Copies of the 'overheads' used by JL (in combination with list of slides below) to deliver the '*Banded Stilt breeding at Lake Ballard, Western Australia*' presentation by J. Lane, G. Pearson, & C. Minton (presented by JL) at SHOC, Albany, on 07/10/1996. The numbers in the top corners of these overheads indicate the order of presentation.

Overheads used to give

Banded Stilt

talk to

Sthn. Hem. Orn. Congress

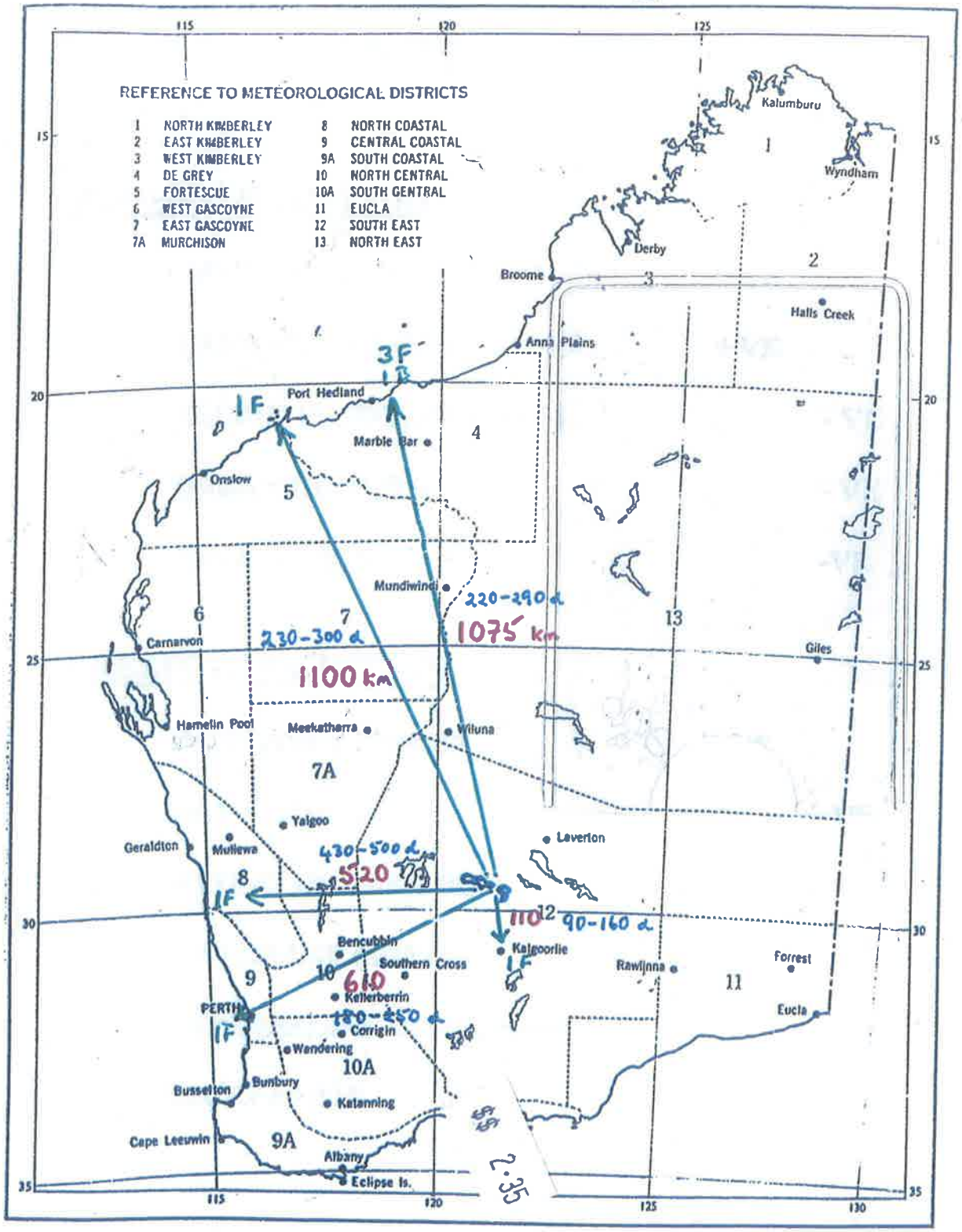
7/10/96

at Albury.

Overheads Scanned "Folio 58."
on 15/10/2012 R.

LEG FLAG & BAND SIGHTINGS

WESTERN AUSTRALIA



THE BANDED STILT

CLADORHYNCHUS LEUCOCEPHALUS

IN

WESTERN AUSTRALIA

OR

"BONKING IN THE BRINY"

THE BANDED STILT

CLADORHYNCHUS LEUCOCEPHALUS

IN

WESTERN AUSTRALIA

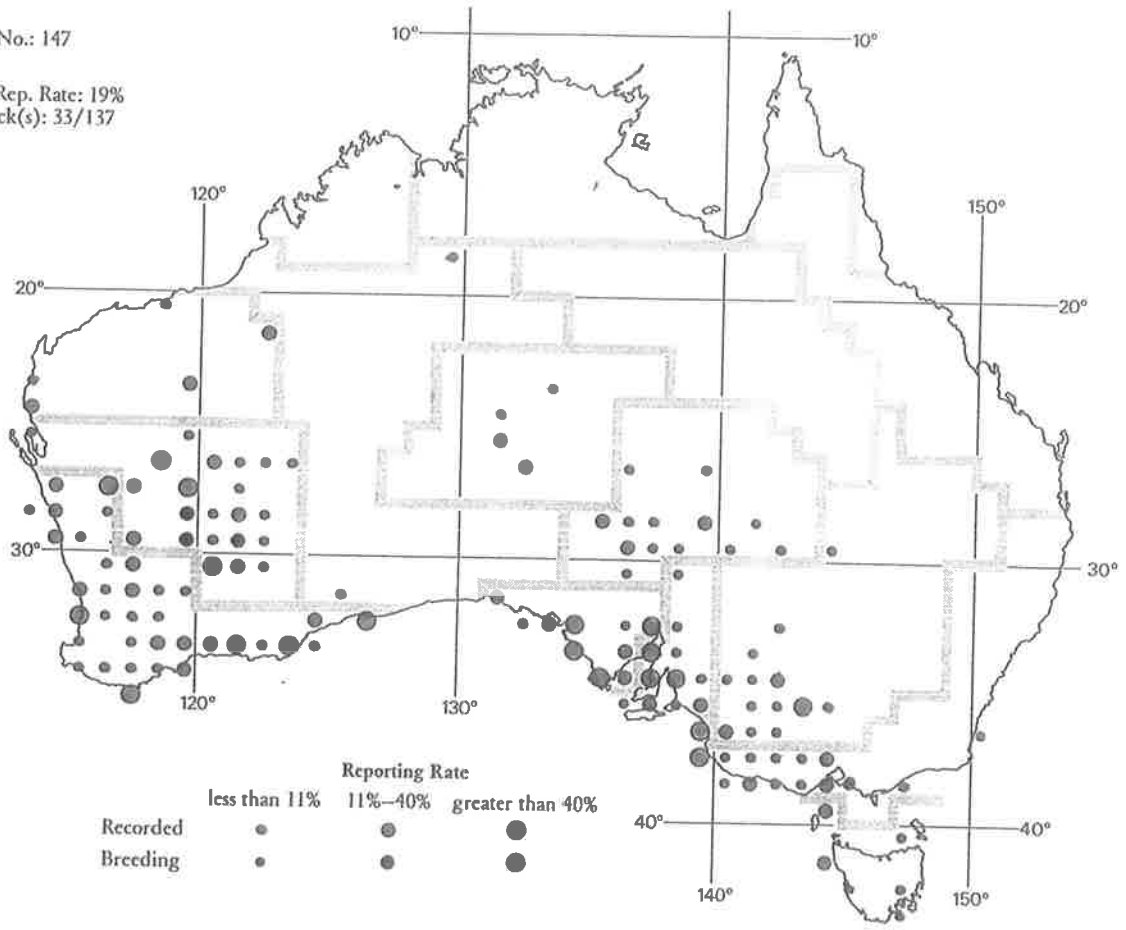
OR

"BONKING IN THE BRINY"

Field Atlas Records: 1034
1° blocks–with records: 136 (17%)
–with breeding records: 5 (4%)

Atlas No.: 147

Max. Rep. Rate: 19%
In block(s): 33/137



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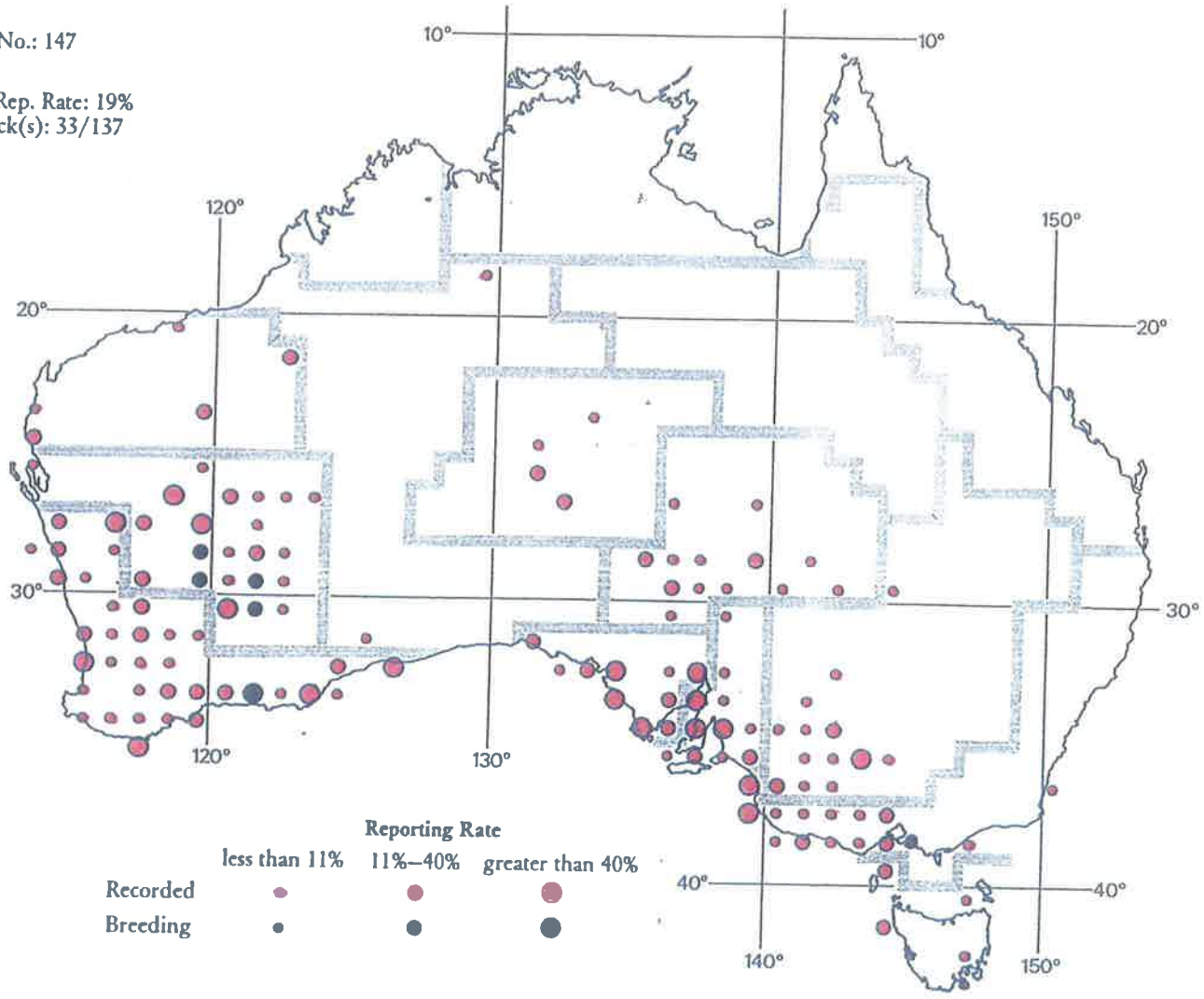

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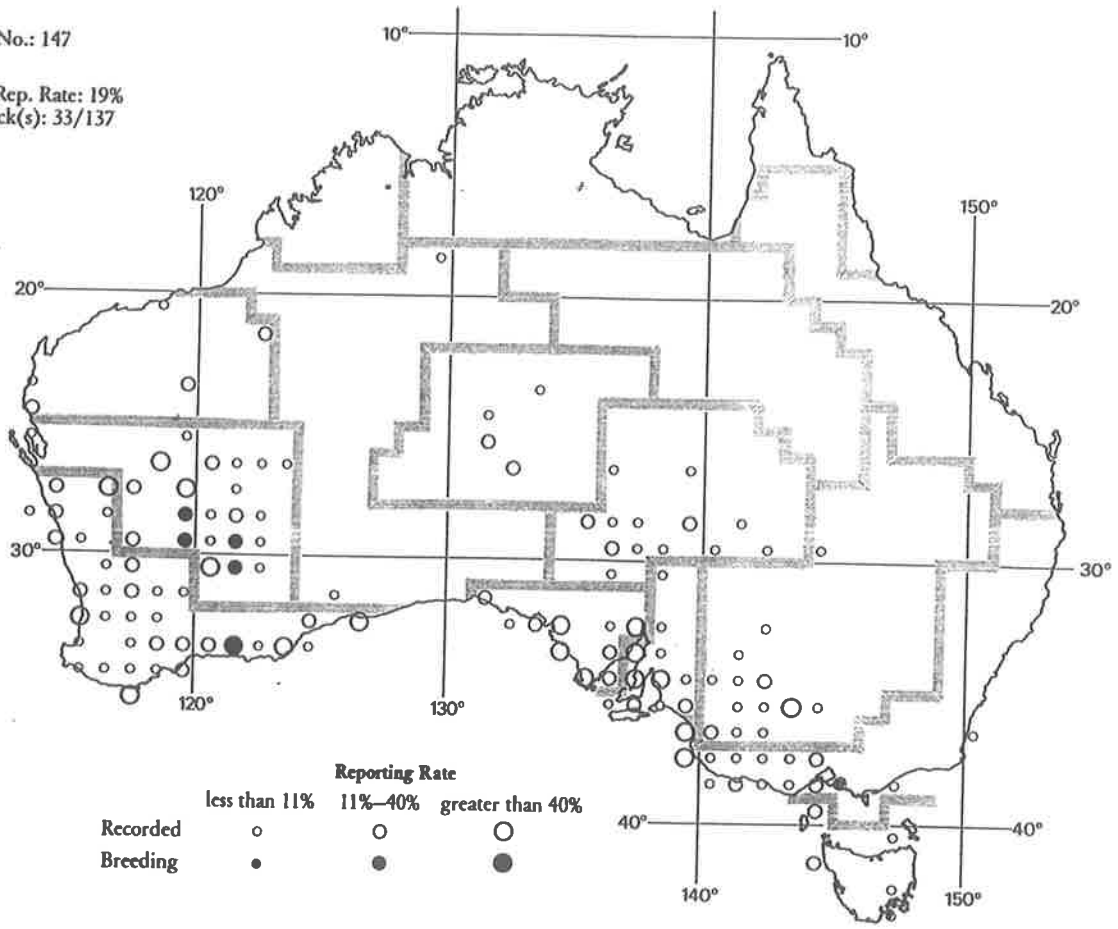

BREEDING RECORDS TO END 1994

	SITE	YEAR	BREEDING EVIDENCE	REFERENCE
1	L. Cowan	1904	large nesting colony	L-Whtlock 1932
2	Quinn's Find	1923 May-Jun	"circumstancial evidence"	Jones 1945a
3	Menzies	1929 Mar	young walking thru town	Glau&Jen 1931
4	L. Grace	1930 Aug	<1 acre nests; eggs, chicks	Glau&Jen 1931
5	L. Callabonna (SA)	1930 Dec	c. 27,000 nests; eggs, chicks	McG&Mo 1931
6	L. King	1930 wint	10,000s birds, countlss chicks	Gl&Jen 1931 (?)
	L. Callabonna (SA)	1936 Jun		Anon 1937
	L. Grace	1945 Sep	nests flooded & abandoned	Carnaby 1946
	L. Grace	1946 Aug	c. 500 nests	Carnaby 1947
7	Wagga Wagga L.	1960 Nov	40-50 scrapes abandoned	Fuller 1963
	Ballard-Menzies	1963	chicks walking thru town	Jenkins 1975
8	L. Disappointment	1971 Aug	one immat. collected nearby	Kolichis 1976
	L. Ballard	1973 Jul	c. 60 breeding pairs; chicks	Jenkins 1975
	L. Ballard	1974 Jul	many chicks & adults	Kolichis 1976
9	L. Marmion	1975 Mar	50,000 breeding pairs	Burb&Full 1982
	L. Ballard	1975 May	100s of flightless young	Kolichis 1976
	L. Marmion	1975 May	c. 2500* nesting pairs	Kolichis 1976
10	Percival Ls.		subfossil eggs found 1975	Kolichis 1976
11	L. Barlee	1980 Sep	c. 179,000 nests; chicks	Burb&Full 1982
12	L. Goongarrie	1980		"Atlas"
13	Esperance	1980		"Atlas"
	Ballard-Menzies	1981 Sep	chicks on road	Gars&Jeff 1983
14	L. Eyre (SA)	1984	single chick	Minton 1989
	Ballard-Menzies	1986 Sep	chicks walking thru town	Pearson 1989
	L. King	1988 Aug	21,000 and 28,000 chicks	Bougher 1988
15	L. Torrens (SA)	1989 Apr-May	up to 100,000 birds	Minton 1989 etc
	L. Barlee	1992	abandoned nests and eggs	"Directory"

BREEDING REPORTS:	27*
EVENTS:	26*
SITES:	15*

* Includes doubtful records

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	SITE	YEAR	BREEDING EVIDENCE	REFERENCE
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" (?)	L. King	" winter	10,000s birds, countless chicks
1931 McG&Mo	L. Callabonna (SA)	1930 Dec	c. 27,000 nests; eggs, chicks
1932 L-Whtlock	L. Cowan	1904	large nesting colony
1937 Anon	L. Callabonna (SA)	1936 Jun	
1945 Jones	Quinn's Find	1923 May-Jun	"cicumstancial evidence"
1946 Carnaby	L. Grace	1945 Sep	nests flooded & abandoned
1947 Carnaby	"	1946 Aug	c. 500 nests
1963 Fuller	Wagga Wagga L.	1960 Nov	40-50 scrapes abandoned
1975 Jenkins	Ballard-Menzies	1963	chicks walking thru town
"	L. Ballard	1973 Jul	c. 60 breeding pairs; chicks
1976 Kolichis	L. Disappointment	1971 Aug	one immat. collected nearby
"	L. Ballard	1974 Jul	many chicks & adults
"	"	1975 May	100s of flightless young
"	L. Marmion	" "	c. 2500 nesting pairs
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1982 Burb& Full	L. Marmion	1975 Mar	50,000 breeding pairs
"	L. Barlee	1980 Sep	c. 179,000 nests; chicks
1983 Gars& Jeff	Ballard-Menzies	1981 Sep	chicks on road
1984 "Atlas"	L. Goongarrie	1980	
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1988 Bougher	L. King	1988 Aug	21,000 & 28,000 chicks
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1989 Pearson	Ballard-Menzies	1986 Sep	chicks walking thru town
1993 "Directory"	L. Barlee	1992	abandoned nests & eggs
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*** Including doubtful records and abandoned breeding attempts.**

- Now overleaf to use

- detail needs some checking / inserting.

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SITES:	15*

* INCLUDING DOUBTFUL RECORDS

REPORTED BREEDING LOCALITIES (15)

TO END OF 1994

	DOUBTFUL	**3**	**(Quinns Ford, L. Disappointment, Esperance)**
	SCRAPES ONLY	**1**	**(Wagga Wagga L.)**
→	**PROBABLE**	**2**	**(Ls. Cowan, Goongarrie)**
→	**CERTAIN**	**9**	**(Ls. Grace, Callabona SA, King, Ballard, Marmion, Percival, Barlee, Eyre SA, Torrens SA)**

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TO END OF 1994

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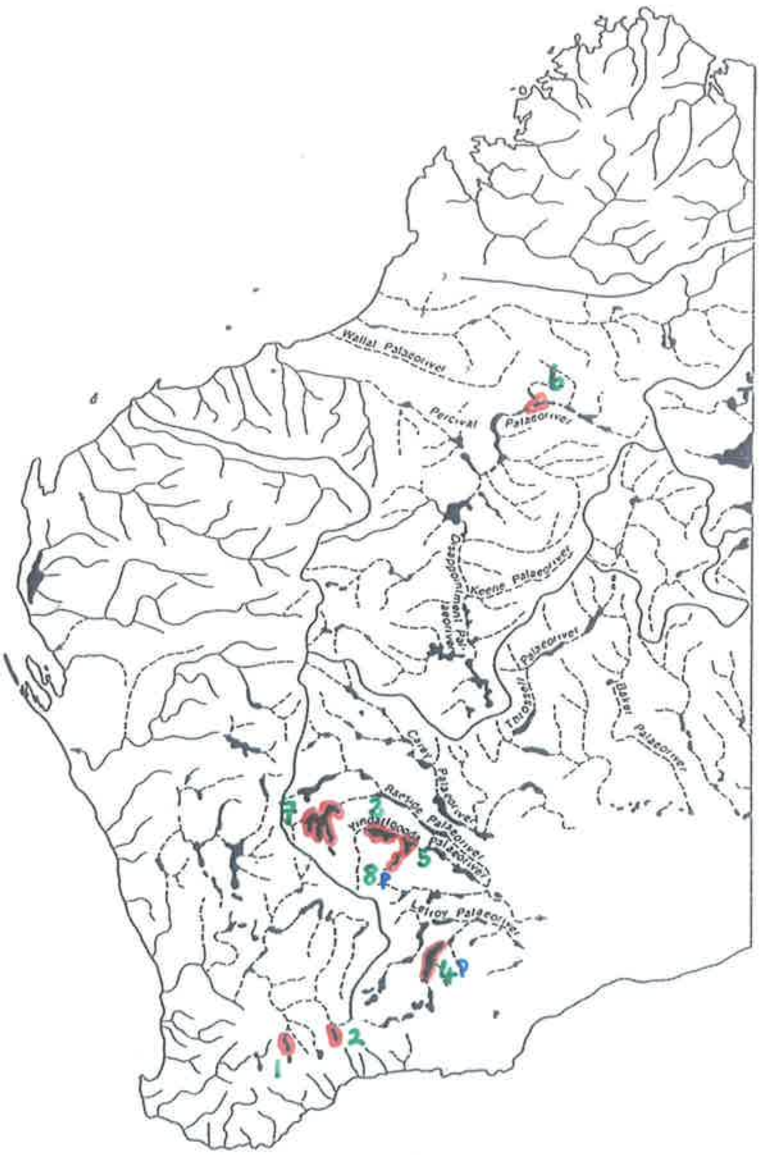

Wallal Palaeoriver
Percival Palaeoriver
Disappointment Palaeoriver
Keene Palaeoriver
Throssell Palaeoriver
Baker Palaeoriver
Carey Palaeoriver
Raeside Palaeoriver
Yindarlgooda Palaeoriver
Lefroy Palaeoriver

