not appear to have been collected or sighted at all between 1893 and 2016. "Cursory searching" was undertaken near Cairns and Cooktown between 1989 and 1994, but the species was not located, "however, the latter locality has not been particularly well surveyed for this species" (Forster 1995).).

(b) Extinct in the Wild

A native species is eligible to be included in the Extinct in the Wild class if: (a) thorough searches have been conducted for the species; and (b) the species has not been seen in the wild over a period appropriate for its life cycle or form. The species may still survive in cultivation, captivity or as a naturalised population (or populations) well outside the historic range.

Describe how circumstances have changed that now make the species eligible for listing as Extinct in the Wild. Provide details of the last valid record or observation of the species in the wild.

NA

(c) Extinct

A native species is eligible to be included in the Extinct class if there is no reasonable doubt that the last member of the species has died. A taxon is presumed Extinct when exhaustive surveys in the known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual.

Describe how circumstances have changed that now make the species eligible for listing as Extinct. Provide details of the last valid record or observation for the species in the wild and captivity.

NA

Standard of scientific evidence and adequacy of survey

Please complete as appropriate to the nomination

For this assessment it is considered that the survey of the species has been adequate and there is sufficient scientific evidence to support the listing outcome. While there has been no specific survey for this species, this group of *Marsdenia* species (*M. glandulifera* C.T.White, *M. hemiptera* HFl.Rchb., *M. paludicola* P.I.Forst.), have a patchy distribution in Australia, often in spring fed rainforest systems from northern New South Wales through eastern Queensland and across into the Northern Territory, and generally only occur in small populations at any given site.

Eligibility against the criteria

CRITERION A

Population size reduction (reduction in total numbers) measured over the longer of 10 years or 3 generations based on any of A1 to A4

	Critically Endangered (CR)	Endangered (EN)	Vulnerable (VU)	Near Threatened (NT)
A1	**≥ 90%**	**≥ 70%**	**≥ 50%**	**≥ 20%**
A2, A3, A4	**≥ 80%**	**≥ 50%**	**≥ 30%**	**≥ 20%**

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.

A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [*(a) cannot be used for A3*]

A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

based on any of (a) to (e)

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites

Please identify whether the species meets A1, A2, A3 or A4. Include an explanation, supported by data and information, on how the species meets the criterion (A1 – A4). If available include information on:

- whether the population trend is increasing, decreasing or static

- estimated generation length and method used to estimate the generation length

You must provide a response. If there is no evidence to demonstrate a population size reduction, this must be stated.

There is no information on the population of this species, and hence it is impossible to assess any population size reduction.

CRITERION B:

Geographic distribution is precarious for either extent of occurrence AND/OR area of occupancy				
	Critically Endangered (CR)	**Endangered (EN)**	**Vulnerable (VU)**	**Near Threatened (NT)**
B1. Extent of occurrence (EOO)	**< 100 km²**	**< 5,000 km²**	**< 20,000 km²**	**< 40,000 km²**
B2. Area of occupancy (AOO)	**< 10 km²**	**< 500 km²**	**< 2,000 km²**	**< 4,000 km²**
AND at least 2 of the following 3 conditions for CR, EN or VU:				AND (b) for NT
(a) Severely fragmented OR Number of locations	**= 1**	**≤ 5**	**≤ 10**	**Not applicable**
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals				**≥ 10% within the longer of 10 years or 3 generations**
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals				**Not applicable**

Please refer to the 'Guidelines for Using the IUCN Red List Categories and Criteria' for assistance with interpreting the criterion particularly in relation to calculating 'extent of occurrence', 'area of occupancy' and understanding of the definition and use of 'severely fragmented', 'locations', 'continuing decline' and 'extreme fluctuations'.

Please identify whether the species meets B1 or B2. Except for Near Threatened species, include an explanation, supported by data and information, on how the species meets at least 2 of (a), (b) or (c). For Near Threatened species, include an explanation, supported by data and information, on how the species meets (b).

Please note that locations must be defined by a threat. A location is a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the species present.

If available, include information on:

- Whether there are smaller populations of the species within the total population and, if so, the degree of geographic separation between the smaller populations within the total population
- Any biological, geographic, human induced or other barriers enforcing separation

You must provide a response. If there is no evidence to demonstrate that the geographic distribution is precarious for either extent of occurrence AND/OR area of occupancy, this must be stated.

