Report on the 2014 Translocation of Chuditch from Western Australia to the central Flinders Ranges in South Australia

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Background

The chuditch (*Dasyurus geoffroii*) was a relatively abundant carnivorous marsupial that ranged across nearly 70% of the Australian mainland. A drastic decline in numbers following European settlement resulted in this species being restricted to south western Western Australia and only occupying approximately five percent of its former range (Serena et al. 1991). It is currently listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 and Schedule 1 – "Fauna that is likely to become extinct" under the *Wildlife Conservation Act 1950* in Western Australia.

A recovery plan for chuditch was originally written in 1994 and later, following review of conservation status, revised in 2012 (Orell and Morris 1994, Department of Environment and Conservation 2012). These plans contain a range of strategies to improve the conservation status of the species with a goal to achieve de-listing from the current ranking.

Both these plans included translocation strategies to improve the status of this species by initially reintroducing chuditch to parts of its former range within Western Australia and later to semi-arid and arid zones possibly in other states of Australia. Uluru in the Northern Territory was originally suggested as a possible translocation site in the 1994 recovery plan primarily due to this species cultural significance to the local indigenous people (Orell and Morris 1994).

Seven translocations have been undertaken within Western Australia. Two of these were undertaken as trials, Lane Poole (1987) and Peron (2011), with larger scale translocations to Julimar (1992), Lake Magenta (1996) and Kalbarri (2000) being considered successful. The large scale translocations to Cape Arid (1998) and Mt Lindsey (1999) are considered to be unsuccessful (Morris et al 2003).

It was determined that the wild population of chuditch in 1994 (estimated at <6,000) would not be able to supply sufficient founder individuals for translocation purposes without detrimental effects on densities at a local level (Orell and Morris 1994). To overcome the unavailability of wild chuditch a captive colony was established at Perth Zoo. This proved to be a very successful strategy and subsequently over 300 captive bred chuditch were translocated to the various sites between 1992 and 2000 (Morris et al 2003). This facility closed following the Kalbarri release in 2000. The translocated chuditch populations have expanded from the successful release sites and have shown levels of genetic diversity similar to natural populations (Spencer et al. 2007; Cardoso 2011).

The Julimar translocation has been monitored at least annually since 1992 and has shown a consistently high density of chuditch suggesting a robust population (Pers. Comm. R.Ong). It was considered that the first wild-to-wild translocation trial could be sourced from this site without detrimental impact. In 2011 seven male and two female wild chuditch were captured and transported to Peron to assist in gaining an understanding of behaviour and survivorship of non-captive bred individuals. The results of this trial have assisted in developing future protocols (Reinhold 2011).

This report details the latest translocation; the capture and movement of 37 chuditch to the central Flinders Ranges, South Australia, undertaken in March and April 2014.

Flinders Ranges

Discussions were held in 2008 as to the possibility of reintroducing chuditch to South Australian locations. This was followed up by a visit to the central Flinders Ranges by Department of Environment and Conservation (now Department of Parks and Wildlife) staff member Brent Johnson in early 2009. A report on the feasibility of such an undertaking was subsequently provided to David Peacock of Biosecurity SA.

The report outlined the suitability of the habitat observed and the factors that may limit the success of any translocation. It also highlighted the requirement for introduced predator control and the significant commitment to long term monitoring.
In late 2013 the Department of Parks and Wildlife was approached to participate in the drafting of a Translocation Plan to undertake a reintroduction of chuditch to the central Flinders Ranges. This plan was prepared by Katherine Moseby (Ecological Horizons) and David Peacock in collaboration with the Flinders Ranges Reintroduction Project Team. This Translocation Plan was subsequently approved as a joint project between the South Australian Department for Environment, Water and Natural Resources (DEWNR), the Foundation for Australia's Most Endangered Species (FAME) and the Western Australian Department of Parks and Wildlife (DPaW). This plan contains comprehensive information including the local context, significance to indigenous people, justifications, methods, success criteria, management triggers and monitoring plans (Moseby and Peacock 2013).
Re-establishing a captive breeding colony either in Western Australia or South Australia was not considered viable due to the considerable capital and ongoing expense. Instead, a wild-to-wild approach was considered the most feasible option as the population of chuditch in Western Australia was estimated to have increased to in excess of 10,000 individuals (Department of Environment and Conservation 2007), a level deemed high enough to harvest individuals from without causing detrimental effects at a local scale.
There is insufficient data to provide accurate estimates as to how many individuals can be harvested from a population before there are detrimental effects, as previous wild harvesting has only occurred in small numbers to collect animals for captive breeding and for the trial translocation to Peron. However, given that females can raise up to six pouch young per breeding season, we are confident given the reduced competition for resources the rate of successful recruitment may increase in the next breeding season and that the individuals that are harvested will be replaced in the population.
The translocation plan proposed the initial release of up to 40 individuals of equal sex ratio with future releases of up to 40 chuditch per year in 2015 and 2016 if the performance indicators for success are met.
A Translocation Proposal and Animal Ethics application was also prepared by DPaW. These documents provided an approved framework for the Western Australian components of the translocation (Morris and Page 2014).