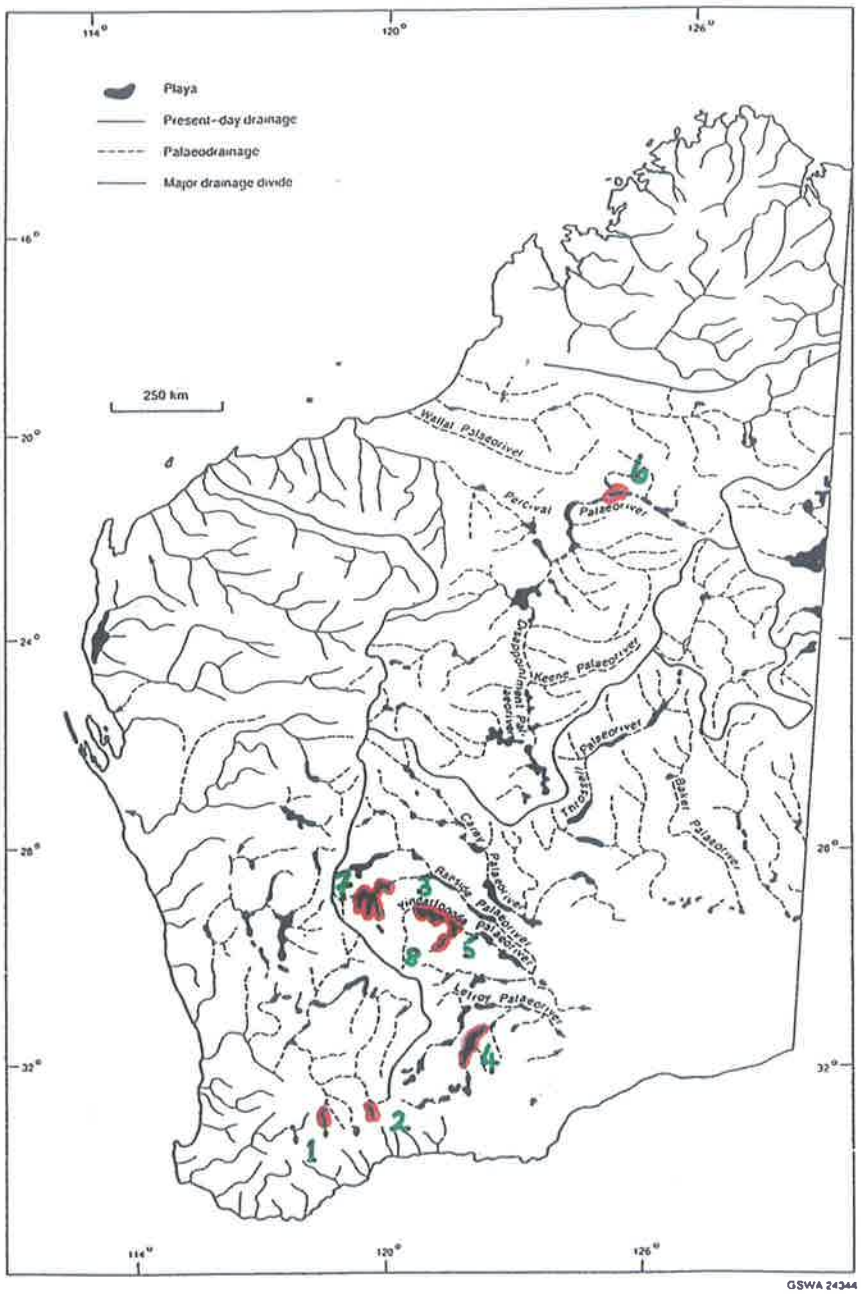
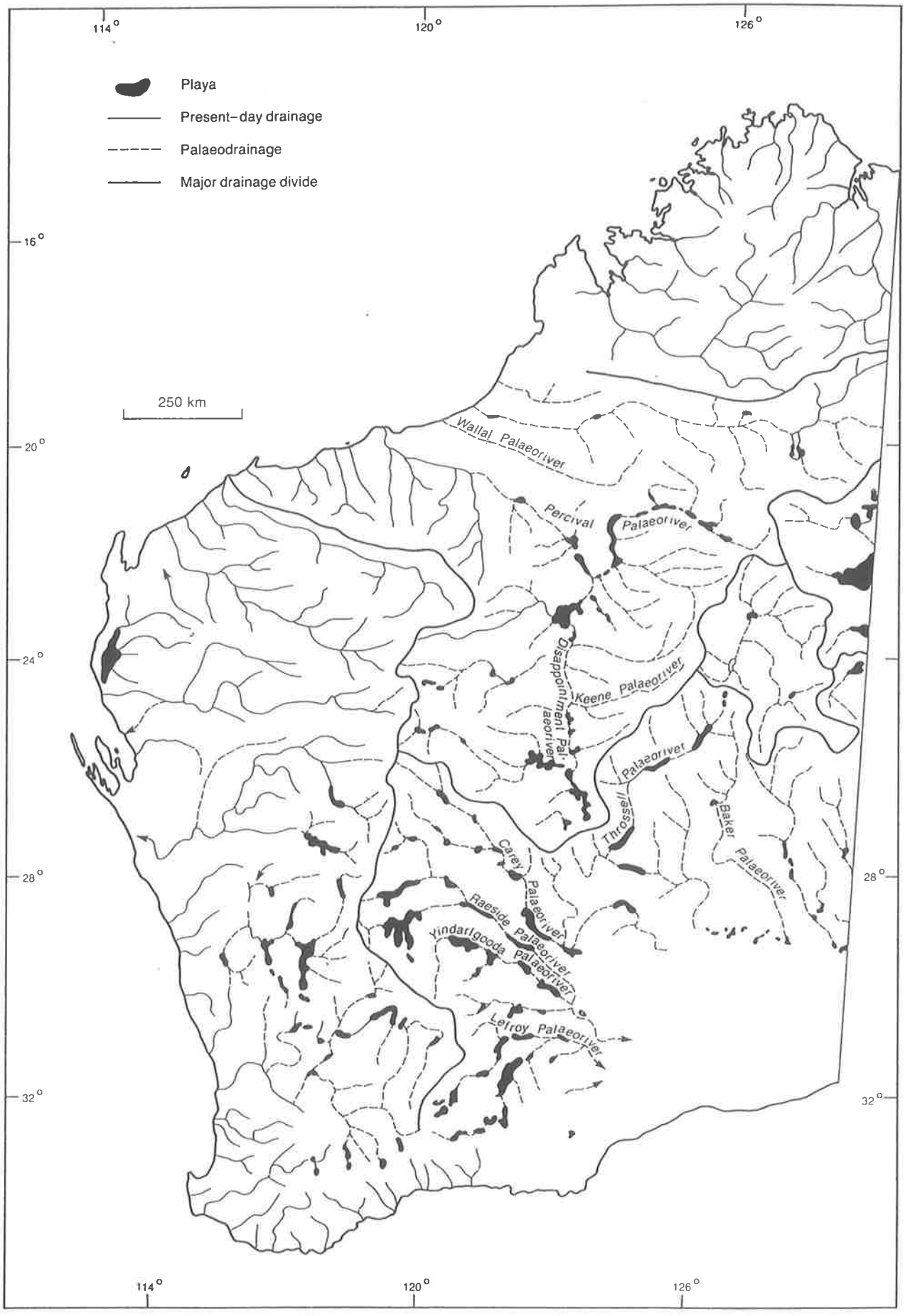


Figure 6-2. Palaeodrainage systems in Western Australia, modified after van de Graaff and others (1977). Names used for palaeorivers are those used by van de Graaff and others (1977).



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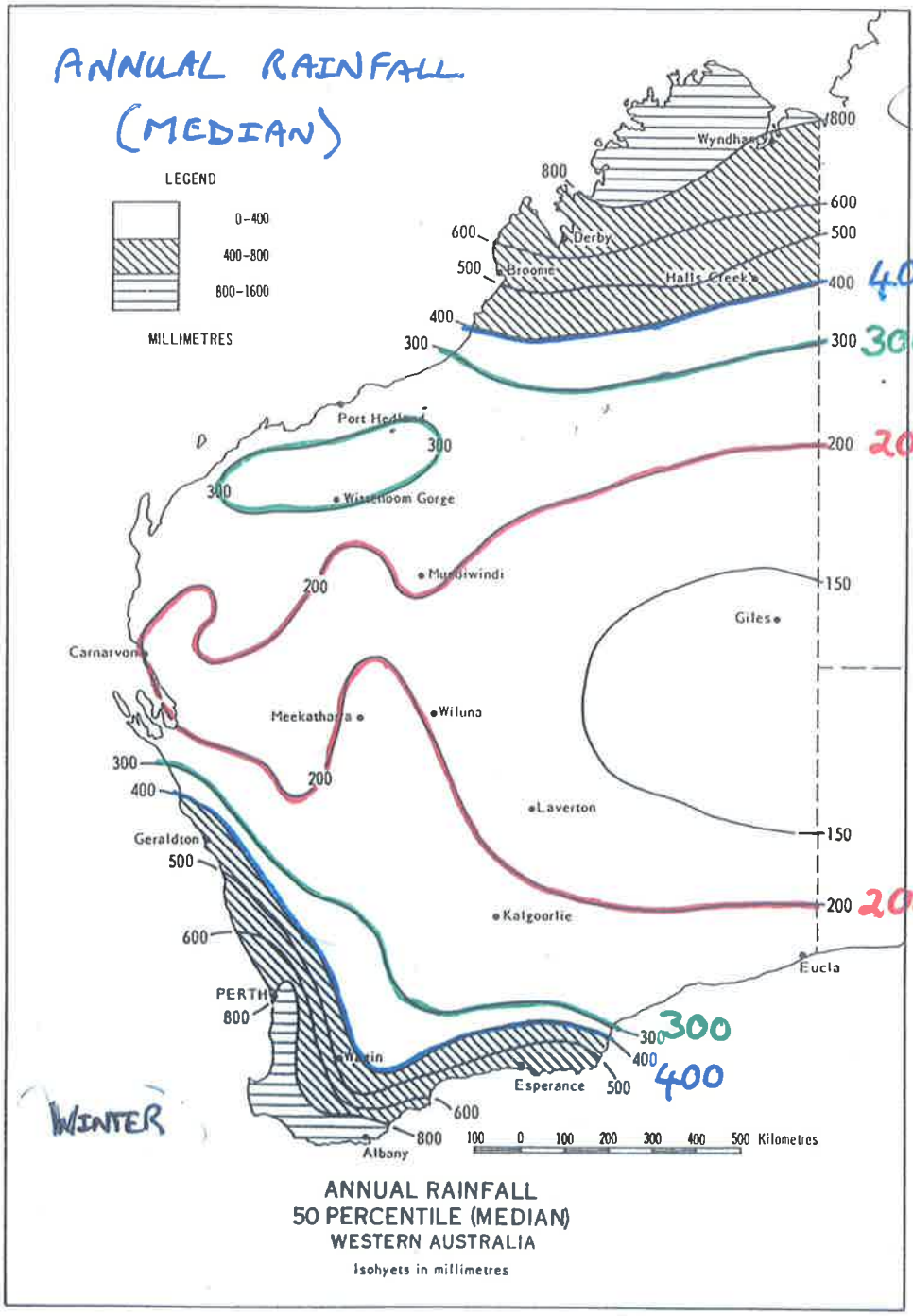
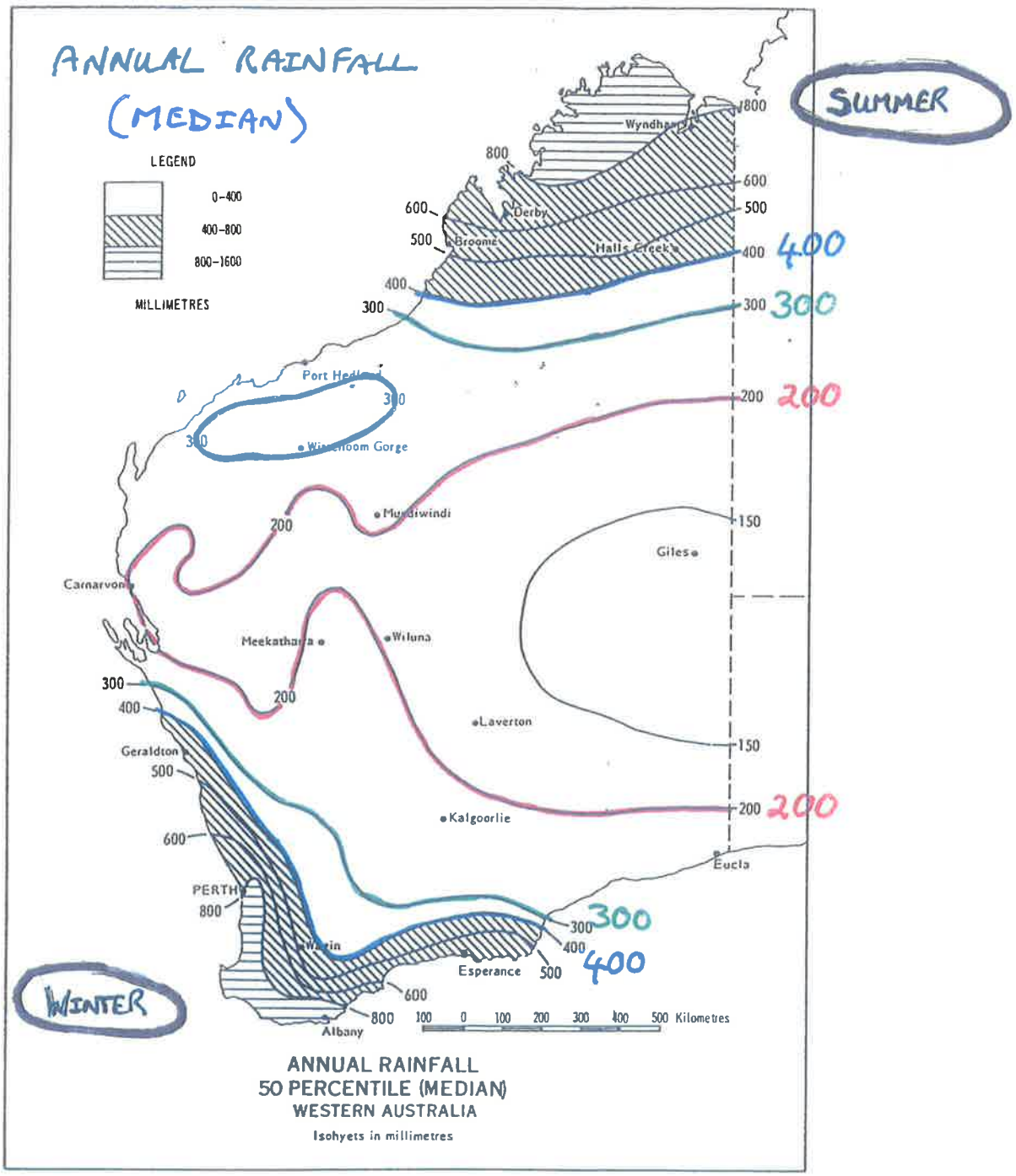


Fig. 7.12 Annual rainfall—50 percentile (median), W. Aust.



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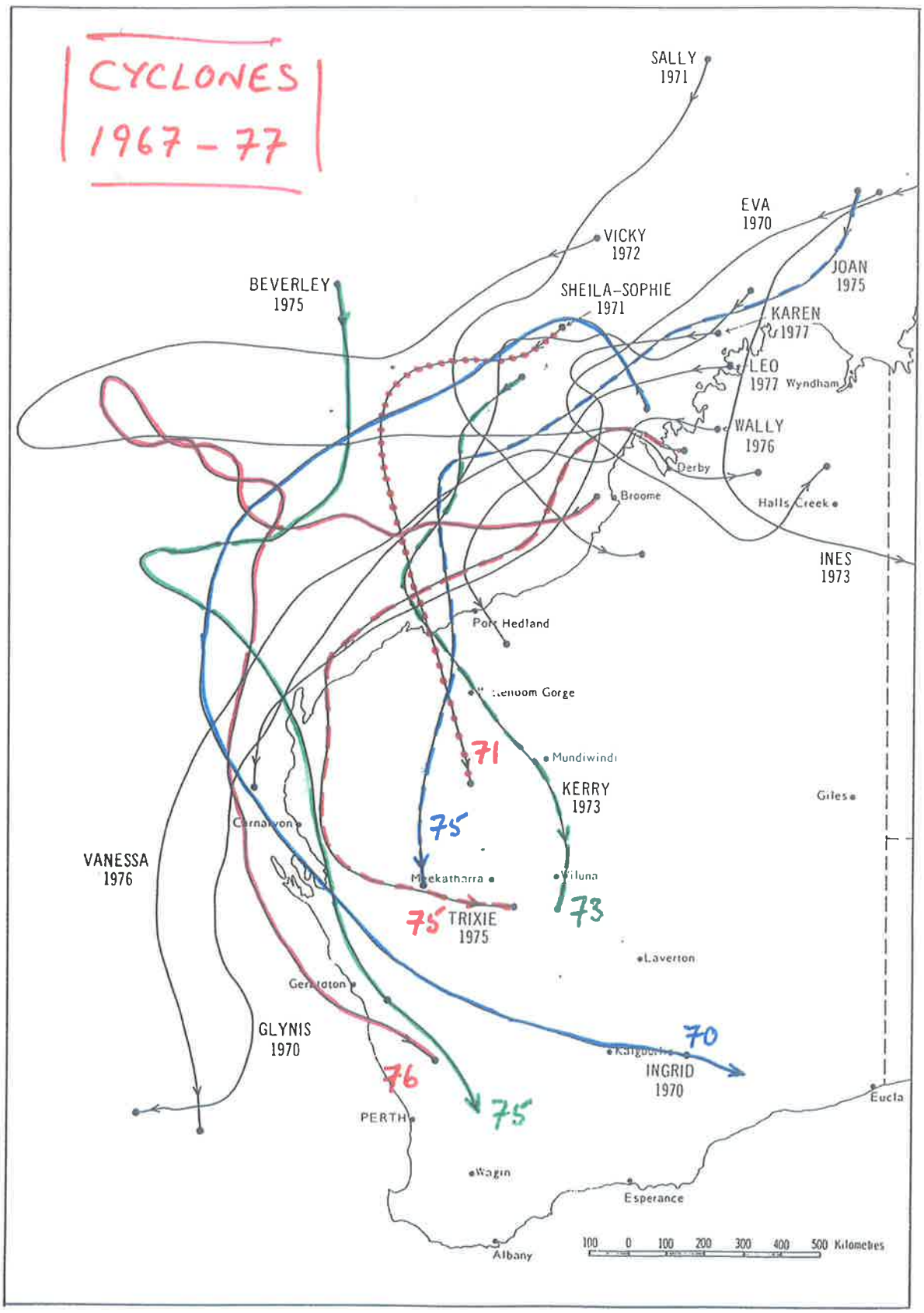
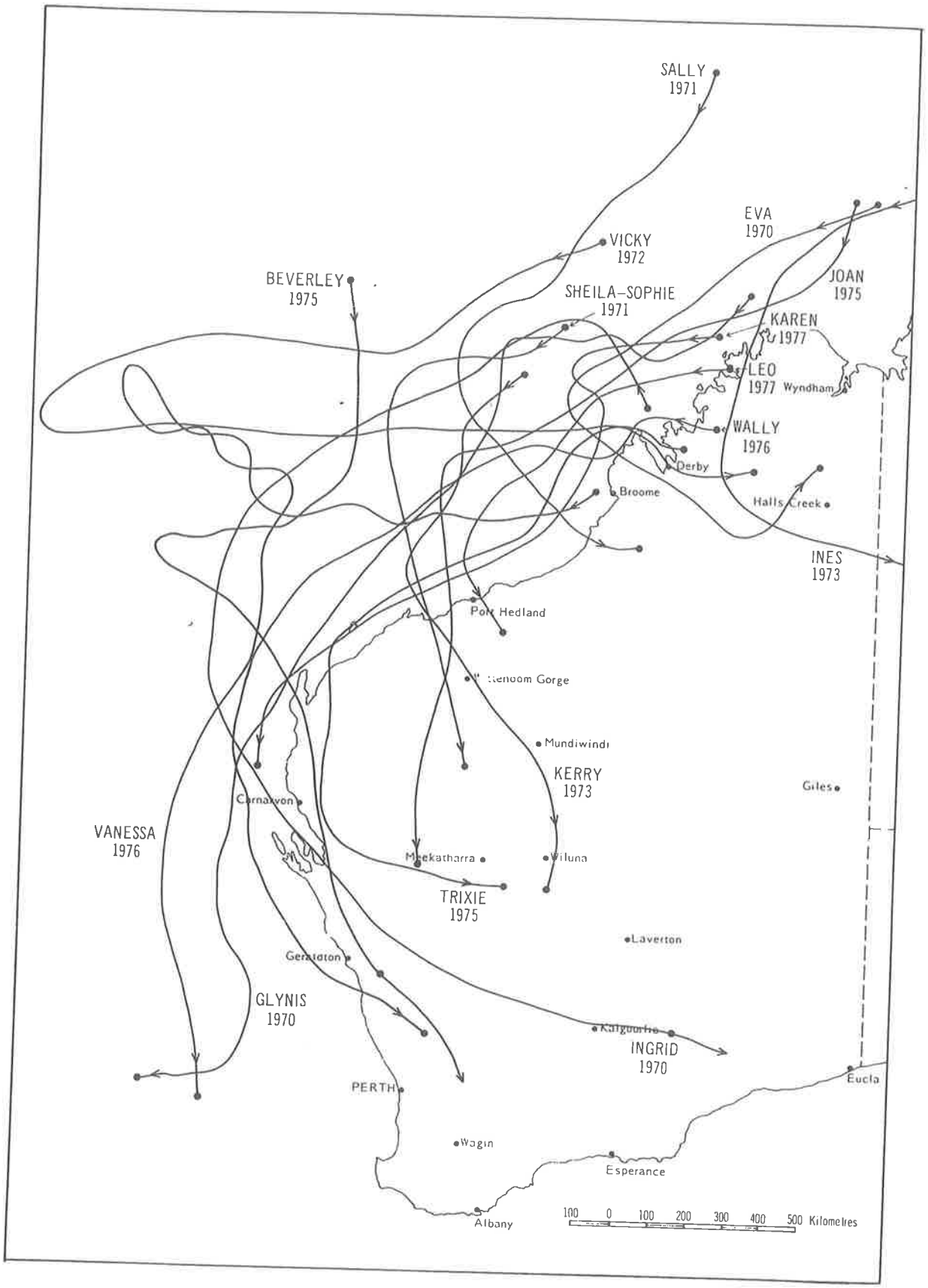

CYCLONES
1967 - 77
SALLY
1971
EVA
1970
VICKY
1972
JOAN
1975
BEVERLEY
1975
SHEILA-SOPHIE
1971
KAREN
1977
LEO
1977
Wyndham
WALLY
1976
Derby
Broome
Halls Creek
INES
1973
Port Hedland
Kennedy Gorge
71
Mundiwindi
KERRY
1973
Giles
Carnarvon
75
VANESSA
1976
Meekatharra
Wiluna
73
75
TRIXIE
1975
Laverton
Geraldton
GLYNIS
1970
70
Kalgoorlie
INGRID
1970
Eucla
76
PERTH
75
Wagin
Esperance
Albany
100 0 100 200 300 400 500 Kilometres


SALLY
1971
EVA
1970
VICKY
1972
JOAN
1975
BEVERLEY
1975
SHEILA–SOPHIE
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KAREN
1977
LEO
1977
Wyndham
WALLY
1976
Derby
Broome
Halls Creek
INES
1973
Port Hedland
Mundiwindi
KERRY
1973
Giles
Carnarvon
VANESSA
1976
Meekatharra
Wiluna
TRIXIE
1975
Laverton
Geraldton
GLYNIS
1970
Kalgoorlie
INGRID
1970
Eucla
PERTH
Wagin
Esperance
Albany
100 0 100 200 300 400 500 Kilometres

REPORTED BREEDING EVENTS (26)

TO END OF 1994

i)	**DOUBTFUL REPORTS:**	3	
ii)	**ABANDONED SCRAPES ONLY:**	1	
iii)	**SUB-FOSSIL EGGSHELLS:**	1	
iv)	**CHICKS ON ROAD / IN TOWN:**	4	
v)	**SINGLE CHICK ON LAKE:**	1	
vi)	**SECOND HAND INFORMATION (MOSTLY SINGLE VISITS & LIMITED INFO)**	9	
v)	**SITE VISITS BY ORNITHOLOGISTS:**	7	
	ONE BRIEF VISIT	3	(Grace 1946, Ballard 1975, Barlee 1980)
	TWO BRIEF VISITS	2	(Callabonna SA 1930, Marmion 1975)
	THREE BRIEF VISITS	1	(Barlee 1992 - aband.)
	SEVERAL PROLONGED VISITS	1	(Torrens SA 1989)

