CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

To transfer *Leporillus conditor* from CITES Appendix I to CITES Appendix II, in accordance with provisions of Resolution Conf. 9.24 (Rev CoP17), Annex 4 precautionary measures A1 and A2a(i).

B. Proponent

Australia*

C. Supporting statement

1. Taxonomy

1.1 Class: Mammalia

1.2 Order: Rodentia

1.3 Family: Muridae

1.4 Genus, species or subspecies, including author and year: *Leporillus conditor* (Gould, 1848)

1.5 Scientific synonyms: *Mus conditor* Gould, 1848; *Leporillus jonesi* Thomas, 1912

1.6 Common names: English: Greater Stick-nest Rat, Wopilkara, House-building Rat
French: Rat architecte
Spanish: Rata arquitecto

1.7 Code numbers:

2. Overview

At the 29th meeting of the Animals Committee (AC29 Com. 7 Rev) the Committee selected *Leporillus conditor* (the greater Stick-nest rat) for review between CoP17 and CoP19 in accordance with Resolution Conf. 14.8 (Rev. CoP17) Periodic Review of the Appendices. Parties were notified of the Animals Committee's selection in Notification 2017/069. Australia's review was provided to the 30th meeting of Animals Committee, and the Committee asked the Secretariat to invite the proposal to be submitted to the 18th meeting of the Conference of the Parties.

Leporillus conditor was listed on CITES Appendix I on 1 July 1975. The CITES trade database reports no trade in this species. Threats to *L. conditor* have historically been predation by introduced predators (feral

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cat and European red fox), habitat alteration due to the impacts of exotic herbivores, and changed fire regimes. These threats are currently partially mitigated as there are four extant subpopulations on islands and within predator-exclosures on the Australian mainland. However, potential threats still exist from fire, disease and incursion of exotic animals (Department of the Environment and Energy 2008, Woinarski et al. 2014, NSW Office of Environment and Heritage 2018).

Resolution Conf. 9.24 (Rev CoP17) resolves that, when considering proposals to amend Appendix I and II, species that *are or may be affected by trade* should be included in Appendix I if they meet at least one of the biological criteria listed in Appendix I. A species "is or may be affected by trade" if:

i) it is known to be in trade (using the definition of 'trade' in Article I of the Convention), and that trade has or may have a detrimental impact on the status of the species; or

ii) it is suspected to be in trade, or there is demonstrable potential international demand for the species, that may be detrimental to its survival in the wild.

There is no evidence that trade is or may be a threat to the survival of this species; as such, the species is demonstrably not in trade. There is no suspected or demonstrable potential demand for the species. Future commercial trade is unlikely. Therefore *L. conditor* does not meet the criteria for inclusion on Appendix I. *Leporillus conditor* is eligible for transfer from Appendix I to Appendix II in accordance with Resolution Conf. 9.24 (Rev CoP17).

3. Species characteristics

3.1 Distribution

Leporillus conditor became extinct on the Australian mainland in the 1930s, remaining only on the Franklin Islands, South Australia (Woinarski et al. 2014).

Populations have been reintroduced to several other islands: Reevesby Island and St Peter's Island in South Australia, and Salutation Island in Western Australia. As a result of further reintroductions, new populations of this species were established in various mainland areas.

Reintroductions to the mainland have been to Yookamurra Sanctuary (1991), Venus Bay Conservation Park (1995), and Arid Recovery Reserve (1998) in South Australia, the Heirisson Prong Conservation Area (1999) in Shark Bay (Short et al. 2018) and Mt Gibson (2011, 2013, 2015, 2018) in Western Australia, and to Scotia Sanctuary in New South Wales (2006). Of these, only the Arid Recovery Reserve (SA) reintroduction has been successful, while the Mt Gibson sanctuary (WA) reintroduction is still in early stages (Australian Wildlife Conservancy 2017, Peter Copley pers. comm. 2018).

3.2 Habitat

Leporillus conditor inhabits perennial shrublands, especially with succulent and semi-succulent plant species including bluebush, saltbush and pig-face species (Lee 1995).