Translocation Criteria and Source Sites

The trial release at Peron revealed the propensity of wild male chuditch to move significant distances following translocation. Spatial organisation of males of any vertebrate species is highly influenced by the distribution of females and the male home range size is determined by access to females (Emlen and Oring 1977; Gardner and Serena 1995; Oakwood 2002). Given the high male to female ratio of chuditch translocated to Peron and the death of one female in the early stages of the monitoring, it was concluded that the large distances (>120 km) covered by male chuditch were likely due to their search for females. This information was the basis for the hypothesis that if females were introduced into the Flinders landscape just prior to an approaching breeding season and allowed time to settle into the release area than males may be more likely to stay in the vicinity following their subsequent release.
It was agreed to source a majority of females for the first flight on 1st April 2014 with a second flight of a majority of males four weeks later. Selected individuals were to be accumulated at the purpose built holding facility at Native Animal Rescue in Malaga (NAR).
Minimum criteria were set for individuals of both sexes to ensure that only healthy chuditch aged

between one and three years would be selected as suitable for fitting of radio-telemetry collars. The first criterion set to meet this goal was restricting collection of animals to females exceeding 700g and males exceeding 1000g. To ensure consistency with the evaluation of collected individuals, all candidates which met the weight criteria were inspected by staff with considerable experience in chuditch research to determine approximate age and overall health of individuals.
The source sites outlined in the translocation proposal included Julimar Conservation Park located approximately two hours north east of Perth and Perup Nature Reserve three and a half hours south (Figure 1).
Both the reintroduced Julimar and natural Perup populations were considered robust, stable and able to supply the required numbers without detrimental impacts on the local population (Morris and Page 2014). Additional sites were considered to supplement the numbers required and investigative trapping was undertaken at Centaur and George Blocks in the jarrah forest (Figure 1). DPaW districts were also engaged in monitoring sessions at other forest locations during that period with the view that if sufficient chuditch were recorded then those sites may also be considered at some future time. Whilst Centaur appears to have a reasonable population with 14 individuals recorded from 382 trapnights, George was not selected as a source site for this year as only four individuals were captured in 201 trap nights (Table 1).
The target source population at Perup was trapped over the week 10 - 14th March with two transects, Balban and Moopinup, having a total of 100 traps set for four nights. The results were positive with a total of 27 chuditch individuals being captured (Table 1). From these captures, nine females and five males were selected for transport to the holding facility at NAR. These individuals were secured in nestboxes (19x265x430mm) and transported by air-conditioned vehicle relay via Donnybrook each day. Total travel time from Perup to NAR was five hours.
Trapping at Julimar commenced the following week with three transects (Hewett, Gakalling and Woylie/Munyerring) totalling 151 traps set for four nights. Significant numbers of chuditch were captured at this site to bring the tally of collected females to 20 (Table 1). Selected chuditch were once again transferred to nest boxes and driven directly to NAR with daily travel time of 2 hours.
The second round of trapping commenced at Perup on April 7th with the focus on collection of males. Prior to this round of trapping, concerns were raised by the Donnelly DPaW District with regards to the numbers of individuals being harvested from the targeted transects. Following discussion between the District, Science division staff and the Chief investigators, it was agreed that at least 50% of individuals captured on each transect were to be released. A quota of five individuals was set as the target for the week distributed across all transects. Target transects were determined using information from Western Shield monitoring and data from the March trapping session.
The total of 594 trapnights on the Moopinup/Yendicup transects and Corbal transect yielded 35 individuals from which the five males were selected. The second round of trapping at Julimar yielded a further six male chuditch(Table 1).
Transport arrangements were as previous for both sites. All chuditch not selected and all by-catch animals at both Perup and Julimar were processed and released at point of capture.
Note that an additional three male and one female chuditch will be made available by Desert Parks in the Northern Territory to supplement the Western Australian animals.

