BANDED STILT RESEARCH IN WESTERN AUSTRALIA IN 1995

FIELD REPORTS

RESEARCH MATERIALS CONSOLIDATION REPORT

NOT TO BE DISTRIBUTED OR RELEASED

JAK Lane
WA Department of Parks and Wildlife

May 2014

This **Research Materials Consolidation Report** is a preliminary stage in the preparation of publications and/or research reports on 'Banded Stilt Research in Western Australia in 1995'.

The purpose of an RMCR is to consolidate all of the research materials relating to a project. The material reproduced here is in its original form, with little or no reformatting.

In this RMCR, **the term 'Field Reports' includes** typed and hand-written reports and other communications (e.g. faxes) of a reporting type nature, including notes of phone conversations where activities /observations / data, etc. were reported.

Note that the Field Reports in this RMCR have already been 'heavily extracted' into the other BaSt RMCR's according to subject, e.g. 'leg-flagging & banding', 'BaSt adults & chicks collected in 1995', etc., **so there is no need to go through them again to extract data, observations, etc., relating to the subject areas covered by the other RMCR's.**

FUTURE WORK

The next steps to be taken in finalising this RMCR and then preparing publications and/or reports based on its contents should be to:

- See yellow highlighted text in the remainder of this RMCR summary for Future Work needed / desirable.

Photographs

See JL's work PC and other RMCR's for scanned (electronic) copies of the photographs that were taken while doing the 1995 BaSt research work.

Field Notes

A separate RMCR has been prepared containing copies of all the Field Notes of the 1995 Banded Stilt work. Those Field Notes were the basis of some / most / all of the Field Reports in this RMCR.

CONTENTS

Note that from early 1995 to the early 2000s, Jim Lane (JL) was based in Busselton and technical officers Grant Pearson (GBP) and Alan Clarke were based at Woodvale (a northern suburb of Perth) – hence the faxes between JL and GBP *et al.* listed below.

1. Fax (19/6/1995) from GBP to JL with a copy of GBP's five page report titled: '**Report on Survey to Lake Ballard and Lake Marmion 8 June 1995 to 13 June 1995**'. Andrew Chapman (ACh – CALM, Kalgoorlie) accompanied Grant Pearson (GBP) and Alan Clarke (ACl) on this trip. There are two copies of this report here. The second has some annotations by GBP. The annotation 'Total flagged' is not necessarily completely accurate. See the leg-flagging RMCR for more information.

2. Notes made (11/6/1995) by JL of 'Radio Telephone call from Grant [GBP] [on] 11/6/95' [at] 5.50pm'. GBP was calling from Lake Marmion and advising JL about what he, ACh & ACl had achieved at **Lake Marmion during 10-11 June 1995 and their plans for 12-13 June 1995.** See fax (19/6/1995) above for GBP's typed report about this trip.

   An accompanying fax of 08/6/1995 from GBP to JL advises JL of his two-way radio 'sched' arrangements.

3. Five page fax (faxed on 05/6/1995, but dated 01/6/1995) from Mark Lamble (cinematographer, ABC Natural History Unit, Melbourne) to JL with a detailed report on his time (with Campbell Miller, sound recordist; ABC Natural History Unit) **at Lake Ballard from 09/5/1995 to 18/5/1995**. At the end of this report, ML adds: 'PS: Jim, the fully marked up map will follow tomorrow'. Page 5 of this fax was a 'marked up' map of Lake Ballard, so what was the 'fully marked up map' that ML was referring to? Continue keeping a look out for it.

4. Notes made (05/6/1995) by JL apparently recording a phone conversation with Mark Lamble on this day (note that it is the same day as that of the fax above). ML described in considerable detail his time (with sound recordist Campbell Miller **at Lake Ballard in mid May 1995 (from 09/5 -18/5/1995, according to the fax above).**.

5. Two pages of rough notes by JL that record bits of: a 'Message from Jeremy Hogarth [on] Th 18/5/95 at 1310hrs' relaying information about Mark Lamble's observations **on Lake Ballard in mid-May 1995 (from 09/5 to 18/5/1995, see above)**; a phone conversation between Jeremy Hogarth (ABC Natural History Unit) on 30/5/1995, and a phone conversation with Clive Minton (CDTM) about how to go about asking people to look out for the BaSt leg-flagged on Lake Ballard (& Lake Marmion) in 1995.

