

Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

1. Scientific name (common name)

Mesodontrachia fitzroyana (a land snail)

2. Description

Mesodontrachia fitzroyana is a large camaenid land snail, with a shell diameter of 17-23 mm and a height of 10-14mm. The shell has a medium-yellow horn with a white lip, usually made up of 5-6 whorls. Camaenid snails become mature in their second wet season and may live for 10-15 years.

Mesodontrachia fitzroyana is found among rocks in open eucalyptus woodland and small patches of vine scrub thicket within patches of limestone. It is restricted to a few low limestone hills that are 24km east of Timber Creek and approximately 350km south of Darwin in the Northern Territory. The species is dormant in the dry season, aestivating among the rocks, and emerges to become active in the wet season.

3. National Context

Mesodontrachia fitzroyana has only been found among the low limestone hills that are 24km east of Timber Creek and approximately 350km south of Darwin in the Northern Territory.

The species is listed as critically endangered under the Northern Territory's *Territory Parks and Wildlife Conservation Act 2000*.

4. How judged by TSSC in relation to the EPBC Act criteria.

TSSC judges the species to be **eligible** for listing as **endangered** under the EPBC Act. The justification against the criteria is as follows:

Criterion 1 – It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers.

Mesodontrachia fitzroyana is suspected to have undergone a significant reduction in numbers in the period from 1985 to the late 1990s. The species was collected in 1985 and the snail was reported to be abundant at that time, however three subsequent collecting trips in the late 1990s reported that the species was very difficult to find.

This decline in numbers is attributed to the species' susceptibility to hot fires and trampling by stock that graze in the area. During the snail's dormant period in the dry season, they aestivate among open rocks where there is no protection from hot fires. Following European settlement in the region, there has been a change in the fire regime resulting in hot fires late in the dry season, the time at which the snails are most vulnerable. In the both the wet and dry seasons, the snails are susceptible to trampling by stock that graze in the area. Stock may also be contributing to the decline in *Mesodontrachia fitzroyana* by overgrazing the covering vegetation.

The decline in abundance of *Mesodontrachia fitzroyana* since 1985 has not been quantified, but given the change in abundance observed on collecting trips and the threats that are known to be operating against the species, it is suspected that *Mesodontrachia fitzroyana* has undergone at least a substantial reduction in numbers.

Therefore, the species is **eligible** for listing as **vulnerable** under this criterion.

Criterion 2 –Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited.

Mesodontrachia fitzroyana is only known to occur among the low limestone hills that are 24km east of Timber Creek and approximately 350km south of Darwin in the Northern Territory. Surrounding areas have been surveyed for snails and other species have been found, but *Mesodontrachia fitzroyana* has not been found outside these low limestone hills. The extent of occurrence for the snails is approximately 50km². Within this range, the species is restricted to rocks in open eucalyptus woodland and small patches of scrub vine thicket within the patches of limestone, so the area of occupancy is likely to be much less than 50km².

Very restricted ranges are a feature of several camaenid snail species, although they can be locally very abundant, and it is considered that sampling has been sufficient to establish that *Mesodontrachia fitzroyana* has a very restricted range. A number of searches for land snails, particularly camaenids, were made in this area between 1974 and 1984 (Solem 1988). Most of these searches and collecting were done in exposed limestone areas close to roads and tracks, and these areas were thoroughly searched. Further surveys of limestone outcrops in northwest Australia are considered unlikely to reveal new locations for this species.

While *Mesodontrachia fitzroyana* appears to have been abundant within its restricted range in 1985, subsequent surveys have noted that specimens were very difficult to find during three collecting trips in the late 1990s. The species appears to be badly affected by hot fires in the dry season and is vulnerable to trampling by stock that graze in the area.

Feral predators, including rats and mice, are likely to be having a significant impact on *Mesodontrachia fitzroyana*. Cane toads (*Bufo marinus*) are expected to invade the sites where the snails are known to occur within the near future and it is likely that they will predate upon the species as well, as molluscs are a known component of the Cane Toad diet.

Mesodontrachia fitzroyana has an estimated extent of occurrence of 50km² and an area of occupancy much less than 50km². It is considered that threats operating in its range are causing a decline in numbers and habitat quality. Therefore, its geographical distribution is restricted and precarious for the survival of the species.

Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 3 – The estimated total number of mature individuals is limited to a particular degree and: (a) evidence suggests that the number will continue to decline at a particular rate; or (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival.

There are no quantitative data available against this criterion.

Therefore, the species is **not eligible** for listing under this criterion.

Criterion 4 – The estimated total number of mature individuals is extremely low, very low or low.

There are no quantitative data available against this criterion.

Therefore, the species is **not eligible** for listing under this criterion.

Criterion 5 - Probability of extinction in the wild

There are no quantitative data available against this criterion.

Therefore, the species is **not eligible** for listing under this criterion.

5. CONCLUSION

Mesodontrachia fitzroyana has a restricted range, with an estimated extent of occurrence of 50km² and an area of occupancy of much less than 50km². There are a number of threats operating within this range. The species appears to have experienced a decline in abundance due to a change in fire regime in the region following European settlement and the introduction of grazing stock into its range. The species is also likely to be significantly impacted by feral predators and the invasion of cane toads into its range in the near future is expected to cause further decline.

The species is **eligible** for listing as **vulnerable** under Criterion 1 and as **endangered** under Criterion 2.

6. Recommendation

TSSC recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **endangered** category:

Mesodontrachia fitzroyana (a land snail)

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

Publications used to assess the nomination

Solem, A. 1988. Non-camaenid land snails of the Kimberley and Northern Territory, Australia: I. Systematics, affinities and ranges. *Invertebrate Taxonomy* **4**, 455-604