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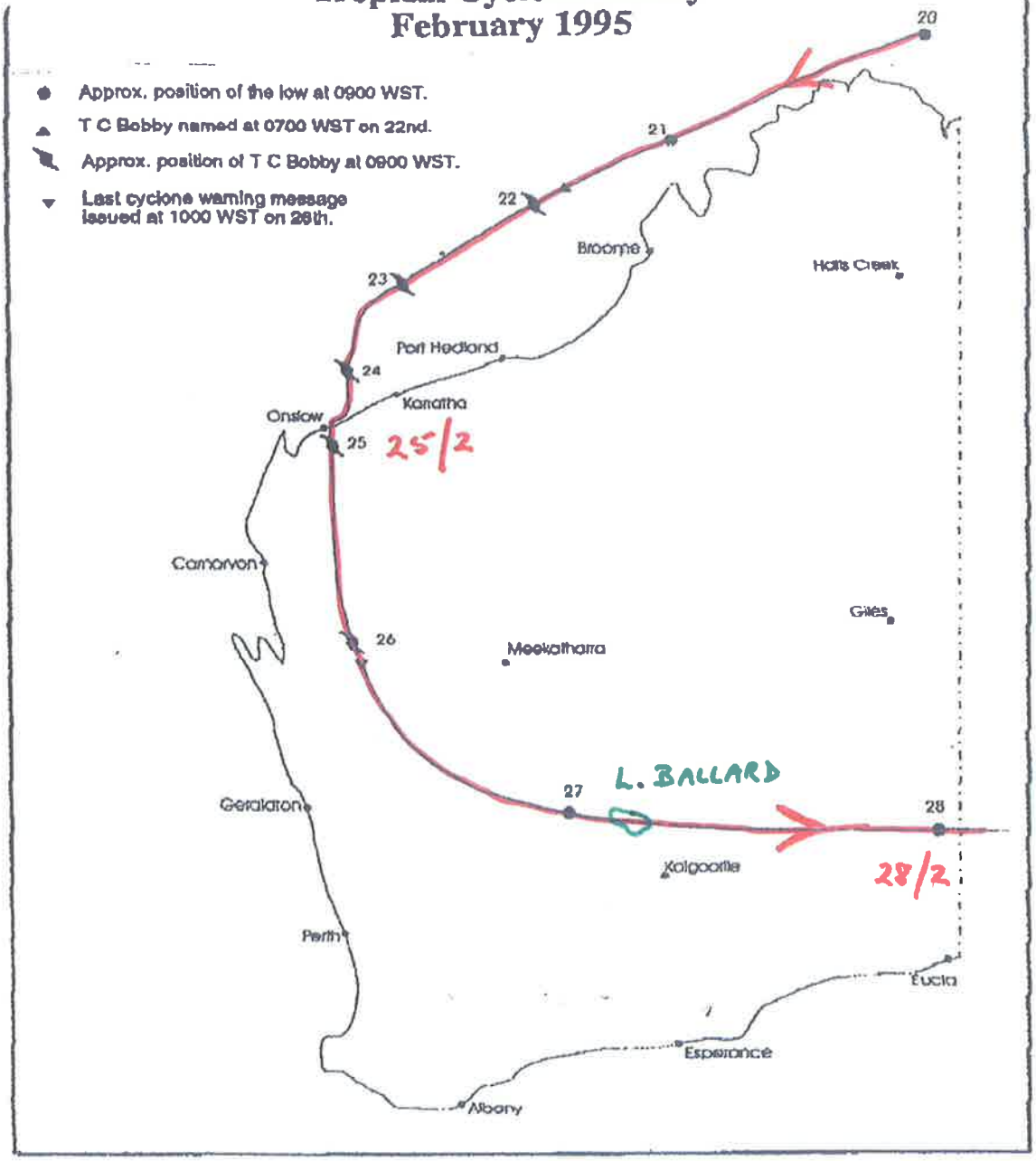
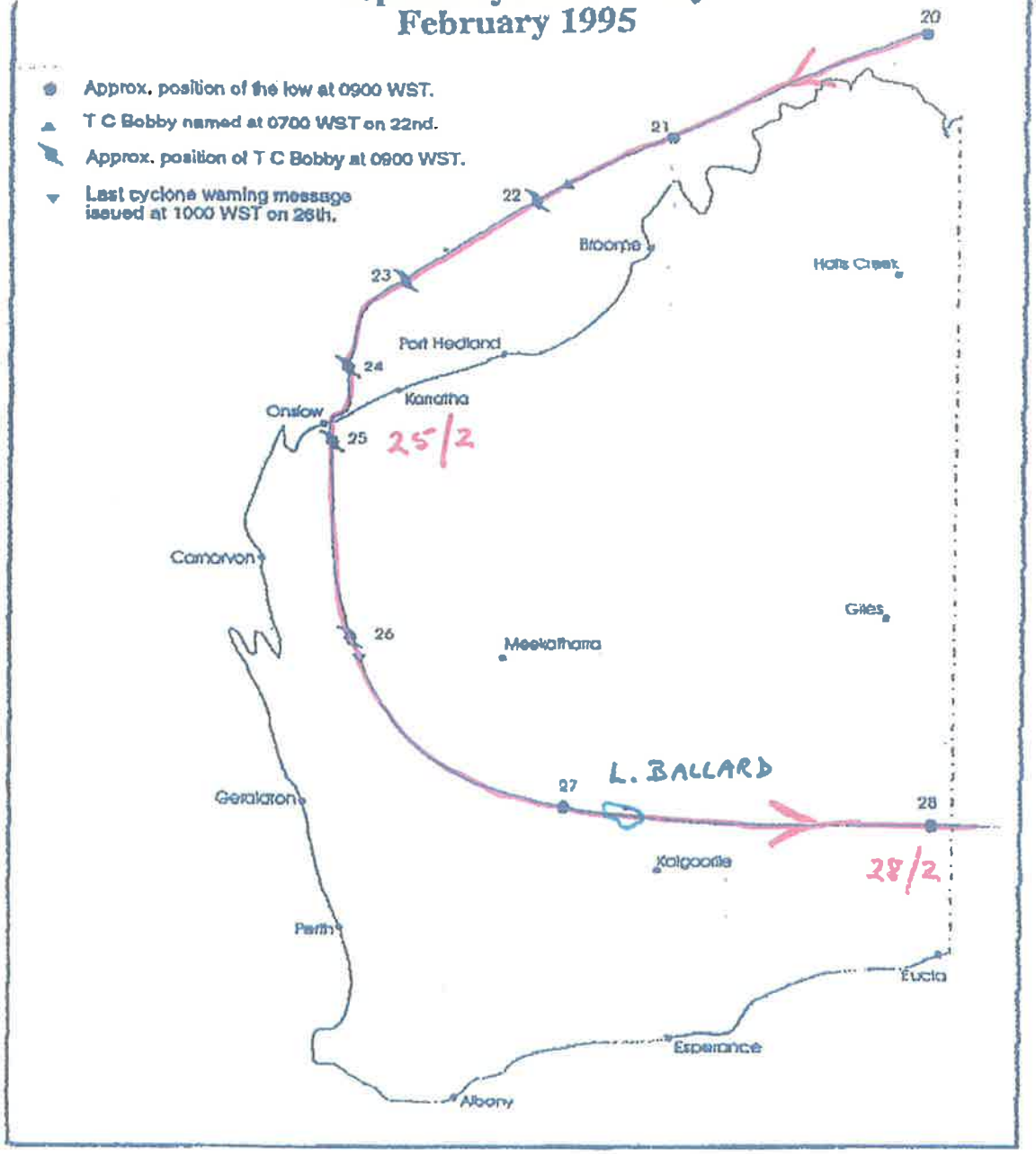
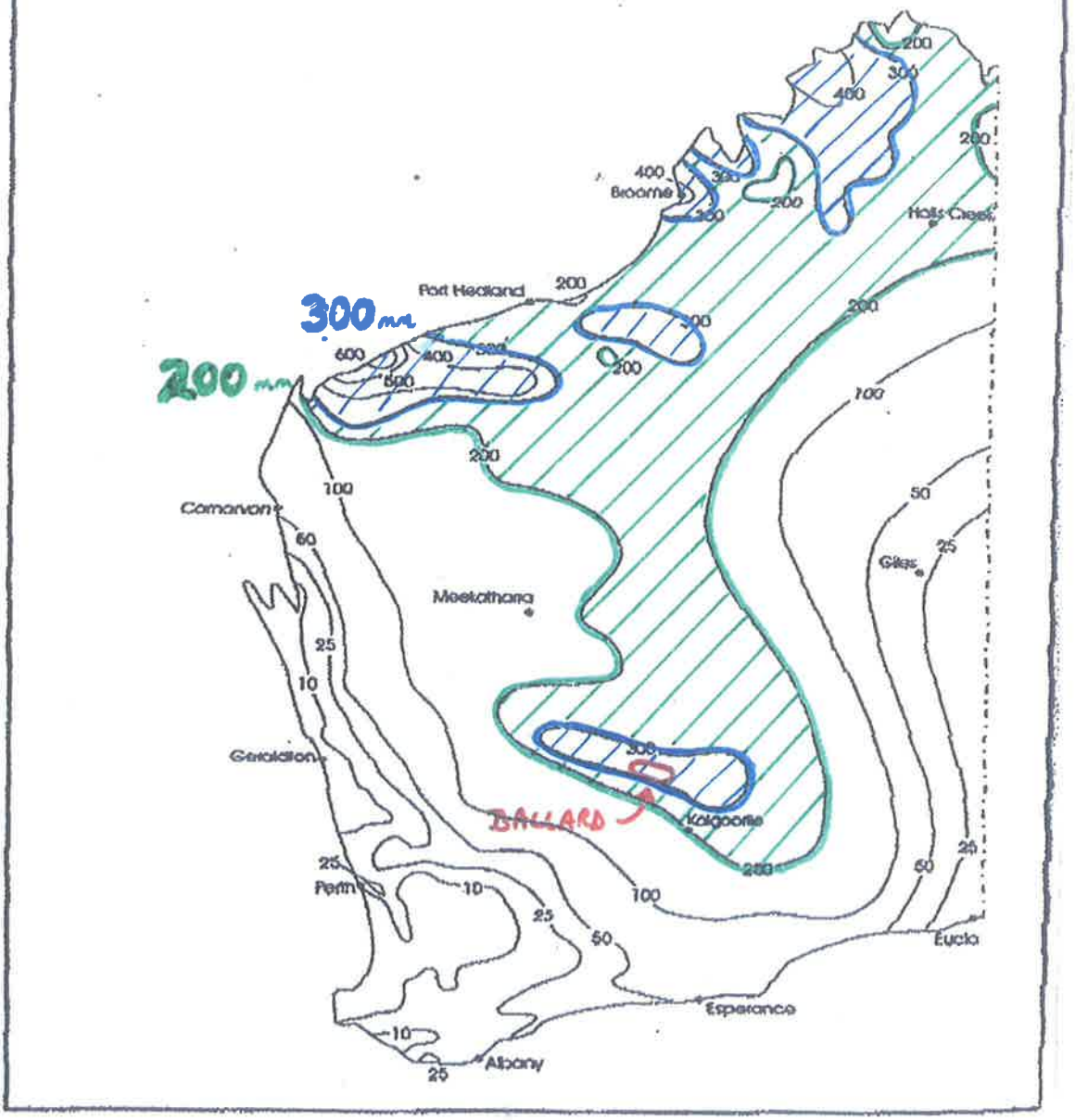
Tropical Cyclone Bobby
February 1995



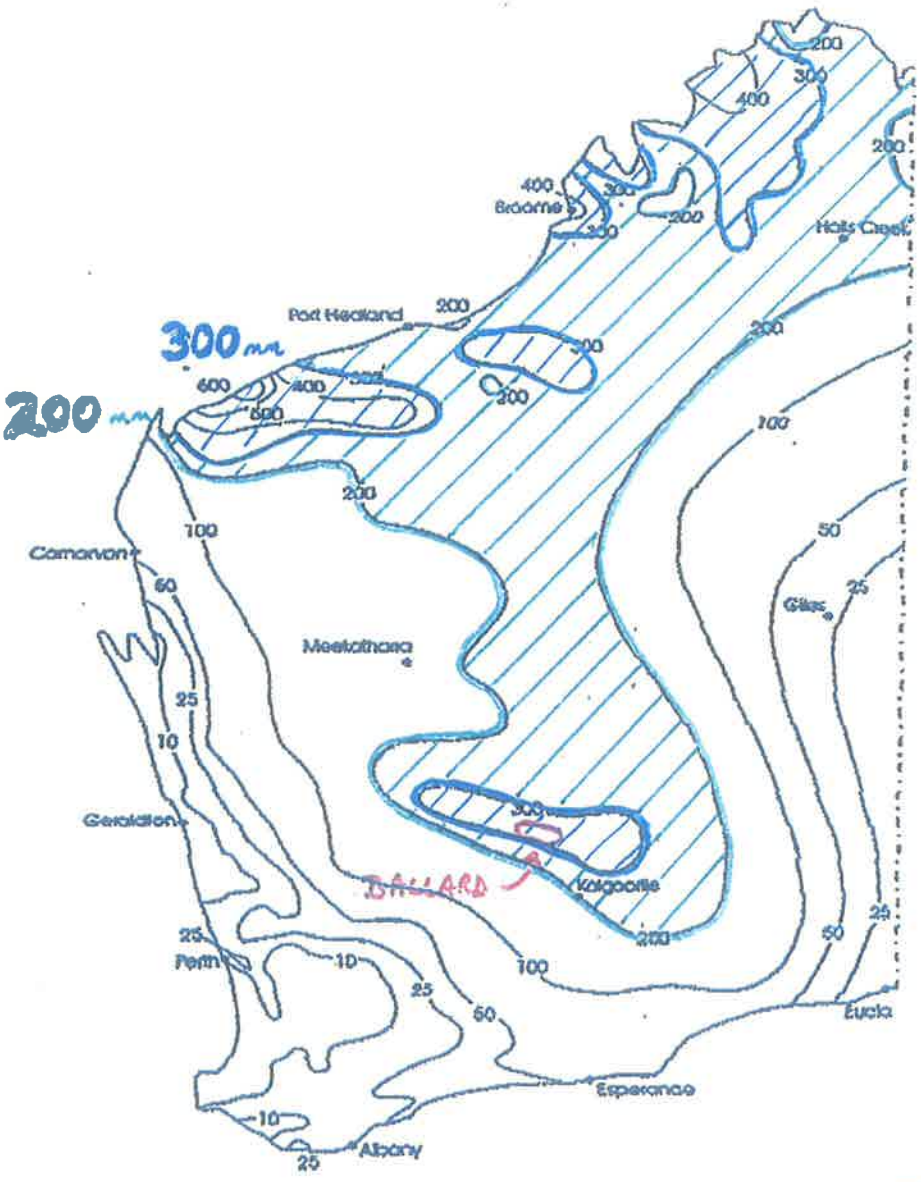
Tropical Cyclone Bobby
February 1995



Isohyets (mm) February 1995



Isohyets (mm) February 1995



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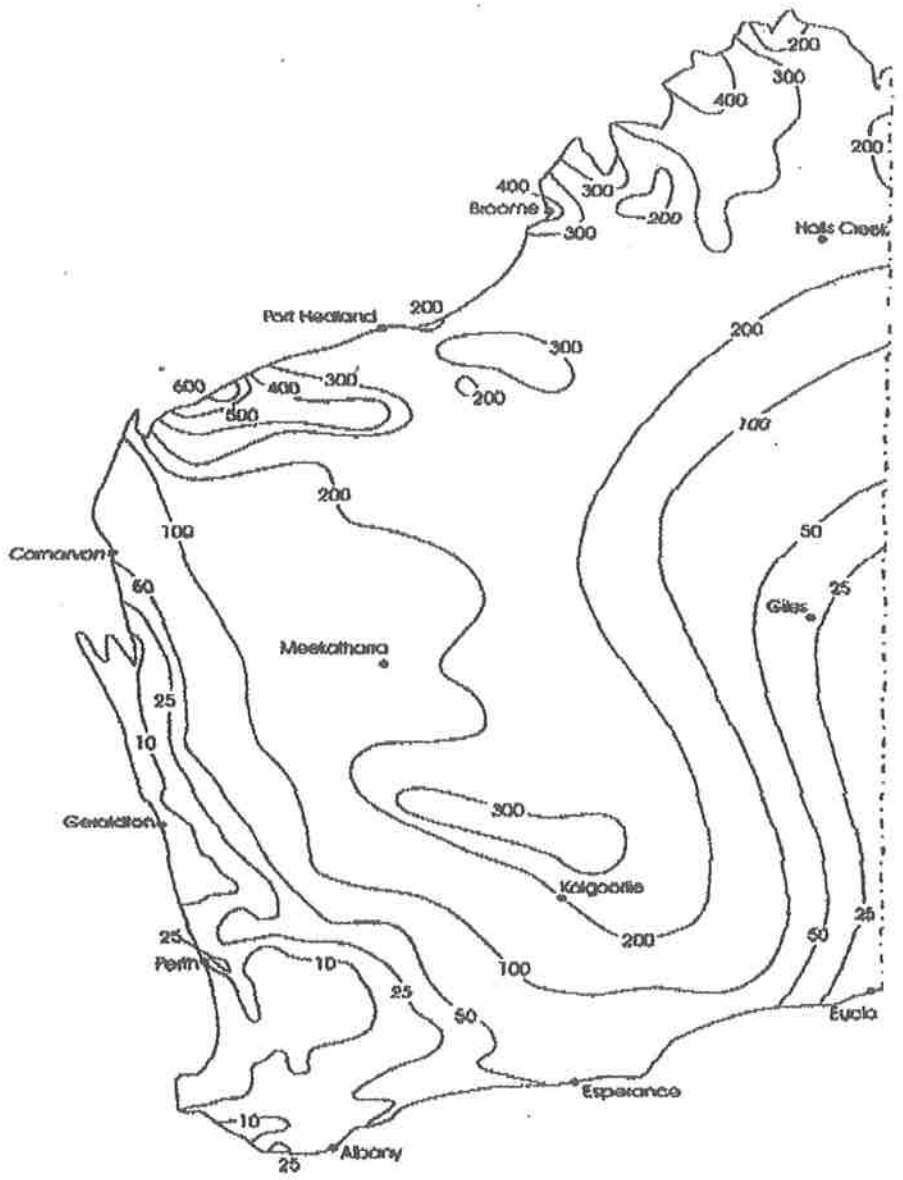

SHOW

SLIDES

(36)

HERE

LAKE BALLARD - MAIN COLONY

1995 BREEDING CYCLE

STAGE	DURATION (DAYS)	COMMENT
CYCLONE TRAVEL FROM NW COAST TO BALLARD	4	Cyclone weather reached NW coast on 21/2, Ballard on 25/2.
RAIN ON DRY LAKE	4	Rainfall from 25-28/2 was 0.38m. Water level peaked c. 1/3.
500-1000 km MIGRATION, PAIRING, COPULATION, SITE SELECTION, SCRAPE FORMATION, START LAYING	first birds 14-18 last birds 30-34	c. 14 days from start of rain at Ballard to first egg layed (10/3). (c. 18 days from cyclone reaching NW coast).
LAYING	2 - 4	c. 16 days between first and last birds laying.
INCUBATION	22 - 24	Probably begins with 2nd last egg.
HATCHING	1 - 2	99% of hatching was completed within 11 days (3-14/4).
FLEDGING	44	Chicks leave nest within 1-2 days of hatching. First chicks flying on 17/5. All flying by 6/6.
LAKE FULL -> DRY	c. 200	Lake filled c. 1/3; dried c. 16/9.

TIME REQUIRED FOR MIGRATION & BREEDING

FIRST BIRDS	82 - 86 DAYS
99% OF COLONY	93 - 97 DAYS
LAST BIRDS	< 102 DAYS

LAKE BALLARD - MAIN COLONY

1995 BREEDING CYCLE

STAGE	DURATION (DAYS)	COMMENT
CYCLONE TRAVEL FROM NW COAST TO BALLARD	4	Cyclone weather reached NW coast on 21/2, Ballard on 25/2.
RAIN ON DRY LAKE	4	Rainfall from 25-28/2 was 0.38m. Water level peaked c. 1/3.
500-1000 km MIGRATION, PAIRING, COPULATION, SITE SELECTION, SCRAPE FORMATION, START LAYING	first birds 14-18 last birds 30-34	c. 14 days from start of rain at Ballard to first egg layed (10/3). (c. 18 days from cyclone reaching NW coast).
LAYING	2 - 4	c. 16 days between first and last birds laying.
INCUBATION	22 - 24	Probably begins with 2nd last egg.
HATCHING	1 - 2	99% of hatching was completed within 11 days (3-14/4).
FLEDGING	44	Chicks leave nest within 1-2 days of hatching. First chicks flying on 17/5. All flying by 6/6.
LAKE FULL -> DRY	c. 200	Lake filled c. 1/3; dried c. 16/9.

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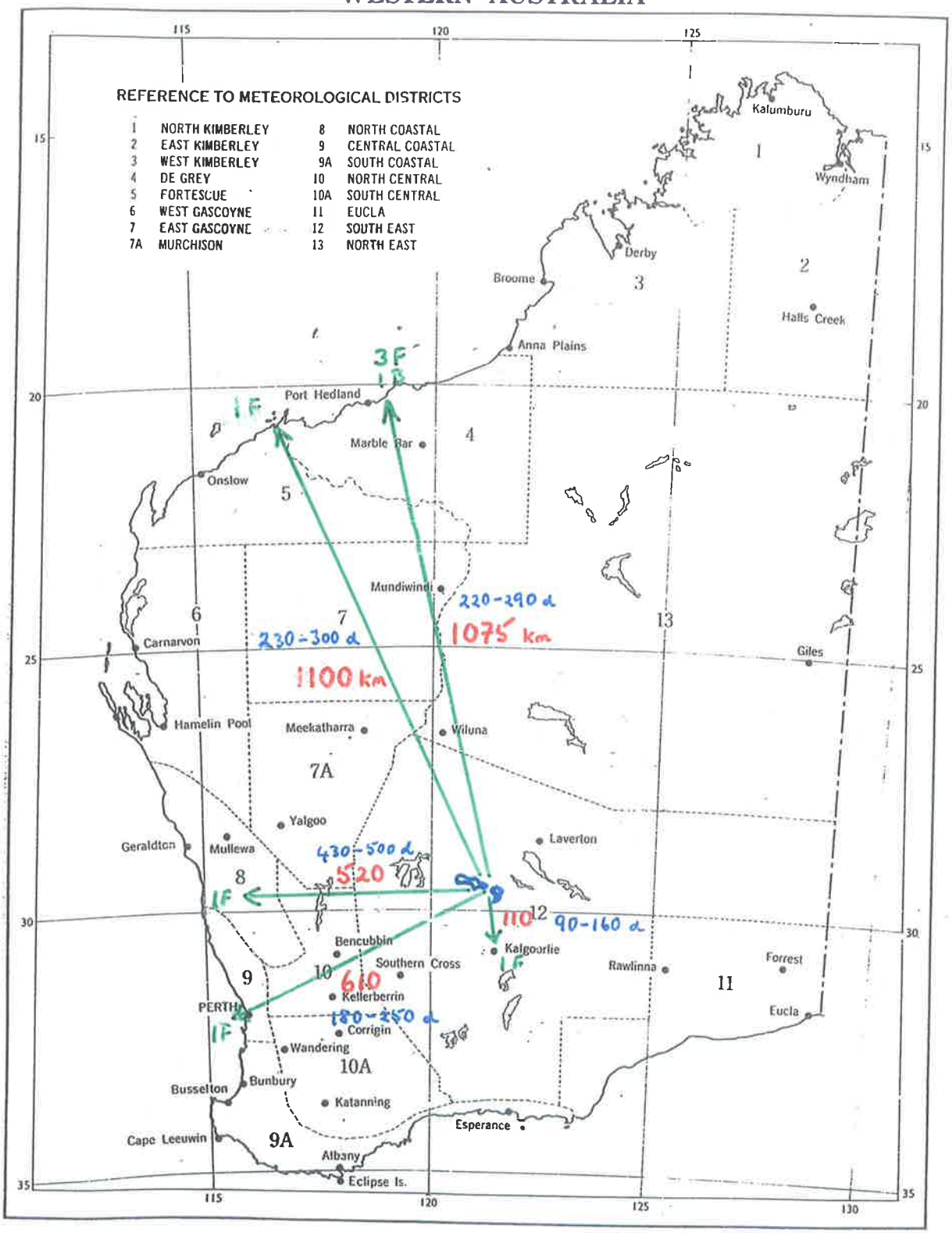
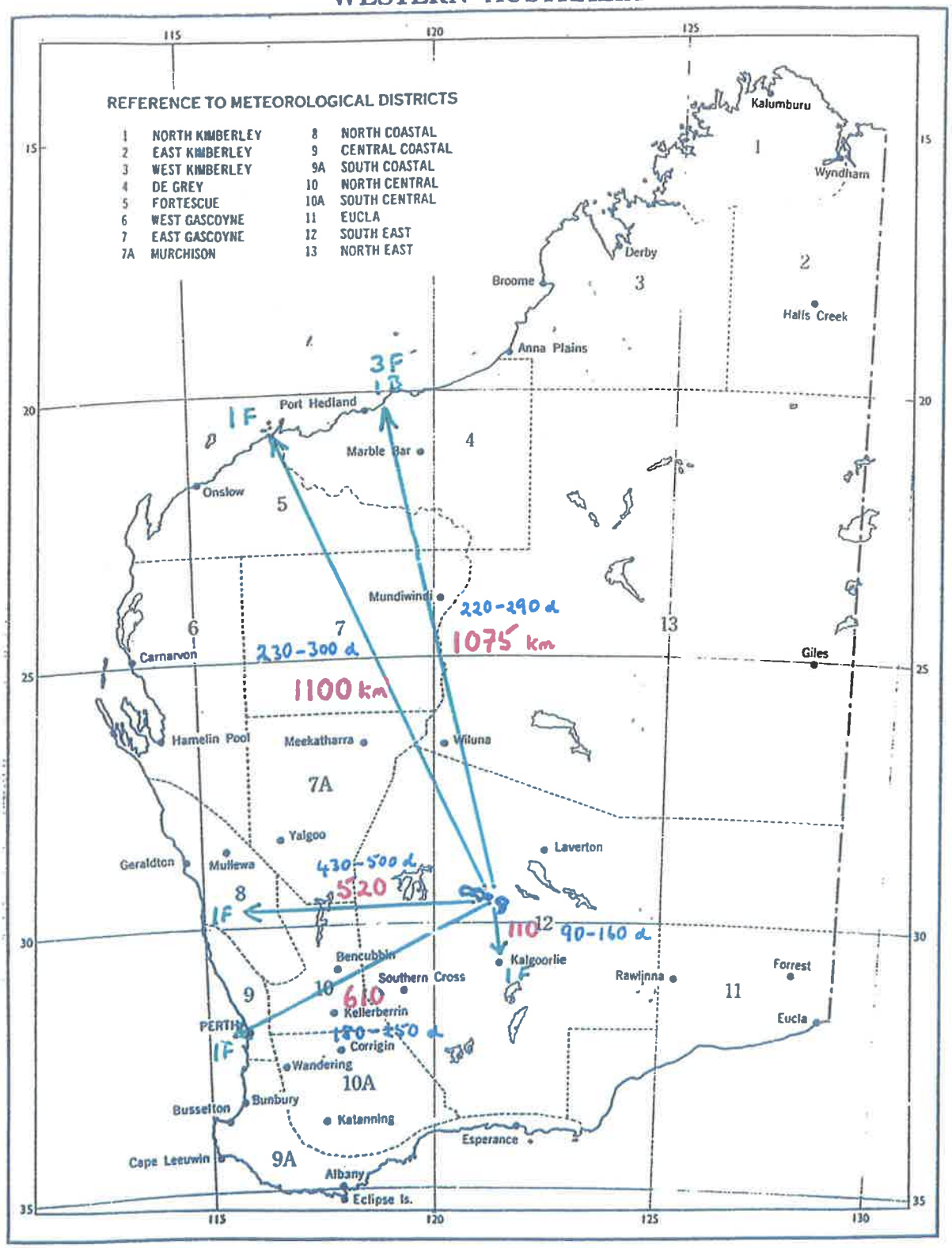
LEG FLAG & BAND SIGHTINGS