Qualifies for Critically Endangered under B1 + 2ab (i, ii, iv). In contemporary time, only one specimen is known from a single collection in 2016, with the five widely dispersed historical collections being more than 126 years old. The current Extent of Occurrence and Area of Occupancy is 4 km^2 (one 2 km x 2 km grid square). While the threats to this species are currently unconfirmed, the species is at risk from potential vegetation clearing and hydrological impacts resulting from infrastructure development and associated activities, feral pig disturbance, lowering of water tables or artesian spring failure due to water extraction, and low rainfall cycles/drought and flooding as a result of high rainfall events, which are predicted to be exacerbated by climate change. Therefore, the species occurs in one location. This means *Marsdenia araujacea* meets the Critically Endangered criteria under B1ab (i, ii and iv) and B2ab (i, ii and iv). It has suffered decline of EOO (i), AOO (ii) and number of locations (iv). The knowledge of one extant location means the present conservation status of extinct in the wild is incorrect.

CRITERION C

Small population size and decline					
		Critically Endangered (CR)	**Endangered (EN)**	**Vulnerable (VU)**	**Near Threatened (NT)**
Estimated number of mature individuals		**< 250**	**< 2,500**	**< 10,000**	**< 20,000**
AND either (C1) or (C2) is true					AND (C1) is true
C1 An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in the future		**25% in 3 years or 1 generation (whichever is longer)**	**20% in 5 years or 2 generations (whichever is longer)**	**10% in 10 years or 3 generations (whichever is longer)**	**10% in 10 years or 3 generations (whichever is longer)**
C2 An observed, estimated, projected or inferred continuing decline AND its geographic distribution is precarious for its survival based on at least 1 of (a) or (b):					
(a)	(i) Number of mature individuals in each subpopulation	**≤ 50**	**≤ 250**	**≤ 1,000**	**Not applicable**
	OR				
	(ii) % of mature individuals in one subpopulation =	**90 – 100%**	**95 – 100%**	**100%**	**Not applicable**
(b) Extreme fluctuations in the number of mature individuals		**Applicable**	**Applicable**	**Applicable**	**Not applicable**

Please identify the estimated total number of mature individuals and either an answer to C1 or C2. Include an explanation, supported by data and information, on how the species meets the criteria. Note: If the estimated total number of mature individuals is unknown but presumed to be likely to be >10 000, you are not required to provide evidence in support of C1 or C2, just state that the number is likely to be >10 000.

You must provide a response. If there is no evidence to demonstrate small population size and decline this must be stated.

Qualifies for Critically Endangered under C2a (i,ii) . Only one mature individual is known to exist (i), so the whole known population confined to one subpopulation (ii). However, while surveys are required to better estimate the size of the population, it is likely that the population is less than 250 mature individuals based on the paucity of sightings since discovery.

CRITERION D:

Very small population				
	Critically Endangered (CR)	**Endangered (EN)**	**Vulnerable (VU)**	**Near Threatened (NT)**
D1. Number of mature individuals	**< 50**	**< 250**	**D1. < 1,000**	**D1. < 3,000**
OR				
D2. [Only applies to the VU and NT categories] Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.	**Not applicable**	**Not applicable**	**D2. Typically: AOO < 20 km² or number of locations ≤ 5**	**D2. Typically: AOO < 40 km² or number of locations ≤ 10**

Please identify the estimated total number of mature individuals and evidence of how the figure was derived.

For Criterion D2, please provide information on the species' area of occupancy, number of locations and plausible threats.

You must provide a response. If there is no evidence to demonstrate eligibility, this must be stated.

Qualifies for Critically Endangered under D1 based on only one known mature individual having been found in 127 years.

CRITERION E:

Quantitative Analysis				
	Critically Endangered (CR)	**Endangered (EN)**	**Vulnerable (VU)**	**Near Threatened (NT)**
Indicating the probability of extinction in the wild to be:	**≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)**	**≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)**	**≥ 10% within 100 years**	**≥ 5% within 100 years**

Please identify the probability of extinction and evidence of how the analysis was undertaken.
You must provide a response. If there has been no quantitative analysis undertaken this must be stated.