6. A seven page fax (24/04/1995) from CDTM (at Broome Bird Observatory) to JL (at Busselton) with a cover note that reads 'Herewith 6 pages of data – some of it partly processed and/or with comments. It will give you knowledge of what we've got & what we still need!'. These data were collected **by CDTM (some with GBP) while he was on Lake Ballard in April 1995**. Note that JL's only copy of this fax has small amounts of important text missing due to cropped borders.

7. JL's recordings (three pages of notes, headed 'Clive Conversation of ... April '95') of a phone conversation with CDTM after he had left Lake Ballard for Broome. These notes cover a range of topics including data collected **by CDTM while he was on Lake Ballard during April 1995**, including: data yet to be collected, writing up for publication, , '**big unknown(s)**', etc. See also "Seven page fax (24/4/1995) from CDTM ... to JL ..." above.

8. Fax (13/04/1995) from Ron Johnstone (WA Museum) to JL detailing the observations made during an **aerial survey on 07/4/1995** for breeding BaSt that he and ... [not specified in fax, but were Phil Stone and Nick Kolichis] made of Lakes Goongarrie [or Raeside? See notes of 11/04/1995 below], Marmion, Ballard and Barlee on ... [date not specified in fax, but was on 07/04/1995]. Also some details of **their subsequent ground visit (08/4/1995) to Lake Ballard, in kayaks**,

9. Photocopy (2 A4 pages) of six small notepad pages of notes made by JL during phone conversation (11/4/1995) with Ron Johnstone (WA Museum) in which RJo shared details of his **aerial survey** (with Phil Stone and Nick Kolichis) for breeding BaSt **on 07/04/1995 and their subsequent ground visit (08/4/1995) to Lake Ballard, in kayaks**, which JL recorded as being on 12/04/1995 but couldn't have been, given date (11/04) of phone conversation. Notation that '[Ron] Will check his lats & longs & fax me if incorrect'. See above for RJo's fax of 13/04/1994.

10. Fax (20/3/1995) from JL (at CALM Busselton) to Raelene [Hick] (at CALM Woodvale) with corrections (typos) to her **typescript of the 'Banded Stilt Research Programme – Lake Ballard, March/April 1995**' that CDTM had hand-drafted (see 14/03/1995 below

11. Fax (14/03/1995) from CDTM to JL with his (CDTM's) draft **manuscript** headed **'Banded Stilt Research Programme – Lake Ballard, March/April 1995'**. Inter alia, CDTM lists '... specific parameters which should be studied / measured / assessed'.

Fax (19/6/1995) from GBP to JL with a copy of GBP's five page report titled: 'Report on Survey to Lake Ballard and Lake Marmion 8 June 1995 to 13 June 1995'. Andrew Chapman (ACh – CALM, Kalgoorlie) accompanied Grant Pearson (GBP) and Alan Clarke (ACl) on this trip. There are two copies of this report here. The second has some annotations by GBP. The annotation 'Total flagged' is not necessarily completely accurate. See the leg-flagging RMCR for more information.

~~154~~
155

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

Date: 19/6/95

To: Jim Lane

At: BSN

From: Grant

No of Pages:
(including face sheet)

Message: Copy for your consideration + queries Thursday.

Cheers
GW

Re visit to ~~Survey~~ of Ballard + Marrion from 8 – 13 June 95

(1)

REPORT ON SURVEY TO LAKE BALLARD AND LAKE MARMION 8 JUNE 1995 TO 13 JUNE 1995

G Pearson and A Clarke in Toyota Landcruiser 7QE 236. Met Andy Chapman in Kalgoorlie on 9/6 and departed for Ballard. A Chapman had flown the lakes and reported no flightless chicks remained on Ballard but young chicks found at Marmion

OBJECTIVES (from Jims notes)
Obtain further water chemistry data
Measure extent of breeding site on Camp Island colony
Download datalogger
Withdraw gear from Camp Island
Record waterbirds seen on crossover lake during trips

Results

Water samples for salinity, Total P (unfiltered) were collected from the camp island site and from the crossover lake site.

