

Te Kakahu Skink – Anchor Population



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Cover: Te Kakahu skinks on Anchor Island. *Photo: Lynn Adams*

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1 Summary

Te Kakahu/Chalky skink (*Oligosoma tekakahu* sp. nov.) were only known to be a point endemic from Te Kakahu/Chalky Island until recently. In order to create another secure population ninety nine were translocated to Anchor Island, Fiordland National Park in February 2018. Since the translocation, a survey of Fiordland islands in December 2018 found 3 individuals on an islet 30km from Chalky Island, indicating another remnant population. The translocated population is showing good survival with 35 individuals photo IDed during post translocation monitoring and visual counts estimating more than 60 individuals still present in the release area. Breeding has not yet been confirmed though several individuals were thought to be pregnant in February 2019.

2 Introduction

The Te Kakahu skink was thought until recently to be a point endemic, known only from one small area, approximately 50m² on Te Kakahu -o- Tamatea or Chalky Island in Chalky Inlet, Fiordland. It was first discovered in 2002 by members of the Kakapo Recovery Team and was formally described in 2011 (Chapple *et. al.* 2011). The Te Kakahu skink is one of six distinct species in the *O. inconspicuum* or cryptic skink species complex and is classified as nationally critical in the Department of Conservation Threat Classification System (Hitchmough *et. al.* 2012).

Further knowledge of the species was gained during a lizard survey in December 2018 (Jackson 2019) with a new population being found on one of the Green Islets, a cluster of several very small islands off the South coast of Fiordland. This survey searched 50 different islands and some mainland areas with no other new populations of Te Kakahu found. This indicates that they are very sensitive to introduced predators and would have been more widespread before the arrival of these predators.

The island populations are vulnerable to pest incursion or fire, and so establishing backup populations was recommended as highest priority by the national lizard Technical Advisory Group (TAG) (Reardon, 2015). In response to this Anchor Island was selected as the most appropriate translocation site and the 2018 translocation occurred.

3 Methods

3.1 Study site

Anchor Island (1137ha) is located in Dusky Sound, southern Fiordland and is a predator-free island home to a range of threatened species. The release site is an open/ low vegetated area with a northerly aspect located on a spur at 180m a.s.l (see Figure 1). There is a mix of vegetation with stunted manuka, yellow silver pine, wire rush and gahnia being notable. The site is sloping with peaty soils and small areas of bare rock, and is surrounded by mixed

podocarp/beech forest. Along the same spur there are also other smaller patches of similar habitat that skinks have the potential to disperse to.

3.2 Study design

A mark-recapture study design was used with photo identification as the means of individual identification. Gee-minnow traps and hand catching were used to capture skinks. Each animal captured was aged, sexed, weighed, measured, photographed and marked with xylene free silver pen. All skinks were released to their capture site after processing. Traps were positioned in short vegetation and tied down to prevent them blowing away in the wind. Vegetation was put inside the traps to provide shelter and baited with canned pear, replenished daily. Traps were checked intermittently throughout the day and hand catching occurred continuously as opportunity arose. As the aim was to recapture as many skinks as possible trap layout and checking regime was not standardised and was flexible to maximise capture numbers.



Figure 1. Skink habitat, showing Gee-minnow traps, Anchor Island

4 Results

Two monitoring trips have occurred since the translocation at roughly six monthly intervals.

4.1 29-31 August 2018

The first day was overcast and no skinks were seen. At approximately 11am of the second day the sun came out and from then onwards the weather was fine. Gee minnow traps were placed over the whole open area initially until the first skinks were seen congregated around the two release sites (approx. 15m apart). This prompted the traps to be repositioned more densely around this area, see appendix 3. Over the course of the trip 21 individuals were caught with all individually identified, except for two neonates. The air temperature was moderate (approx. 15 C) allowing skinks to spend long periods basking. The majority of lizards caught were hand caught (16 of 21) with only a small number caught in the Gee minnow traps.

Visual surveys of the entire area of likely habitat were conducted each day, with the other open areas on the spur also checked. No skinks were found in any of the separate small clearings, which would have required travel through scrub or forest to get to. At the release site individuals occupied an area approximately 40m by 10m, with further area to disperse to. Areas where thickets of gahnia and 50cm vegetation bordered on more open ground appeared to be favoured locations. Many individuals would sun themselves regularly in the same locations on the edge where they could easily retreat into the vegetation if threatened.

