



# Global Re-introduction Perspectives: 2010

Additional case-studies from around the globe  
Edited by Pritpal S. Soorae



IUCN/SSC Re-introduction Specialist Group (RSG)





The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN or any of the funding organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views expressed in this publication do not necessarily reflect those of IUCN.

**Published by:** IUCN/SSC Re-introduction Specialist Group & Environment Agency-ABU DHABI

**Copyright:** 2010 International Union for the Conservation of Nature and Natural Resources.

**Citation:** Soorae, P. S. (ed.) (2010) GLOBAL RE-INTRODUCTION PERSPECTIVES: Additional case-studies from around the globe. IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE, xii + 352 pp.

**ISBN:** 978-2-8317-1320-5

**Cover photo:** Clockwise starting from top-left:  
i. Damselfly, UK © *PC Watts*  
ii. Corn crane, UK © *Andy Hay (rspb-images.com)*  
iii. Western prairie fringed orchid, USA © *Margaret From*  
iv. Arabian oryx, Saudi Arabia © *M. Z. Islam*  
v. Corroboree frog, Australia © *D. Hunter*

**Cover design & layout by:** Pritpal S. Soorae, IUCN/SSC Re-introduction Specialist Group

**Produced by:** IUCN/SSC Re-introduction Specialist Group & Environment Agency-ABU DHABI

**Download document at:** [www.iucnsscscrg.org](http://www.iucnsscscrg.org)

## Re-introduction of the Mount Lofty Ranges southern emu-wren to Cox Scrub Conservation Park, South Australia

Marcus Pickett

Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program Conservation Council of SA 157 Franklin St, Adelaide, South Australia, 5000, Australia ([marcus\\_pickett@bigppond.com](mailto:marcus_pickett@bigppond.com))

### Introduction

The Mount Lofty Ranges southern emu-wren (MLRSEW) (*Stipiturus malachurus intermedius*) is a small (7 g) endangered (Australian Government *Environment Protection and Biodiversity Conservation Act 1999* and South Australian *National Parks and Wildlife Act 1972*) passerine (Maluridae) with a restricted distribution in dense swamp and dry-heath habitats in the Mount Lofty Ranges-Fleurieu Peninsula region of South Australia (SA). Only around 20 local populations remain, comprising 250-500 individuals (2008 estimate). Range contraction has been caused primarily by habitat loss due to extensive clearance of native vegetation for agricultural development, with bushfire, population isolation, small population size and diminished habitat quality due to stock grazing, succession and climate change threatening remaining populations.

The MLRSEW has consequently been the subject of a comprehensive recovery program (MLRSEW and Fleurieu Peninsula Swamps Recovery Program, administered by the Conservation Council of South Australia since 1995). Population re-establishment is central to the strategy for down-listing from endangered, and the MLRSEW is a prime candidate for translocation. It is a weak flyer and requires densely vegetated corridors for dispersal. Colonization of isolated unoccupied habitat and supplementation of declining populations are very unlikely because its population and habitat are highly fragmented. Thus, translocation is considered an appropriate management option for establishment or supplementation of populations. This paper reports on the first-attempted re-introduction of the MLRSEW, conducted in 2001-2002.

### Goals

The overall aim of the re-introduction was to re-establish the MLRSEW in Cox Scrub Conservation Park (CP), an area from which it was extirpated due to fire in 1983.

### Main Goals:

- Translocate 30 adults (1:1 sex ratio) in 2001.
- Translocate a supplementary 20 adults (1:1 sex ratio) in 2002.
- Conduct intensive monitoring at source and release sites during 2001-2003.
- Satisfy predefined success indicators.

- Review the translocation for the 2001-2003 period.

## Success Indicators

### Release Site

- Re-introduced population in September 2003 (i.e. start of 2003-2004 spring-summer breeding season) is equivalent in size to founder group.
- Founder-group (mature) progeny are present in September 2003.

### Source Site

- Most (>50%) specific (capture and removal) trapping locations are reoccupied by December 2003.
- Successful reproduction (independent young) occurs in most (>50%) reoccupied locations by December 2003.

### Overall Success

- Short-term (as at December 2003): removal and reintroduction are successful.
- Long-term (>2003): re-introduced population increases in size.



