



Consultation Document on Listing Eligibility and Conservation Actions

***Amytornis dorotheae* (Carpentarian grasswren)**

You are invited to provide your views and supporting reasons related to:

- 1) the eligibility of *Amytornis dorotheae* (Carpentarian grasswren) for inclusion on the EPBC Act threatened species list in the Vulnerable category; and
- 2) the necessary conservation actions for the above species.

Evidence provided by experts, stakeholders and the general public are welcome. Responses can be provided by any interested person.

Anyone may nominate a native species, ecological community or threatening process for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or for a transfer of an item already on the list to a new listing category. The Threatened Species Scientific Committee (the Committee) undertakes the assessment of species to determine eligibility for inclusion in the list of threatened species and provides its recommendation to the Australian Government Minister for the Environment.

Draft information for your consideration of the eligibility of this species for listing Vulnerable starts at page 5 and information associated with potential conservation actions for this species starts at page 8. To assist with the Committee's assessment, the Committee has identified a series of specific questions on which it seeks your guidance at page 9.

Responses are to be provided in writing either by email to:
species.consultation@environment.gov.au

or by mail to:

The Director
Marine and Freshwater Species Conservation Section
Wildlife, Heritage and Marine Division
Department of the Environment
PO Box 787
Canberra ACT 2601

Responses are required to be submitted by 22 January 2016.

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General background information about listing threatened species

The Australian Government helps protect species at risk of extinction by listing them as threatened under Part 13 of the EPBC Act. Once listed under the EPBC Act, the species becomes a Matter of National Environmental Significance (MNES) and must be protected from significant impacts through the assessment and approval provisions of the EPBC Act. More information about threatened species is available on the department's website at:

<http://www.environment.gov.au/biodiversity/threatened/index.html>.

Public nominations to list threatened species under the EPBC Act are received annually by the department. In order to determine if a species is eligible for listing as threatened under the EPBC Act, the Threatened Species Scientific Committee (the Committee) undertakes a rigorous scientific assessment of its status to determine if the species is eligible for listing against a set of criteria. These criteria are available on the Department's website at:

<http://www.environment.gov.au/biodiversity/threatened/pubs/guidelines-species.pdf>.

As part of the assessment process, the Committee consults with the public and stakeholders to obtain specific details about the species, as well as advice on what conservation actions might be appropriate. Information provided through the consultation process is considered by the Committee in its assessment. The Committee provides its advice on the assessment (together with comments received) to the Minister regarding the eligibility of the species for listing under a particular category and what conservation actions might be appropriate. The Minister decides to add, or not to add, the species to the list of threatened species under the EPBC Act. More detailed information about the listing process is at:

<http://www.environment.gov.au/biodiversity/threatened/nominations.html>.

To promote the recovery of listed threatened species and ecological communities, conservation advices and where required, recovery plans are made or adopted in accordance with Part 13 of the EPBC Act. Conservation advices provide guidance at the time of listing on known threats and priority recovery actions that can be undertaken at a local and regional level. Recovery plans describe key threats and identify specific recovery actions that can be undertaken to enable recovery activities to occur within a planned and logical national framework. Information about recovery plans is available on the department's website at:

<http://www.environment.gov.au/biodiversity/threatened/recovery.html>.

Information about this consultation process

Responses to this consultation can be provided electronically or in hard copy to the contact addresses provided on Page 1. All responses received will be provided in full to the Committee and then to the Australian Government Minister for the Environment.

In providing comments, please provide references to published data where possible. Should the Committee use the information you provide in formulating its advice, the information will be attributed to you and referenced as a 'personal communication' unless you provide references or otherwise attribute this information (please specify if your organisation requires that this information is attributed to your organisation instead of yourself). The final advice by the Committee will be published on the department's website following the listing decision by the Minister.

Information provided through consultation may be subject to freedom of information legislation and court processes. It is also important to note that under the EPBC Act, the deliberations and recommendations of the Committee are confidential until the Minister has made a final decision on the nomination, unless otherwise determined by the Minister.

Amytornis dorotheae

Carpentarian grasswren

Taxonomy

Conventionally accepted as *Amytornis dorotheae* (Mathews 1914).