Walking repeatedly around the site over the 3 days gave the ability to estimate numbers, made easier by having some of the skinks marked with pen. As the skinks seemed to favour particular home ranges this enabled them to be roughly counted. This estimated that 60 plus individuals were still present after the translocation.

4.2 5-7 February 2019

The first day was showery and mainly overcast with only one skink being caught. The following two days were sunny with air temperatures of 18-20 C, though the sun was very hot. 23 individual skinks were caught in total, with all but one being photo identified. Traps were again centred around the core area skinks inhabit and had improved placement from our learnings last trip. All but two individuals were caught in the Gee minnow traps in marked difference to the August trip.

Visual surveys of the entire area of likely habitat were conducted each day, with the other open areas on the spur also checked. Again no skinks were found in any of the separate small clearings, which would have required travel through scrub or forest to get to. One skink was seen once 5m further out than the last trip but overall no great range expansion was noticeable.

With the hotter temperatures the skinks moved far quicker and spent less time basking in the sun. This meant that accurate counts were unable to be obtained, though impressions gained from the number of uncaptured skinks still roaming suggest that a similar number as the previous trip were still surviving.

No neonates were seen or subadults caught, while several of the adult females were thought to be pregnant.

5 Discussion

Skink survival and recapture rates are so far very high and dispersal out of the translocation site appears to be low. When planning for this translocation advice was to expect 50% of the translocated individuals to be lost due to mortality and dispersal, so this is an especially fantastic result. So far there is no evidence of breeding - it is unclear whether the neonates caught in August were born on Anchor from females pregnant when translocated or were the two translocated neonates. It is possible that the pregnant females aborted due to the stress of translocation or that the young did not survive in the new environment. Knowledge of Te Kakahu breeding habits are poorly known and will benefit greatly from the continued monitoring of this population.

Photo identification to follow the survival of individuals is working well with only three individuals so far unable to be identified. This includes the two neonates which do not have enough markings to distinguish them and one individual with blurry photos. Most individuals were IDed in the office post monitoring though some with more obvious markings were IDed in the field.

Trap placement has improved with better knowledge of the skinks' habitats which is likely to have helped the increased number caught on the second trip. Optimum trap placement appears to be either in dense vegetation or abutting it with gahnia being preferred plants housing many skinks. The increased temperatures on the February trip are likely to also have influenced the number of skinks caught in traps. Hotter temperatures increase the activity of the skinks, making them both harder to hand catch and increasing their encounter rate with the traps.

6 Recommendations

Continue with twice yearly monitoring for another 4 years until 5 years of post translocation data has been collected to inform us if the translocation has been successful. This will also greatly add to our knowledge of the species and allow us to make more informed decisions for the future of this species.