Trapping and processing protocols

Medium sized wire cage traps (220 x 220 x 550 mm, Sheffield Wireworks, Welshpool) baited with either chicken necks or a mixture of peanut butter, oats and sardines were placed at 200m intervals along all target transects (Table 2). Traps were checked in the morning and all were

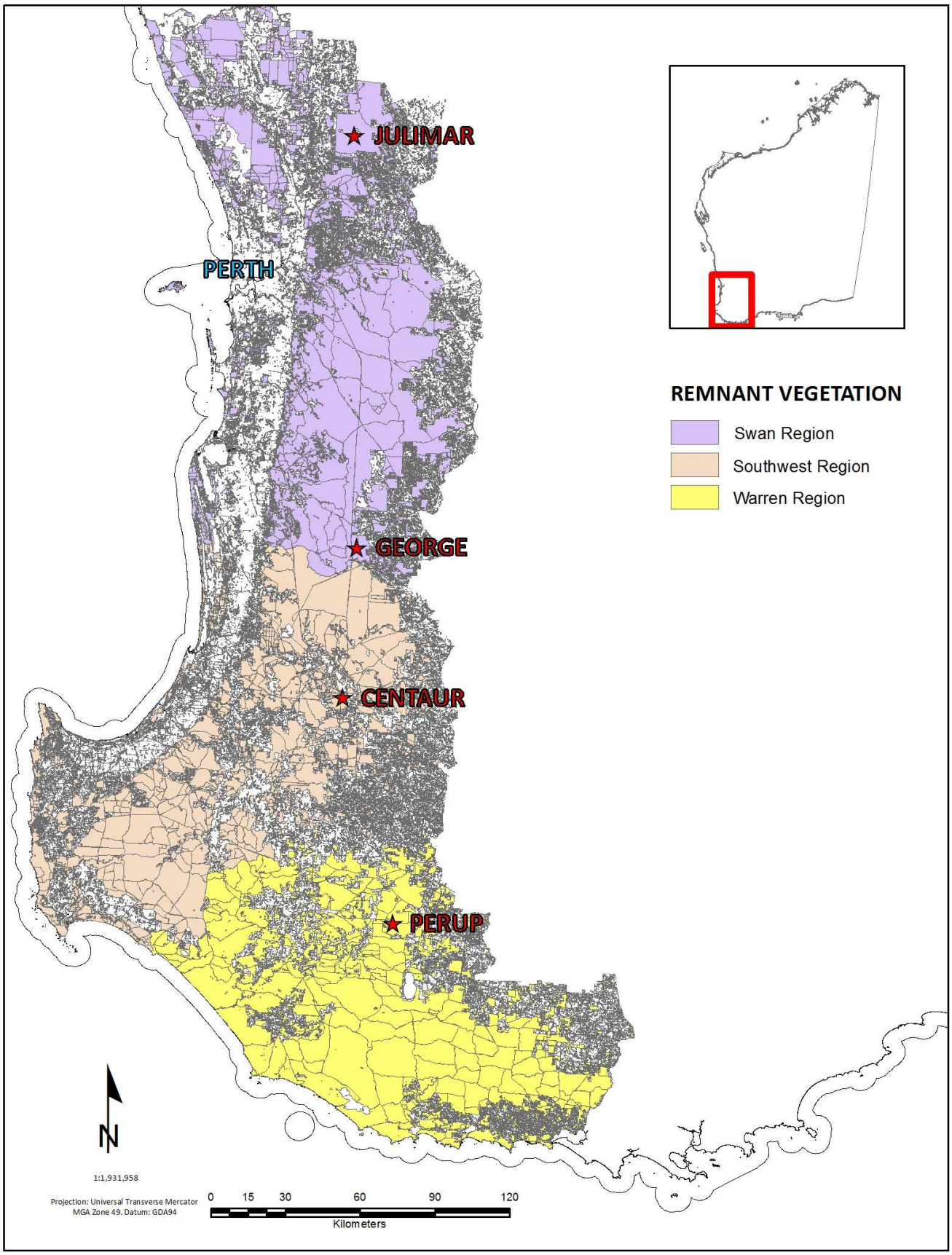

Figure 1: Location of proposed chuditch collection sites Julimar, Centaur, George and Perup blocks in the southwest of Western Australia. Coloured areas depict remnant vegetation within the three Department of Parks and Wildlife Regions.

Table 1: Trap effort per site, captures, trap success and numbers translocated for chuditch caught during collection of individuals for translocation to South Australia
*Yendicup and Moopinup were considered a single transect when determining harvest levels for the second trapping period due to close proximity.