Quantitative analysis has not been undertaken

SUMMARY OF CRITERIA UNDER WHICH THE SPECIES IS ELIGIBLE FOR LISTING AS: CR, EN, V, NT, EW or EX

Please mark the criteria and sub-criteria that apply.

☐Criterion A	☐A1 (specify at least one of the following) ☐a) ☐b) ☐c) ☐ d) ☐e); **AND/OR** ☐A2 (specify at least one of the following) ☐a) ☐b) ☐c) ☐d) ☐e); **AND/OR** ☐A3 (specify at least one of the following) ☐a) ☐b) ☐c) ☐d) ☐e); **AND/OR** ☐A4 (specify at least one of the following) ☐a) ☐b) ☐c) ☐d) ☐e)
☒Criterion B Critically Endangered	☒B1 (specify at least two of the following) ☒a) ☒b) ☐c); **AND/OR** ☒B2 (specify at least two of the following, other than NT) ☒a) ☒b) ☐c)
☒Criterion C Critically Endangered	☐estimated number of mature individuals **AND** ☒C1 **OR** ☐C2 ☐a (i) **OR** ☐a (ii) **OR** ☐C2 ☐b)
☒Criterion D Critically Endangered	☒D1 **OR** ☐ D2
☐Criterion E	
☐EX	
☐EW	
☐LC	Species nominated to change from a higher conservation class to Least Concern. No above boxes apply.

Other Considerations

*INDIGENOUS CULTURAL SIGNIFICANCE

Is the species known to have cultural significance for Indigenous groups within Australia? If so, to which groups? Provide information on the nature of this significance if publicly available.

The cultural, customary and spiritual significance of species and the ecological communities they form are diverse and varied for Indigenous Australians and their stewardship of Country. This section describes some examples of this significance but is not intended to be comprehensive or applicable to, or speak for, Indigenous Australians. Such knowledge may be held by Indigenous Australians who are the custodians of this knowledge and have the rights to decide how this knowledge is shared and used.

Marsdenia araujacea is known from occurrences on the lands of the Djabuganjdi and Yidinjdji Nation People (whilst acknowledging that other peoples may have a connection to the Country). There is little published information on how the Djabuganjdi and Yidinjdji Nation People relate to Country in this region and what that may mean for the cultural significance of *Marsdenia araujacea.*

FURTHER STUDIES

Identify relevant studies or management documentation that might relate to the species (e.g. research projects, national park management plans, recovery plans, conservation plans, threat abatement plans, etc.).

Click or tap here to enter text.

ADDITIONAL COMMENTS/INFORMATION

Please include any additional comments or information on the species such as survey or monitoring information, and maps that would assist with the consideration of the nomination.

Click or tap here to enter text.

IMAGES OF THE SPECIES

Please include or attach images of the species if available, and indicate if you are in a position to authorise their use.

Image from Forster 2019

Reviewers and references

REVIEWER(S)

Has this nomination been peer-reviewed? Have relevant experts been consulted on this nomination? If so, please include their names, current professional positions and contact details.

Dr John Neldner, Science Leader, Queensland Herbarium

REFERENCE LIST

Please list key references/documentation you have referred to in your nomination.

Department of the Environment and Energy (DoEE 2019), Species Profile and Threats (SPRAT) database entry for *Marsdenia araujacea*. https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=20391. Accessed 21 October 2019.

Forster, P. I. (2019). SHORT COMMUNICATION Rediscovery of the previously Extinct *Marsdenia araujacea* F.Muell. (Apocynaceae). Austrobaileya 10(3): 539–540 (2019)

Forster, P.I. (1995). Circumscription of *Marsdenia* (Asclepiadaceae: Marsdenieae), with a revision of the genus in Australia and Papuasia. Australian Systematic Botany 8: 703–933

Forster, P.I. (1996). Flora of Australia 28: 158; Bailey, F.M. (1893) Botanical Bulletin of the Department of Agriculture 8: 79

Forster, P.I. (2021). *Gymnema* R.Br. and *Leichhardtia* R.Br. (Apocynaceae), reinstated genera for taxa previously included in *Marsdenia* R.Br.: a conspectus for Australia, New Guinea and the Solomon Islands. Queensland Department of Environment & Science, Austrobaileya 11: 1-18.