WESTERN AUSTRALIA



LEG FLAG & BAND SIGHTINGS

WESTERN AUSTRALIA



CURRENT AND POTENTIAL

CONSERVATION ISSUES

NON-BREEDING HABITATS

SALT FIELD CONSTRUCTION	+ VE	
LANDSCAPE SALINISATION	+ VE	
SALINE WATER DRAINAGE		- VE
URBAN GROWTH		- VE
RECREATION		-VE

BREEDING HABITATS

INCREASED RUNOFF	+ VE	
SILTATION (?)		- VE
MINING OF LAKE BEDS		- VE
WATER USE (MINING)		- VE
HYPERSALINE DISPOSAL		- VE
RECREATION		- VE

CURRENT AND POTENTIAL

CONSERVATION ISSUES

NON-BREEDING HABITATS

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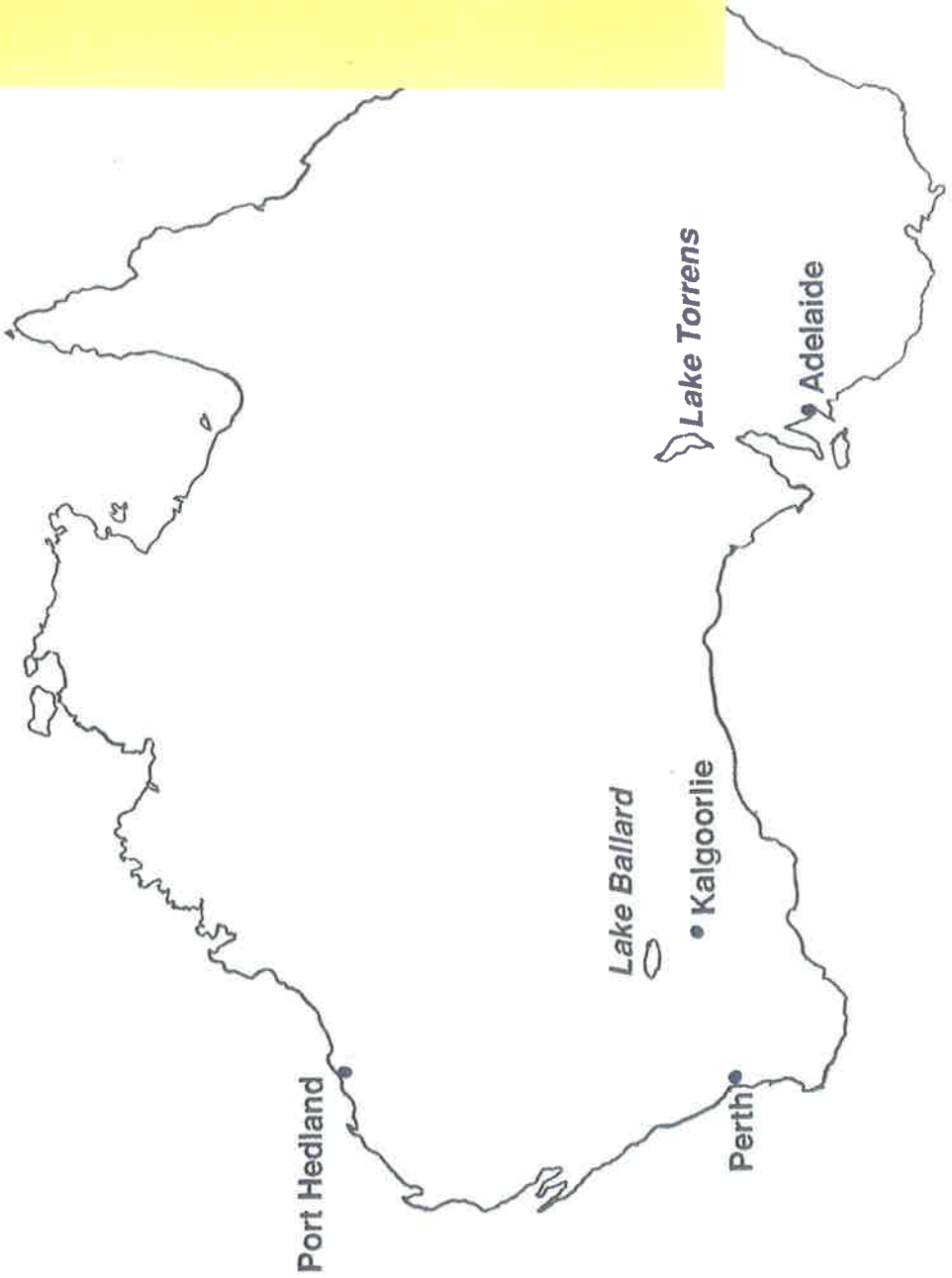
HYPERSALINE DISPOSAL		- VE
RECREATION		- VE

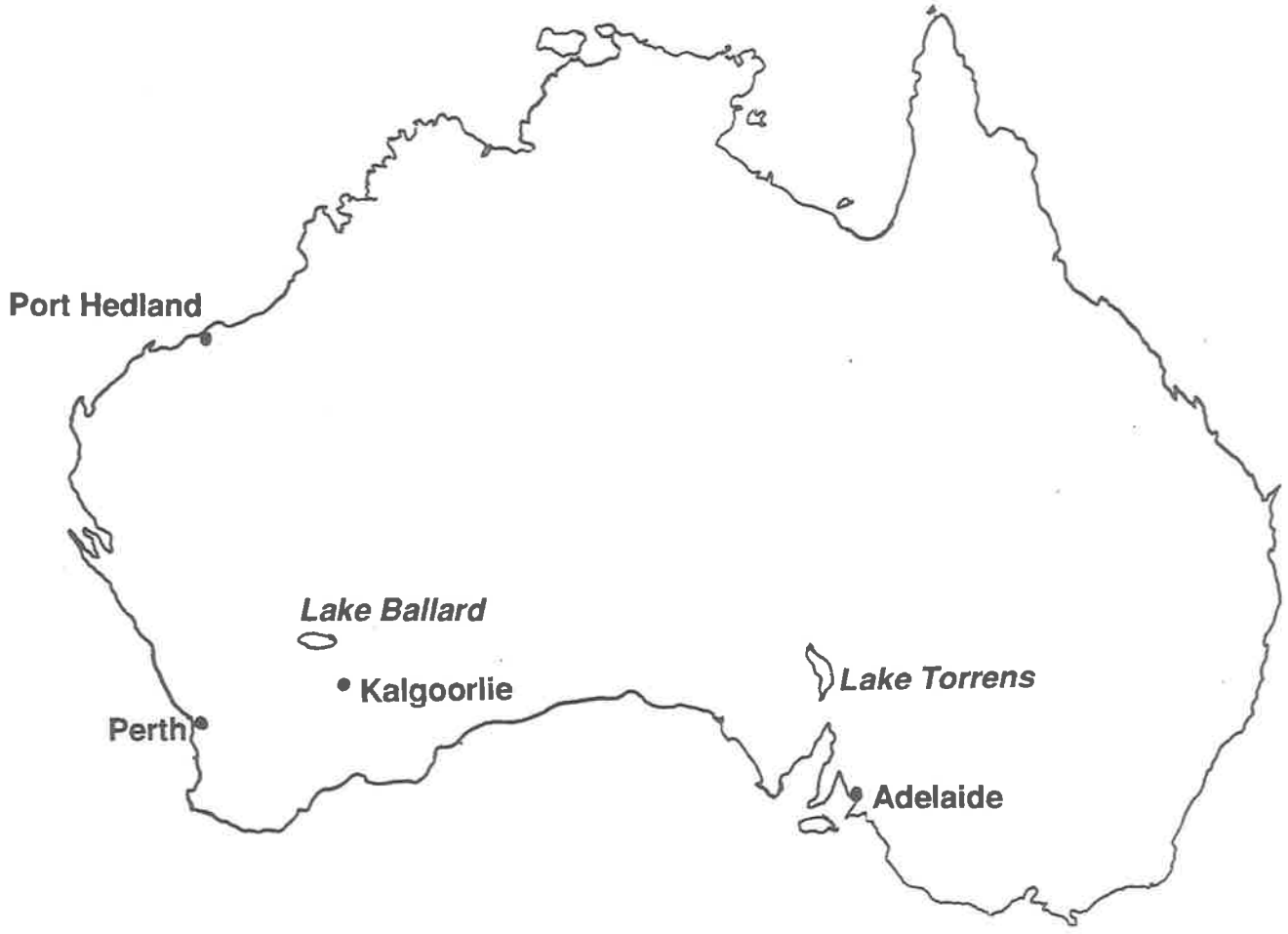
ACKNOWLEDGEMENTS

CLIVE MINTON	**AWSG**
GRANT PEARSON	**CALM Wildlife Research Centre**
ALAN CLARKE	**CALM Wildlife Research Centre**
ANDREW CHAPMAN	**CALM Kalgoorlie**
JEREMY HOGARTH	**ABC Natural History Unit (formerly)**
MARK LAMBLE	**ABC Natural History Unit**
CAMPBELL MILLER	**ABC Natural History Unit**

This overleaf was given
to me (to keep) by
Chris Minton on 7/10/96
at S.T.O.C. Albany.



Breeding Locations of Banded Stilts



Breeding Locations of Banded Stilts

List of the slides (35mm colour photos) used by JL when presenting Banded Stilt talk to RAOU (now Birdlife Australia) WA Group in Perth on 23rd Sept 1996 and the *'Banded Stilt breeding at Lake Ballard, Western Australia'* presentation (see above) at Southern Hemisphere Ornithological Conference' (SHOC) in Albany, WA, on 07/10/1996. Add the unique photo storage number (JL's) to each of the slides in this list.

Folio 61r

(79)

(2) Slides used for Banded Stilt talk + sequence to Struct. Chem. Conf. Coogee 7/10/96

(1) Slides used for Banded Stilt talk (45 mins) to RAOU Perth Monday 25 (?) September 1996

(1) (2)

Sequence		Photo ID	Subject		
1		486	Stilts	✓	1
2	•	"22"	Lake Bellbird scene (15/3/95)	✓	2
3	::	"09"	" " " – 2 stilt (15/3/95)	✓	3
4	::	"06"	" " " 1st colony (15/3/95)	✓	4
5	•	"21"	Helicopter at Kal (15/3)	✗	
6	•	"25"	Camp Island scene (15/3)	✓	5
7	•	"34"	Helicopter on Camp Island (15/3)	✓	6
8	•	"37"	GBP carrying camera case (15/3)	✗	
9	:	"05"	GBP + CDTM approaching island (15/3)	✓	7
10	:	"07"	" " " + Maj Reni next to nesting birds (15/3)	✗	
11	12	"18"	nesting stilt (4/95)	✓	10
12	:	"33"	stilt take off nesting island (15/3)	✓	8
13	:	"30"	stilt return to nests (15/3)	✓	9
14	:	"10"	GBP + CDTM photograph nesting birds (15/3)	✗	
15	:	"09"	nesting / preening / drinking stilt (15/3)	✗	
16	:	"17"	2 Stilt, back feathers up, in water (15/3)	✓	11
17	:	"22"	2 stilt drinking (15/3)	✓	12
18	:	"25"	2 stilt copulating in water (15/3)	✓	13
19	:	"26"	" " " " " "	✗	
20	:	"19"	" " " " " "	✓	14
21	:	"29"	" " " " " "	✓	15
22	:	"20"	" " " " on land "	✓	16
23	:	"13"	Oliver + Maj Reni mark out quadrats (15/3)	✗	
24	:	"22"	pink taped quadrat of nests + eggs (15/3)	✓	17
25	:	"31"	eggs (numbered) in nests + peg (15/3)	✓	18
26	4	"04"	Trailer c 2 punts + Argo + Grant (~~4/95~~) (29/3)	✗	
27	1	"36"	campsite next to Crossover Lake (~~4/95~~) (31/3)	✗	
28	3	"04"	punts with gear entering Crossover Lake (31/3)	✗	
29	blanks		punts + gear crossing " " (31/3) — Mark Lambie photo	✗	
30	3	"05"	Loading punt onto trailer (31/3)	✗	

folio 60.

Sequence (2)	Sequence (1)	Photo ID	Subject
✓ 19	31	3 "08"	Argo putting pants out of Crossover Lake — (31/3) ✓
×	32	3 "23"	" " " — between Lakes (31/3) ✗
✓ 20	33	3 "11"	Argo launching pants into Lake Bellard. (31/3)
✓ 21	34	3 "28"	Walking pants of gear into " " (31/3)
✗	35	blank	unloaded gear at Camp Island — Mark Lemble photo
✗	36	3 "25"	viewing 1st colony from Camp Island (31/3)
✗	37	11 "04"	Mark Lemble filming nesting birds (4/95)
✗	38	11 "32"	Campbell — sound recording (4/95)
✗	39	— —	Mark + Campbell breakfast at fire (4/95)
✗	40	12 "04"	Mark sleeping outside tent (4/95)
✓ 22	41	Box 2 "19"	Quadrat NOLT — eggs in nests — (1/4)
✗	42	Box 6 "04"	Quadrat 13 14 15 16 — 1 in frame — eggs (4/4) 2nd colony.
✗	43	"09"	3 eggs + markings (collected) — (8/4)
✗	44	"05"	Clutches of 3 + 4 eggs (") — (8/4)
✓ 23	45	Box 6 "19"	Quadrat NOLT — eggs in nests — (4/4) — a few chicks ?
✓ 24	46	Box 6 "20"	" " — eggs + chicks closeup (4/4)
✗	47	Box 6 "21"	" " — eggs " " (4/4)
✓ 25	48	Box 7 "28"	" " — mainly chicks in nests (5/4)
✗	49	"04"	Closeup of chicks + eggs in 1 nest (5.95)
✗	50	"09"	" " 1 chick + 3 eggs " " (5.95)
✓ 26	51	"14"	" " 3 chicks in 1 nest (5.95)
✗	52	Blank	Closeup of Adult + 1 chick in nests (Mark Lemble)
✗	53	11 "22"	Adult leading chicks towards shore (4/95)
✓ 27	54	4 "24"	" " " " " " " " (4/95)
✓ 28	55	4 "25"	" defending chicks at shoreline (4/95)
✓ 29	56	11 "19"	" pushing another chick away " " (4/95)
✓ 30	57	11 "09"	" leading 2 chicks into water (4/95)
✓ 31	58	9 "01"	2 adults + 7 chicks on water (7/4)
✗	59	9 "04"	move " " " " " (7/4)
✗	60	9 "05"	1 struggling chick behind family on water (7/4)

Sequence (2)	Sequence (1)	Photo ID	Subject
X	61	"01"	Creche of large chicks - Lake Darlee (from air)
X	62	"09"	Alex Clarke standing in punt - several live chicks
X	63	"11"	" " speeding in punt - " " "
X	64	"25"	" " slow in shallow water " "
✓ 32	65	"29"	scooping chicks up with plankton net -
✓ 33	66	"32"	" " " " " " "
✓ 34	67	"33"	" " " " " "
X	68	"24"	" " into punt " "
✓ 35	69	"26"	chicks in holding tub in punt.
X	70	"04"	me holding / banding chicks (in punt).
X	71	"25"	me banding chicks " "
✓ 36	72	"21"	Alex's hand holding flagged/banded chick.
X	73	"01"	cloud cover (5.95)
X	74	"31"	nests washed away (5.95)
X	75	"	"Igwinter Island" from air.
X	76	1 "17"	Another nesting island from air (30/3)
X	77	1 "09"	yet " " " " " " (30/3)
X	78	1 "11"	" " " " " " (30/3)
X	79	:: "14"	air photo of tractor on bed of lake.

Fax (17/9/1996) from CDTM to JL and JL's reply fax (19/9/1996) in which CDTM enquires about progress with paper for SHOC (see above) and JL says he won't be able to do until 'week after next'. JL refers to slides (photos) sent to him by Mark Lamble for SHOC and asks if CDTM could bring some as they are 'more stunning than either mine or Mark's'.

Keep in mind that CDTM has high quality photos that he took on Lake Ballard in 1995 and JL doesn't have (as at 27/4/2104) copies of these. See articles published in Wingspan in 1995 for a small sample of CDTM's slides.

17/9/96

36

① Grant
Would you advise Clive before Sat on (a) and (b). Check with Andy Chapman re (b).

② Clive
I won't have a chance to do anything re the Best presentation at SHOC until week after next. Mark Lamble sent me a few photos to add to mine. Yours a more stunning than either mine or Mark's so if you can bring a selection that would be good. Cheers. Grant 19/9

FAXED

Fax to Jim Lane 097-521-432 CALM Busselton 17/9/96

I leave by road for WA on Sat (21st). I would welcome your help/advice please on two matters

(a) I am told that the flowers are terrific in the "northeast goldfields". Where exactly does that mean?

(b) If that takes me north of Kalgoorlie I am tempted to revisit the Stilt colony on Lake Ballard. Do you know whether L. Ballard is now completely dry? I would obviously want to walk out to the colony. Do you think that would be possible?

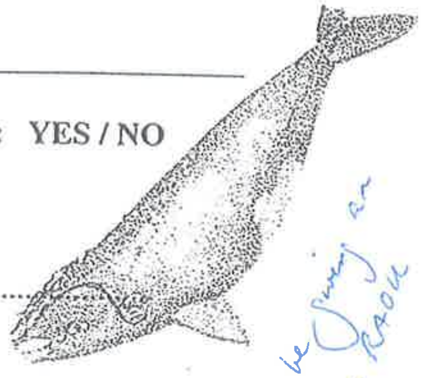
How are you going with the paper? Any chance of seeing a draft and/or illustrations this week? Anything you want from me?

Best wishes,
Clive 03-9589-4901

Fax (05/8/1996) from JL to GBP with copy of Abstract for SHOC (see above). Inter alia JL comments that: 'I will be giving an expanded version at RAOU in Sept [1996]'.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

25(6.)



TO: GRANT P. URGENT: YES / NO

AT: WRC

FAXED

Fax No.

FROM: JIM L.

DATE: 5/8/96

Your Ref:
Local Ref:

Copy of abstract for your info. Conference is in Albany in October. Fees ($350 registration) are enormous so can't afford attendance by you or Clive C.

But, I will be giving an expanded version at RAOU in Sept.

No. of pages inc. this page: 2

Please call us on (097) 521 677 if this message was incomplete or illegible

PLEASE INSERT FINAL ABSTRACT BELOW

BANDED STILT BREEDING AT LAKE BALLARD, WESTERN AUSTRALIA

J.A.K. Lane*, G.B. Pearson and C.D.T. Minton

Banded Stilts *Cladorhynchus leucocephalus* are endemic to Australia and unique among the 214 species of wading bird in the world in that they nest colonially, have white downy chicks and raise their young in creches. Breeding is confined to recently flooded saline lakes of the arid interior. Here the birds nest in the tens of thousands and feed on a super-abundance of brine srimps *Parartemia*. Because of the considerable difficulty of finding and gaining access to nesting islets, Banded Stilt breeding has been infrequently observed and little studied. In February 1995, Cyclone Bobby dumped 380 mm of rain to the north of Kalgoorlie in four days of continuous downpour. An aerial survey on 12 March revealed a colony of Banded Stilt on an islet in Lake Ballard (60 000 ha). During ensuing months this breeding event was followed by CALM scientific and management staff, Clive Minton of the Australasian Wader Study Group and a film crew from the ABC TV Natural History Unit. Preliminary results of this work will be presented.

SPOKEN OR POSTER PAPER
FINAL ABSTRACT

(This is only required if not already submitted to the Organising Committee)

Southern Hemisphere Ornithological Congress
Albany, Western Australia
October 5-9 1996

1. We will be presenting a: ☑ spoken paper ☐ poster paper

2. Complete name and mailing address of the author who will be presenting.

Name: MR JIM LANE

Organisation: DEPT CONSERVATION & LAND MANAGEMENT

Postal Address: 14 QUEEN STREET

BUSSELTON WA 6280

Tel: 097 521 677 Fax: 097 521 432

Email: ———

3. **GUIDELINES FOR LAYOUT OF ABSTRACT**

The title, authorship and all of the text must fit inside the lines of the rectangle shown on this form. Place an asterisk after the name of the author presenting the paper.

The text should be a single paragraph which outlines the material that will be presented at the Congress. Your abstract should not contain tables, figures, literature references or acknowledgements.

The type font must not be smaller than 10 point.

4. **METHOD OF SUBMITTING AN ABSTRACT**

The abstract must either be typed or pasted onto this form. If submitting an additional copy by electronic means, please use Word for Mac or Word for Windows format.

ALL CORRESPONDENCE TO:
PROMACO CONVENTIONS PTY LTD
PO Box 890, Canning Bridge WESTERN AUSTRALIA 6153
Tel: +61 9 364 8311 Fax: +61 9 316 1453
Email: promaco@promaco.com.au (Please note new email address)

PLEASE INSERT FINAL ABSTRACT BELOW

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Fax (05/8/1996) from JL to Promalco Conventions with copy of 'Spoken Paper Final Abstract' of *'Banded Stilt breeding at Lake Ballard, Western Australia'* presentation for SHOC (see above).

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

24(b)

FAXED

TO: Romaco Consultants **URGENT: YES / NO**

AT: .....

..... **Fax No.** .....

FROM: Jim Lane

DATE: 5/8/96

Your Ref: .....
Local Ref: .....

Will mail original of attached Abstract this afternoon

No. of pages inc. this page: 2

Please call us on (097) 521 677 if this message was incomplete or illegible

PLEASE INSERT FINAL ABSTRACT BELOW

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Fax (05/8/1996) from JL to CDTM with copy of 'draft abstract' for SHOC (see above). Inter alia JL comments asks: 'Any changes desired?'

23,

FAXED
12.14 pm

BANDED STILT BREEDING AT LAKE BALLARD, WESTERN AUSTRALIA

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Clive

This should face better

12.10 pm
5/8/96

22.

Fax to Tim Lane 097-521432

5/8/96

Could you possibly please re-send your fax?
Some lines were distorted. Usually I could read seemed fine.
If I do not fax you again within 2 hrs. of receipt of
your fax please assume I agree with the abstract.

Manny Kontos, Clive 03-9589-4901

1 Page fax

21.

FAXED

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Clive Minton

A draft abstract - ?

desired -

Any changes

5/8/96

(fax 097 521 432)

Letter (13/6/1996) from Prof Brian Collins, Chair, Organising Committee, SHOC, to JL and other presenters with information regarding preparation / presentation of Abstracts and Presentations at SHOC in Oct 1996 (see above).

Royal Australasian Ornithologists Union
Incorporating Australian Bird Trust
Established 1901 A.C.N. 004 076 475

RAOU
BIRDS • KNOWLEDGE • CONSERVATION

Prof Brian G Collins
School of Environmental Biology
Curtin University of Technology
GPO Box U 1987
Perth 6001

Tel: (09) 351 7041
Fax: (09) 351 2495
Email: B.Collins@info.curtin.edu.au

15.

Ref: L426/BC:EK

13 June 1996

Dear Colleague

Earlier this year, you indicated that you wished to deliver a spoken and/or poster paper at the Southern Hemisphere Ornithological Congress. I am currently seeking to tidy-up a few loose ends relating to such presentations. In view of the fact that I must contact approximately 100 people, many of whom may need to respond to me in different ways, I hope that you will not mind that this communication contains some information that may not be relevant in your case.

- **Abstracts**
  You may already have provided the organising committee with an abstract of your spoken/poster paper. If so, this is the last opportunity for you to make any alterations to your original contribution. When doing so, please indicate in the case of multi-authors, which author will actually be making the presentation. In some cases, no abstract information has yet been received. All abstract information must be in my hands no later than July 31, if the material is to be included in the SHOC booklet of abstracts. Information can be sent to me by conventional means or to my Email address.