7 Acknowledgements

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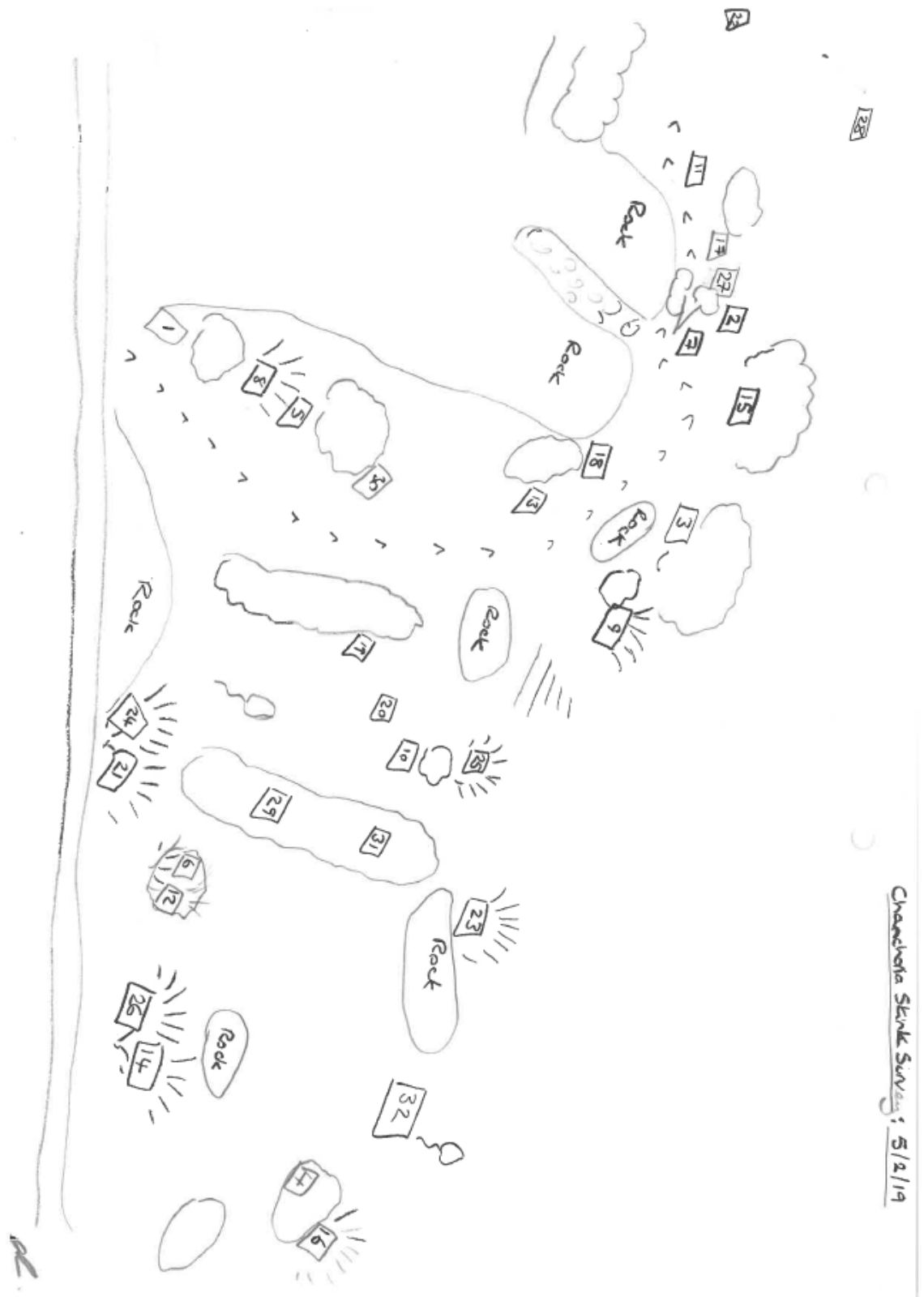
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9 Appendix 1. Te Kakahu Skink Capture Data