Site	Transect	Session	Trap nights	Individuals caught		Total captures	Chuditch translocated		Trap success (chuditch only)	% translocated	
				Male	Female		Male	Female		Male	Female
Collie	Centaur	1	382	6	8	20	1	0	5.2%	16.6	0
Dwellingup	George	1	201	2	2	5	0	0	2.5%	0	0
Perup	Moopinup	1	200	10	10	30	4	7	15%	40	70
		2	200	10	6	35	2	0	17.5%	20	0
	Yendicup*	2	200	3	3	8	1	0	4%	33.3	0
	Transect total		*600*	*22*	*21*	*73*	*7*	*7*	*12.1%*	*31.8*	*33.3*
	Balban	1	200	2	5	7	1	2	3.5%	50	40
	Corbal	2	194	7	6	24	2	0	12.4%	28.5	0
Perup total			***1094***	***31***	***32***	***104***	***10***	***9***	***9.5%***	***32.3***	***28.1***
Julimar	Hewett	1	200	5	11	24	0	2	12%	0	18.2
		2	100	5	7	16	2	0	16%	40	0
	Transect total		*300*	*7*	*13*	*40*	*2*	*2*	*13.3%*	*28.6*	*15.4*
	Gakaling	1	200	11	13	36	0	5	18%	0	7.7
		2	100	8	6	16	3	0	16%	37.5	0
	Transect total		*300*	*15*	*15*	*52*	*3*	*5*	*17.3%*	*20*	*33.3*
	Woylie	1	204	10	10	32	0	4	15.7%	0	40
		2	100	5	5	10	1	0	10%	20	0
	Transect total		*304*	*12*	*13*	*42*	*1*	*4*	*13.8%*	*8.3%*	*30.8%*
Julimar total			***904***	***33***	***41***	***134***	***6***	***11***	***14.8%***	***18.2***	***26.8***

Table 2: Sites trapped, trapping effort and trapping success for all species captured during collection of chuditch for translocation to South Australia.
Species code: Dg – *Dasyurus geoffroii*, Tv – *Trichosurus vulpecular*, Bp – *Bettongia penicillata*, Ta – *Tachyglossus aculeatus*, Af – *Antechinus flavipes*, Pt – *Phascogale tapoatafa*, Vr – *Varanus rosenbergi*, Rr – *Rattus rattus*, Io – *Isoodon obesulus*.

Site	Transect	Session	Trap nights	Bait type	Species: total captures (no. individuals)									Total capture	Trap success
					Dg	*Tv*	*Bp*	*Ta*	*Af*	*Pt*	*Vr*	*Rr*	*Io*		
Collie	Centaur	1	382	Universal	20 (14)	1 (1)	7	1 (1)	5	4	2 (2)	1 (1)	9	50	13.1%
Dwellingup	George	1	201	Universal	5 (4)	2 (2)	1 (1)	0	5 (5)	0	0	0	2 (2)	15	7.5%
Manjimup	Moopinup	1	200	Universal	30 (20)	32 (28)	5 (5)	0	0	0	0	0	0	67	33.5%
		2	200	Universal	35 (16)	47 (39)	5 (4)	0	0	0	0	0	1 (1)	88	44%
	Balban	1	200	Universal	7 (7)	60 (44)	92 (67)	0	0	0	0	0	1 (1)	153	76.5%
	Corbal	2	194	Chicken	24 (13)	17 (17)	1 (1)	0	0	0	1 (1)	0	2 (2)	45	23.2%
	Yendicup	2	200	Universal	8 (6)	72 (55)	37 (28)	0	0	0	0	0	0	89	44.5%
Julimar	Hewett	1	200	Universal	24 (16)	3 (6)	0	4 (4)	0	0	0	0	0	31	15.5%
		2	100	Universal	16 (12)	3 (3)	0	0	0	0	0	0	0	19	19%
	Gakalling	1	200	Universal	36 (24)	1 (1)	0	1 (1)	0	0	0	0	0	38	19%
		2	100	Universal	16 (14)	1 (1)	0	0	0	0	0	0	0	17	17%
	Woylie	1	204	Universal	30 (20)	4 (4)	0	0	0	0	0	0	0	34	16.7%
		2	100	Universal	10 (10)	5 (5)	0	0	0	0	0	0	0	15	15%

cleared within three hours of sunrise. Traps at the Perup site were rebaited in the morning and left open, traps at all other sites were closed in the morning and were opened upon rebaiting in the afternoon.
All animals caught were processed according to DPaW Standard Operating Procedure 9.2 *Cage traps for live capture of terrestrial vertebrates*. Animals captured at the Perup and Centaur sites were marked with eartags, Julimar animals were marked using passive integrated transponder (PIT) tags, while George animals were marked using both eartags and PIT tags.
Standard morphometric data was collected at all sites for all animals upon first capture for the session. Additional records collected at both the Perup and Julimar sites included ecto-parasite count, body condition, coat condition and agitation level. A health check was conducted upon first capture for all woylies (*Bettongia penicillata*) caught at the Perup sites. Information outlining all captures is presented in Table 2.
Additional information and samples were collected from chuditch which met the initial weight criteria for translocation. This included behaviour observations, scat and ecto-parasite samples.
Collected individuals then had their teeth inspected and body condition assessed. All animals with worn or missing teeth, an excess of ecto-parasites, poor body condition or any skin condition were rejected for translocation – these animals were released the same morning of capture. Individuals selected for translocation received additional marking, so that all animals going to South Australia had both a PIT tag and an eartag. They were then transferred to nest boxes for transport to NAR.