Camp Isd...	Depth.775mm...	Temp?NA....	pH.8.67..
Crossover	.....53cm.	....12.0....	...8.76...

Invertebrate sweeps collected at each site

The extent of the breeding was measured and mapped for Camp island colony

Datalogger was downloaded and reset to record every hour and average every 6 hours
Waterlevels varied from 398 to 689 for the 70 days it was in place.

All gear was withdrawn from the island and Crossover camp leaving the sites clear.

Waterbirds

Ballard

BaSt	6
Pipit	1
White-backed Swallow	1
Banded Lapwing	2
RNAv	7
Shel	2
Gytl	11
RCaP	2 plus 1 juv

Crossover Lake

Coot	11 plus 6 juv
MusD	3 male
	2 female
PaBD	2 (pr)
LiGb	1

(2)

~~152~~
153.

10 June

Packed and loaded gear and departed to Lake Marmion 1108to Jeedamya. Called in to station for first aid kit and to talk to Finlaysons. Neither were located. Left a note for the latter.
Drove on to Marmion via Bronc Rock fence line to lake edge.

OBJECTIVES
Use all available yellow flags
Band 200 chicks
Collect water samples
Record depth and install depth post
Locate colony if possible and measure extent and size
Photograph colony
Collect dominant vegetation

1545 arrived Marmion.
Installed depth gauge using an old survey line peg (second from camp side of shore) 770 mm above water level
depth at gauge was 220 mm
Installed second marker to denote location of site only
Collected water samples and sweep.
pH.. 7.39....
temp 12.0C.....

Argod to big island at 300 degrees from camp to recconoitre.
Back to camp at nightfall

11 June 95
Began banding and flagging in argo towing 3m punt
Banded 200 on left tibia
Flagged (yellow) 195 on right tibia
Collected one family of Banded Stilts.1 adult 5 chicks 3-5 days old.
Family 1
1.1 39 gms yolk sac large
1.2 34 gms yolk sac large
1.3 33 gms yolk sac large
1.4 42 gms yolk sac large
1.5 32 gms yolk sac large
1.6 adult male 221 gms
wing length 199 mm
total head 118.7 mm
teste 14.4 mm
Brood patch yes Band full belly 100%

sweep taken
tot P
conductivity 46% (Andy Chapman)
pH 7.94

(3)

HST 152

Need to confirm AC departed on 12/6 GR 10/01/14

12/6/95

Andy Chapman departed for Kalgoorlie at 0700
AC and GP headed east for 5 mins and then back west when it became obvious that there were no chick east of the camp.

Large numbers of loose creches and masses of adults extending out of site to the west and north.
Drove up behind creche of 30 chicks and ran all down placing them in a nally bin with a cloth base. Flagged all and released with adults which had remained in attention.
Caught brood of 5 and released with parent.
Continued catching flagging and releasing all day releasing chicks with attending adults.
Ages varied from 2 to 18 days.

Total flagged. 195 +260 10 475

Collect

Family 2 Depth 29 cm
5 young 1 adult

	weight	metatarsus total	head	bill	wing	oesophagus	gizzard	sex	teste
number	wt (gms)	mt	th	b	w	Oes	giz		t
2a	34	24.4	51.5	27.3	-	y	y	-	-
2b	32	25.2	49.7	26.5	-	y	y	-	-
2c	30	25.6	52.3	31.8	-	y	y	-	-
2adult	238	35.0	111.5	74.7	-	y	y	m	ℓ 17.2
									r —

brood patch yes Band strong belly 80%

Family 3 Depth 3cm
2 young 1 adult

3a	31	23.3	48.8	23.8	-	y ostracods	y	-	-
3b	34	25.3	50.9	25.9	-	y	y	-	-
3adult	232	32.5	107.8	71.9	202	y	y	m	120.1
									r14.6

brood patch yes Band full Belly 100%

Family 4 Depth 12 cm
3 young 1 adult

4a	30	22.7	46.3	23.6	36	y	y	-	
4b	34	23.5	49.8	26.3	23	y	y	-	
4c	31	24.1	49.9	26.5	25	y	y	-	
4adult	200	34.3	-damaged bill		189	y ost.	y	m	
								l	15.5
								r	10.4

