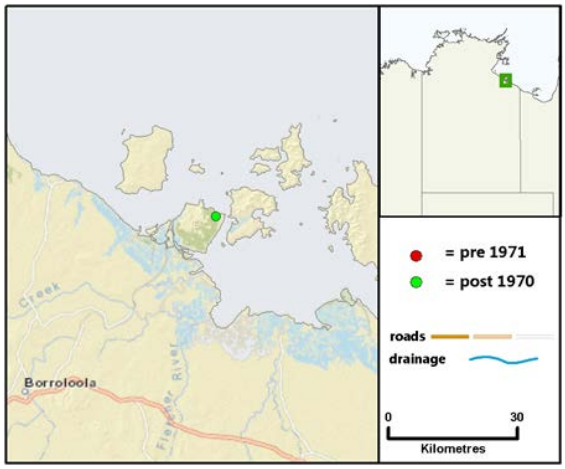
NORTHERN TERRITORY GOVERNMENT

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Evidence on Listing Eligibility and Conservation Actions 2018

Rattus sordidus (Gould, 1858) (Canefield Rat)



Known locations of Canefield Rat in the NT

Current EPBC Act status: not listed
Current TPWC Act status: Critically Endangered (Possibly Extinct)

Proposed Action: change status under TPWC Act
Nominated TPWC Act status: Extinct in the NT

Taxonomy

Scientific name:	*Rattus sordidus* (Gould, 1858)		
Common name:	Canefield Rat		
Family name:	Muridae	Fauna ☐	Flora ☐

Species Information

Description

The Canefield Rat is a medium-sized (weight 50-250g) ground-dwelling rodent, most like the Long-haired Rat *R. villosissimus,* the Dusky Rat *R. colletti* and the Pale Field-rat *R. tunneyi*. It has dark golden-brown coarse almost spiny fur, with long guard hairs on the rump. The ears are light grey (cf. *R. colletti* that has dark brown ears, and *R. villosissimus* that has dark grey ears). *Rattus villosissimus* is also typically greyer in colour, and has even longer guard hairs distributed across more of the back.

Distribution

In the NT, the Canefield Rat is known only from a single specimen caught in 1988 on South-West Island in the Sir Edward Pellew group. The taxonomic status of some native *Rattus* in northern Australia is somewhat uncertain but the identity of the NT Canefield Rat specimens was corroborated by chromosomal analysis (Johnson and Kerle 1991).

The species is common, indeed sometimes considered a pest, in coastal areas of north-eastern Australia, as far south as the Queensland-New South Wales border, and west to at least Normanton, Queensland (Watts and Aslin 1981). South West Island is about 550 km further west of the nearest known population on western Cape York, Queensland.

Adequacy of Survey

The Sir Edward Pellew group of islands lies at the mouth of the McArthur River, in the southern Gulf of Carpentaria. This group of five larger islands, three smaller, and many rocky isolates has been the focus of a number of biodiversity, and particularly mammal-focused surveys, because of unusual diversity and biogeographic patterns of species distributions on these islands. There is a number of significant records from the islands of native mammal species: Canefield Rat, Carpentarian Antechinus, Brush-tailed Rabbit-rat, Northern Quoll and Brush-tailed Phascogale (Taylor et al. 2004; Woinarski et al 2011).

The wildlife of the Sir Edward Pellew Islands was documented in surveys by CSIRO (Calaby 1976) in 1966-1967 (and also the nearby mainland), and by the Northern Territory Government (NTG) in 1988, 2003, 2004-5 and 2009-10 (Woinarski et al. 2011). South West Island has been sampled with techniques suitable for detecting Canefield Rats, including 1050 trap nights in 1988; 521 in 2003 and 1571 in 2005.

Relevant Biology/Ecology

The NT record is from coastal dunes: “sandy low-lying open woodland with a grassy understorey” (Johnson and Kerle 1991). In north-eastern Australia the species occurs mostly in grasslands, typically in areas with friable soil and a ground-cover of grasses, sedges and herbs, and often occurs around swamps or on the grassy verges of closed forests (Watts and Aslin 1981). It is also very abundant in sugar cane crops where it has been perceived as a pest by sugarcane farmers.

It is a colonial species. It constructs extensive relatively shallow (typically <40 cm deep) burrows for shelter and breeding, and runways through dense vegetation.