Species Information

Description

The Carpentarian grasswren is a medium-sized grasswren with a moderately long tapered tail. The species reaches a length of 16 - 17.5 cm and weighs 21 - 25 g (Higgins et al., 2001). Adult plumage is rich rufous-brown above transitioning to blackish on the top and sides of the head with bold white streaks on the cap, neck and saddle, the underside of the body is white in upper areas changing to yellow-brown (males) or rich red-brown (females) in lower areas and flanks (Higgins et al., 2001). Both sexes also have a slim orange-brown eyebrow and black whisker mark extending from the bill to the edge of the breast (Pizzey & Knight 1997). Juveniles are less boldly streaked, duller in colouration and have a paler beak (Higgins et al., 2001).

Carpentarian grasswrens are similar in appearance to white-throated grasswrens (*Amytornis woodwardi*), however Carpentarian grasswrens are notable smaller and slimmer (Higgins et al., 2001).

Distribution

The Carpentarian grasswren is endemic to the southern Gulf of Carpentaria region of northern Australia (Higgins et al., 2001). Historically the species was known from four separate areas between the Tawallah Range/Limmen Bight River in the Northern Territory and Gunpowder in north-west Queensland (McKean & Martin 1989; Murphy et al., 2011); Borroloola, Wollgorang, Boodjamulla and Mt Isa. However, there have been no records of the species in the Borroloola area since 1986 despite several targeted surveys in the last decade (McKean & Martin 1989; Garnett et al., 2011). Within the Wollgorang area of the Northern Territory the species now exists as a tiny isolated population approximately 6 km to the west of Calvert Hills Station (Nomination 2015). Systematic surveys of the Boodjamulla (Lawn Hill) area of Queensland in 2011 recorded the species in very low numbers, with suspected population declines resulting from significant reductions in suitable habitat following extensive fires in 2003, 2006 and 2011 (Harrington et al., 2011; Young 2011). The largest remaining specific population of Carpentarian grasswrens exists in the Mount Isa region of Queensland (Harrington et al., 2009); however availability of habitat in this region may have been reduced following wildfires in 2012.

Relevant Biology/Ecology

The Carpentarian grasswren is confined to sandstone outcrops in mature spinifex (*Triodia* spp.) hummock grassland in the northern part of its range, while in the southern part of its range it occupies long-unburnt spinifex with stony areas between the hummocks on which grow a range of short grasses, forbs and patchy low trees and shrubs (McKean & Martin 1989; Rowley & Russell 1997). Grasswrens normally abandon burnt areas, unless substantial unburnt pockets of spinifex remain (Garnett et al., 2011), with recolonisation occurring after three to four years depending on levels of rainfall, vegetation regeneration rates and the persistence of nearby source populations (Harrington et al., 2009).

Carpentarian grasswrens are both insectivorous and granivorous and forage for seeds and insects on the ground, in rock crevices and in leaf litter beneath spinifex tussocks or shrubs. They generally forage in pairs or small groups (Higgins et al., 2001). The movements and dispersal biology of the species are largely unknown, however it has been suggested that individuals are likely to disperse and establish new territories through relatively in-tact landscapes (Nomination 2015) and occupy stable breeding territories of an estimated 1.5 km² in size (Garnett et al., 2011).

Carpentarian grasswrens build bulky domed nests, featuring a side entrance with a large lip, using dry spinifex stems, dry leaves and softer grasses (Higgins et al., 2001). Nests are built above ground, usually in the upper portion of spinifex clumps, and females lay two to three eggs that are oval shaped, pinkish-white and faintly spotted (Higgins et al., 2001). A generation time of 9.7 years (BirdLife International 2011) is derived from an age at first breeding of 2.3 years and a maximum longevity of 17.0 years, both values extrapolated from fairy-wrens (*Malurus* spp.) (Garnett et al., 2011).