Hilbert D. W., Hill R., Moran C., Turton, S. M., Bohnet I., Marshall N. A., Pert P. L., Stoeckl N., Murphy H. T., Reside A. E., Laurance S. G. W., Alamgir M., Coles R., Crowley G., Curnock M., Dale A., Duke N. C., Esparon M., Farr M., Gillet S., Gooch M., Fuentes M., Hamman M., James C. S., Kroon F. J., Larson S., Lyons P., Marsh H., Meyer Steiger D., Sheaves M. & Westcott D. A. (2014). Climate Change Issues and Impacts in the Wet Tropics NRM Cluster Region. James Cook University, Cairns.
Hoffmann, A.A., Rymer, P.D., Byrne, M., Ruthrof, K.X., Whinam, J., McGeoch, M., Bergstrom, D.M., Guerin, G.R., Sparrow, B., Joseph, L, Hill, S.J., Andrew, N.R. Camac, J., Bell, N., Riegler, M., Gardner, J.L. & Williams, S.E. (2019). Impacts of recent climate change on terrestrial flora and fauna: some emerging Australian examples. Austral Ecology 44: 3–27.

Neldner, V.J. (2014). The contribution of vegetation survey and mapping to Herbarium collections and botanical knowledge: a case study from Queensland. Cunninghamia 14:77-87.

Wildnet. Internal database of Queensland Department of Environment and Science. Entry for *Marsdenia araujacea*. Accessed 21 October 2019.

Atlas of Living Australia website. Entry for *Marsdenia araujacea.* https://bie.ala.org.au/species/http://id.biodiversity.org.au/node/apni/2916726. Accessed 21 October 2019.

Nominator's Details

Note: Your details are subject to the provisions of the *Privacy Act 1988* and will not be divulged to third parties, except for state and territory governments and scientific committees that have agreed to collaborate on national threatened species assessments using a CAM. If there are multiple nominators please include details below for all nominators.

TITLE (e.g. Mr/Mrs/Dr/Professor/etc.)

Ms

FULL NAME

Peta Maidens

ORGANISATION OR COMPANY NAME (IF APPLICABLE)

Department of Environment and Science

CONTACT DETAILS

DECLARATION

I declare that, to the best of my knowledge, the information in this nomination and its attachments is true and correct.

Signed: Click here to enter text. ** If submitting by email, please attach an electronic signature*	Date: Click or tap to enter a date.

Lodging your nomination

Completed nominations may be lodged either:
1. by email in Microsoft Word format to: SpeciesTechnical.Committee@des.qld.gov.au
2. by mail to: The Chair
   Species Technical Committee
   Queensland Herbarium
   Mount Coot-tha Rd
   Toowong QLD 4066

*** If submitting by mail, you must include an electronic copy on a memory stick.**

Suggested citation:
Maidens, P. (2019) Nomination form to change the conservation class of *Marsdenia araujacea* in Queensland

Flora of Aust 1996
17. Marsdenia araujacea F.Muell., Fragm. 6: 135 (1868) T: Stone River, Qld, 24 Oct. 1866, J.Dallachy; holo: MEL; iso: BRI. Vincetoxicum pachylepis F.M.Bailey, Bot. Bull. Dept. Agric. 8: 79 (1893); Cynanchum pachylepis (F.M.Bailey) Domin, Biblioth. Bot. 89: 1085 (1928). T: Kamerunga, Barron R., Qld, Jan. 1893, E.Cowley; holo: BRI. Woody vine; latex colour unknown. Roots not seen. Indumentum yellow-brown. Leaves with petiole 20–30 mm long; lamina elliptic-ovate, to 13 cm long, to 10 cm wide, cordate at base, acute, with scattered to sparse trichomes below, not trinerved at base; venation prominent below; colleters 8–15. Inflorescences umbelliform. Flowers c. 10 mm long, c. 17 mm diam.; pedicels c. 4 mm long. Corolla campanulate, cream; tube c. 4 mm long, c. 5 mm diam.; lobes lanceolate-ovate, c. 6.7 mm long, 1.8–2 mm wide, internally glabrous. Corolline corona of 5 ridges, not terminating in apical lobes. Staminal corona of 5 subulate lobes longer than staminal column, entire, adnate for most of length; lobes c. 5 mm long, c. 2 mm wide. Anther appendages ovate. Style-head elongate-rostrate. Pollinia not seen. Follicles fusiform-ovoid, c. 15 cm long. Endemic to northern Qld, between Cooktown and Cairns. Grows in lowland rainforest. Flowers Jan.; fruits 3–4 months later. Map 301. Qld: Rockingham Bay, coll. unknown (MEL); Telegraph Line, Rockingham Bay, Aug. 1870, coll. unknown (MEL); Endeavour R., 1866, Perseitz 825 (MEL). This species has not been collected since 1893.