Captive management

Chuditch were housed in purpose built 3x2x2m pens furnished with a nest box, foliage, hollow logs and branches for climbing. Foliage was refreshed and moved around once per week to provide stimulation. Upon arrival at NAR nest boxes were placed in the enclosures and animals left to come out of their boxes at their own accord.
In keeping with previous standards used at Perth Zoo (Gaikhorst 1998), chuditch were fed on a diet of mice, chicks, whitebait, boiled egg and carnivore pellets. Upon arrival, females received 105g of food per day which was dropped back to 70g following collars being fitted. Males received 135g upon arrival, which was dropped back to 105g. The diet was increased upon arrival to prevent weight loss caused due to the stress of the new captive environment. Despite animals eating all of the available food every night, some animals still did not gain any weight until the final week of their stay (Appendix).
Two chuditch temporarily escaped from their enclosures during the captive period, however both of these were due to design faults with enclosure doors which were rectified immediately.

Radio-telemetry

Original intentions were to fit radio-telemetry collars with GPS capability to selected individuals, however after three captive trials this was discontinued due to the excessive bulk, weight and inappropriate design of the combined VHF and GPS units trialled.
All female chuditch and four of the six males captured in the first trapping period were fitted with Sirtrack two-stage VHF transmitters with mortality mode on 23rd and 24th of March at the NAR clinic. The transmitters contained an internal loop antenna and were mounted on suede leather collars that were fastened using a plastic nut and bolt covered by heatshrink (Sirtrack, Havelock North). Previous chuditch collars used by DPaW with this species have been a brass loop design (Biotrack, Dorset). In the captive to wild translocations this design did not cause any issues as most

animals were carrying excess weight that was lost following release. However, the majority of the wild chuditch translocated to Peron in 2011 gained weight. Issues with ill-fitting collars arose as a result and recommendations resulting from this work were to look at changing the collar design (Reinhold 2011). The suede collar with internal loop antennae has been designed to hopefully overcome the issues with neck damage encountered during the Peron work. Despite the new collars being approximately five grams heavier than the previously used brass loops, the battery life is longer and the suede material has some capacity to stretch with the growth of the animal.
Training in collaring technique was given to members of the Flinders team by experienced DPaW staff. Veterinary checks of each individual were also made at this time with ecto-parasite, DNA and blood samples collected. Weight changes were also noted and diet adjusted for the remaining time in captivity.
Remote camera observations were made over the following days and a visual inspection of the neck condition and collar fit made on the 29th of March. Two females due to fly the following day were found to have neck abrasions from the collars. Collars were removed, the animals deleted from the flight manifest and clinical treatment commenced. The remaining collared chuditch were then flown to South Australia.
On the 22nd of April collars were refitted to both females following full recovery and veterinary approval. The 11 males collected in the second trapping period and two males held at NAR since the first trapping period were also fitted with collars and processed as detailed above.
Further observations were made with remote cameras and a visual inspection made on 28th April. The previously collared females were found to have had a similar negative reaction to the refitting and these collars were again removed. In addition two males also had the collars removed due to adverse reactions. In all four of these cases the reaction appeared to be due to sensitivity to the collar materials rather then a result of an ill-fitted collar. These four individuals remained on the flight manifest, but were to be released without collars. One of the females required further treatment to her neck and was to be held in a soft release pen to allow capture and treatment to occur as prescribed.
On the 29th of April the 13 male and two female chuditch were secured in nestboxes for transfer to South Australia.

Aircraft transfer

All individuals were captured in their pens and transported in their individual nestboxes to Jandakot Airport early on the mornings of 1st and 29th April. Loading and securing the nestbox cargo into a Cessna 206 Stationair was supervised by the pilot Matt Graham. Both flights departed Jandakot at approximately 6.20am. Following refuelling stops at Kalgoorlie and Ceduna the aircraft arrived at the Wilpena pound airstrip in the evening. These flights were uneventful and all chuditch arrived safely.
The release at Wilpena pound was planned and supervised by the South Australian team with assistance from DPaW staff.

Student projects

Two students were involved in this translocation, investigating the influence of different factors associated post release survival.