Threats

The primary threat to Carpentarian grasswrens is increased fire frequency and intensity (Garnett et al., 2011; Murphy et al., 2011), as this causes changes to the vegetation communities in their sandstone habitats (Higgins et al., 2001). Fire caused the extirpation of the Borroloola subpopulation in the Northern Territory, has greatly reduced two other subpopulations and was probably responsible for the historical separation of the species into four specific subpopulations (Garnett et al., 2011). Inappropriate fire regimes are currently threatening the remaining subpopulations (Nomination 2015). Rainfall in the northern part of the historical range has increased over the last century (Woinarski et al., 2007) because the wet season has been starting earlier (Garnett & Williamson 2010). While this allows spinifex to recover from fire more quickly it also enables fires to be more frequent and extensive (Garnett et al., 2011). The extent of control burning across the species range may also have declined (Garnett et al., 2011), thus allowing a build-up of fuel that may result in more intense fires. The spread of introduced pasture grasses, such as buffel grass (*Cenchrus ciliaris*), may also contribute to more frequent fires that spread across a greater extent of the landscape and burn deeper into rocky refuges (Garnett et al., 2011). Buffel grass invasion has the potential to become a serious threat to the Mt Isa population in the future (Nomination 2015). Elsewhere in Central Australia, buffel grass has invaded spinifex dominated systems, and has been implicated in the local extinction of dusky grasswrens (*A. purnelli*) (Nomination 2015).

Other potential threats to the species include ongoing, localised impacts from mining and associated development (Garnett et al., 2011). Feral cats also pose a potential threat to Carpentarian grasswrens, although there have not been any reports of predation, grasswrens are likely to be at risk from feral cats due to their ground-dwelling nature (Nomination 2015). Cat predation is likely to increase in post-fire landscapes as vegetation cover is reduced, and birds are forced to move through much more open landscapes and exist in small, suboptimal habitat patches (Nomination 2015).

Assessment of available information in relation to the EPBC Act Criteria and Regulations

Criterion 1. Population size reduction (reduction in total numbers)			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered Very severe reduction	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p> <p style="text-align: center;">based on any of the following</p> <p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>			

Evidence:

Experts have inferred that the Carpentarian grasswren has undergone a reduction in population size of greater than 30 percent in a three generation period (29 years), based on ongoing reductions in the species' extent of occurrence and area of occupancy, and that the cause of the reduction may not have ceased (A2 (c)) (Harrington & Murphy, In Prep.; Nomination 2015). Furthermore, experts also suspect that the species will undergo further declines in population size in the future as the causes of recent declines are likely to continue and intensify (A4 (c)) (Nomination 2015). In 2010 the *Action Plan for Australian Birds 2010* estimated that the Carpentarian grasswren had experienced a reduction in population size of 20 to 29 percent in the preceding three generation period (Garnett et al., 2011), however since that time fires have significantly reduced available habitat for the species.

Experts recently estimated that, following severe fires in 2011 and 2012, the species extent of occurrence had declined by around 33 percent and area of occupancy had decreased by around 35 percent (Harrington & Murphy, In Prep.; Nomination 2015). To calculate the species extent of occurrence experts used the minimum convex polygon method, where no internal angle exceeded 180 degrees. All point records for the species were separated into the four identified subpopulations, a convex hull was calculated for each subpopulation and areas for each subpopulation were summed to estimate a total extent of occurrence for the species (Harrington & Murphy, In Prep.). This process was then repeated using only point records from the year 2000 onwards and the results of each calculation were compared to estimate the reduction in the species extent of occurrence (Harrington & Murphy, In Prep.). To calculate the area of occupancy the species entire extent of occurrence was divided into 2 x 2 km grid cells (each cell representing 400 ha), grid cells that contained records of the species (from all years) were counted and the total number of cells was multiplied by 400 to estimate area of occupancy (Harrington & Murphy, In Prep.). This process was also repeated using only point records from the year 2000 onwards and the results of each calculation were compared to estimate the reduction in area of occupancy (Harrington & Murphy, In Prep.).

In 2010 the *Action Plan for Australian Birds 2010* estimated the number of mature individuals for the species to be 14 000 and decreasing (Garnett et al., 2011), however following recent

reductions in the species extent of occurrence and area of occupancy experts now estimate the number of mature individuals to be between 5550 and 11 050 (Nomination 2015). The Borroloola subpopulation now appears to be extinct, with multiple dedicated, systematic surveys having failed to find any Carpentarian grasswrens in this area since 1986 (Harrington & Murphy, In Prep.; Nomination 2015). Anecdotal observations and systematic surveys indicate that the Wollgorang subpopulation has declined steeply since the 1970s and now exists only at a small isolated location (Nomination 2015). The Boodjamulla subpopulation also appears to have decreased significantly, with systematic surveys in 2011 finding only five pairs/groups scattered over a large area (Harrington et al., 2011). Subsequent surveys, conducted in October 2011 following fires across the region, located only two nests with eggs (Young 2011). The Mount Isa subpopulation is the largest remaining subpopulation for the species, with surveys in 2009 finding individuals scattered across an area of approximately 22 000 km² (Harris & Stewart 2009). Fires in the Mount Isa region in 2012 further reduced the area available to Carpentarian grasswrens by greater than 50 percent (Nomination 2015). Based on the evidence presented above, researchers estimate that Carpentarian grasswrens have undergone a decline in population size of between 33 and 73 percent (Harrington & Murphy, In Prep.).