Date	Site	Observers	Trap	Animal ID	Temporar	New/Rec	Tail Tip	Sex	Age	SVL	VTL	Regen	Mass	Photos	Notes		
30/08/2018	Anchor	Bex and Sarah	Near 2	94	A	R	N	M	A		63	67	16	5.00	Y	Is this weight correct. Looks skinny	
30/08/2018	Anchor	Bex and Sarah	Near 15	31	B	R	N	F	A		63	24	17	3.39	Y		
30/08/2018	Anchor	Bex and Sarah	7	68	C	R	N	M	A		59	54	20	3.66	Y		
30/08/2018	Anchor	Bex and Sarah	3	22	D	R	N	M	A		63	39	29	3.76	Y		
30/08/2018	Anchor	Bex and Sarah	Near 5	14	E	R	N	F	A		66	62	21	4.69	Y		
30/08/2018	Anchor	Bex and Sarah	Near 14	43	F	R	N	M	A		65	72	3	5.65	Y	skinny	
30/08/2018	Anchor	Bex and Sarah	Near 18	96	G	R	N	U	SUB		55	55	10	3.09	Y		
30/08/2018	Anchor	Bex and Sarah	Near 18		H	N	N	U	NEO		30	36	C	0.40	Y	Very small, no real photos	
30/08/2018	Anchor	Bex and Sarah	Near 30	42	I	R	N	F	A		62	65	2	4.25	Y	Poo sample. Right back toes short	
31/08/2018	Anchor	Bex and Sarah	Near 16	97	J	R	N	U	SUB		55	42	25	3.02	Y		
31/08/2018	Anchor	Bex and Sarah	Near 9	69	K	R	N	F	A		65	14	10	3.55	Y	Potentially pregnant with 1	
31/08/2018	Anchor	Bex and Sarah	Near 25	6	L	R	N	F	A		61	46	15	4.20	Y	Poo sample. Sex different from initial ca	
31/08/2018	Anchor	Bex and Sarah	Near 22	55	M	R	N	M	A		58	48	10	3.06	Y		
31/08/2018	Anchor	Bex and Sarah	B/W 11&9	73	N	R	N	M	A		67	48	18	4.90	Y		
31/08/2018	Anchor	Bex and Sarah	Near 3	27	O	R	N	U	SUB		51	35	19	2.51	Y		
31/08/2018	Anchor	Bex and Sarah	Near 15		P	N	N	U	NEO		31	35	C	0.57	Y		
31/08/2018	Anchor	Bex and Sarah	17	76	Q	R	N	U	SUB		51	59	C	2.78	Y		
31/08/2018	Anchor	Bex and Sarah	17	19	R	R	N	U	SUB		51	63	3	2.61	Y		
31/08/2018	Anchor	Bex and Sarah	10	82	S	R	N	M	A		65	34	8	4.05	Y		
31/08/2018	Anchor	Bex and Sarah	Near 4	63	T	R	N	M	A		63	46	16	4.27	Y		
31/08/2018	Anchor	Bex and Sarah	East of 24	38	U	R	N	F	A		59	16	7	3.12	Y	Past "the wall" to the east of 24	
Date	Site	Observers	Trap	Animal ID	Temporar	New/Rec	Tail Tip	Sex	Age	SVL	VTL	Regen	Mass	Photos	Notes		
5/02/2019	Anchor	Bex and Jenny	Below 3	20		1	R	N	F	A		70	32	24	6.51	Y	POSSIBLY A BUN IN THE OVEN. V CHUBY
6/02/2019	Anchor	Bex and Jenny	2	68		2	R	N	M	A		59	44.00	17	4.10	Y	CAUGHT OVERNIGHT
6/02/2019	Anchor	Bex and Jenny	17	78		3	R	N	F	A		61	45	13	5.00	Y	POSSIBLY PREGNANT, CAUGHT OVERNIGHT
6/02/2019	Anchor	Bex and Jenny	5	9			R	N	F	A		63	67	3	5.56	Y	POSSIBLY PREGNANT
6/02/2019	Anchor	Bex and Jenny	7	73		5	R	N	M	A		70	50	18	5.58	Y	
6/02/2019	Anchor	Bex and Jenny	7	95		6	R	N	F	A		65	55	9	5.92	Y	POSSIBLY PREGNANT
6/02/2019	Anchor	Bex and Jenny	17	81		7	R	N	M	A		62	45	36	4.06	Y	MISSING BACK RIGHT SECOND TOE
6/02/2019	Anchor	Bex and Jenny	17	63		8	R	N	M	A		64	52	23	5.56	Y	
6/02/2019	Anchor	Bex and Jenny	7	62		9	R	N	M	A		57	46	26	3.29	Y	
6/02/2019	Anchor	Bex and Jenny	22	36		10	R	N	M	A		63	65	1	5.92	Y	
6/02/2019	Anchor	Bex and Jenny	22	1		11	R	N	M	A		59	50	30	4.22	Y	
6/02/2019	Anchor	Bex and Jenny	8			12	R	N	F	A		55	36	15	3.37	Y	
6/02/2019	Anchor	Bex and Jenny	6	100		13	R	N	M	A		56	70	4	4.06	Y	
6/02/2019	Anchor	Bex and Jenny	15	82		14	R	N	M	A		65	32	5	5.56	Y	
6/02/2019	Anchor	Bex and Jenny	1	47		15	R	N	M	A		59	42	25	3.86	Y	
7/02/2019	Anchor	Bex and Jenny	19	3		16	R	N	F	A		60	44	6	4.21	Y	
7/02/2019	Anchor	Bex and Jenny	18	71		17	R	N	F	A		61	53	20	5.01	Y	POSSIBLE PREGNANT
7/02/2019	Anchor	Bex and Jenny	NEAR 24	29		18	R	N	F	A		61	35	26	4.52	Y	POSSIBLE PREGNANT
7/02/2019	Anchor	Bex and Jenny	29	38		19	R	N	F	A		63	41	31	4.50	Y	
7/02/2019	Anchor	Bex and Jenny	8	61		20	R	N	M	A		61	44	16	4.36	Y	
7/02/2019	Anchor	Bex and Jenny	17	54		21	R	N	M	A		67	54	15	5.71	Y	
7/02/2019	Anchor	Bex and Jenny	6	79		22	R	N	M	A		64	40	22	4.45	Y	
7/02/2019	Anchor	Bex and Jenny	19	55		23	R	N	M	A		62	51	15	3.75	Y	

10 Appendix 2. Trap map February 2019



11 Appendix 2. Trap map August 2018