Brood patch yes Band full Belly 100%

Family 5 depth 9cm
2 young 1 adult

5a	35	24.1	52.1	22.2	25	y	y	-	
5b	34	24.9	50.2	29.8	25	y ost, ants, coleo			
5adult	205	32.0	104.9	68.5	193	y ost,	y		ℓ 14.4
									r —

Brood patch yes Band full Belly 100%

(4)

150.
151.

13/6/95
0615 to colony on a bearing of 300degrees determined from flight of aircraft previous day.. Distance unknown
Gytl 4 large waders 8
small waders 30 shel 2
Masses of adults and broods at north end of Big Island. Proceeded west along north side of Big island. Located colony with telescope from west end of Big Island. Proceeded west across expanse of water to 52cm deep.
Approaching colony 28 chicks and 18 adults in a loose creche. Numerous dead chicks about 1-5 days old along the strand line of the colony island.
300-400 adults at the waters edge in front of the central part of the colony. Agitated and flighty. Occasional dashes by 30-50 birds up the bank to the colony but they would almost immediately fly off in alarm.Peregrine falcon flew low over colony putting flock of Bast on the colony to flight. Wedge-tailed Eagle took off from rear of colony about 100m from active area and flew to a raised tussock about 200 m west of the colony where it sat and watched.
On our approach of the colony the eagle departed and during measurements every stilt flew out of site out of sight.
Began measurements at 0846 and finished at 0931
Observations
21 chicks in nests with unhatched eggs in a small discrete area of the colony
About 100- 200 nests spread around a greater area of the colony, but within a roughly discrete area, with 2-3 eggs all very cold. No incubation for many hours perhaps days. Some covered with fine sand suggesting exposure during rain some days ago.
Numerous (up to 20) moribund chicks in nests in the discrete active area with an egg or often with one healthier but obviously cold stressed chick.
About 10 small chicks wandering through active part of the colony.
Measured length and breadth of colony plus several other satellite colonies.
Photos of colony
vegt'n samples collected
Measured twenty nests for diameter and dispersal
On our departure about 50 -80 adult bast returned and milled about at the front of the colony . Several ran into the active area but left quickly.We continued to observe until 0950
Chapman reports that the eagle was present on the colony at 1400 when Chapman flew the area and there were no Bast on the colony at all or in the area.
Much evidence of ancient nest attempts from egg shards.

Notes

(5)

149.
150

In large groups of adults there ~~was~~ were some copulation attempted. Two families of Rnav with two young each. One had adopted a Bast chick about 3 days old and bigger than Rnav chicks.
Left at the camp is argo inside trailer. Chains had been sprayed but require more
Engine needs oil change. Have to buy a vaccuum pump to get the oil out of the sump.
one jerry can of water
One 3m punt
lighting and generator

Depth post installed at colony 211 mm exposed
Coordinates of colony 29.44.36
121.29.13
camp 29.47.01
121.33.06

G Pearson
17 June 1995

(1) 29.

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(5)

27?

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(25)

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Depth post installed at colony 211 mm exposed
Coordinates of colony 29.44.36
121.29.13
camp 29.47.01
121.33.06

G Pearson
17 June 1995

Thurs	8/4	1400	→	2130	Hotel
Fri	9/4	0730	→	1900	Camp
Sat	10/4	0600	→	1900	
Sun	11/4	0630	→	1900	
Mon	12/4	0630	→	2330	
Tues	13/4	0600	→	2345	

Notes made (11/6/1995) by JL of 'Radio Telephone call from Grant [GBP] [on] 11/6/95' [at] 5.50pm'. GBP was calling from Lake Marmion and advising JL about what he, ACh & ACl had achieved at Lake Marmion during 10-11 June 1995 and their plans for 12-13 June 1995. See fax (19/6/1995) above for GBP's typed report about this trip.