- **Requirements for Spoken/Poster Presentations**
  Spoken Papers
  With the exception of the Key Note Speakers and two or three other presenters, each spoken contribution will be strictly limited to a total of 20 minutes, with 15 minutes allocated for the actual presentation, and 5 minutes for questions. Would presenters please indicate clearly what visual aids will be required for their presentations. As a matter of course, we will have overhead and 35mm projectors and television and video available. Should you wish to make a computer driven presentation, then you need to advise me immediately of your requirements.

  Poster Presentations
  Display boards will be provided at the congress venue. When finalizing your poster presentation, I suggest that you limit the display to an area no greater than approximately 1m high by 1m deep. The material can consist of a single poster or several smaller posters that cover a similar area. If you have any further worries please contact me.

Yours sincerely

Prof Brian G Collins
Chair, Organising Committee S.H.O.C.

Broadcast fax (07/5/1996) advising of seminar *'Banded Stilt breeding in the Goldfields'* to be presented by JL at the CALM 'Wildlife Research Centre' (Woodvale) on 17 May 1996. A final draft by JL for this Notice is also here.

204.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
Science and Information Division

SEMINAR

17 May 1996

presented by Jim Lane

BANDED STILT BREEDING IN THE GOLDFIELDS

Banded Stilts *Cladorhynchus leucocephalus* are endemic to Australia and unique among the 214 species of wading bird in the world in that they nest colonially, have white downy chicks and raise their young in creches. Breeding is confined to recently flooded saline lakes of the arid interior. Here the birds nest in the tens of thousands and feed on a super-abundance of brine shrimps *Parartemia*. Because of the considerable difficulty of finding and gaining access to nesting islets, Banded Stilt breeding has been infrequently observed and little studied.

In February 1995, Cyclone Bobby dumped 380 mm of rain to the north of Kalgoorlie in four days of continuous downpour. An aerial survey on 12 March revealed a colony of Banded Stilt on an islet in the 60 000 ha Lake Ballard. During ensuing months this breeding event was followed by CALM scientific and management staff, Clive Minton of the Australasian Wader Study Group and a film crew from the ABC TV Natural History Unit. Preliminary results of this work will be presented.

Time: 3:00 pm

Venue:

Wildlife Research Centre
Ocean Reef Rd (near Joondalup Drive)
Woodvale

Contact for Seminar: C Farrell 405 5146

Draft (final) of Seminar Notice
(for 17/5/96 at Woodvale)

BANDED STILT BREEDING IN THE GOLDFIELDS

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Article *'Leg Flagged Banded Stilts'* published (p.18) in WA Bird Notes No.77 (March 1966). This was authored by JL, though this was not indicated, probably because JL wanted all sightings to be reported to GBP, whose name and contact details are indicated.

Might be WABN No 77 (March 1996)

LEG FLAGGED BANDED STILTS

In April-May, metal bands were placed on 500 Banded Stilts and metal bands and yellow leg flags were placed on a further 500, all in the Lake Ballard area (see WABN 74, p. 3 and Wingspan 5(2): 13-15, June 1995). The aim is to gather data on timing and direction of dispersal away from breeding areas, and subsequent movements.

To date (early February '96), only two leg-flagged stilts have been sighted away from the breeding areas: one at a small salt lake near Kalgoorlie in September and one at Herschell Lake on Rottnest Island on 20/1/96.

RAOU members are requested to watch out for Banded Stilts wearing leg flags. The bands and flags were placed above the 'knee' and are most visible when the birds are foraging. For each observation, the following information is required:

- location
- date and time of observation
- name(s) and contact details of observer(s)
- total number of Banded Stilt seen at the location
- estimate of % of birds with chestnut chest bands
- number of Banded Stilts with yellow leg flags, and those with metal bands, seen at the location
- whether or not the flagged stilts have chestnut chest bands

Numbers, date and location are the most important information to note. Also, if you have examined Banded Stilts for flags and not found them, this is also valuable information.

Please send records to Grant Pearson, Wildlife Research Centre, Dept CALM, PO Box 51, Wanneroo 6065, or telephone (09) 405 5100, fax (09) 306 1641.

CONSERVING AUSTRALIA'S THREATENED BIRDS

The RAOU, in conjunction with the Australian Nature Conservation Agency, has just established a threatened bird network to conserve Australia's 127 species and sub-species of threatened birds.

The network aims to link and strengthen the actions of species recovery teams around Australia, and in particular, to encourage community participation in urgent conservation tasks.

Over 2000 discrete tasks await adoption by the community, tasks developed by teams of scientists and community members expert in particular species requirements. Actions range from searching remote areas of Cape York for Golden-shouldered Parrots, to guarding nest sites of Little Terns on the beaches of south-eastern Australia.

Anyone wishing to help should contact Michael Fendley at RAOU Melbourne. Below are updates on two threatened species occurring in WA.

Gouldian Finch

For the first time information is coming to light on the bird's Wet season movements, with observations near Katherine (NT) suggesting that birds move from the hills to the flats to seek out seeding, perennial grasses along creeks and around depressions.

Population numbers appear to be down at Yinberrie in the Northern Territory, but further monitoring is required. Waterhole counts across the Top End are planned for late September-early October 1996, at which time volunteer assistance would be greatly appreciated.

Glen Holmes is chasing up leads in Queensland with the objective of locating a good population for intensive study. Any sightings by Queensland birders would be very useful.

Malleefowl

A most successful national conference was held in Adelaide in September 1995. Although Malleefowl range and numbers appear to be declining, there is hope that this can be arrested. Energetic recovery work is going on in several areas, with Western Australia lucky enough to have a Malleefowl shire and faunal emblem (Gnowangerup Shire – apparently 'Gnow' is Aboriginal for Malleefowl), and a dynamic Malleefowl Preservation Group numbering 250 financial members, with the natty T-shirt slogan of "It's Gnow or never".

Encouraging news has been received from South Australia where the number of active mounds in Bakara Conservation Park has increased from 9-16 over the last four years. Increased breeding density is attributable, at least in part, to a cooperative fox and rabbit control program implemented by local landholders, volunteers and Department of Environment and Natural Resources staff.

Joe Benshemesh is extending the Recovery Team's grid monitoring system in Victoria and would welcome help in setting up grids in the Little Desert area. Other volunteers will be needed shortly to carry out similar extension of the system throughout the bird's range.

Michael Fendley

NEW MEMBERS

The following people joined the RAOU WA Group between 23 October 1995 and 24 January 1996. We look forward to meeting you at our excursions and general meetings.

E P Anderson, C and J Andrews, R Bernardo, J Bonomelli, M and A Buckman, C Chodorowski, P Comerford, A R Fergie, Mr and Mrs R S Ferguson, A Fincham, T and H Galluccio, J Gonat, M Gale, N Hogstrom, P Hyndes, D Blyth, D Jonas, T P Kemp, A and B King, M R Kollinger, J and R Luyer, H Macarthur, J D Massey, B, S and S Mee, S and J Miller, J Mills, S T Murray, U Neumann, K Peggs, J M Price, R D Moore, M Pudovskis, T Reynolds, A G Robertson, K Saunders,

Letter (08/3/1996) from Jeremy Talbot of RAOU WA Group confirming agreement to change date of presentation by JL from 22/4/1996 to 23/9/1996.

29 Joyce Road
Lesmurdie
Western Australia 6076

8 March 1996

Mr JAK Lane
Department of Conservation and Land Management
14 Queen Street
BUSSELTON, WA 6280

Dear Jim,

Thank you for letting me know earlier this week that April 22 has turned out to be an awkward date for your talk to the RAOU on the Banded Stilts of Lake Ballard.

I confirm that the alternative date of 23 September for your talk is in order and look forward to hearing your account of the Banded Stilt breeding episode on the evening of that date. Our next evening meeting is on 25 March and I shall be letting those present at that meeting know about the change. The fact that you will be speaking in September will be mentioned in the June number of WA Bird Notes, it being too late to alter the text of the March number.

Val and I hope that the April move will take place with the minimum of bother and that life generally will proceed smoothly.

Yours sincerely,

Jeremy

(Jeremy Talbot)

Fax (09/1/1996) from CDTM to JL and JL's faxed (17/1/1996) reply. JL writes, inter alia: 'Have made no further progress with the Stilt project but plan to do so for a presentation I have to give in April [probably a reference to proposed 22/4/1996 talk to RAOU WA Group, later changed to 23/9/1996, see above]'.

FAXED

Clive Minton

Regrettably I will not be able to participate this year due to family commitments and lack of funds. Here made no further progress with the Stilt project but plan to do so for a presentation of a flagged stilt so far — by Andy Clayman from Ballarat/Marion to Kalgoorlie area. Only one sighting I have to give = Cygnet. Best wishes to you also.

17/1/96

Fax to Tim Lane (CALM Kununurra) 091-52-1432 (9/1/96)

You indicated some time ago (Oct) you might be able to personally participate in the N.W. Australia Wader Expedition in Mar/April this year. We now trying to finalise the team etc. Could you advise me please whether you are able to participate & of course what are the likely dates please?

Very best wishes for '96.

Clive. 03-9589-4901

A copy of: Minton, C., Lane, J. & Pearson, G. (1995). *Update on Banded Stilt breeding event.* 'Wingspan' 5(3):9 (Sept 1995 issue) and cover of this issue.

Includes great photos by CDTM of BaSt chick 'taking a first drink at the water's edge', single parent BaSt leading brood of chicks from colony to water and 'newly-hatched chick, still wet, ... [under] ... incubating adult'.

Update on Banded Stilt breeding event

The June edition of Wingspan *(Vol. 5 (2): 13-15) featured an article by Clive Minton, Jim Lane and Grant Pearson, describing the beginning of this historic Banded Stilt breeding event at Lake Ballard, WA. Banded Stilts only breed on recently-flooded salt lakes, and only about 20 nesting events have ever been recorded. In the June feature, we left the breeding colony just as the chicks were hatching. Here is an update on how they have fared since...*

Research work by Jim Lane, Grant Pearson and other officers from the Department of Conservation and Land Management (CALM) in Western Australia has continued at the Banded Stilt breeding locations in the Goldfields. The ABC Natural History Unit also made a follow-up visit in late May to film chick creching and fledging.

Above: Banded Stilt chick taking a first drink at the water's edge.
Left: Each brood is accompanied only by a single parent as it leaves the colony for the water.
Below left:A newly-hatched chick, still wet, is visible under this incubating adult.

PHOTOS BY CLIVE MINTON

It seems that breeding has been successful, with an excellent rate of young birds surviving to fledging. Mark Lamble, the ABC camera-man, reported 'tens of thousands' of well-grown chicks on the western end of Lake Ballard.

Although the newly-hatched chicks could swim and feed in the normal metre-deep water, they seemed to prefer to make their way gradually down to the shallow parts of the lake (30 km away) for the bulk of their fledging period. There they marched around on the wet mud or in very shallow water picking up minute items of food — too small to be the brine shrimp that are thought to be their preferred diet.

In contrast, the accompanying adults — which had greatly reduced in number as the chicks gradually coalesced into hundred-strong groups — seemed to find feeding in the shallows unsatisfactory. Thus they periodically left the chicks to fly to deeper water, presumably to feed on the now abundant supply of brine shrimps.

Banding and colour-flagging of chicks went very well, with nearly 1,000 birds marked. To do this, we caught chicks in a handnet from a moving boat — a method which proved reasonably straightforward. When the chicks were still in family parties we found it necessary to catch only part of the brood at a time, then to return these birds to the parent before catching the rest of the brood. We also followed this precautionary procedure with larger groups of chicks. Incidentally, the behaviour we observed while catching the chicks provides yet another contrast between Banded Stilts and other waders: Banded Stilts neither actively defend their young nor perform distraction displays (such as the 'broken-wing trick') to deter intruders, as do other waders.

So far there has apparently been no second round of breeding at Lake Ballard, unlike the breeding event at Lake Torrens in 1989. However, plenty of adults are still present on the Lake, and some excited gathering and even copulating has been observed, so further nesting may occur.

A further aerial survey is planned for mid-July to see if any further nesting attempts have been made, and to log the number of adults and juvenile birds still present. The water levels are holding up well, which is encouraging.

A small nesting colony (5,000 pairs) did form on nearby Lake Marmion, and at least 2,000 chicks were seen in June, but nesting success was probably lower there than at Lake Ballard due to the regular presence of predators in the form of a Wedge-tailed Eagle and a Peregrine Falcon.

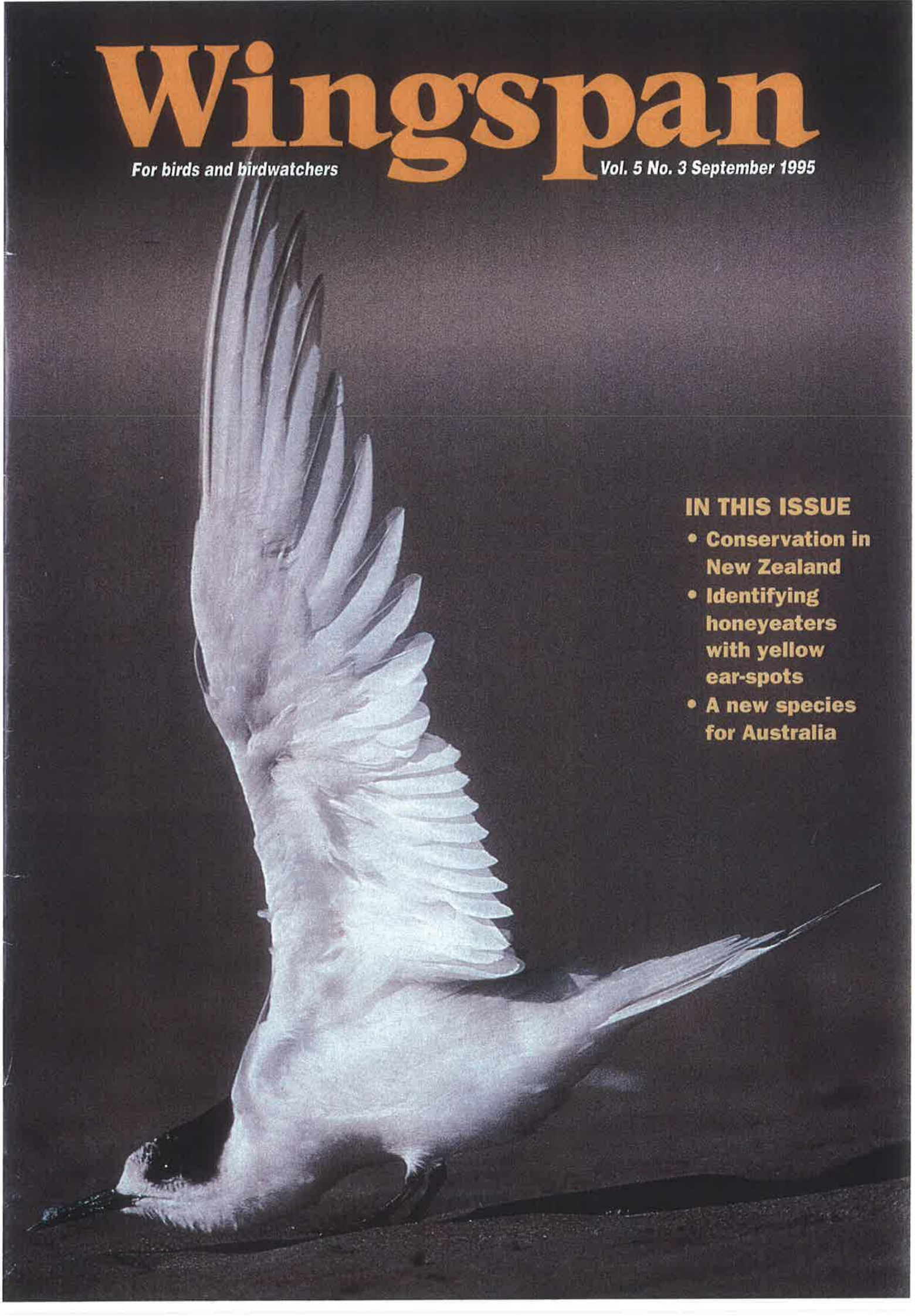
Would everyone, especially in Western Australia, please keep a look out for banded and leg-flagged birds? Please also monitor, by regular counts, the return of birds to traditional non-breeding areas as they leave the drying salt lakes in the future.

CLIVE MINTON, JIM LANE AND GRANT PEARSON

Wingspan

For birds and birdwatchers

Vol. 5 No. 3 September 1995



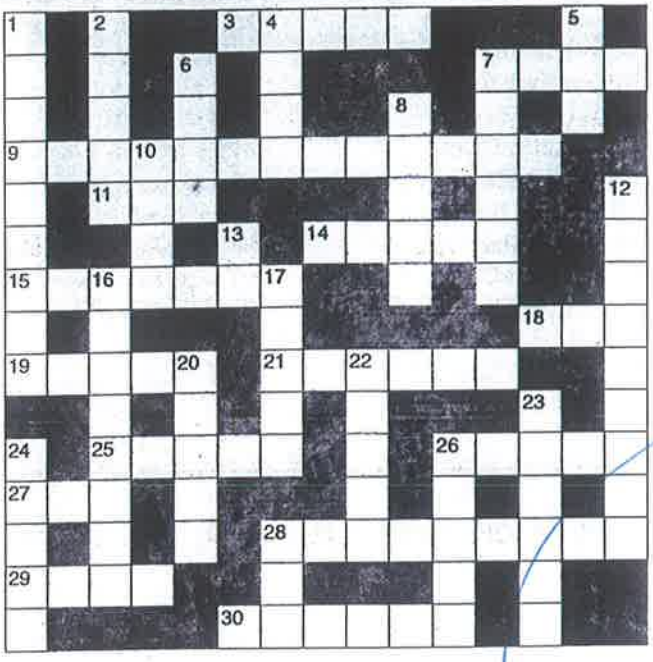
IN THIS ISSUE

- Conservation in New Zealand
- Identifying honeyeaters with yellow ear-spots
- A new species for Australia

A copy of: McKenzie, M. (1995). *Disappearing stilts.* p.4 in Sept 1995 issue of 'WA Bird Notes'.

About BaSt numbers at 'Cargill salt works, Port Hedland'.

Crossword



CLUES ACROSS

3. The sole representative of this family in Australia is a black-necked one.
7. You may have time for one while you wait for one to appear.
9. One of the feathered dinosaurs, a distant relative of today's birds.
11. The female of a bird species.
14. Secretive bird of the marshes.
15. Possibly the favoured food of a smart black and white coastal bird.
18. A common shape for a bird's nest.
19. Many parrots lay eggs which are roughly this shape.
21. If lucky, you may see one nesting on a cliff on Rottnest Island.
25. Officially means "grey with age" but a certain grebe may feel insulted by the name.
26. May well be colourful but, unlike a king's, it can't be removed.
27. Sometimes used for marking birds in order to check movements.
28. Could describe the nests of both Mistletoebird and Yellow-breasted Sunbird.
29. One above or below the eye is often a useful identification feature.
30. A Willy Wagtail may well expect this from a hungry Australian Hobby!

CLUES DOWN

1. Together with colour and shape, this may help you to identify a bird easily.
2. Small bird, often seen in flocks in dry areas.
4. The formal genus name of the Barn Owl.
5. The "arch enemy" of small bush birds.
6. Often represents the State of Western Australia.
7. Author of an early Australian bird identification book.
8. Common material from which leg-bands are made.
10. May cause both birds and 'birdos' to lie low in the middle of the day.
12. If conspicuous on the ground, may indicate a popular roosting site.
13. A fork may seem a good nest site, but if the limbs on either side fall off, you'd be left with this word only!
16. This Whiteface lacks a band across its lower breast.
17. Dull black.
20. Male duck.
22. It's essential for a bird to do this every day.
23. The bird equivalent of a crowded city in China.
24. A bird reaches its full colouration during this stage.
26. You may hear a Scrubfowl do this softly.
28. In past years, a Galah may well have been one of these.

Members' Contributions

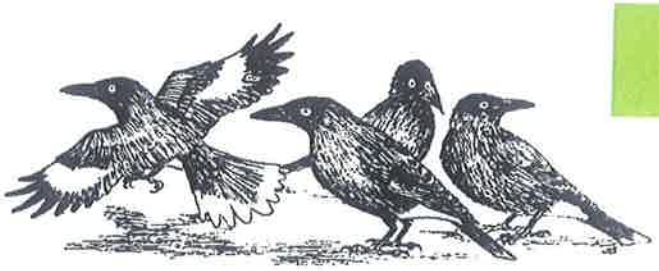
DISAPPEARING STILTS

At the Cargill salt works, Port Hedland, there are usually up to 1000 Banded Stilts and about 300 Red-necked Avocets during winter. This year, both species left the saltworks after rain in the middle of February. By mid-June some avocets (about 40) had returned, but the stilts were still absent. It will be interesting to see when they return.

Mal McKenzie

GREY CURRAWONGS ON THE SWAN COASTAL PLAIN

From Margery Clegg's and my observations it would appear that this species is resident in The Spectacles Reserve, Kwinana. We have been visiting the area since it was first drawn to our attention by work done by Mike Bamford. On nine out of 10 visits, spread over the past five years, we have seen or heard Grey Currawongs, nearly always near the wetter area but never among the banksia woodlands. I would, however, agree that we do not find them in any other locality away from the hills. And a further observation on the distribution of the species in the Darling Range: they are quite common along the upper regions of Helena Valley; can nearly always be observed close to Mundaring Weir and in Jacoby Park. We sometimes find them along one of the valleys which cross Flynn Road, Mundaring Shire, when the creeks are flowing, but we only find them in one part of that district.



My conclusion is that they prefer to be close to some form of water. Against the above observation, I am well aware of the fact that they can often be observed along the edge of the Albany Highway.

Bryan Barrett

Fax (23/8/1995) from JL to GBP in which he refers to data on BaSt numbers at localities in WA, as presented in: Watkins (1993). *A National Plan for Shorebird Conservation in Australia.*

23/8/95

TO: GRANT PEARSON

BANDED STILT MONITORING

Monday's air survey by Andy Chapman showed that Lake Marmion will be dry in a week or so and Ballard in the next month or two. The stilt are therefore starting to move and will very soon be headed for more watered parts near and on the coast.

What we need are a few observers (one each) at a few key localities where Banded Stilt are known to congregate as inland waters dry out, to record the following on a regular basis. Weekly or fortnightly would be great, monthly would also be very worthwhile.

The information required from each visit is:

* Location
* date and time
* observer
* total number of Banded Stilt
* % with chestnut chest band
* number with yellow leg flags or metal leg bands or both
* whether or not each of the banded/flagged birds has a chest band.

The few localities could be chosen from the following list (from Watkins 1993 *A National Plan for Shorebird Conservation in Australia*). The number in brackets is the highest known count, as given in Watkins 1993. Mike Bamford will be able to give you advice on who might be approached about which sites. I have asterisked the sites I think you are most likely to find people for.

	Lake McLeod (53 100)	too remote?
	Lake King (30 000)	rarely has water/stilts?
*	Lake Gore (20 000)	ask HooP researcher?
	Shark Bay (14 500)	too remote?
	Lake Grace North (12 000)	too remote?
	Walyormouring lake (10 700)	
*	Lake Warden (10 000)	Esperance resident?
*	Peel Inlet (9 000)	we are doing (Creery)
	Lake Hinds (8 000)	
	Lake Kwornicup (7 000)	
	Lake Dumbleyung (6 000)	
	Lake Mears (5 200)	
	Culham Inlet (5 000)	ask Andy Chapman?
	Gidon wetlands (Esperance)	
	Lake Quarbino (Wagin) (4 500)	
	Nambling (nearby lake) (3 000)	
	Lake Ninan (3 000)	

Oldfield Estuary (3 000)
White Water L. (Yealering) (2 900)
Balicup Lake (2 800)
Wilsons Inlet (2 500) ask Denmark resident?

Other sites with useful numbers of Banded Stilt but not listed by Watkins are:

*	P. Hedland or Dampier saltworks	ask Mike Bamford which & who might do
*	Rottnest Island	ask Denis Saunders or Perry de Rebeira who might do
*	Vasse Wonnerup	I could take care of

You might find CALM staff, e.g. Malcolm Graham and Leon Silvester in the Wheatbelt region (where there are numerous prospective sites), who could participate or give you names.

It also occurs to me that we can count/check the BaSt at each of the lakes we monitor in Sep and Nov this year.

Would you please set this up as a matter of urgency. The first step should be to contact Mike Bamford for ideas on who might cover which localities and to make sure that as far as possible whatever we set up is not in conflict with the regular wader counts he is setting up. I will let Mike know you will be contacting him and will also send him a copy of this fax for info.

All observations should be sent to you rather than me.

Any queries please ring me.

Jim Lane
23/8/95

P.S. Please ~~read~~ ring me when you have read this.

Fax (15/8/1995) from CDTM to JL in which he writes, inter alia, that he will fit the BaSt presentation proposed by JL into the program for SHOC (see above); encloses 'a copy of a short note I put in 'Tattler' – the AWSG Newsletter. It is a brief version of what is about to appear in Wingspan' [add copy here and link to article in Wingspan], and 'I viewed all the ABC Banded Stilt footage with Mark [Lamble] and Jeremy [Hogarth] the other night. It's very good. They will do us a copy some time'.