Adele Thomasz (Honours, Murdoch University)
Adele will be determining if the translocation process will influence parasite load, infection intensity, parasite species found or parasite transmission between chuditch. She will also be

investigating if there are any correlations between parasite load and survival of chuditch post translocation.
Individuals are being screened for endo-parasites via analysis of scats and blood. Scats were collected from traps and from the enclosures at NAR. Blood was collected from individuals during the vet check at NAR, massaged from the ear following tissue samples. Animals were also screened during the vet checks for ecto-parasites; fleas, lice, mites and ticks in the ears and fur were collected for identification. Further samples will be collected from chuditch when they are recaptured in South Australia.

Melissa Jensen (PhD, University of Adelaide)
One component of Melissa's PhD is to determine if temperament traits can be identified in chuditch and investigate if temperament can influence post release survival, movement patterns and habitat use.
Behavioural observations made during the collection of chuditch which were completed in contribution to Melissa's work. Further tests were completed by Melissa while the animals were held at NAR, to determine different components of each individuals temperament.
All observations of these tests were done using infrared remote sensing cameras, one still and one video set up on each individual during the test period. Some tests were purely observational, others included the introduction of items into the enclosure to measure the response of chuditch to these items. These included a ball or other novel object to measure boldness, a 'kong' with food to measure tenacity and extra food under cover or out in the open to measure vigilance and naivety. Other items including predator scent to measure boldness and a mirror to measure aggression were used, but were left outside the enclosure rather than in with the animal. Animals were checked half an hour after starting each test, if any adverse reactions were recorded tests were ceased.

Media

Media coverage of this program was coordinated by the South Australian team. ABC News items were run on Saturday 26th April and a feature article on the ABC's Landline program was first aired on Sunday 27th April. DPaW staff members were interviewed at the NAR facility and a film crew accompanied the team in the field at Julimar to obtain footage. Articles in popular wildlife conservation media should also be considered at some future time. Future agreement on media content and release should have consultation between all parties prior to further releases.

Translocation Success

It will not be possible to complete full assessment of all Performance Indicators for a considerable period of time. Regular updates from South Australia on outcomes of radio-telemetry and trapping activities will provide early indications of adult survivorship and data on movement of Chuditch through the landscape including refuge availability.
Predation of two female chuditch was recorded within 8 days of release, both in close proximity along the Wilpena Creek. A single cat was believed to be responsible and this was subsequently confirmed following trapping and dissection. One further mortality was confirmed on the 23rd of May. Cause of death is yet to be confirmed, anecdotal evidence suggests a cat was not responsible for this mortality (Pers. Comm. K. Moseby).
There may be some predation susceptibility for quolls in the early stages of a release due to unfamiliarity with a new habitat and refuge options. Ongoing monitoring by radio-telemetry will identify if predation is an issue at the release site.

Trapping will be required to allow comparative data to be obtained on health, collar fit and breeding success.
Movement and refuge data recorded to date is not inconsistent with previous translocations.

Future Translocations

Success indicators include:

- The monitoring of any source population to detect if any decline in trap success is evident.
- The survival of >50% of each of the released populations during the first 3 months
- Additional longer term criteria including breeding success and population increases

Both Julimar and Perup will be sampled prior to considering any further translocation. This sampling will need to be done following the breeding season to determine if the individuals removed from the populations have been replaced by recruitment of sub adult animals. In order to remove further animals from these sites in future years, we would need to see similar numbers to those previously recorded. Trap success and total number of individuals captured will be used to determine future sustainable harvest levels.
Further investigation into alternative source sites should be undertaken in addition to the existing sites. These include Centaur, George, Noggerup and Catterick blocks in the Southwest. Recent Western Shield monitoring indicates low numbers of chuditch at these sites, however they were historically known to produce large numbers of individuals. We propose conducting large scale chuditch specific surveys at these sites within the next year. Having other sites available to harvest animals from for translocation will reduce the pressure on the Perup and Julimar sites, while also increasing the genetic diversity of the founder population at Wilpena pound. Data obtained from all monitoring and any investigation will require analysis and comparison to historical data with the dissemination of results to all parties involved as part of the decision making process moving forward.
The ecology of the chuditch limits the translocation window to the February – May period each year, therefore the success indicators from the Flinders population can be fully assessed throughout the remainder of 2014 and well prior to any decision on ongoing animal transfers. Adult survivorship can be assessed over the coming months by way of trapping and radio-telemetry. Juvenile recruitment should be evident throughout late 2014 and early 2015 if the current breeding season is successful.