Emu wren - male

## Project Summary

**Feasibility at the release site:** Cox Scrub CP (544 ha; 50 km SSE of Adelaide, SA) was selected as the release site because it included a large area (>100 ha) of habitat, was occupied prior to a fire that burnt-out the park in 1983, and because of its nature reserve tenure. MLRSEW habitat at the site mainly comprised low (<10 m) open (<70% foliage cover) eucalypt-dominated mallee, over dense heath shrubs and sedges.

**Source site:** Deep Creek CP (4,558 ha; 80 km SSW of Adelaide, SA) was selected as the source site because of its large (300+) MLRSEW population in habitat similar to vegetation at the release site (Wilson, 2000; Wilson & Paton, 2004).

**Pre-transfer assessments and planning:** A feasibility study (Wilson, 2000) confirmed the suitability of the release site and provided recommendations regarding source population, founder group, timing of transfers, and monitoring. A translocation proposal (Pickett, 2001) following IUCN and SA Government guidelines was subsequently prepared. Pre-transfer surveys were conducted in 2001. Candidates for translocation and potential trapping locations were identified at the source site. Specific release locations were identified at the release site and the absence of MLRSEWs confirmed.

Implementation (founder population): The original plan was to transfer 30 MLRSEWs in 2001 and a supplementary 10 individuals in 2002, but the latter was increased to 20 in an effort to quickly boost the re-introduced population. The MLRSEW is monogamous (Pickett, 2000), so a founder population sex ratio of 1:1 was desired. The actual founder population comprised 46 MLRSEWs:30 (1:1, including 13 putative pairs) transferred in June-July 2001 and 16 (1:1, including seven putative pairs) transferred in July-August 2002. Its composition differed to the target because trapping in 2002 did not meet requirements, with nine surplus males released at capture sites because corresponding females were not acquired. Founders were sourced from three areas to hedge against genetic uniformity.

Trapping, transfer and release: Transfers were conducted just prior to or around commencement of the MLRSEW's breeding season (August-March). Apparent pairs captured at this time were likely established and time between release and commencement of breeding would be minimal. Trapping, in mist nets, aimed to capture both members of a putative pair more or less together. Captives were color-banded and held in boxes, where they were provided with foliage cover and food. MLRSEWs were transferred to the release site by road (75 km), generally on the day of capture or early the following day, and released following a brief acclimatization/feeding period (in holding boxes) at the release location. Individuals were held, transferred and released in the same pairs/groups as captured. Single individuals were released with other single birds, near release locations of previously released single individuals (usually opposite sex), or near release locations of pairs or groups.

Releases were spread across 13 specific locations in 2001 in an effort to distribute pairs across the best habitat, but this approach was abandoned in 2002 because all individuals released in 2001 dispersed from their respective release locations and most putative pairs did not remain intact. Releases in 2002 were near two areas occupied as a result of the 2001 releases.

### **Post-release monitoring:**

Release Site: Monitoring at the release site during the first three breeding seasons comprised area-searches. The entire release site was searched at least once each season. Areas where MLRSEWs were found were subjected to intensive follow-up surveys. Subsequent partial monitoring focused on areas occupied during the first three breeding seasons.

- 53% of first cohort observed post-release, but only 25% of second cohort.
- All individuals dispersed from their respective specific release locations (0.2-1.8 km), but some moved to release locations.
- Only 33% of settled pairs were originally captured as same pair.
- Founders and progeny successfully bred, but only around half of all pairs bred each season.
- Productivity in first and second breeding seasons (1.6-2.8 offspring/breeding-pair/season) was greater than in third season.
- Annual (apparent) survival of founders averaged only 32%.

- Some breeding pairs (home range ~1 ha) and unpaired breeding-age founder-group progeny were widely scattered across the release site.
- At least 15 individuals present September-December 2003, including four breeding pairs and 10-13 (fledged) founder-group progeny.
- At least 17 individuals present 2006-2007, all founder-group progeny and including six breeding pairs.
- At least several pairs evident 2009-2010.
- Most observations in areas previously identified as habitat.
- Substantial (drought induced) dieback of habitat during 2002-2004.



Emu wren release site

**Source Site:** Monitoring at the source site during the first three breeding seasons comprised transect surveys and area-searches. Transects were through trapping areas and area-searches focused on specific trapping locations. Subsequent partial monitoring comprised transect surveys as part of ongoing general monitoring.