An accompanying fax of 08/6/1995 from GBP to JL advises JL of his two-way radio 'sched' arrangements.

Mawson CDST — 03 9 589 4901 ~~106~~ 149

Radio Telephone call from Grant (Sun ~~11/5/95~~ 11/6/95 ✓) 5.50 pm

(or 6th? ✓? ie June?)

— they are at Mernoo — arrived yesterday.

— found 10–15,000 adults
several 1000 chicks

— ~~PB~~
220 done today. (removed flags from 20!) ⇒ 200 to date

— have used the 200 leg bands

— have 200 flagged.

— collected 1 family
ostracods + Parcttom ?? — most 10–20 cm too shallow for boat.

— bed v. soft — depth up to 30 cm

— will look for colony ∴ NW

— drive to creche with Argo — chase 20 – 30 + take back to boat

— creches c 30
try to get all then release — adults coming back.

— oldest chicks have well developed 1° 2° + all body except head + rump
will fly ≈ 1 week ⇒ 3 weeks old?

— also chicks 2 – ~~4~~ days old.

— ~~have~~ have magic campsite.

Andy Flight tomorrow
photo + final release
details to Grant 7pm
me listen on radio

145.
148.

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

Date: 8/6/95

To: JIM LANE

At: BUSSELTON

From: GRANT PEARSON

No of Pages: 2
(including fact sheet)

Message: Jim.
will advise progress by radio at 0900
on 5833 kHz or 8 mhz if reception
is poor. First sked 0900 SAT
clear
Grant

Five page fax (faxed on 05/6/1995, but dated 01/6/1995) from Mark Lamble (cinematographer, ABC Natural History Unit, Melbourne) to JL with a detailed report on his time (with Campbell Miller, sound recordist; ABC Natural History Unit) at Lake Ballard from 09/5/1995 to 18/5/1995.

At the end of this report, ML adds: 'PS: Jim, the fully marked up map will follow tomorrow'. Page 5 of this fax was a 'marked up' map of Lake Ballard, so what was the 'fully marked up map' that ML was referring to? Continue keeping a look out for it.

dlt. 133.

Facsimile Cover Sheet

To: Jim Lane
Company: CALM, Busselton District
Phone: (097) 521 677
Fax: (097) 521 432

From: Mark Lamble
Company: ABC Natural History Unit
Phone: 03-524-2341
Fax: 03-524-2373

Date: 06/01/95 ← 1 June 95
Pages including this cover page: 5

Comments:

Jim

Here is information as to where everything is and the state of things when we left.

1. In the Kalgoorlie CALM lock up: 87 Ward street, Kalgoorlie, we have left the Outboard Motor and fuel tank (1/2 full), the CALM H.F. radio (the antenna is still up on Camp island), several empty water Jerry cans and one empty fuel Jerry can.

2. At the CALM Kalgoorlie office, the Argo key was left with June Anderson for safe keeping.

3. We left the first aid kit at Jeedamya station in the shearers' quarters.

4. The 12 ft and 10 ft punts are on the north side of Crossover Lake as are the trailer with lifejackets, the Tirfor winch, and one 20 Lt drinking water Jerry can (full).

5. The Argo is where you left it last trip, we washed it with fresh water and lubed the chains with the adhesive lubricant. The bungs are attached to the steering brakes as we found them. The fuel tank is a little over 1/2 full.

south side of Crossover Lake.

3 wheels only.
The 4th is with Andy Chapman

Count letter another long card?

120.
132.

6. On Camp Island we have taken our tent. Your pegs are in Grants shelter. Also in Grants Shelter are the generator, the electric outboard, both 12 volt batteries (the big yellow one we charged up and the other one still reads as being charged), the gas bottle and burner (we didn't use it), the cutlery box and some odds and ends of non perishable food, the lights (we did take back our power cord though yours is still there), a Jerry of unleaded fuel, 10 Lt of drinking water and your other bits and pieces. Your outboard oil is still on Camp Island as we bought our own in form Kalgoorlie.

from

7. The outboard while running well is a bit difficult to start when cold. It is very easy to flood so use the choke sparingly and do not pump the bulb to pressurise the system. If in doubt use only a small amount of throttle and keep pulling.