3.3 Biological characteristics

Leporillus conditor build large, communal nests out of available sticks. Family groups work together to find and drag branches to a central site - usually around a bush that becomes part of the final nest. Branches are chewed to length and added to the nest structure along with additionally-collected green vegetation. These nests can be up to 1 m in height and more than 1.5m wide. Tunnels lead from the outside to the centre of these structures, where rats place grass and other soft green vegetation. These nests provide protection for the rats from weather extremes and from native predators (Australian Wildlife Conservancy 2017). On the Franklin Islands the rats use the dense shrubs, numerous short-tailed shearwater nesting burrows and crevices among rocks for shelter (Lee 1995).

Breeding can occur year-round but usually peaks in autumn and winter. Females give birth to between one and three young after a gestation period of 44 days (Robinson 2008). They are carried around on the mother's teats (Woinarski et al. 2014) for about a month, until weaning and independence (Australian Wildlife Conservancy 2017). Sexual maturity is reached at 8-9 months, longevity in captivity is 5 years. Generation length is assumed to be around 2 years (Woinarski et al. 2014).

3.4 Morphological characteristics

Leporillus conditor is a large rat to rabbit-sized rodent (Watts and Aslin 1981), with adult individuals ranging from 17-26 cm in body length and weighing up to 450 g. They have long soft fluffy yellow-brown

to grey fur on their back and cream or grey-white fur below. A blunt snout, large, dark eyes and large, rounded ears are also characteristic of the species. They also have a long tail that is dark brown above and light brown below and is usually shorter in length than the head and body, and distinctive white markings on their upper feet (Watts and Aslin 1981, Australian Wildlife Conservancy 2017). When resting, the species sits in a hunched position that is similar to the stance of a rabbit (Australian Wildlife Conservancy 2017).

3.5 Role of the species in its ecosystem

Little is known about the role of *L. conditor* in its ecosystem. Soil disturbance (via ground foraging, nest building or burrowing) by animals is thought to contribute to maintaining healthy Australian soils and landscapes, particularly in arid and semi-arid areas (Martin 2003, Eldridge and James 2009). Nests also provide shelter sites for a range of invertebrates and small reptiles, and nest-building may contribute to seed distribution.

4. Status and trends

4.1 Habitat trends

Although reduced compared to its former range, the habitat in use by *L. conditor* is relatively secure and increasing in size as new 'protected' (island or fenced) subpopulations are established (Woinarski et al. 2014, Woinarski and Burbidge 2016), although the total extent of its current distribution would be <1% of its historic range and it persists only in sites at which no introduced predators occur.

4.2 Population size

There are estimated to be over 3000 mature individuals across all islands and mainland sanctuary populations (Woinarski et al. 2014).

4.3 Population structure

Large nests are communal and inhabited over multiple successive generations. The adult female can often display aggression towards the male, in which case the male will often seek shelter away from the main group. Young generally disperse after the next litter is born. If an adult female is seen with an older young, it is most likely a female offspring. In some re-introduced populations on offshore islands, female rats may occupy small, relatively stable den areas, while the male rats occupy a wider range of den sites (Encyclopedia of Life 2018).

4.4 Population trends

After suffering a significant decline by the 1930s, *L. conditor* has been introduced to a number of islands and fenced mainland locations. See section 3.1.

With the establishment of these new subpopulations, the species' status has changed in a positive direction, increasing the number of subpopulations and overall population size. Woinarski et al. (2014) and Woirnarksi and Burbridge (2016) considered these populations to be stable.

The Shark Bay Mammals Recovery Team has advised that there are issues with monitoring greater stick-nest rats at some sites and therefore it is difficult to make assessments of overall trends with confidence. Declines have been noted at some sites (which may be related to food availability and seasonal changes) while numbers at other sites appear to be consistently expanding (WA Department of Biodiversity, Conservation and Attractions pers. comm. 2018).

4.5 Geographic trends

Leporillus conditor once ranged across semi-arid regions of southern Australia. Subfossil data combined with information from early explorers and naturalists show that the distribution of stick-nest rats formed arcs along the south-eastern, southern and south-western boundaries of the arid zone, from western Victoria to North West Cape in Western Australia. *Leporillus conditor* had a more restricted distribution along the arid zone boundary than did the lesser stick-nest rat (*L. apicalis*). It did not occur in the Great Victoria Desert, and was probably absent from the northern parts of the Eastern Goldfields of Western Australia. There is little evidence of its occurrence south-west of the arid zone boundary.