The major cause of recent declines in the species extent of occurrence, area of occupancy and quality of habitat is thought to be an increase in the frequency and intensity of fires. Inappropriate fire regimes are likely to continue to impact the species in the future as the species distribution becomes increasingly fragmented and individuals are forced to occupy smaller, isolated patches of unburnt habitat (Harrington & Murphy, In Prep.; Nomination 2015). Unburnt habitat patches may also represent suboptimal habitat for the species in terms of vegetation structure and patch size, and it can take three to four years for burnt patches to once again provide suitable habitat for the species as spinifex vegetation recovers (Nomination 2015).

The data presented above appear to demonstrate that the species is **eligible for listing as Vulnerable** (A2 (c) and A4 (c)) under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions indicating distribution is precarious for survival:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(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			
(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			

Evidence:

Following recent declines in habitat availability and quantity, experts have estimated the Carpentarian grasswrens extent of occurrence as 18 978 km² and the area of occupancy as 264 km², the species remaining distribution is severely fragmented and there are inferred continuing declines in extent of occurrence, area of occupancy, quality of habitat and number of mature individuals (B1,B2 (a)(b)(i)(ii)(iii)(v)) (Harrington & Murphy, In Prep.; Nomination 2015).

As described under Criterion 1 the species current extent of occurrence was calculated using the minimum convex polygon method and area of occupancy was calculated using the number

of occupied 2 x 2 km² grid cells. Of the four historic subpopulations of Carpentarian grasswrens, one subpopulation is now thought to be locally extinct, a second subpopulation has been reduced to low numbers at a single location and the remaining two populations have also declined significantly and are now scattered across large areas that have been fragmented by an increase in the frequency, intensity and extent of wildfires (Harrington & Murphy, In Prep.; Nomination 2015). Furthermore, experts recently estimated that, following severe fires in 2011 and 2012, the species extent of occurrence had declined by around 33 percent and area of occupancy had decreased by around 35 percent (Harrington & Murphy, In Prep.; Nomination 2015). Ongoing declines in extent of occurrence, area of occupancy, quality of habitat and number of mature individuals are also inferred as fire remains a primary threat to the species survival and adequate habitat regeneration can take approximately three to four years post fire (Nomination 2015).

The data presented above appear to demonstrate that the species is **eligible for listing as Vulnerable** (B1, B2 (a)(b)(i)(ii)(iii)(v)) under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 3. Population size and decline				
		Critically Endangered Very low	Endangered Low	Vulnerable Limited
Estimated number of mature individuals		< 250	< 2,500	< 10,000
AND either (C1) or (C2) is true				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future)	Very high rate 25% in 3 years or 1 generation (whichever is longer)	High rate 20% in 5 years or 2 generation (whichever is longer)	Substantial rate 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 the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b)	Extreme fluctuations in the number of mature individuals			

Evidence:

In 2010 the *Action Plan for Australian Birds 2010* estimated the number of mature individuals for the species to be 14 000 and decreasing (Garnett et al., 2011). Following recent reductions in the species extent of occurrence and area of occupancy, experts now estimate the number of mature individuals to be between 5550 and 11 050 (Nomination 2015). However, both of these population size estimates were considered to be of low reliability due to a lack of robust survey data, of comparable effort, across the entire species distribution (Garnett et al., 2011; Nomination 2015).