15/08 '95 17:39 TX/RX NO.6069 P.001

15/8/95

Fax to Tim Lane, CALM, Bruce Rock 097-521-432 15/8/95

From Clive Minton 03-9589-4901

(1) Re SHOC. I will fit runs into the wader programme, so no need for further action at present.

(2) I enclose a copy of a short note I put in "The Tattler" - the AWSG Newsletter. It is a brief version of what is about to appear in Wingspan.

(3) I viewed all the ABC Bonaparte footage with Mark & Jeremy the other night. It's very good. They will do us a copy sometime.

(4) I need to talk to you about NWA '96 & especially about transport. I'll have you when I come in the TAS&A office tomorrow.

Best wishes,

Clive

Talked to Grant yesterday. Need vehicle from Perth - cost + trailer from Perth will equip. from Perth & Melb.

Need to know by as soon as possible already have teams of 3 drawn up.

Need
- 2 vehicle to pull trailer must be 4WD for beach
- Borme on 1st March. (leave Perth on 25/2) (2 vehicle months) back to Perth on 25/4

Correspondence (03-09/8/1995) between Prof Brian Collins (Chair, Organising Cttee, SHOC), A/Prof Ron Wooller (Murdoch Uni), JL and CDTM concerning fitting the paper proposed by JL on the 1995 BaSt work at Lake Ballard into the program of the SHOC conference to be held at Albany, WA, in Oct 1996 (see above).

Murdoch University
Perth, Western Australia 6150

School of Biological and Environmental Sciences
Animal Biology Tel: +61-9-360 2579/2524 Fax: +61-9-310 3505

My copy

Mr
Dr Jim Lane,
Department of Conservation and Land Management,
14 Queen Street,
BUSSELTON W.A. 6280

Dear Jim,

We were delighted to see that you are interested in offering a spoken paper at the Southern Hemisphere Ornithological Congress in Albany next year. In particular, you indicated interest in area 3 (Studies of seabirds and waders). These will run as two consecutive sessions on Monday 7 October with seabirds in the morning and waders after lunch. If your proposed talk deals primarily with waders, you may care to contact Dr Clive Minton (165 Dalgety Road, Beaumaris, Victoria 3193; Fax/phone 03-9589-4901) and explore with him whether there might be space in the programme for your talk. If you wish to talk primarily about seabirds, then I would love to hear your provisional title. I am afraid that we are unlikely to be able to accommodate all those who wish to speak, although we will do our best. We also wish to achieve some balance in geographical coverage and between established/novice researchers.

We look forward to hearing from you further and to meeting you in Albany next year.

Yours sincerely,

Ron

A/Professor Ron Wooller

3 August 1995

Dear Ron
The paper I have in mind concerns recent work by Clive and me (et al) on Banded Stilt breeding on lakes in the eastern goldfields. Clive is not sure whether it can be slotted in yet but I am hopeful.
Regards
Jim

Copy: CD ✓

Visions
1995 MURDOCH UNIVERSITY
20TH ANNIVERSARY

Royal Australasian Ornithologists Union
Established 1901
ACN 004 076 475
Head office: 21 Gladstone Street,
Moonee Ponds, Victoria, 3039
Tel: (03) 370 1422 Fax: (03) 370 9194

49.

Prof Brian G Collins
School of Environmental Biology
Curtin University of Technology
GPO Box U 1987
Perth 6001

Tel: (09) 351 7041

Ref: L010/BC:EK

4 August 1995

Dear Colleague

Thank you for your offer to present a paper at the 1996 Southern Hemisphere Ornithological Congress. Members of my committee have been encouraged by the interest shown, and have already started to organise the scientific program. You have already indicated the sub-theme(s) that you consider to be most closely linked to your proposed paper. However, our task in making decisions on where papers best fit into the overall program would be made easier if you could send me a tentative title and brief description of the topic on which you hope to talk, at your earliest convenience. A formal request for final titles and abstracts will be sent to you with the registration booklet, either later this year or early in 1996.

Thank you for your support.

Regards

Brian Collins

Prof Brian G Collins
Chair, Organising Committee, S.H.O.C.

Clive
Do we need to provide the above at this stage, or — Given your role in deciding the congress program — is it not necessary to do this for B.C.?
9/8

Other offices: c/- Australian Museum, P.O. Box A285, Sydney South, N.S.W. 2000. Tel: (02) 339 8183. P.O. Box 199, Jolimont, W.A. 6014. Tel: (09) 383 7749.
Observatories: Barren Grounds, P.O. Box 3, Jamberoo, N.S.W. 2533. Tel: (042) 36 0195. Eyre, Cocklebiddy via Norseman, W.A. 6443. Tel: (090) 39 3450.
Broome, P.O. Box 1313, Broome, W.A. 6725. Tel: (091) 93 5600. Rotamah, P.O. Box 75, Paynesville, VIC. 3880. Tel: (051) 56 6398.

Fax (29/7/1995) from CDTM to JL in which he writes, inter alia: '... we have successfully provoked action on the Lake Torrens paper [presumably the paper referred to at 27/6/1995 below] & that a full draft will be available shortly. We need to get cracking ourselves. We need to discuss who does what – in about a week's time'.

Double-check whether this proposed paper was published. It doesn't seem so (as at 03/5/2014).

47.

29/7/95

Fax to Jim Lane CALM Busselton 097-521-432. 29/7/95
From Clive Minton 03-9589-4901

(1) Thanks for message re aerial survey. Is that the end or do you intend to do another? How many birds were seen? Where What is water level like.?

(2) Are you organising/coordinating counts at favoured location to document the return of banded stilts from the breeding areas any signs of this yet? Have you already collected together the early March disappearance data as birds left those areas to breed?

(3) Good news that we have successfully provoked action on the Lake Torrens paper & that a full draft will be available shortly. We need to now get cracking ourselves. We need to discuss who does what - in about a week's time.

Best wishes
Clive

A copy of the CALM Science Division approvals (24/7 & 05/5/1995) for JL and GBP to publish, with CDTM, '*History in the mating*' in Wingspan (published in June 1995 issue, see below).

46.

Science and Information Division

Approval Form for Scientific and Technical Publications, Reports (including Interim Grant Reports), Posters and Conference Abstracts, etc.

Type of submission Article

Author(s) C.D.T. Minton J.A.K. Lane G.B. Pearson

Title History in the Making

For publication in Wingspan

Is the target journal refereed, relevant, and of good repute? Yes

Manuscript already read critically by

Is this the first time this research has been submitted for approval for publication: Yes [✓] No [ ]

If no, to which journal was it previously submitted?

If submitted previously, attach previous MS and referees' comments

Is plain English synopsis of <250 words attached? Yes [✓] use intro in bold

To which RPP or SPP does this form relate? [9 1]

AUTHOR'S SIGNATURE AND DATE

		Date	Initials
1.	**Paper submitted to Section Manager for review**		
	Approved by Section Manager	24/7/1995	
	***OR* returned to author for revision**	...../...../19....	

Detailed comments to be written overleaf

2.	**Paper submitted to Biometrician for review**		
	Approved by Biometrician	N.A. ...../...../19....	
	***OR* returned to author for revision**	...../...../19....	

Detailed comments to be written overleaf

3. **Paper submitted to Head of Group for review and for appraisal of policy implications**

Will publication prejudice opportunities for patents/commercialization? Yes [ ] No [✓]

Approved by Head of Group	5/8/1995	G Friend MHoG
***OR* returned to author for revision**	...../...../19....	
***OR* submitted to Director of Science & Information**	...../...../19....	
Approved by Director of Science and Information	...../...../19....	
***OR* returned to author for revision**		

Detailed comments to be written overleaf

4.	**If approved, Divisional Administrative Assistant to distribute one copy of title page and plain English synopsis to *CALMScience News***		
	Divisional Admin. Assistant then returns MS to author	24/7/1995	LJ7

Received 24/7/95.

INTERNAL PUBLICATIONS ONLY

5.	**Paper submitted to Editor of *CALMScience* or *Nuytsia***	...../...../19....	

(*You are encouraged to suggest four referees for your paper, on a separate sheet*)

6.	**Paper returned to author with referees' comments**	...../...../19....	
7.	**Amended manuscript (clean copy plus referees' comments plus floppy disk in MS Word) - returned to Editor**	...../...../19....	

Author is to retain this form until one year after publication. Authors are responsible for the cost and distribution of any reprints they may wish to order. It is obligatory for all Departmental authors of technical and research articles published in external journals to provide a reprint or photocopy, immediately upon publication, to their Head of Group and Section Manager, and three copies to the relevant Library. 8/94

A copy of: Minton, C., Lane, J. & Pearson, G. (1995). *Banded Stilts complete the job.* The Tattler No.4, p.3 (July 1995 issue).

16/8/95

JIM LANE PVI

The tour involved presentations by Drs Driscoll and Zikov illustrating the important link between Russia and Australia with Japan. Evening talks at visits to each site were attended by local wetlands groups and representatives of the media. Information was exchanged about Russian, Australian and local research and conservation efforts. An overview of shorebird and Littler Tern banding was presented by Shigeta Yoshimitsu of the Yamashina Institute for Ornithology at the Tokyo meeting.

It is hoped that the tour will result in a greater awareness by the Japanese people of the international importance of local wetlands and the need for international cooperation for the conservation of shorebirds and their habitat. The link between Australia and Japan was demonstrated by the presence of colour-flagged Bar-tailed Godwits from Queensland and New Zealand during the tour and observations of colour-flagged waders by members of all groups who attended the visits at the various sites.

Japan has lost great expanses of tidal flats during the last few decades due to development.

Banded Stilts complete the job

Research work by Jim Lane, Grant Pearson and other officers from the Department of Conservation and Land Management (CALM) in Western Australia has continued at the Banded Stilt breeding locations in the Goldfields. The ABC Natural History Unit also made a follow up visit in late May to film chick oreching and fledging.

Overall it appears that breeding success was good with and excellent survival rate of young birds to fledging. Mark Lamble, the ABC cameraman, reported "tens of thousands" of well grown chicks on the western end of Lake Ballard. It seems that although the chicks could swim and feed in the normal metre deep water during their first few days after hatching they preferred to gradually make their way down to the shallow parts of the lake, 30 kms away, for the bulk of their fledging period. There they marched around on the wet mud or very shallow water picking up minute items of food - thought to be too small to be the traditional brine shrimps.

In contrast the accompanying adults, which had greatly reduced in numbers as the chicks gradually coalesced into hundred strong groups, seemed to find feeding unsatisfactory. They thus periodically left the chicks and flew to deeper water, presumably to feed on the now abundant supply of brine shrimps.

In contrast to Lake Torrens in 1989 there has apparently been no 'second round' of breeding at Lake Ballard. Plenty of adults are still present on the lake however and some excited gatherings and even copulation have been observed, and so a further nesting event may occur.

A small nesting colony (5000 pairs) did form on nearby Lake Marmion and at least 2000 chicks were seen in June, but nesting success was probably lower than at Lake Ballard due to the regular presence of a Wedge-tailed Eagle and a Peregrine Falcon at the colony.

Considerable success was achieved in banding and colour-flagging chicks, with nearly 1000 birds being marked altogether. It was reasonably straightforward to catch chicks in a handnet from a moving boat. When birds were still in family parties it was necessary to only catch part of the brood. This precautionary procedure was also followed with larger groups of chicks. It does incidentally provide yet another contrast between Banded Stilts and other waders. Banded Stilts do not defend their young and do not carry out agitated distraction displays such as the "broken-wing trick" like other waders.

A further aerial survey is planned for mid July to see if any further nesting attempts have been made and to log the numbers of adult and juvenile birds still present. The water levels are holding up well, which is encouraging.

Would everyone in Western Australia, please keep a lookout for banded/flagged birds? Please also monitor, by regular counts, the return of birds to traditional non-breeding areas as they leave the drying salt lakes in the future.

Clive Minton, Jim Lane & Grant Pearson

オオジシギ by any other name- Sniping in Hokkaido

As an adjunct to an ecological study on migratory shorebirds in the Hunter estuary, conducted by Shortland Wetlands Centre for the Kooragang Wetlands Rehabilitation Project, I was recently fortunate enough to spend a month, from mid-May to mid-June, in Hokkaido, Japan studying Latham's Snipe. My family and I were accompanied during the first week of the trip by Mike Weston of the Royal Australasian Ornithologists Union and the AWSG. Mike, incidentally, is quite an impressive sight in a suit. It is hoped that the RAOU and the Australian Nature Conservation Agency, in conjunction with the Wildbird Society of Japan and the Japanese

Faxes (18/7/1995) from JL to Phil Straw (RAOU Sydney) and Kate Gorringe-Smith (RAOU Melbourne) with a 'typed version with amendments ... as discussed' of 'Follow-Up Note for Wingspan and Tattler, as written by C.M [CDTM] with a few amendments by J.L (18/7/95) - "*Banded Stilts Complete the Job*" or "*Banded Stilts Did It!!*"'.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

FAXED

To: PHIL STRAN **URGENT:** YES / NO

AT: RAOU SYDNEY

02 252 1460
Fax No.

FROM: JIM LANE

DATE: 18/7/95

Your Ref:
Local Ref:

Typed version with amendments (deletions struck through, additions in bold) as discussed. Cheers.

No. of pages inc. this page: 2

Please call us on (097) 521 677 if this message was incomplete or illegible

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A small nesting colony (5000 pairs) did form on nearby Lake Marmion and at least 2000 chicks were seen in June, but nesting success was probably lower than at Lake Ballard due to the regular presence of a Wedge-tailed Eagle and a Peregrine Falcon at the colony.

Considerable success was achieved in banding and colour flagging chicks, with nearly 1000 birds being marked altogether. It was ~~quite easy~~ **reasonably straightforward** to catch chicks in a handnet from a moving boat. When birds were still in family parties it was necessary to only catch part of the brood at a time and to return these birds to the parent before catching the rest of the brood. ~~Once chicks had formed into larger groups this precautionary procedure was not necessary.~~ **This precautionary procedure was also followed with larger groups of chicks.** It does incidentally provide yet another contrast between Banded Stilts and other waders. Banded Stilts do not defend their young and do not carry out agitated distraction displays such as the "broken-wing trick" like other waders.

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Clive Minton, Jim Lane and Grant Pearson

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

TO: Kate [illegible]-Smith FAXED URGENT: (YES) / NO

AT: RAOU MELB

Fax No. 03 ~~370 9194~~ 882 2677

FROM: Jim Lane

DATE: 18/7/95

Your Ref:
Local Ref:

A typed version of the handwritten note Clive sent you — with a few amendments (deletions struck through, additions in bold). Cheers.

No. of pages inc. this page: 2

Please call us on (097) 521 677 if this message was incomplete or illegible

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Clive Minton, Jim Lane and Grant Pearson

article1.doc.

FOLLOW-UP NOTE FOR WINGSPAN AND TATTLER,
AS WRITTEN BY C.M., WITH A FEW AMENDMENTS BY J.L. (18/7/95)

"BANDED STILTS COMPLETE THE JOB"
OR
"BANDED STILTS DID IT!!"

Research work by Jim Lane, Grant Pearson and other officers from the Department of Conservation and Land Management (CALM) in Western Australia has continued at the Banded Stilt breeding locations in the Goldfields. The ABC Natural History Unit also made a follow up visit in late May to film chick creching and fledging.

Overall it appears that breeding success was good with an excellent survival rate of young birds to fledging. Mark Lamble, the ABC cameraman, reported "tens of thousands" of well grown chicks on the western end of Lake Ballard. It seems that although the chicks could swim and feed in the normal metre deep water during their first few days after hatching they preferred to gradually make their way down to the shallow parts of the lake, 30kms away, for the bulk of their fledging period. There they marched around on the wet mud or very shallow water picking up minute items of food - thought to be too small to be the traditional brine shrimps.

In contrast the accompanying adults, which had greatly reduced in number as the chicks gradually coalesced into hundred strong groups, seemed to find feeding unsatisfactory. They thus periodically left the chicks and flew to deeper water, presumably to feed on the now abundant supply of brine shrimps.

In contrast to Lake Torrens in 1989 there has apparently been no 'second round' of breeding at Lake Ballard. Plenty of adults are still present on the lake however and some excited gatherings and even copulation have been observed, and so a further nesting event may occur.

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Clive Minton, Jim Lane and Grant Pearson

Copy of note from GBP to JL with an annotation by JL that indicates that on 17/7/1995 JL told Jeremy Talbot (of RAOU WA Group) that he would be able to give a talk to the WA Group about the 1995 BaSt work on 22/4/1996.

Note that this date was later changed to 23/9/1996, see above.

Jim

Jeremy Talbot - talk about

BASTS to RAOU.

Dates. Feb 26 - preferred.

Sent geo to Jeremy for on 17/7/95

~~Fri~~	22
Tues	24
~~Thu~~	22
~~Aug~~	26
Sept	23

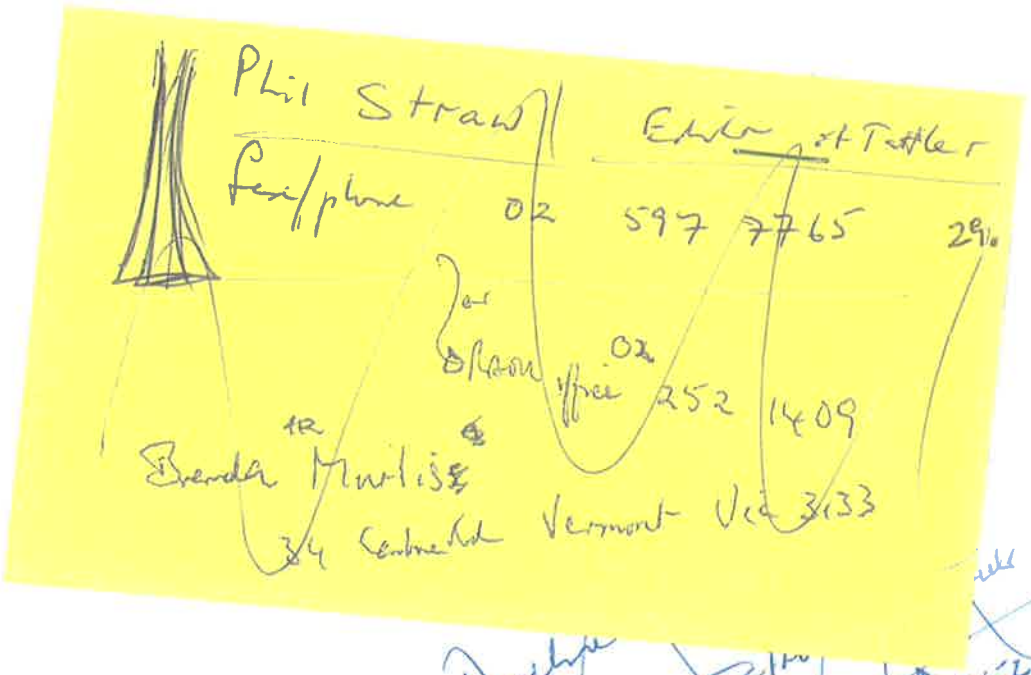
Jeremy may be able to contribute funds to a BAST trip in Aug/Sept

264 1~~6~~02

297 6563.

Fax (14/7/1995) from CDTM to JL in which he writes, inter alia: 'I attach the text of a follow up note for Wingspan. Could you please arrange the necessary [CALM?] approval?' and 'I've sent her ['Kate Gorringe-Smith, the editor, at RAOU HQ'] 12 more slides & captions & this should make it more interesting' and 'I've sent an identical text to 'The Tattler' ... Attached was CDTM's hand-written draft of ''*Banded Stilts Complete the Job*' or '*Banded Stilts Did It!!*'', authored by CDTM, JL & GBP.

See above for typed version, with some amendments.



Fax to Tim Lamer CALM Busselton
From Clive Minton 097-521-432
03-9589-4901

14/7/95

I attach the text of a follow up note for Longspan. Could you please arrange the necessary approval? If you have any comments please contact Kate-Jorrinja Smith, the editor, at RAOU HQ.

It is not as good as I would have liked - time pressure. I've sent her 12 more slides + captions & this should make it more interesting.

I've sent an identical text to "The Tattler" - the AWSG newsletter. In preparing this I looked at what I sent Alison in April & am pleased to see I made due mention of CALM (& got UWSG attributed only to Mary Rose!).

I return from Fiji 27 July. Meanwhile all the best. Clive

Phil Straw
fax/phone

Brenda M.
34

deadline
Wingspan?
Monday 24/7
Tattler this week
02 252 1460 fax
– out when
– out when next week

Fax to Jim Lane CALM Busselton 097-521-432
From Clive Minton 03-9589-4901

14/7/95

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I return from Thur. 27 July. Meanwhile all the best

Clive

(1)

Banded Stilts complete the job
or Banded Stilts Did It !!

JLI.

Research work by Jim Lane, Grant ~~Kanan~~ Pearson and other officers from the Department of Conservation and Land Management (CALM) in Western Australia, has continued at the Banded Stilt breeding ~~locations~~ locations in the goldfields. The ABC Natural History Unit also made a ~~follow up~~ follow up visit in late May 14th May to film chick ~~creching~~ and fledging. creching.

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In contrast the two accompanying adults, which had greatly reduced in numbers as the chicks gradually ~~coalesced~~ coalesced into hundred-strong groups, seemed to find feeding unsatisfactory. ~~They~~ thus periodically left the chicks and ~~flew~~ flew to deeper waters presumably to feed on the now abundant supply of brine shrimps.

In contrast to Lake Torrens in 1989 there has apparently been no 'second round' of breeding at Lake Ballard. Plenty of adults are still present

(2)

on the lake however and some excited gathering and even copulation have been observed and so a further nesting event may occur. [illegible] A small nesting colony (1000 [illegible] 500 pairs) did form on nearby Lake Marmion and at least 8000 chicks were seen in June, but nesting success was probably lower than on Lake Ballard due to the regular presence of a Wedge-tailed Eagle and a Peregrine Falcon at the colony.

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Clive Minton, Jim Lane and Grant Pearson

Faxes (13/7/1995) between JL and CDTM in which JL proposes they present a paper on the 1995 BaSt work at the Oct 1996 SHOC in Albany, WA. CDTM is enthusiastic and indicates he will endeavour to fit the proposed paper into the SHOC program.

FAXED

FAX to Jim Lane CALM 09-306-1641 13/7/95
From: Clive Minton 03-9589-4901

What a good idea!

Yes, I am attending SHOC. In fact I'm responsible for putting together the wader programme. I don't know why I didn't think of putting Banded Stilts onto the programme, but I do think it would make an excellent joint presentation.

I have a problem. I have invited 8 speakers already for the 3hr. ~~session~~ I am allocated, three cover speakers from South America, Africa & N.Z. & Australia +2 others (Canada & Holland) covering very wide interest/relevance subjects. I expect to get 6 'yes' which, at ½hr. each, fills the wader programme.

I am already contemplating going back to Brian Collins & asking for a whole day allocation for waders. An alternative would be for us to present Banded Stilts under sub-theme 1. I will await responses to my invitations before deciding which course to follow. In any event we should, and will, make a presentation.

I will be in touch again around mid-August on this subject. Best wishes, Clive

PS I am away for 12 days from Saturday (16-27/8), I'm taking my 90 y.o. mother & 3½ y.o. grandson on holiday to N.T.

DEPARTMENT OF
CONSERVATION AND LAND MANAGEMENT
SCIENCE & INFORMATION DIVISION
WILDLIFE RESEARCH CENTRE, WOODVALE
FAX NO (09) 306 1641 TELEPHONE NO (09) 405 5100

Date: 13/7/95

To: CLEVE M.

At: MEB

From: JIM L.

No of Pages: 3
(including face sheet)

Message: Attached is my registration of interest in attending the SITO Congress in Albany W.A. in October next year.

(1) Will you be attending?

(2) What do you think about us presenting a paper on the Banded Stilt work?

If you are attending we could co-deliver it. If not, I would be happy to deliver it on behalf of both (all?) of us.

(3) Your thoughts in due course?

Southern Hemisphere Ornithological Congress Albany, Western Australia

If you hope to attend the Congress, please complete this form and return it to the address given below. Registration fees and titles of intended talks are not required at this time.

Title: MR. Family name: LANE

Given names: JAMES ALAN K.

Postal address: DEPT. CONSERVATION & LAND MGMT

14 QUEEN STREET, BUSSELTON

Country: W.A. 6280

Telephone: 097 521 677 Facsimile: ____

Email address: ____

I intend to register as a:

- [x] Full Member
- [ ] Accompanying Person
- [ ] Student Member
- [ ] Day Member

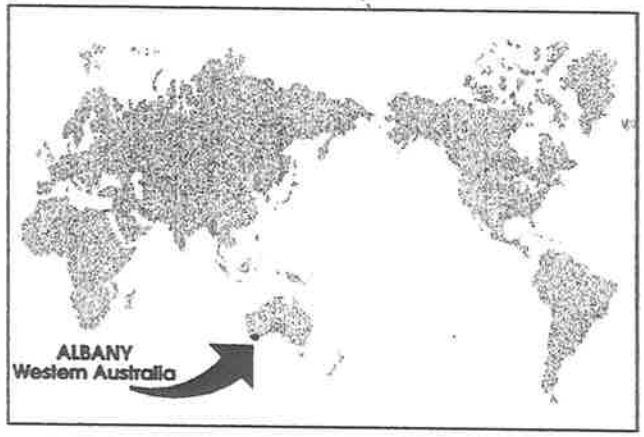
I would like to present a:

- [x] Spoken paper
- [ ] Poster paper

My paper would be related to:

- [x] Sub-theme 1
- [ ] Sub-theme 2
- [x] Sub-theme 3
- [ ] Sub-theme 4
- [ ] Sub-theme 5
- [ ] Sub-theme 6
- [ ] Sub-theme 7

Please return to : Professor Brian Collins, School of Environmental Biology, Curtin University of Technology, GPO Box U1987, Perth, Western Australia, 6001; Tel: 619 351 7041, Fax: 619 351 2495; Email: B.Collins@info.curtin.edu.au.