Threats

Threat *(describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)*	Extent *(give details of impact on whole species or specific subpopulations)*	Potential Impact *(what is the level of threat to the conservation of the species)*
Predation by feral cats. Feral cats have been the cause of local extinction of several rodent species on islands. A significant impact of feral cats on the mammal fauna of the Pellew islands is consistent with a previous continental scale analysis of patterns of mammal decline on Australian islands (Burbidge and Manly 2002), which concluded that introductions of predators (foxes and cats) had been the major factor causing the extirpation of native mammals on islands (Woinarski et al 2011).	Whole distribution in the NT	Extinction in the NT
Changed fire regimes have been implicated in the decline of some small to medium-sized mammals in northern Australia. Woinarski et al. (2011) discuss the recent fire regimes of the Pellew Islands and conclude i) the current fire regime on the Pellew islands was relatively benign, with fires more infrequent and smaller than on the nearby mainland, ii) changed fire management does not really coincide with the relatively rapid marked mammal decline from 1988 to 2003, iii) feasibly, fire impacts would be greater on the less rugged West and South West Islands, consistent with the greater intensity of mammal	Whole distribution in the NT	Low

loss on those, such that the case for fire as the primary driver of the mammal declines on the Pellew Islands is not strong.		
Habitat degradation arising from non-native herbivores has been implicated in the decline of some small to medium-sized mammals in northern Australia. However, no livestock or feral herbivores occur on South West Island (though pigs were recorded there for the first time in 2005; Ward et al.l 2006)	nil	Nil

Summary of IUCN attributes

EOO	0 km^2 in the NT	AOO	0 km^2 (2x2km grid method) in the NT	Generation length	1-2 years

No. locations	0 in the NT	Severely fragmented?	Yes ☐ No ☐ Unknown ☐
No. subpopulations	0 in the NT	No. mature individuals	0 in the NT

Percentage global population within Australia	na
Percentage population decline over 10 years or 3 generations	100 of the NT population has gone sometime in the last 30 years.

Assessment of available information in relation to the IUCN listing Criteria

Criterion A. 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	Endangered	Vulnerable
A1	**≥ 90%**	**≥ 70%**	**≥ 50%**
A2, A3, A4	**≥ 80%**	**≥ 50%**	**≥ 30%**

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 the followin

(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, hybridization, pathogens, pollutants, competitors or parasites

Evidence:
The species is known in the NT from only one specimen, collected on South West Island in 1988. Surveys of other islands in the group and the nearby mainland have not located the species elsewhere and subsequent surveys using appropriate techniques have not recorded the species on South West Island (see Adequacy of Survey section above).

Criterion B. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered	**Endangered**	**Vulnerable**
B1. Extent of occurrence (EOO)	**< 100 km²**	**< 5,000 km²**	**< 20,000 km²**
B2. Area of occupancy (AOO)	**< 10 km²**	**< 500 km²**	**< 2,000 km²**
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:
As above.

Criterion C. Population size and decline			
	Critically Endangered	**Endangered**	**Vulnerable**
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**
(a) (ii) % of mature individuals in one subpopulation =	**90 – 100%**	**95 – 100%**	**100%**
(b) Extreme fluctuations in the number of mature individuals			

Evidence:
As above.

Criterion D. Number of mature individuals			
	Critically Endangered	**Endangered**	**Vulnerable**
D. Number of mature individuals	**< 50**	**< 250**	**< 1,000**
D2. *Only applies to the VU category* 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.	**-**	**-**	**D2. Typically: AOO < 20 km² or number of locations ≤ 5**

Evidence:
As above.

Criterion E. Quantitative Analysis			
	Critically Endangered	**Endangered**	**Vulnerable**
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:
No such quantitative analysis has been done for this species and there are insufficient quantitative data available to do so.

Summary

Surveys on South West Island and surrounding islands and mainland have failed to find the species since its first and only record in the NT in 1988. The species is considered Extinct in the NT.

Management and Recovery

Is there a Recovery Plan (RP) or Conservation Management Plan operational for the species?	Yes ☐	No ☐
List all relevant recovery or management plans (including draft, in-preparation, out-of-date, national and State/Territory recovery plans, recovery plans for other species or ecological communities, or other management plans that may benefit or be relevant to the nominated species). • none		
List current management or research actions, if any, that are being undertaken that benefit the conservation of the species. • None, as extinct in the NT		
List further recommended management or research actions, if any, that would benefit the conservation of the species. • None, as extinct in the NT		
Further comment. The li-Anthawirriyarra Aboriginal Rangers have an active program to eradicate feral cats from West Island. If successful there may be opportunities to attempt eradication from other islands in the group, including South West Island. Given the abundance of the species in north Queensland there is little conservation imperative to reintroduce the species in the NT. Greater attention should be given to the widespread decline of other species, such as the Pale Field-rat *Rattus tunneyi*.		

References

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