However, unlike the lesser stick-nest rat, *L. conditor* did occur all over the Nullarbor Plain (Woirnarksi and Burbridge 2016).

Leporillus conditor became extinct on the mainland in the 1930s remaining only on the Franklin Islands, South Australia (Woinarski et al. 2014) and thereby having undergone a significant reduction in extent of occurrence and area of occupancy.

The species has since been introduced to a number of other islands and fenced mainland locations, and where these introductions have been successful, the populations are considered to be stable (Woinarski et al. 2014). The species' extent of occurrence and area of occupancy has increased since the original decline, but the total area of occurrence remains a small proportion of its former range (Woinarski et al. 2014, Woinarski and Burbidge 2016).

The species is listed as Near Threatened on the IUCN Red List. It could qualify for Vulnerable if some of the island or mainland populations become unsuitable due to arrival of introduced predators (Woinarski and Burbidge 2016).

5. Threats

Like most other small to medium-sized Australian mammals, *L. conditor* is highly susceptible to predation by foxes and cats and these introduced predators are identified as the major threat to this species (Woinarski et al. 2014, Woinarski and Burbidge 2016).

Remaining and reintroduced populations on islands and in exotic-predator-free enclosures do not immediately face threats from introduced predators or herbivores, but predator incursions are considered to be a major potential threat. These populations are small and geographically isolated, and are therefore also at risk of extinction from localised catastrophic events such as fire and disease (Australian Wildlife Conservancy 2017).

There is no evidence of trade threatening the survival of this species.

6. Utilization and trade

6.1 National utilization

None.

6.2 Legal trade

No trade is recorded in the CITES Trade Database and the species is not traded domestically.

6.3 Parts and derivatives in trade

No trade is recorded in the CITES Trade Database.

6.4 Illegal trade

There is no known incidence of illegal trade in *L. conditor*. Illegal trade is not considered to have been a factor in this species' decline.

6.5 Actual or potential trade impacts

The species is protected nationally. There is no known incidence of trade in this species. Trade has therefore not had a detrimental impact on the status of the species. There is no demonstrable potential demand for the species. Future commercial trade is unlikely; some trade for scientific or conservation purposes may arise and there are national control measures in place to control for any potential for detrimental impact to the species.

7. Legal instruments

7.1 National

Leporillus conditor is listed as Vulnerable under Australia's national environmental legislation - the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Conservation Dependent under Schedule 3 of Western Australia's *Wildlife Conservation Act 1950,* Vulnerable under Schedule 8

of South Australia's *National Parks and Wildlife Act 1972,* and listed as Extinct under Schedule 3 of NSW *Biodiversity Conservation Act 2016.*

7.2 International

Leporillus conditor has been listed on Appendix I of CITES since 1975. Permits would be required for import and export and no commercial trade of live specimens is allowed. No trade has been recorded.

8. Species management

8.1 Management measures

A series of recovery plans and their implementation (Copley 1993, 1994, 1995 cited in Woinarski et al. 2014) has been successful in improving the conservation status of this species. Its national status has improved from Endangered to Vulnerable within a period of five years (Woinarski et al. 2014). Management measures successfully implemented under these plans include: the maintenance of the Franklin Island population; establishment of a captive breeding program; increasing the number of wild populations; increasing the geographic spread of populations within the species' former range; increasing the overall number of mature individuals and the number in each population (Woinarski et al. 2014).

Leporillus conditor is subject to an approved conservation advice under national environmental legislation (Department of the Environment and Energy 2008). The approved conservation advice sets out the grounds on which the species is listed as threatened under national environmental legislation and information about what could appropriately be done to stop the decline, or support the recovery of the species (or if nothing can appropriately be done).

This conservation advice (Department of the Environment and Energy 2008) outlines a number of management priorities such as: the design and implementation of monitoring programs, including to monitor the progress of recovery and effectiveness of management actions; monitor known populations to identify key threats and threats to habitat; develop and implement a management plan for the control and eradication of exotic predators and manage introduced herbivores; and maintain a captive breeding program and investigate options for establishing additional populations (see also section 8.4).