The Albany Experience .....

Located on the rugged south coast of Western Australia, Albany offers panoramic views of the magnificent Princess Royal Harbour and surrounding countryside. First settled in 1826, the town offers visitors much that is of historical and cultural interest. The Albany hinterland is renowned for its unique fauna and flora, and intersperses farming communities with vineyards and an extensive system of National Parks and Nature Reserves.

Panoramic view of Albany and Princess Royal Harbour
Photo courtesy of Rolsh Productions

ALBANY, WESTERN AUSTRALIA
OCTOBER 5 - 9, 1996

Western Spinebill *Acanthorhynchus superciliosus* (Wells/CALM)

Southern Hemisphere Ornithological Congress

The ecology, conservation and management of southern hemisphere birds.

Hosted by the Royal Australasian

Location

The Congress will be based at the Esplanade Hotel and Extravaganza Gallery in Albany, a major regional centre on the south coast of Western Australia.

Time

Saturday, 5th - Tuesday, 9th October 1996.

Theme

A major focus will be placed upon the ecology, conservation and management of southern hemisphere birds.

Sub-themes

(1) Conservation and management of birds
(2) Impact of fire and habitat fragmentation on bird communities.
(3) Studies of seabirds and waders.
(4) Breeding biology and mating systems of birds.
(5) Abundance and distribution of birds.
(6) Plant-animal interactions.
(7) Contributed papers in areas other than those indicated above will be considered.

Congress format

Provision has been made for the presentation of plenary lectures and spoken or poster papers on three days of the Congress. Mid-congress tours to places of scenic and scientific interest have been planned for 8th October, and form part of the official program.

Language

English will be the official language for the Congress. No translation facilities will be available.

Proceedings

Full members will receive copies of edited papers presented by plenary and other speakers. These will be distributed after the Congress.

Provisional registration

Delegates will be required to register in one of the following categories:

(1) *Full Members,* who will receive a copy of the Congress Proceedings, be provided with lunch, and morning/afternoon tea each day, and may attend all official activities other than the Congress Dinner without further charge (expected cost AUD$290 per person);

(2) *Accompanying Persons,* who will be entitled to participate in a program of alternative activities and attend all social events other than the Congress Dinner without further charge (expected cost AUD $200 per person);

(3) *Student Members,* who will have the same entitlements as Full Members, except that no copy of the Congress Proceedings will be issued (expected cost AUD $200 per person); or

(4) *Day Members,* who may attend only for nominated days of the program (expected cost AUD $80 per day).

Alternate program

Special activities will be organised for Accompanying Persons, and for other members who may wish to participate. These will include visits to places of cultural and historic interest.

Social activities

The Congress will open with a civic reception in the Extravaganza Gallery on the evening of Saturday, 5th October. An optional Congress Dinner has been planned for Tuesday, 8th October, and will be held at Pyrmont House, an historic building that has been restored and is now used as a major reception centre.

Accommodation

Accommodation ranging from youth [illegible] parks, motel units, apartments and [illegible] available.

Transport

Regular air and road services connect Albany with Perth and other major Australian cities. A shuttle bus service will operate in Albany during the Congress for the benefit of delegates without their own transport.

Post-congress tours

Although not a part of the official Congress program, organised tours that demonstrate the magnificent natural history of south western Australia will be available.

Host organisation

The Congress will be hosted by Australia's leading bird research and conservation group, the Royal Australasian Ornithologists Union (RAOU).

Further information

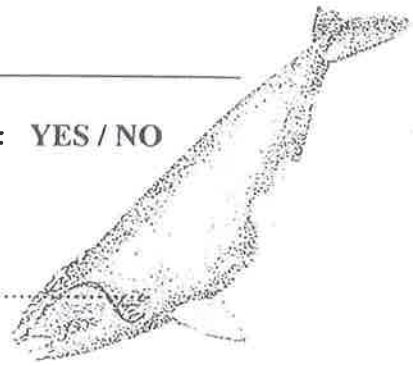
A second circular will be sent to those people who return the attached reply slip or have already indicated their interest in the congress. Details relating to the scientific program, field trips, social activities, accommodation and transport will be provided. Prospective speakers will be asked for titles and abstracts of their papers at that time.

Fax (07/7/1995) from JL to CDTM concerning publication of the Lake Torrens (SA) BaSt breeding data (of Keith Bellchambers & Carpenter, see 27/6/1995 below) and the BaSt data collected in 1995 by JL, CDTM *et al.* in the eastern goldfields of WA.

JL agrees that 'as discussed' the two data sets be published separately, in 'Emu', that the two papers be complimentary, and that drafts be exchanged, with JL & CDTM as senior authors of the WA drafts.

FAXED

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432



TO: CLEVE MINTON **URGENT: YES / NO**

AT: MELB

..... **Fax No.** .....

FROM: JIM LANE

DATE: 7/7/95

Your Ref: .....
Local Ref: .....

To confirm our discussion this morning

No. of pages inc. this page: 2

Please call us on (097) 521 677 if this message was incomplete or illegible

(3) The two papers should be complimentary but in drafting them we should err on the side of duplication to ensure that nothing is missed.

(4) Simultaneous publication in time would be ideal but if this cannot be achieved within a reasonable time-frame we should publish anyway.

(5) Drafts will need to be exchanged. Which drafts and when should be determined by you and me (in the case of the W.A. work) jointly (), as senior authors.

Cheers

Jim Lane

7/7/95

P.S. Feel free to copy this letter to Keith Bellchambers.

TO : CLIVE MINTON
FROM : JIM LAKE

SUBJECT : PUBLICATION OF EAST RESULTS

As discussed, I agree that

(1) It is very desirable for the Lake Towuti data to be published — they have much good data.

(2) Our data and the Towuti data should be published separately due to the practical difficulties of combining.

(3) The two papers should be complimentary but in drafting them we should err on the side of duplication to ensure that nothing is missed.

(4) Simultaneous publication in Nature would be ideal but if this cannot be achieved within a reasonable time-frame we should publish anyway.

(5) Drafts will need to be exchanged. Which drafts and when should be determined by you and me (in the case of the W.A. work) jointly, as senior authors.

Cheers

7/7/95

P.S. Feel free to copy this letter to Keith Bellchambers.

Letter (04/7/1995) from Jeremy Talbot (RAOU WA Group) to JL seeking a speaker to talk on the 1995 BaSt work in the eastern goldfields at a meeting of the group some time in 1996.

6.

29 Joyce Road
Lesmurdie
Western Australia 6076

4 July 1995

Mr JAK Lane
Department of Conservation and Land Management
14 Queen Street
BUSSELTON, WA 6280

Dear Jim,

I understand that you have been heavily involved in the monitoring of the banded stilts which bred at Lake Ballard earlier this year and would be grateful for your suggestions for a speaker on the subject next year. Since you have so recently obliged the WA Group with your talk in January, I don't want you to feel that I am trying to twist your own arm into talking about banded stilts in 1996! According to the article on the breeding colony in the most recent issue of *Wingspan*, Clive Minton, Grant Pearson and Marj Reni also played a part in investigating the colony, but only Grant and yourself would, I assume, be available as potential speakers.

Available dates in 1996 are February 26, April 22, June 24, July 22, August 26 and September 23. All, of course, are Mondays. As I have just given the same list of dates to Andy Chapman when writing to ask him for a talk, it would be helpful if Grant or yourself (assuming that one of you could manage to speak) could give me the two most convenient of those dates. (My telephone numbers are (09) 264 1402 (work) and (09) 291 6563 (home).)

Val and I have just returned from nearly a month going to and from and actually travelling within the Kimberley (Mount Hart, Beverley Springs and Mount Elizabeth stations plus Russ Creek and Parry Lagoons with the two Kevins and Allan Lowrie on a Landscope foray) and thoroughly enjoyed birding and botanising in our favourite part of the State. Speaking for myself, however, I would have liked to have been given more work to do and thought with nostalgia of the two RAOU remote wetlands expeditions of which I was a member in 1986 and 1988 and of the hardworking folk — such as the late Don Munro — who contributed so much to them.

Val and I hope that all goes well with you and yours down in Busselton.

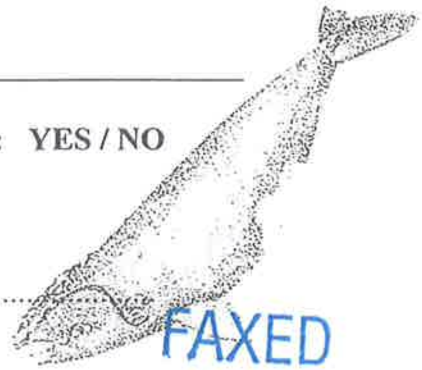
Yours sincerely,

(Jeremy Talbot)

Exchange of faxes (01-04/7/1995) between JL & CDTM referring to issues concerning their recently published article '*History in the mating*' in Wingspan (June 1995 issue) on BaSt breeding on Lake Ballard in 1995.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

5,



FAXED

TO: CLIVE M. **URGENT: YES / NO**

AT: MELB

Fax No.

FROM: JIM L.

DATE: 4/7/95

Your Ref:
Local Ref:

Thanks for the explanation - apologies accepted. Moving on, I will give you a ring next week from Perth re next visit to [illegible]/Marmion, next schedule for "Wingspan" and progress with state.

Cheers
Jim

No. of pages inc. this page: ....

Please call us on (097) 521 677 if this message was incomplete or illegible

Fax to Jim Lane 097-521-432 3/7/95

From Clive Minton 03-9589-4901

I've now seen a copy of my original text for Wingspan.

(1) The omission of CALM was by me – many many apologies

(2) VWSG was put in brackets after Marg's name & changed by the editing, thus giving the false impression that Grants was VWSG.

(3) I will make sure CALM's role is more than properly represented & acknowledged in the next article in the next issue.

Clive

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
BUSSELTON DISTRICT
FAX NO: (097) 521 432

FAXED

TO: CLIVE M. **URGENT: YES / NO**

AT: MELB

Fax No. 03 589 8901

FROM: JEM L.

DATE: 1/7/95

Your Ref:
Local Ref:

Excellent stilt article in Wingspan — well done!

However, I was dismayed to find no mention of CALM and found even referred to as a member of VHSG. This makes it very difficult for me with the CALM hierarchy. I can only hope they don't see a copy!

No. of pages inc. this page: 1

Please call us on (097) 521 677 if this message was incomplete or illegible

Fax (27/6/1995) from CDTM to JL & GBP in which he writes, inter alia: 'I enclose ... a copy of the draft [Keith] Bellchambers / [Graham] Carpenter paper on the 1989 Lake Torrens Banded Stilt breeding, together with associated correspondence. Do you agree with what I proposed to Keith?' Actually there were several enclosures concerning this draft paper, as follows:

- **Copy of a letter of 12/6/1995 (mistakenly dated 1996) from CDTM to Keith Bellchambers thanking him for his letter and 'copy of the original draft of your Banded Stilt paper'. In this letter CDTM agrees with KB and David Paton (SA Uni) that the SA and 1995 WA data must be published and there should be 'maximum liaison and cooperation'; that ideally the works would be published simultaneously in 'Emu'; that CDTM envisages the final version of the WA paper going to 'Emu' by December; that 'drafts would be available for you to see & refer to as they emerge'; that if Graham Carpenter can't run with it then KB should; that CDTM will consult with JL & GBP 'to ensure they concur ...', and 'I will then perhaps give David Paton a call, as you suggest'.**
- **Copy of a letter of [05]/6/1995 from Keith Bellchambers to CDTM with a 'copy of the draft paper of Lake Torrens Banded Stilt'. This letter indicates, inter alia, that DP thinks it would be good to coordinate the publication of the SA and WA work; that 'You mob got far more biological data than us but we had data on wildlife management issues e.g. predation'; that the draft paper is old, and that 'if you give David a call you might get access to even more data'.**
- **A copy of the draft paper (13pp) headed 'Banded Stilt Breeding at Lake Torrens, South Australia, in 1989'. The authorship is not indicated but seems likely (from the above) to include K. Bellchambers, G. Carpenter and possibly D. Paton. Regarding this paper, see 29/7/1995 above. It appears from Table 1 of Collard *et al.* (2013) (a list of 'Recorded Banded Stilt breeding events, 1904-2010' including References for each) that this draft paper was not published (as at Oct 2013).**

Melbourne 27/6/95

171.

Dear Jim & Grant,

As promised I enclose :-

(a) a copy of the draft Bellchambers / Carpenter paper on the 1989 Lake Torrens Banded Stilt breeding, together with associated correspondence.
Do you agree with what I proposed to Keith?

(b) slides I took of Colony 1 after the birds had largely departed. ~~Although I didn't~~ As these are numbered as per the relevant blocks, with the first photo being taken from the NW end just as you & I did. These photos should tally with the physical count data I did at the same time which has already been sent to you.

Could you please process them as you did the very first lot & make your estimates of :-

(a) number of unlabelled eggs left in nests
(b) number of abandoned eggs in groups
(c) number of ~~still~~ occupied unlabelled nests / eggs.

I'm still clearing the decks here before concentrating on the paper, but all is going well.

We had a surprise on 18/6 - a Long billed Dowitcher in a small catch of godwit / knot. A first for Australia.

Will be in touch.

Best wishes,

Clive

Copy for Jim Lane / Grant Pearson

165, Balgetty Rd,
Beaumaris, 3193.

12.6.96

Dear Keith,

Many thanks for your letter & for the enclosed copy of the original draft of your banded shell paper.

I agree with you & David Blair. Both your data & our data must be published and there should be maximum liaison & cooperation to ensure we achieve this in the optimum manner.

My initial reaction is that this would be most practicable with two separate papers, along the lines you suggest. It would be ideal if these could be published at the same time, in Ecos. By liaison we could ensure they were complimentary not competitive.

Re timescale & process. We have started putting our stuff together. I envisage a draft by September & a final version going to Ecos by December. Drafts would be available for you to see & refer to as they emerge.

If Graham Carpenter can't/won't pick up the ball & run with it can you not take on the task? I don't think it would be too big a task even as a "spare time" (!?) task.

I will consult with Jim Lane & Grant Pearson to ensure they concur with my views. I will then perhaps give David Blair a call, as you suggest. Meanwhile I thought it best to respond direct to you & to thank you again for the information you sent.

Best wishes to you & Nicky,

Clive

5/6/95

Copy for Tim Lane / Grant Pearson 168 169.

Ive

ere's the copy of the draft paper of Lake Torrens Banded Stilts.

This whole business is beginning to piss me off in a major way. I've poken to Graham Carpenter again and told him of your great work in W.A. but didn't seem to prompt much activity so I've taken matters into my own nds a bit. My friendship with Graham is important [redacted]

I've ~~done~~ spoken to David Paton [redacted] to see if e can put some pressure on again from his end. David has undertaken o do what he can and get back to me in the next fortnight. He's really ry but willing to spend time on it as it's an untidy end on his list of things o do.

Speaking with both of them everyone agrees that we should still ublish our data but maybe it will take a slightly different form. You nob ot for more biological data than us but we had data on wildlife anagement issues, eg. predation.

ne suggestions of David's was that maybe we could co-ordinate our 2 apers and submit them together so that they compliment each other. That ould require some close work on our behalfs and maybe you don't want hat?? I can see the merit in the idea.

nyway David said he would be happy to talk to you at any stage, about this idea or the Banded Stilts on Lake Torrens paper in general. Maybe between you and him [redacted] - I'm at a loss as to where to go now.

W	(08) 303 4742
H	(08) 344 8891

he bottom line is you are welcome to consult this old draft of our work. don't know of your time schedule in publishing but if you give David a all you might get access to even more data. I don't know whether you cite as pers comm or in prep.

Does that sound reasonable??

Was great to catch up with you + Pat. Sorry it didn't work out to ave more time with you both. Hope you've managed to get some ot meals into you since getting home.

ive us a call if you want to talk Stilts — or anything else.

Cheers

Keith

168. (1)

Banded Stilt Breeding at Lake Torrens, South Australia, in 1989

INTRODUCTION

(2) The Banded Stilt Cladorhynchus leucocephalus is an endemic Australian wader of salt lakes, brackish estuaries, coastal mudflats and man-made estuaries in the southern and western parts of the continent (Blakers et al. 1984). Its nesting habits were a mystery until 1931, when breeding colonies were codiscovered in two States (Glauert & Jenkins 1931, McGilp & Morgan 1931). Subsequent sporadic reports of breeding attempts reflect both the remoteness and ephemerality of inland salt lakes which provide suitable nesting habitat. This usually comprises a sandy island within an extensive recently filled inland saltlake, with a plentiful supply of aquatic invertebrate food.

Most breeding reports of Banded Stilts are from the Goldfields region of Western Australia ( ), with South Australian records at Lake Callabonna in 1930-31 (McGilp & Morgan 1931) and 1936 (Ford? 1937), and at Lake Eyre in xx (May 19?). Cain's (1938) report at Whittata Station, near the southern end of Lake Torrens, lacks sufficient confirmation to be positively accepted (Jones 1945). As most sites were located soon after breeding was abandoned, little is known of nesting behaviour and success.

The breeding of the Banded Stilt is known to differ markedly from the Black-winged Stilt Himantopus himantopus and Red-necked Avocet Recurvostria australis. The former nests in large close colonies, rather than singly or in small groups, has quite different eggs, a white, unpatterned chick, and departs nesting sites soon after the chicks have hatched. As such, an analysis of the biology of the Banded Stilt provides evidence for a relationship between the Charadriiformes and the flamingos (Phoenicoperidae) of South America and Africa (Olsen & Feduccia 1980).

On 14 March 1989 exceptional rains fell throughout inland South Australia, filling most of the normally dry salt lakes in the region. Rainfall of 250-350mm, greater than the annual average, fell across the 30,000 square kilometre catchment area into Lake Torrens, which filled for the first time since March 1878, when the lake overflowed into the sea at the head of Spencer Gulf(ref). Water depths in the lake varied from over a metre in the south-west to a few millimetres in the north, varying considerably depending on the prevailing winds.

During April 1989, Ian May of the South Australian National Parks and Wildlife Service undertook a systematic aerial survey of the flooded lakes, with the principal aim of locating breeding of the Banded Stilts. On 24 April he located three colonies of stilts on separate islands near the southern end of Lake Torrens. Following inspection by boat on 2 May, he estimated that about 100,000 birds were present, engaged in incubation. Finding a colony at such an early stage provided an ideal opportunity to study the little known reproductive biology of this species.

In this paper, the size and breeding success of colonies are estimated, and various aspects of nesting behaviour and ecology are described for the Banded Stilt breeding event at Lake Torrens in 1989.

METHODS

1. Location and Description of Nesting Sites

Nesting colonies of Banded Stilts were located from light aeroplane on a total of six islands within Lake Torrens (Fig 1.). Colonies 1 and 6 were seen only from the air, and ground observations at Colonies 2 and 5 were limited. Colonies 3 and 4 were studied more intensively, the latter encompassing a four week period from egg-laying to fledging. Discovery and study dates of each colony are given in Fig. 2.

Colonies 2 and 3 were on a lunette bordering the western margin of an extinct moundspring. Immediate vegetation was sparse, comprising low samphire (Halosarcia sp.), saltbushes (Atriplex spp.), Frankenia sp. , Zygophyllum sp. and Selenothamnus squamatus. Colonies 4, 5 and 6 were on small stony islets with a variety of chenopods, grasses and annual composites.

During the study, water levels surrounding the nesting islands fluctuated up to 30 centimetres depending on the prevailing winds, but was generally around 50cm deep. The substrate varied from sand on exposed shorelines to black gelatinous mud in the more sheltered areas, but was mostly firm and slightly gritty. Much of the northern end of the lake was shallow and retained an undissolved salt crust.

The composition and abundance of aquatic invertebrates forming potential prey for stilts were measured every few days near colonies 3 and 4. Samples of aquatic invertebrates were taken with a plankton net (diameter) including both muddy substrate and water surface. Relative abundance was correlated from the length and duration of each sweep of the net. Samples were stored in diluted formalin for later examination. Observation of feeding stilts (adults and juveniles) near sampling sites indicated that this technique adequately assessed the potential prey items near the breeding colonies. However, repeated samples were not able to be taken within the extensive shallow parts of the lake where most feeding occurred.

Regular water samples were also taken for later determination of salinity.

2. Colony size and Density

Estimates of the size of nesting colonies were by observations from the air and ground, aerial photography (colony 4) and counting of nest scrapes once breeding was complete. Visual estimates were very approximate, especially for larger colonies. At colony 3, counts of nests were made immediately after breeding stilts had deserted the island. Linear dimensions of 11 discrete sections of the colony were measured to the nearest metre with a tape measure, and area calculated. These were later checked from 1:2000 scale aerial photography taken on 18 May by the South Australian Department of Lands. Within a total of 300 random 1 metre by 1 metre quadrats, numbers of nests were counted. Areas of sparsely scattered nests were counted individually. An indication of nest spacing was also obtained by measuring to the nearest centimetre the diameter of nests and the distance to the nearest neighbour.

At colonies 2 and 6, which were deserted during the study period, estimates were made from the impressions of remaining nests. Unfortunately, however, roosting gulls had removed most evidence of nests.

3. Egg dimensions and Clutch Size

It was initially intended to establish and monitor a series of 1 metre square quadrats throughout the study colonies to determine rates of egg-laying, egg dimensions, clutch size and hatching rates. However, as the associated disturbance led to increased predation of nests by Silver Gulls Larus novaezeelandiae (including at night), this procedure was abandoned in favour of remote observations.

The dimensions of a sample of eggs from colony 3 was measured to the nearest 0.1mm with vernier callipers. In addition to direct counts made while measuring eggs, clutch sizes were determined by analysis of photographic slides and videotape obtained by I. May on , prior to the occurrence of large numbers of gulls.

4. Breeding Behaviour

Again, it was the initial intention of the study to individually mark large numbers of adult stilts in the breeding colonies to determine movements. However, due to the presence of large numbers of gulls, adults were caught away from colonies only. Capture was by mistnets set at night over shallow water along the margins of nesting islands. Prior to release birds were banded with both ANPWS and coloured bands, a section of plumage marked with coloured dye, length of tarsus, bill and wing taken, weight measured with a spring balance and evidence of brooding noted.

Unfortunately, it was not possible to mark specific incubating birds to determine whether, or at what rate, nest changeovers occurred, or whether the same birds nested at successive sites. Plumage characteristics were insufficient to reliably identify individuals. It was therefore hoped that some of the individually marked birds could be relocated.

Observations of mating behaviour was made oppurtunistically while monitoring incubating birds, or from a light aeroplane flown at 2-3 day intervals to follow movements of juvenile stilts.

At colony 3, the proportion of daytime spent incubating eggs (nest attentiveness) was determined by continuous and simultaneous observation of up to 7 adjacent and relocatable active nests for periods of 1-6 hours through a 20x telescope from 10-30 metres. Observations were repeated on consecutive days from 12-18 May 1989. Times when birds were brooding (nest attentiveness) and the frequency of nest changeovers were noted. Observations of a group of nests were restarted at another site once all the nests within a group had been deserted.

Further observations of nests were made at colony 4, mostly from an aluminium dinghy anchored offshore. As most nests at this site were concealed among rocks and vegetation, individual nests were not monitored for sustained periods.

Proportional numbers of non-incubating birds within the colonies was also noted.

5. Movements and Feeding

Movements of adult stilts to and from colony 3 were noted for 1-8 daylight hour periods from 10-13 and 16-18 May 1989. The raised mound at the centre of this site provided an ideal vantage point, giving an all round view of the island. Approximate directions of arriving and departing birds was also noted. Casual observations of movements were also made at colony 4.

Hatching of chicks was again monitored by remote observations. Swimming chicks and associated adults were counted as they departed nesting colonies and their direction and rate of travel noted. The location of groups of chicks within the lake were then followed by light aeroplane flown at 2-3 day intervals.

Feeding stilts were located in the lake by limited ground observations and from light aeroplane. While birds were feeding, feeding rates were determined by making repeated measurements of the time taken to obtain 10 prey items. The method of feeding, depth at which prey were obtained and the depth of water in which feeding occurred was noted.

6. Chick growth

Stilt chicks were initially captured by hand, banded with both ANPWS and coloured bands, measured and released as they departed the nesting colony. As Silver Gulls often predated the chicks as they were released, banding chicks was abandoned.