The data presented above appear to be insufficient to demonstrate if the species is eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 4. Number of mature individuals			
	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
Number of mature individuals	< 50	< 250	< 1,000

Evidence:

In 2010 the *Action Plan for Australian Birds 2010* estimated the number of mature individuals for the species to be 14 000 and decreasing (Garnett et al., 2011). Following recent reductions in the species extent of occurrence and area of occupancy experts now estimate the number of mature individuals to be between 5550 and 11 050 (Nomination 2015). However, both of these population size estimates were considered to be of low reliability due to a lack of robust survey data, of comparable effort, across the entire species distribution (Garnett et al., 2011; Nomination 2015). Nevertheless, both estimates of population size clearly exceed the threshold of less than 1000 mature individuals required to be eligible for listing under this criterion.

The data presented above appear to demonstrate the species is not eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 5. Quantitative Analysis			
	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
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% in 100 years

Evidence:

As population viability analysis has not been undertaken there is insufficient data to demonstrate if the species is eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Conservation Actions

Recovery Plan

A decision about whether there should be a recovery plan for this species has not yet been determined. The purpose of this consultation document is to elicit additional information to help inform this decision.

Conservation and Management Priorities

Fire

- Implement specific fire regimes at key sites in response to the results of monitoring of fire patterns to create a mosaic of spinifex ages. For example, by burning less than 10 percent of the total area each year, burning each site at intervals of greater than 10 years, each fire less than 20 km² and mostly late or very early in the wet season as per Garnett et al., (2011).

- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps.

Invasive species

- Map the distribution of buffel grass across the species area of occupancy and, if necessary, undertake weed control at key sites.
- Determine the impacts of feral cat predation on grasswrens and, if necessary, implement a feral species management program at key sites.

Habitat loss disturbance and modifications

- Ensure land managers are aware of the species' occurrence and provide protection measures against potential threats from mining and other developments.

Stakeholder Engagement

- Undertake consultation with private landholders in the Mount Isa region to improve management for Carpentarian grasswrens on private land.

Survey and Monitoring priorities

- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes by undertaking regular monitoring at key sites across the species range.
- Analyse data to determine population trends at key monitoring sites.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

Information and research priorities

- Monitor fire patterns from satellite imagery and model impact on habitat.
- Assess the effect of buffel grass on Carpentarian grasswren habitat occupancy.
- Determine the relationship of buffel grass to fire data.

Collective list of questions – your views

1. Do you agree with the current taxonomic position of the Australian Faunal Directory and Birdlife Australia for this species (as identified in the draft conservation advice)?
2. Can you provide any additional references, information or estimates on longevity, age of maturity, average life span and generation length?
3. Has the survey effort for this species been adequate to determine its national distribution and adult population size?
4. Do you accept the estimate provided in the Nomination, 2015 for the current population size of the species?

5. For any population with which you are familiar, do you agree with the population estimate provided? If not, are you able to provide a plausible estimate based on your own knowledge? If so, please provide in the form:
 Lower bound (estimated minimum):
 Upper bound (estimated maximum):
 Best Estimate:
 Estimated level of Confidence: %
6. Can you provide any additional data, not contained in the current Nomination, 2015, on declines in population numbers over the past or next 10 years or 3 generations, whichever is the longer?
7. Is the distribution as described in the Nomination, 2015 valid? Can you provide an estimate of the current geographic distribution (extent of occurrence or area of occupancy in km²) of this species?
8. Has this geographic distribution declined and if so by how much and over what period of time?
9. Do you agree that the species is eligible for inclusion on the threatened species list, in the category listed in the Nomination, 2015?
10. Do you agree that the threats listed are correct and that their effects on the species are significant?
11. To what degree are the identified threats likely to impact on the species in the future?
12. Can you provide additional or alternative information on threats, past, current or potential, that may adversely affect this species at any stage of its life cycle?
13. In seeking to facilitate the recovery of this species, can you provide management advice for the following:
 - What individuals or organisations are currently, or need to be, involved in planning to abate threats, and any other relevant planning issues?
 - What threats are impacting on different populations, how variable are the threats and what is the relative importance of the different populations?
 - What recovery actions are currently in place, and can you suggest other actions that would help recover the species? Please provide evidence and background information.
14. Can you provide additional data or information relevant to this assessment?
15. Can you advise as to whether this species is of cultural significance to Indigenous Australians

References cited in the advice

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Other sources cited in the advice

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- Nomination (2015). Nomination to the Commonwealth Department of the Environment for the inclusion of *Amytornis dorotheae* on the List of Threatened Species, 26 March 2015. Head of conservation, BirdLife Australia.