Forster paper 1995
7. ***Marsdenia araujacea*** F.Muell., Fragm. 6: 135 (1 868).
TYPE: Queensland, Cook District: Stone River, ***J. Dallachy s.n.,*** 24 Oct. 1866 (holo: MEL

(1 13385, 113386); iso: BRI (AQ333092)).

Vincetoxicum pachylepis F.M.Bailey, Bot. Bull. 8: 79 (1893).

TYPE: Queensland, Cook District: Kamerunga, Barron River, E. ***Cowley s.n.,*** Jan. 1893 (holo: BRI (AQ333088)).

Woody liane, latex colour unknown. Indumentum of yellow-brown trichomes. Roots not seen. Stems cylindrical, up to 4 mm diameter, with dense trichomes; internodes up to 6 cm long. Leaves petiolate; lamina ovate-elliptic, up to 13 cm long and 10 cm wide, discolorous, venation comprising 6-10 lateral veins on each side of midrib and reticulate tertiary veins; upper surface dark green, glabrous or with scattered trichomes, venation obscure; lower surface pale-green, with scattered to sparse trichomes, venation prominent; tip acute; base cordate; petiole up to 3 cm long and 2 mm wide, grooved along top, with dense trichomes; colleters eight to 15 at lamina base. Cymes umbelliform, up to 3 cm long; peduncles up to 1 cm long and 1.5 mm diameter, with dense trichomes; bracts lanceolate, c. 2 mm long and 1 mm wide, with dense trichomes. Flowers c. 10 mm long, 17 mm diameter; pedicels c. 4 mm long and 1 mm diameter, with dense trichomes. Sepals oblong-ovate, slightly overlapping, c. 6 mm long, 4 mm wide, glabrous or with scattered trichomes, ciliate; colleters two to three at each sinus base. Corolla campanulate cream; tube c. 4 mm long, 5 mm diameter, glabrous, not pouched at top; lobes lanceolate-ovate, probably fleshy, reflexed, c. 6.7 mm long, 1.8-2 mm wide, glabrous externally; corolline corona comprising 5 ridges of dense trichomes alternate to the lobes that stops abruptly at the tube top. Stamina1 corona c. 5 mm long, 4 mm diameter, lobes in close proximity to one another, overtopping and arching over the stylehead; each lobe fused to back of anther, c. 5 mm long, 2 mm wide, bottom portion rectangular, c. 4 mm long and 2 mm wide, top portion subulate, c. 1 mm long, 0.5 mm wide at base. Stamina1 column c. 3 mm long, 3 mm diameter; anther appendages ovate, c. 1 mm long and 1 mm wide; alar fissure c. 2 mm long. Style-head rostrate, c. 2 mm long, base globose c. 1 mm long and 1.5 mm diameter. Pollinaria not seen. Ovaries c. 2 mm long and 2 mm wide, glabrous. Follicles fusiform-ovoid, glabrous, c. **15** cm long, 8 cm wide. Seeds ovate, 11-12 mm long, 6-7 mm wide; coma 25-30 mm long.

ADDITIONAL SPECIMENS EXAMINED

QUEENSLAND, COOK DISTRICTE:n deavour River, *Perseitz* 825, 1866 (MEL); Rockingham Bay, (undated) (K (photo at BRI), MEL113387); Telegraph Line, Rockingham's Bay, Aug. 1870 (MELS 13748).

DISTRIBUTION AND **ECOLOGY**

Marsdenia araujacea is recorded for Queensland from near Cardwell in the south to Cooktown in the north (Fig. 82) where it undoubtedly grows (or grew) in lowland rainforest communities.

NOTES

Marsdenia araujacea is closely allied to the newly described M. *paludicola* P.I.Forst. from Cape York Peninsula and to several taxa from New Guinea such as *M. egregia* P.I.Forst. and *M. venusta* P.I.Forst. These taxa are compared in Table 2.