Dead or injured chicks were usually retrieved by distracting quarrelling gulls immediately after chicks had been predated. Additional tarsi were recovered from remains of chicks at gull nests. Remains of 17 chicks were collected and stored in diluted formalin, and are now housed in the SA Museum.

Near colony 4, flightless or near flightless swimming birds were caught by hand at night using a spotlight, and a flightless bird was caught in deeper water during the day using a scoop net from a dinghy.

Seven recently or partially hatched chicks were also transferred to the Cleland Recreation Park near Adelaide and hand reared, from which daily measurements were taken until the birds fledged.

7. Predation

From the commencement of the study it was evident that Silver Gulls were predating significant numbers of both eggs and chicks of Banded Stilts, affecting major modifications in study techniques (see 2-5 above).

Repeated visual estimates of the total number of gulls were made at colonies 3 and 4, and breeding activity monitored. Estimates were supported by analysis of photographic slides and videotape obtained on various dates.

The frequency and nature of predation events were measured during observations of nests.

Other predators and causes of mortality were noted.

RESULTS

1. Dates of nesting by stilts at each colony are given in Fig.2. As breeding was synchronous within each colony (that is, all birds began nesting about the same time), estimated egg-laying, hatching and final departure dates are also included. Colony 5 was deserted for unknown reasons soon after egg-laying.

Water salinity was highest in the shallower parts of the lake where stilts predominantly fed, and varied little near colonies while occupied (Table 1). Water turbidity was lowest in the shallow parts of the lake where the substrate retained a salt crust, and varied from almost clear to completely opaque near nesting colonies according to wind velocity.

Aquatic invertebrates are dominated by the brine shrimp (Fig 3). A higher density of shrimps occurred in the shallow (5-10cm) site near colony 4 where stilts were feeding. Here, shrimp density was 10-15 /square metre.

2. Estimated size, density and area occupied by nesting colonies are given in Table 3. As nesting was almost synchronous, these estimates are the total numbers of nesting attempts made. The highest density within a quadrat was xx nests/square metre, although remaining impressions of nests suggest higher densities may have occurred at colony 2.

At colonies 2 and 3, nests comprised a circular "crater" in the soft, damp soil, usually with a raised rim incorporating pieces of vegetation and other debris. Those on the stony substrates at colonies 4, 5 and 6 comprised a loose circle of grass and vegetative debris. Vegetation near nests was stripped by incubating birds and placed around the rim of nest scrapes. As breeding colonies were not visited early enough, it is unknown what nest construction, if any, occurs prior to egg-laying.

The diameter of nests at colony 3 was xx. Adjoining nests were as close as xx in the densest parts of the colony. Elsewhere, nests were typically clustered around the margin of shrubs.

Faint impressions of nests, in part covered by soil washed from heavy rains, indicated that Banded Stilts had previously bred at site 3.

3. Banded Stilt eggs varied in size, shape and markings. Size (mean +/- SD, N=79) was 54.0 +/- 2.3mm (range 46.6-58.5mm) by 38.6 +/- 1.8mm (range 30.5 - 47.4mm). Markings were of black and chestnut lines or spots on a white to buff background. Each clutch had distinctive markings, while within a clutch the intensity of markings varied. Some clutches included an egg which lacked markings.

Clutch size was 3.x (range 1-5, N=). There were no significant diferences in clutch sizes between nesting colonies, although data for northern sites was limited.

4. Prenesting behaviour of Banded Stilts was observed from the air during the establishment of the northern colonies. On 16 May, IM observed a closely packed flock of at least 20,000 stilts standing at colony 4. Aerial photography taken on 18 May shows approximately xx stilts standing across the island, and approx xx incubating birds. In the shallow water adjoining the island, particularly on the eastern side, are several hundred paired adults. By 20 May, a high proportion of birds were incubating at this and colonies 5 and 6. On 23 May, observations from light aeroplane 1 to 10 km east of colony 4 revealed approximately 5000 pairs of adults evenly scattered across the shallows. Individuals within each pair were stood or fed less than one metre apart, and many were mating.

Although no courtship display was observed, mating displays occurred several times among roosting stilts during the early stages of colony 4. The mating display is described as follows:

(1) Male stands with bill open on back of standing female, keeping balance by flapping wings. Female stretches neck forwards and points bill slightly upwards as copulation occurs, lasting up to 30 seconds.

(2) Male dismounts to one side, bending neck over that of the female for a few seconds.

(3) With body and neck erect, and downward pointing bill, both birds run forwards side by side for approx. one metre.

(4) In unison body and neck then lowered parallel to and just above the ground, with bills pointing slightly upwards, followed by a further run of approx. 2 metres.

(5) Birds part and continue with normal activities.

Also observed among stilts roosting at colony 4 was behaviour which may be described as "mate guarding". This comprised two to three presumed male birds pursuing a presumed female through the colony, with one of the pursuers (presumably its mate) attempting to maintain a protective position beside the female in order to prevent any unwelcome advances! It is uncertain whether this was normal adult behaviour, as the birds involved may have been immatures.

Breeding sites were not visited early enough from the ground to determine the rate of egg-laying or the time when incubation commenced. As chicks hatched synchronously, incubation probably only commenced once the whole clutch was laid.

Detailed observations of incubating birds were made only towards the end of the incubation period, when gull predation was high (see). 23 eggs or recently hatched chicks comprising x nests were taken during 252 nest hours of observations, and of the others all but one nest was presumably predated.

Nest attentiveness was 99.9% (75 periods of observations on 32 nests, excluding those periods after nests were predated). Periods of inattentiveness usually led to nest predation by Silver Gulls. Thereafter, incubating birds remained sitting on the nest for up to ,or wandered in the vicinity of the nest calling often in an aggitated manner and resuming sitting on the empty nest for short periods. Eventually up to hours later, the birds departed the colony.

Incubating birds were not inactive. Approximately 3% of their time was spent preening and the position of the eggs or the incubating bird was altered at least once per hour ( ). They also interacted with both Silver Gulls and other stilts by means of repeated pecking from their position on the nest. Periods of bill "jousting" also occurred between neighbouring incubating birds. In x hours of observation, these activities occurred times respectively.

Changeovers of incubating birds occurred infrequently, with only 3 instances in 252 nest hours at site 3 and approx. 100 hours of scanning the colony at site 4. A changeover involved a bird approaching an incubating bird while exchanging calls, then simply the incubating bird standing and walking away from the nest and replaced by the other. The replaced bird then flew from the colony. The two changeovers at site 3 resulted in the nest being predated and both adults leaving the site. At site 4, the new bird chased off a nearby gull before exhibiting a successful exchange. Mate feeding as described by Morgan & McGilp was not observed.

A high proportion of adults present at nesting colonies were incubating eggs. At site 3 they comprised between 83 and 95% of adults present between May, and at site 4 .....The remainder were scattered throughout the colony, either roosting or walking through. At site 4, a group of approx 2000 adults were standing at the centre of the colony when it was first seen from the ground on 29 May (approx. 13 days after the first eggs were laid). The group had declined to 500 by 2 June and was absent on .

Brooding birds invariably had fully coloured breast bands and dark abdominal stripe. Two individuals with partial bands and duller legs were also seen standing within the colonies at sites 3 and 4. Small groups of juveniles often roosted within the latter colony.

Measurements of over 100 adults (Figs) vary considerably in mass, with over 100% variation. At least two birds were well in excess of the limit of the balance (300 gm). Assuming that numbers of both sexes were captured, the lack of bimodalism in the data suggests that no defined difference between the measurements of sexes exists. Two freshly dead males (one with enlarged gonads) and one female (breeding condition indeterminable) were collected at breeding colonies. The decomposed remains of two females with well formed eggs were also found. % of adults captured had a featherless patch on the flanks and damaged and dirty tail and wing feathers. Although these were not vascularized as a true brood patch, they are evidently used for brooding. Furthermore, these birds were significantly lower? in mass than those in fresh plumage.

In birds captured, flight feathers were relatively unworn and were not in moult.

5. Little movement of adult stilts occurred in and out of the nesting colonies during incubation. In 36 daylight hours of observations over 5 days at site 3, only 1145 adults flew into the colony (36/hr), while 2552 departed, including 1165 with chicks (70/hr and 32/hr respectively). Birds were in small flocks, their timing not concentrated at any particular time of day. On the basis of birds calling in flight or captured in mistnets, similar rates of movement occurred at night. Observations at site 4 gave similar results but with an increase in movements near dusk, with up to 1000 birds/hour arriving and departing. Observations were not made to determine whether similar movements occurred at dawn. The direction of arrivals and departures of flying birds were similar, and at site 3 switched from predominantly south, then east and north between 10 and 18 May.

Incubation time was approximately 20 days, although the exact dates of the commencement of incubation were not obtained to confirm this. Eggs hatched apprx. x hours apart, and chicks remained in the nest until the whole clutch had hatched. Few infertile eggs were evident when nests were departed.

During several consecutive mornings, brooding adults led their clutches of chicks toward the edge of the nesting islands, then into the water. Departing birds often formed into small groups of up to x adults and their young. This procession was accompanied by an incessant prompting "yelp" from adults and responsive peeping of chicks. At colony 3, departing groups were often joined by other adults, including those which had recently had their chicks predated. When the danger of gull predation threatened, however, chicks returned to the protection of their own parent. Any adults or chicks which wandered too close to other incubating birds were pecked aggressively, although in at least one instance a chick found refuge under another incubating adult, and subsequently abandoned by its own adult and siblings.

The dates and times of adult/chick departures from colonies 3 and 4 are given in table x. Most departed in the early morning of calm, sunny days. The average number of chicks to adults was 1.x, and in two instances 5 chicks were seen with the one adult.

At both colonies 3 and 4, chicks were invariably led in an easterly or north-easterly direction away from the colony. At colony 3, this usually involved a 500m treck across the whole diameter of the island before reaching water. Chicks were also strong swimmers, travelling up to 1km/hour in calm conditions.

On 13 May 1989, flocks of swimming adults and chicks were located from light aeroplane in the extensive shallows along the eastern shore of Lake Torrens. Concentrations of up to several hundred birds occurred 10-15km apart, with larger chicks present in the more northerly groups. One group contained several hundred chicks with only a few attendant adults. Aerial surveillance on several subsequent dates revealed numerous similar groups of adults and evenly aged chicks within an area of up to 10cm deep water covering approx 500 square kilometres at the northern end of the lake, east of Andamooka Island. During the afternoons, groups were often moving as lines or waves several km long, presumably for feeding purposes. When approached by aeroplane, adults ran with flapping wings in an attempt to herd the group together.

The first flying young were seen near Andamooka Island on 27 May. During the following days small flocks of immatures, more often without the company of adults, were seen in this area. Small flocks of immatures also roosted within the nesting colonies, and swam with groups of adults and chicks departing nesting islands.

Immatures presumably began leaving the lake on 13 June, when mixed flocks of several hundred adults and immatures in V formation flew overhead Andamooka Channel towards the south during the late evening. At Leigh Creek, x km to the east, over 2000 adults and immatures in flocks of 50-200 flew overhead towards the south-west during the evening of 29 July.

Further aerial surveillance indicated diminishing flocks of adult and immature Banded Stilts on Lake Torrens until November 1989, with no further evidence of breeding. Large concentrations were not noted within the usual feeding grounds in Gulf St Vincent until late January 1990. On ,an adult captured and colour-banded at colony x was seen at the Saint Kilda saltfields, x km north of Adelaide. It was one of several birds retaining a full breast band within a flock of several thousand adults and immature stilts.

Adults did little feeding near the nesting colonies. Up to 50 fed in the shallows at the eastern margin of site 3. 51 random daylight counts at this site gave an average flock size of 18, with 52% of their time feeding, 9% roosting, 27% preening, 7% bathing and 5% swimming (not feeding). Many of the adults departing the breeding colony visited this site prior to departing the island. Observations from light aeroplane indicated that adult stilts fed mainly near the southern margin of the lake in the early part of the study, switching to the northern part by mid to late May. Both observations and examination of stomach contents of specimens indicated that brine shrimp were the primary prey item.

Two colour marked birds were seen days later at site 3, and another at site 4, either walking or roosting within the colony. Another was located brooding for consecutive days at site 4. Unfortunately its coloured leg band could not be seen to determine at which colony it was captured. Of the two options, one was captured x days earlier at site 3 and the other....

6. Measurements and growth of captive chicks are given in Figs x. Chicks were capable of walking and swimming within an hour or so of hatching, once their down had dried. Captive birds were capable of flight approx 50 days after hatching, although given the dates of the first hatchings and sightings of

fledged birds, wild birds may fledge within only 35 days. Wild immatures captured also possessed considerable leg musculature, no doubt due to the long distances travelled.

In captive birds flight feathers appeared after x days, and the last down was evident around the face, giving immatures the appearance as having dark lores. This feature is evident in the field until at least 6 months old. Breast bands in the captive birds began to develop in June 1990, at approx 12 months old.

Chicks pecked at potential prey items immediately on reaching water. Captive chicks also consumed particles of sand while on land. Brine shrimps were the primary prey item, although .. were also consumed when all the shrimps were consumed from a water sample. Captive chicks retained sufficient yolk reserves to remain active for x days in protected conditions without feeding, losing x grams of weight.

Immatures fed more slowly than adults (Table x), and used the method of pecking at visible prey items only. In windy conditions where a soft substrate occurred, the high turbidity of the water limited the available food.

7. Silver Gulls were the main predators at nesting sites, taking large numbers of eggs and chicks. Gull predation increased from 0 to 100%? throughout the study periods, reflecting increased numbers of gulls, increased aggresiveness of predations and declining numbers of stilt nests (Table x). All but one of the x nests under observation at colony 3 were predated by gulls, x during the x hours of the observation periods. In 252 nest hours, incubating birds defended their nests against gulls x times by means of pecking from the nest, usually at the face of approaching gulls. Occassionally birds left the nest to pursue a gull, having to return before others raided the nest contents.

DISCUSSION

The breeding of Banded Stilts at Lake Torrens in 1989 shares many features as previously descibed. Breeding commenced within approx. one month of an exceptional rainfall, which filled a large, normally dry, salt lake. Nesting occurred colonially on small islands, and a prolific supply of invertebrate food, especially brine shrimp, was available.

High densities of brine shrimp are a feature of temporary inland lakes throughout southern Australia where water salinity levels are between x and y parts per thousand (Bayly and Williams, Geddes). Brine shrimp have been reported at most other sites where and when Banded Stilts have bred.

At Lake Torrens, breeding began on islands nearest the southern end of the lake, which would have been the first to fill due to the topography of the lake. Although initially fresh, water salinity increased as the salt crust dissolved, providing conditions suitable for the proliferation of brine shrimp in the absence of fish predators.

The characteristics of nesting sites 1-3 were as described and illustrated by McGilp & Morgan(1931) and Kolichis(19). The sites of colonies 4-6 were atypical, although stony islands are an unusual feature within salt lakes. Therefore any small island may provide a potential breeding site. The arrangement and spacing of nests, up to 10 nests/ square metre, is also consistent with previous surveys.

The estimated total of 100,000 nests over six sites is considerably larger than the 000 reported by Morgan & McGilp and the second largest reported for the species, indicating that a significant proportion of the total estimated population of 000 may occur and breed within South Australia when conditions

ve suitable. As the period between the completion of incubation at colonies 1-3 and the commencement of 4-6 was at least 14 days, the same birds may have been involved. Aerial observations indicating a short period of parental care by the formation of "creches"(ref to term) would allow this, although more extensive marking of incubating adults would be required for confirmation.

Abandoned parts of the colony were not re-used as reported by Burbidge and Fuller(1982).

Impressions of old nests on islands within the southern portion of the lake suggests that it may be a major breeding site for the species in South Australia. Lake Torrens contains some water on average every x years (EWS), with run-off from the Flinders Ranges filling the lake from the south-western edge.

Clutch size and egg dimensions are similar to those previously reported by Morgan & McGilp and Burbidge & Fuller, although unlike Morgan & Mcgilp there was no evidence to suggest that larger clutches were due to more than one bird laying in the same nest, as egg patterns were consistent within each clutch.

The incidence of a Banded Stilt egg within at least two seperate Silver Gull nests is difficult to explain. Wheeler & Watson (1963) reported that Silver Gulls can brood foreign objects placed in the nest, especially those of a similar size (mean size of Silver Gull eggs - 54*38mm) or retrieve eggs placed artificially near the edge of the nest. However, as gull nests were placed in low bushes mostly 30cm above the ground, and any unprotected stilt eggs were invariably quickly predated by gulls, it is possible that stilts at Lake Torrens laid directly into gull nests. However, during our observations no stilts were observed in the vicinity of the gull nesting island (Colony 2).

Given a 22-24 day incubation period for Silver Gulls (Wheeler & Watson 1963), gull eggs would have been laid near the end of the stilt incubation period at Colony 2 (i.e. a few days prior to adults and chicks departing) but still within the egg-laying period for stilts at the end of site 3 furthest from site 2. Gull chicks at colony 2 were approx. x days old at the time stilts departed colony 3. As stilt eggs and chicks were a major prey item, the survival of these chicks was unknown, although some adult gulls captured at the colony also regurgitated brine shrimp.

The prebreeding observations of Banded Stilts at Lake Torrens indicate that the species is monogomous. Interestingly, the mating display is very similar to that described for flamingoes, supporting the relationship predicted by Olson & Fedducia (1980).

In contrast with the observations of the breeding colony made by Morgan & McGilp (1931), the presence of Silver Gulls at Lake Torrens led to almost 100% nest attentativeness and greater parental care. On the basis of nest observations, counts of birds entering and departing nesting sites and limited specimens obtained, both sexes incubated the eggs, although the changeover rate appeared to be at least several days. The large difference in mass between adults captured supports this, although it is difficult to explain why changeovers of incubating birds did not occur more frequently given the proximity of feeding areas. Also, feeding of incubating mates as described by Morgan & McGilp, was not observed. To enable a second clutch to be laid as soon as possible would also suggest that males or possibly even non-breeding birds are responsible for protecting young once they have left nesting sites.

Clearly, more intensive marking of adults would be required to accurately determine the role of each parent during and after incubation.

As previously noted, adult Banded Stilts do not feed their young. Rather, they are capable of feeding soon after hatching. Stilt chicks from the southern colonies in Lake Torrens travelled vast distances both walking and swimming to reach feeding areas, although there was no indication of any resultant mortality of chicks. Feeding areas comprised extensive shallow water with high concentrations of brine shrimp, beyond the reach of ground predators. Additionally, they had low turbidities due to the retention of a surface crust of salt, thus providing an easily exploitable food source for the inexperienced stilt chicks.

Although predation by gulls at Banded Stilt colonies has not previously been reported, Silver Gulls inflicted a high mortality on both Banded Stilt eggs and chicks at Lake Torrens. Depredations have been noted by corvids and birds of prey, although usually once the eggs have been abandoned for some other reason.

In most cases flooding (Carnaby 1946,1947) or a decline in water level (Burbidge & Fuller 1982, Fuller) have caused eggs to be abandoned, usually the whole colony. Reported mortality of chicks is relatively low, caused by predation by mice, corvids and Whistling Kites (Kolichis) or possibly heat exhaustion (Mcgilp & Morgan). A high mortality of flightless juveniles has occurred when feeding lakes have dried prematurely ( ).

McGilp & Morgan noted a small colony of Silver Gulls commencing egg-laying on the same island as the breeding Banded Stilts at Lake Callabonna. According to their data, gull egg-laying would have been timed c.12 days after the stilts had laid, and c.15 days prior to the hatching of stilt chicks. Hence stilt eggs or chicks would have been unlikely to be available to the gulls at the time when gull chicks were hatching. Gull predation was not reported, even when the stilt chicks were hatching. Similarly, examination of photos taken at Lake Callabonna in 1931 (held at SAM) show no evidence of Silver Gulls or predated eggs. Gulls were also reported breeding at this site late in 1936, approx 6 months after stilts had bred (Ford 1937). Thus although Silver Gulls have been present and breeding at the same sites, Banded Stilt eggs and chicks have evidently not formed a major, if any, part of their diet.

The extent and severity of Silver Gull predation at Lake Torrens in 1989 is concerning,as Banded Stilts appear to lack an effective response to avian predators. The remoteness and irregular use of breeding sites would not allow sufficient numbers of most predators to locate breeding colonies early enough to cause significant mortatlity. However, the number of Silver Gulls in coastal Australia has increased substantially due to the increased availability of human waste (Blakers et al 1984), from which gulls disperse inland during wet periods (Badman & May 1983).

Silver Gulls have been reported to predate the eggs and young of many birds, especially small terns (White 1946, Serventy et al 1971, Domm & Recher 1973, Hullsman 1977), also shearwaters ( ), cormorants ( ), waterfowl (Wheeler & Watson 1963, Haddon 198) and even chicks of domestic fowls (R. Lorimer pers. comm.) and eggs of its own species (Wheeler & Watson 1963, pers. obs. this study). Hullsman (1977) reported that Silver Gulls caused up to 83% mortality in tern colonies at , while overseas predation by increasing numbers of gulls have significantly reduced populations of some seabirds ( ).

As Banded Stilts breed both colonially and spasmodically, and also lack an effective response to predators, increasing populations of Silver Gulls have the potential to threaten their breeding success. As breeding was not continuous even though food supplies appeared adequate, it is evident that Silver Gulls brought a premature end to breeding of Banded Stilts at Lake Torrens in 1989.

TABLE x. Dynamics of Colony 3.

DATE	DEPARTURES Ad	Ch	NO. NESTS AT END OF DAY	PREDATED NESTS PER DAY	NO. GULLS (plus ch)	PRED RATE
24/4/89+	0	0	35000*	–	1000+	–
25/4/89	0	0	34900	100	1000	0.00
26/4/89	0	0	34800	100	1000	0.00
27/4/89	0	0	34700	100	1000	0.00
28/4/89	0	0	34600	100	1000	0.00
29/4/89	0	0	34500	100	1000	0.00
30/4/89	0	0	34400	100	1000	0.00
01/5/89	0	0	34300	100	1000	0.00
02/5/89	0	0	34200	100	1000	0.00
03/5/89	0	0	34100	100	1000	0.00
04/5/89	0	0	33900	200	1000	0.01
05/5/89	500	1500+	33200	200	1000	0.01
06/5/89	1000	3000	32000	200	1000	0.01
07/5/89	2000	6000	29600	400	1000	0.01
08/5/89	2000	6000	26900	700	1500	0.02
09/5/89	1500	3500	24400	1000	2000	0.04
10/5/89	1000+	2000+	21900	1500	3000	0.06
11/5/89	1000*	1500*	19400	1500	3000	0.07
12/5/89	900*	1400*	17000	1500	3000	0.08
13/5/89	10*	10*	15000+	1990+	4000	0.12
14/5/89	70*	90*	12000	2930+	4000	0.20
15/5/89	0*	0*	9000	3000+	4000	0.25
16/5/89	0*	0*	5000	4000+	4000(2000)*	0.44
17/5/89	0*	0*	3000*	2500+	4000(2000)	0.50
18/5/89	0*	0*	500*	2500	4000(2000)	0.83
19/5/89	0*	0*	0*	500	2000(2000)*	1.00
TOTAL	9980	25000		25520		0.73

* measured
+ extrapolated (refer to text)

13

LE x. Dynamics of Colony 4.

DATE	DEPARTURES Ad	Ch	NO. NESTS AT END OF DAY	PREDATED NESTS PER DAY	NO. GULLS	PRED RATE
			30000	–	200	–
16/5/89*	0	0	29900	100	200	0.00
17/5/89	0	0	29800*	100	200*	0.00
18/5/89	0	0	29700	100	200	0.00
19/5/89	0	0	29600	100	200	0.00
20/5/89	0	0	29500	100	200	0.00
21/5/89	0	0	29400	100	200	0.00
22/5/89	0	0	29300	100	200	0.00
23/5/89	0	0	29200	100	200	0.00
24/5/89	0	0	29100	100	500	0.00
25/5/89	0	0	29000	100	500	0.00
26/5/89	0	0	28900	100	500	0.00
27/5/89	0	0	28800	100	500	0.00
28/5/89	0	0	28500	300	1500*	0.01
29/5/89	0	0	28300	200	1000	0.01
30/5/89	0	0	28100	200	1000	0.01
31/5/89	0	0	27900	200	1000	0.01
01/6/89	0	0	27800	100+	500*	0.00
02/6/89	0	0	27400	400	1000*	0.01
03/6/89	0	0	27000	400	1000	0.01
04/6/89	0	0	26600	400	1000	0.01
05/6/89	0	0*	26000	400	1000	0.02
06/6/89	200	500+	24100	400	1000	0.02
07/6/89	1500	2000+	20700	400	1000	0.02
08/6/89	3000	5000+	13300+	400	1000	0.02
09/6/89	7000	10000+	8900	400	1000	0.03
10/6/89	4000	7000+	5500	400	1000	0.04
11/6/89	3000	5000	3100	400	1000	0.07
12/6/89	2000	3000	2000	400	1000	0.13
13/6/89	700	1000+	?	400	1000	0.20
14/6/89	?	?	0?			
15/6/89	?	?				
TOTAL	21400	33500		8600		0.29