- Evidence of reoccupation (as at December 2003) was recorded at almost all (95%, n=16) specific trapping locations.
- Evidence of breeding (as at December 2003) was recorded at most (58%) specific trapping locations for which there was evidence of reoccupation, but independence of young was not recorded in all cases.

### Major difficulties faced

- The target founder population was not acquired.
- The MLRSEW is a very small and relatively cryptic bird that is difficult to monitor using survey techniques employing direct-observation, however the species is too small and its habitat too dense to facilitate radio tracking.
- Translocated individuals dispersed widely across the release site.
- Widely scattered breeding pairs and unpaired breeding-age progeny reduced the reproductive capacity of the reintroduced population.
- There was probably undetected dispersal from the release site to unsuitable nearby areas and beyond.
- Re-introduced MLRSEWs may have dispersed away from specific release locations because of unfamiliar social and physical environs (i.e. in an effort to locate familiar home range areas).

# Birds

- Predation may have contributed to poor performance of the re-introduced population.
- Post-translocation monitoring revealed that habitat quality at the release site was generally poorer than the feasibility study indicated.
- General habitat quality at the release site declined (to marginal in many areas) post-translocation due to below average seasonal conditions.
- Post-release transect and area-search monitoring was arduous and expensive.

## Major lessons learned

- Translocated MLRSEWs survived, settled and reproduced, but production did not offset substantial losses and the reintroduced population declined.
- In terms of relative habitat suitability, the pre-translocation habitat assessment was confirmed with regard to general distribution, but quality might not have been as adequate as initially thought.
- Future capture, holding, feeding, transfer and release methods for translocation of MLRSEWs should be modeled on those applied 2001-2002.
- Future assessments of MLRSEW translocation feasibility should include consideration of potential 'dilution effects' due to release patch size (e.g. the likelihood of pairing amongst dispersed founders and their progeny).
- Micro-selection of specific release locations within habitat is unnecessary because reintroduced individuals are likely to disperse away from their respective release locations for reasons unrelated to habitat suitability.
- Translocation of pairs is not essential because putative pairs are unlikely to remain together following release and new pairs will readily form and breed.
- Rather than undertake comprehensive and expensive studies of marked individuals, broad (e.g. grid-based) pre- and post-translocation monitoring of presence/absence and productivity should be considered for determining source population response to translocation.

## Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

### Reason(s) for success/failure:

- Pre-defined success indicators (see above) were partially met. Factors most likely contributing to reduced performance include drought, undetected dispersal beyond the release site, predation, unfamiliar release-site environs, widely dispersed pairs and unpaired individuals, and marginal habitat quality. Despite not fully satisfying all predefined success criteria, the translocation was successful in a variety of very important ways that contribute to MLRSEW recovery efforts such as listed below.
- Re-establishment of a small resident breeding population, which has persisted for at least nine years.
- Development/refinement of trapping, holding, transfer, release and monitoring methods specific to the MLRSEW.
- Knowledge of the species' response to translocation.

- Confirmation of the practicability of translocation as a MLRSEW population management tool.

## References

- Pickett, M. 2000. The Mount Lofty Ranges Southern Emu-wren *Stipiturus malachurus intermedius* Recovery Program: Banding and Monitoring 1994-1999. Unpublished report prepared for the Conservation Council of South Australia: Adelaide.
- Pickett, M. 2001. Translocation Proposal for the Mount Lofty Ranges Southern Emu-wren *Stipiturus malachurus intermedius*: Re-introduction to Cox Scrub Conservation Park 2001-2004. Unpublished document prepared for the Conservation Council of South Australia: Adelaide.
- Wilson, D. 2000. Habitat Use and Reintroduction Potential of the Mount Lofty Ranges Southern Emu-wren *Stipiturus malachurus intermedius* (Aves: Maluridae). BSc Hons thesis. University of Adelaide (Department of Environmental Biology).
- Wilson, D. & Paton, D. C. 2004. Habitat use by the Southern Emu-wren, *Stipiturus malachurus* (Aves: Maluridae), in South Australia, and evaluation of vegetation at a potential translocation site for *S. m. intermedius*. *Emu* 104, 37-43.