Translocated individuals have successfully re-established populations on islands and the mainland (in 'fenced mainland islands') which are being managed and maintained by state governments, conservation organisations, business corporations and local community groups (Woinarski et al. 2014). The Shark Bay Mammal Recovery Team guides the recovery of the relevant Shark Bay mammals, including the greater stick-nest rat, against the recovery actions listed in the *Western barred bandicoot, burrowing bettong and banded hare-wallaby Recovery Plan 2012.*

8.2 Population monitoring

The Salutation Island population is monitored annually by the Western Australian Department of Environment and Conservation. The population at Arid Recovery Reserve in South Australia is monitored quarterly on sand-tracking transects. The population in the colony at Mt Gibson is monitored quarterly via trapping, and also daily via automated camera and pit-tag reader systems placed at watering points and at nests (Woinarski et al. 2014). The population at Arid Recovery is monitored quarterly using track counts.

8.3 Control measures

8.3.1 International

The greater stick-nest rat has been listed on Appendix I of CITES since 1975.

8.3.2 Domestic

Leporillus conditor is protected through national and state legislation throughout its current and former range (see section 7.1). It is listed as Vulnerable under Australian national environmental legislation (*Environment Protection and Biodiversity Conservation Act 1999*). Under this legislation, an action requires approval from the Australian Government

Environment Minister if the action has, will have, or is likely to have, a significant impact on the species. International movement of the species is also regulated under this national legislation.

When making a decision about an action that may have an impact on the species and what conditions to attach to any approval of an action, the Minister must have regard to the species' approved conservation advice.

Leporillus conditor is listed as Conservation Dependent under Schedule 3 of Western Australia's *Wildlife Conservation Act 1950,* Vulnerable under Schedule 8 of South Australia's *National Parks and Wildlife Act 1972,* and listed as Extinct under Schedule 3 of the NSW *Biodiversity Conservation Act 2016.*

In Western Australia, the *Wildlife Conservation Act 1950* provides protections for all fauna native to Australia. Native fauna may only be taken or disturbed under non-commercial licenses, such as for research or management. A licence may be issued to the taking of a threatened species for breeding purposes, such as for a recovery program, but would not be issued for breeding for sale or trade. A licence is required to keep fauna for any purpose. Species that are likely to become extinct, are rare, or otherwise in need of special protection may be declared by the Minister as specially protected fauna. The effect of such a declaration is that the penalties are increased for taking the fauna not in accordance with a licence.

In South Australia the *National Parks and Wildlife (NPW) Act 1972* recognises *L. conditor* as both a protected species and as a threatened species. The Act requires the issuing of permits for scientific research, for marking of individuals, for exporting and/or importing of individuals from/to South Australia, and for taking from and/or releasing to the wild. It also provides for fines for illegal possession and molestation of individuals. As a listed threatened fauna species its habitats are also protected, firstly through the protected areas network across the State's semi-arid zone (NPW Act 1972; *Wilderness Protection Act 1992*; native vegetation Heritage Agreements under the *Native Vegetation Act 1991* and Indigenous Protected Areas) and secondly from clearance due to development, through Schedule 1—Principles of native vegetation clearance under the *Native Vegetation Act 1991*.

8.4 Captive breeding and artificial propagation

The Franklin Islands population was the source of animals for a captive-breeding program, commenced in 1985 at Monarto Zoo, east of Adelaide, which in turn became the source for translocations to Reevesby Island and St Peter's Island in South Australia, and Salutation Island in Western Australia during the 1990s as well as to 'mainland islands' (Woinarski et al. 2014).

8.5 Habitat conservation

In Western Australia, the species is represented entirely in conservation estate or lands managed for conservation. Its distribution in South Australia includes across formally protected areas.

8.6 Safeguards

Regardless of any reclassification under CITES, the species will continue to be regulated by national environmental legislation as well as state environmental legislation. The species is not subject to commercial harvest across any of its range. Take from the wild is controlled by both national and state regulation and has only been permitted for re-introduction projects. Permission to collect, or other actions that may impact on the species can only be undertaken if consistent with national and state regulations.

9. Information on similar species

The genus *Leporillus* contains two species. *Leporillus apicalis*, the lesser stick-nest rat is listed as extinct nationally, and as extinct on the IUCN Red List.

10. Consultations

The Western Australian Department of Biodiversity, Conservation and Attractions, The South Australian Department of Environment and Water, the New South Wales Office of Environment and Heritage, and Professor John Woinarski were consulted in the preparation of this document.

11. Additional remarks

None.

12. References

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