

Supportive release techniques provide no reintroduction benefit when efficacy and uptake is low

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SUPPLEMENTARY TABLE 1 The outcomes of previous brushtail possum *Trichosurus vulpecula* translocations.

Location	Year	S	DR	SF	F	FC	M	H	N	EP	MR	Outcome	Comments	Reference
Arkaroola, SA	1968		N		N		N		14	N		Unsuccessful		Papenfus (1990)
Cape Range NP, WA	2010	W	N		N	Y	Y		104	N	Y	Unsuccessful	Failed due to fox predation, despite baiting	DEC (2012)
Ernabella, SA	1976	U	N		N		N		12	N		Unsuccessful		Papenfus (1990)
Gold Coast, QLD	1995	R	Y	Y	N		Y	Y	13	Y	Y	Successful?	No mortalities by introduced predators. Python predation. Some were humanised. Short term monitoring/success criteria.	Tribe et al. (2005)
Humbug Scrub, SA	1980s	U	N		N		N				Y			Papenfus (1990)
Karakamia, WA	1994	C(R)	N	N	Y	Y	Y		8	Y	Y	Successful	Orphaned (hand-reared) possums, supplemented existing population	Australian Wildlife Conservancy (unpub. data)
Katarapko Island, SA	1970s	W	N		N		N			Y				Papenfus (1990)
Lorna Glen, WA	2007	W	N	Y	Y	Y	Y		95	N	Y	Successful	Some deaths due to lack of resources and raptor predation.	Miller et al. (2010)
Mambray Creek, SA	1972	U,W	N		N		N		16	?	Y	Unsuccessful		Papenfus (1990)
Melbourne, VIC	1992	U(R)	N	N	N		Y	Y	64	Y	Y	Unsuccessful	Naivety, fox predation, stress.	Pietsch (1995)
Murray Bridge, SA	1980s	W	N		N		N							Papenfus (1990)
New Zealand	1993	W	N	N	N	-	Y	Y	43	Y	Y		Several were shot (pest status in NZ, introduced species)	Cowan (2001)
Oraparinna Mine, SA	1961	W(R)	N	Y	N		N		12	N	Y	Unsuccessful		Papenfus (1990)
Paruna, WA	2000	W	N	N	N	Y	Y	Y	118	Y	Y	Semi-successful	Numbers stable but not increasing. Predation by foxes/cats, pythons, raptors.	May et al. (2016), Australian Wildlife Conservancy (unpub. data)
Quorn, SA	1974	U	N		N		N		30+		Y	Successful		Papenfus (1990); SA DELM in Copley (1995)
Sandilands, SA	1970s	W	N		N		N				Y	Not reported	Translocation distance 30km	Papenfus (1990)
Stony creek, SA	1974	U	N		N		N		>20		Y	Successful	Additional possums released at nearby Wilmington in the following years	Papenfus (1990); pers. obs.
Wadderin, WA	2008	W, U(R)	N	N	Y	Y	Y	Y	9	N		Successful	3 released in nest-boxes	Short and Hide (2014)
Wilmington, SA	1985		N		N		N		5			Successful		SA DELM in Copley (1995); pers. obs.
Wilpena, SA	1961	W(R)	N	Y	N		N		4	N	Y	Unsuccessful	Small release number	
Yookamurra, SA	1990s				Y	Y	Y			Y		Successful	Now at a high density	Australian Wildlife Conservancy (unpub. data)

S, source population (W, wild, U, urban, R, rehabilitated, C, captive); DR, delayed release; SF, supplementary feeding reported; F, fenced release site free of mammalian predators; FC, fox control; M, post-release monitoring; H, hyperdispersal; n, total number of possums released; EP, existing population at the release site; MR, multiple releases reported. If multiple releases occurred, 'year' refers to the first reported release at that location. Blank spaces indicate unknown information; Y, yes, N, no.

References

- COPLEY, P.B. (1995) Translocations of native vertebrates in South Australia: a review. In *Reintroduction Biology of Australian and New Zealand Fauna* (ed. M. Serena), pp. 35–42. Surrey Beatty & Sons, Chipping Norton, Australia.
- COWAN, P.E. (2001) Responses of common brushtail possums (*Trichosurus vulpecula*) to translocation on farmland, southern North Island, New Zealand. *Wildlife Research*, 28, 277–282.
- DEC (2012) *Gorgon gas development: threatened and priority species translocation and reintroduction program*. Annual report 2011/2012. Department of Environment and Conservation, Perth, Australia.
- MAY, T.M., PAGE, M.J. & FLEMING, P.A. (2016) Predicting survivors: animal temperament and translocation. *Behavioral Ecology*, 27, 969–977.
- Miller, E., Dunlop, J. & Morris, K. (2010) *Rangelands Restoration: Fauna Recovery at Lorna Glen, Western Australia*. Progress report August 2008–June 2010. Department of Environment and Conservation, Woodvale, Western Australia.
- PAPENFUS, D. (1990) *Is the common brushtail possum still common in South Australia?* Unpublished report. South Australian College of Advanced Education, Salisbury, Australia.
- PIETSCH, R.S. (1995) The fate of urban common brushtail possums translocated to sclerophyll forest. In *Reintroduction Biology of Australian and New Zealand Fauna* (ed. M. Serena), pp. 239–246. Surrey Beatty & Sons, Chipping Norton, Australia.
- SHORT, J. & HIDE, A. (2014) Successful reintroduction of the brushtail possum to Wadderin Sanctuary in the eastern wheatbelt of Western Australia. *Australian Mammalogy*, 36, 229–241.
- TRIBE, A., HANGER, J., NOTTIDGE, B. & KAWAKAMI, T. (2005) Measuring the success of wildlife rehabilitation. *National Wildlife Rehabilitation Conference 2005*, p. 1–14. Australian Wildlife Rehabilitation Conference, Gold Coast, Australia.

SUPPLEMENTARY TABLE 2 Release method, sex and dispersal distance for possums that hyperdispersed (moved more than 3x the mean range length of 0.88 km) away from their release site. Distances were obtained 6 weeks after release, when possums had stabilized their distance from release site.

Release method	Sex	Distance (km)
Immediate	Male	4.09
Delayed	Male	3.35
Delayed	Female	2.99
Delayed	Female	4.88
Nest-box	Female	4.22
Nest-box	Female	9.55
Nest-box	Female	17.02