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Appendix

Examinations: Monday 24th March 2014

Name	PIT tag	Date of admission	Admission weight	Examination weight	Weight gain/loss	Body Condition Score	HR	RR	Ectoparasite	Cardiovascular /Respiratory auscultation	Skin findings (body)	Head/Mouth examination
Eloise (F)	673643	18/3/14	730g	805g	Gain 75g	3.5/5	156	56	Yes, collected	Sinus arrhythmia	Few crusted lesions on tail	NSF
Kojo (F)	708543	14/3/14	800g	945g	Gain 145g	3.5/5	170	66	Yes, collected	NSF	Chip site looks fine	Significant staining upper canines
Manji (F)	305925	13/3/14	730g	855g	Gain 125g	3.5/5	160	56	Nil		Ventrum (underside) tail alopecic region, otherwise NSF	Slight wear lower canines enamel otherwise NSF
Gidgie (F)	708591	14/3/14	750g	805g	Gain 55g	3/5	210	62	Nil	NSF	NSF	Cerumin (wax) ++ ears, smear taken
Lotsa (F)	208009	12/3/14	730g	805g	Gain 75g	3/5	158	60	Yes, collected	NSF	NSF	NSF
Marri (F)	586747	12/3/14	730g	795g	Gain 65g	3/5	150	58	Nil	NSF	NSF	NSF
Tatty (F)	709002	14/3/14	975g	915g	Lost 50g	2.5-3/5	152	58	Yes, collected	NSF	Pigmented, semicircular soft lesion 2mm tag left ear tip	Semicircular erythemic (red) alopecic lesion ventral mandible
Hayden (F)	133530	11/3/14	750g	835g	Gain 85g	3/5	124	58	Nil	NSF	Chip site looks fine	NSF
Tingle	745898	14/3/14	790g	815g	Gain 25g	3/5	11	58	Yes, high	NSF	NSF	NSF

(F)							8		load, collected			
Karri (F)	591817	11/3/14	1000g	1032g	Gain 32g	3/5	148	62	Nil	NSF	Small crust ventrum tail	NSF
Steve (M)	*To be done*	14/2/14	1530g	1400g	Lost 130g (up on 3 previous weights)	5/5	140	60	Nil	NSF	NSF	NSF
Alan (M)	386127	14/3/14	1350g	1285g	Lost 65g	3/5	152	60	Nil	Sinus arrythmia	Chip site looks fine 1 crust dorsal proximal tail	NSF
Tuart (M)	486317	12/3/14	1060g	1095g	Gain 35g	3/5	220	64	Yes, collected	NSF	NSF	Fractured lower left mandibular canine
Sabre (M)	130580	11/3/14	1350g	1315g	Lost 35g	2.5/5	160	65	Nil	NSF	NSF	Old scar on dorsum nose
Bond (M)	533007	14/3/14	1225g	1260g	Gained 35g	*Weighed only, to be collared and examined with Males*						
Pavlich (M)	390772	13/3/14	1260g	1300g	Gained 40g	*Weighed only, to be collared and examined with Males*						

HR: Heart rate (beats per minute), Respiratory Rate (breaths per minute), NSF: No significant findings, Alopecia: Fur loss, Ventral/Ventrum: Underside, Dorsum/dorsal: Upper side, Mandible: Lower jaw

Examinations: Tuesday 25th March 2014

Name	PIT tag	Date of admission	Admission weight	Examination weight	Weight gain/loss	Body Condition Score	HR	RR	Ectoparasite	Cardiovascular /Respiratory auscultation	Skin findings (body)	Head/Mouth examination
Fame (F)	346232	21/3/14	930g	975g	Gain 45g	2.5/5	168	58	Yes, collected	NSF	NSF	Discoloured enamel upper canines
Fyfe (F)	676143	20/3/13	865g	885g	Gain 20g	3/5	146	52	Nil	NSF	NSF	Crusted dermatitis right side mandible, *impression smear taken*
Rambo (F)	673284	20/3/14	890g	905g	Gain 15g	3/5	134	52	Nil	NSF	NSF	Worn left maxillary canine Worn to gingiva mandibular left canine Absent mandibular right canine
Chitty (F)	346230	20/3/14	780g	845g	Gain 65g	3/5	124	42	Nil	NSF	Tail base 2cm focal alopecic crusted dermatitis. *Impression smear taken*	NSF
Toodyay (F)	346329	20/3/14	840g	905g	Gain 65g	3.5/5	110	50	Nil	NSF	NSF	NSF
Binnie (F)	346336	19/3/14	910g	965g	Gain 55g	3/5	122	32	Nil	Nil	Tail has linear 3cm ventral	NSF

											alopecia and crusting	
Cassie (F)	207983	18/3/14	700g	825g	Gain 125g	3/5	120	40	Yes, 1 only, collected	NSF	NSF	NSF
Juli (F)	346751	18/3/14	800g	985g	Gain 185g	3.5/5	128	62	Nil	NSF	NSF	Fractured mandibular left canine
Wandoo (F)	303376	18/3/14	860g	875g	Gain 15g	3.5/5	162	58	Nil	NSF	NSF *Allowed good pouch examination NSF*	Worn mandibular canines
Snappi (F)	709221	18/3/14	840g	835g	Lost 5g	3/5	136	42	Nil	NSF	NSF	NSF

HR: Heart rate (beats per minute), Respiratory Rate (breaths per minute), NSF: No significant findings, Alopecia: Fur loss, Ventral/Ventrum: Underside, Dorsum/Dorsal: Upper side, Mandible: Lower jaw, Maxilla: Upper jaw

Examinations: Tuesday 22nd April 2014

Name	PIT tag	Date of admission	Admission weight	Examination weight	Weight gain/loss	Body Condition Score	HR	RR	Ectoparasite	Cardiovascular /Respiratory auscultation	Skin findings (body)	Head/Mouth examination
Pavlich (M)	390772	13/3/14	1260g	1315g	Gain 55g	3.5-4/5	150	42	Yes, collected	NSF	NSF	Worn tip left lower canine *Eyes:* *Right eye central linear stain +ve region*
Bond (M)	533007	14/3/14	1225g	1395g	Gain 170g	4.5/5	160	40	Yes, collected	Regularly Regular arrhythmia	NSF	*Eyes:* *Left cornea small linear positive region.*
Kurrajong (M)	544936	08/04/14	1225g	1305g	Gain 80g	4/5	138	28	Nil	NSF		Right upper canine worn tip Missing middle lower incisors and right lateral incisor and 2 upper incisors *Unable to stain eyes*
Snotty (M)	657878	09/04/14	1290g	1415g	Gain 125g	4/5	140	34	+++ Yes, collected	NSF	NSF	*Eyes: Stain -ve*
Gobble (M)	658270	09/04/14	1460g	1465g	Gain 5g	3.5/5	108	48	Yes (fleas) , collected	NSF	NSF	Missing lower left middle incisor *Eyes:*

												Left eye linear +ve region.
Zamia (M)	544222	10/04/14	1225g	1345g	Gain 120g	4/5	140	42	++ Yes (ticks) collected	NSF	NSF	Broken tip right upper canine Small 1-2mm ulcer on left side rostral aspect nose. *Unable to stain eyes.*
Warren (M)	207972	10/04/14	1390g	1335g	Lost 55g	3.5/5	156	40	Nil	NSF	NSF	Broken tip right upper canine *Eyes: NSF, Stain -ve*
Rudis (M)	346481	15/04/14	1120g	1315g	Gain 195g	3.5/5	136	28	Nil	NSF	Small scar underside tail (old)	NSF
York (M)	346081	15/04/14	1080g	1235g	Gain 155g	3/5	138	58	Nil	NSF	NSF	NSF *Eyes: Stain -ve, NSF*
Avon (M)	486374	15/04/14	1310g	1375g	Gain 65g	3.5/5	146	44	Nil	NSF	NSF	Left upper canine tip fracture *Eyes: Left eye only stained after*

												flush-suspect flush holding stain.
Stirling (M)	346790	15/04/14	1190g	1415g	Gain 225g	3.5-4/5	12 2	36	Yes (ticks), collected	NSF	NSF	NSF *Unable to stain eyes.*
Mort (M)	700838	16/04/14	1260g	1375g	Gain 115g	3.5-4/5	10 8	22	Nil	NSF	NSF	Left upper canine discolored enamel. *Unable to stain eyes.*
Biggs (M)	344687	16/04/14	1310	1375g	Gain 65g	3.5-4/5	10 8	24	Nil	NSF	NSF	Left upper canine tip damaged. *Unable to stain eyes.*
Tatty (F) *2nd collar*	709002	14/03/14	975g	1085g (last weight 7/4/14 996g)	Gain 110g	Weight only			Weight only	Weight only	Reportedly looking good at previous collar wound site.	Weight only
Eloise (F) *2nd collar*	673643	18/03/14	730g	925g (last weight 7/4/14 868g)	Gain 195g	Weight only			Weight only	Weight only	Reportedly looking good at previous collar wound site.	Weight only

HR: Heart rate (beats per minute), Respiratory Rate (breaths per minute), NSF: No significant findings, Alopecia: Fur loss, Ventral/Ventrum: Underside, Dorsum/dorsal: Upper side, Mandible: Lower jaw, +ve: Positive fluroscein stain, -ve: Negative fluroscein stain.