I think that takes care of the bits and pieces of gear that we used on the last trip. Here is a rough diary of where we were, the weather for the day and some of the things we saw during the last trip that I think will interest you and may be of value.

Tues

09/5/95 Collected gear, food, fuel etc. in Kalgoorlie and drove up to Crossover Lake that night. Rained over night, just a mm or three

North-West

Wed

10/5/95 To Camp Island and then up the lake to the north east to reconnoitre way to chicks seen from the air. I got approximately 15kms up but then water became to shallow and forced to return to camp. Wind NW strong enough to flatten our tent. Rained overnight again less than five mm.

11/5/95 To mainland to explore route to north western end of the lake to find the crèches via station tracks (see map and instructions). Returned to Camp Island. Wind NW strong but moderating, overcast rain and showers. Rained overnight again.

12/5/95 Filmed about Camp Island and deserted colony. Weather partly cloudy, but fine. Wind light and variable. Clear cold night.

13/5/95 Filmed about Camp Island and second colony Island. Weather fine, some high cloud increasing. Wind south easterly, light but strengthening.

14/5/95 Filmed about Camp Island and second colony Island. Weather cloudy but fine, Wind south easterly moderate strength.

15/5/95 Moved from Camp Island to New camp on NNW shore of lake. (see map). Weather cloudy but fine, Winds SE changed to NW variable strength.

16/5/95 Filmed chicks on lake. Weather fine and warm patchy cloud. Winds SE moderate strength.

17/5/95 Filmed chicks on lake. Returned to Crossover lake camp. Weather fine but cloud increased during the day. Winds NW/ moderate to strong. Rain overnight heavy at times

18/5/95 Returned to Kalgoorlie

OBSERVATIONS

1. On Friday 12th May, many adult birds, estimate of 2,000 to 3,000 individuals, all arrived in large flocks to the south and south west of the main breeding island. These birds did not appear to be feeding but formed into a large flock that moved right up to the island. Within the flock many birds were apparently trying to copulate while still in the water. The flock was very vocal in fact this was what got our attention in the first place. When they reached the island they remained in the water were not seen to come up onto land however they did disappear behind the colony island. They were very flighty and for this reason I did not try to approach them. I shot several minutes of material for Camp Island 20 metres south of your observation point up on Camp Island. They all departed when a wedge tailed eagle flew in and landed on the breeding island. This activity was not repeated while we were on Camp Island.

2. While we were on Camp Island we say many flocks of up to 25 birds flying from the west to the east and east to west. I feel that the Adult birds were feeding to the east and returning to the west where they were seen in large numbers, (1000,s), to the south east of the main body of chicks.

3. The water surrounding Camp Island appeared to contain many more brine shrimp than our previous trip. This is an empirical observation only, but we both felt that there was about a four fold increase in numbers visible in the water. We also shot footage of the brine shrimp.

4. On Wednesday 10th May, I encountered a small group of seven chicks and three adults, about 3kms north west of Camp Island at approximately 2pm. One of these chicks was banded but I did not manage to record its band number (sorry about that).

5. When we moved to New Camp to the north west of Camp Island (see map), we found hundreds perhaps thousands of chicks all in various stages of development (stages all on film), On the 17/5/95 Campbell and I both saw chicks flapping along about 30cm to 50cm above the water/mud for about 10 to 15 metres. These were the oldest chicks we had seen. This was seen only three times during our time at New Camp.

118
130

6. The chicks were spread out over the lake in loose clusters of groups of 3 to 20 odd birds. It was hard to tell where one group started and another ended with chicks of all ages frequently being present in one group. Interspersed with the chicks were adults that acted like sentry/alarm birds, that at any sign of a threat would lead the chicks toward deeper water or away from the threat. It did not appear that the adults were attached to any particular chicks as they came and went from group to group quite frequently. It may be of interest that during the time at New Camp I saw very few brine shrimp in the water.

7. When we moved to New Camp we took the Argo in the tandem trailer. On the lake the Argo did not fare well, constantly sinking and bogging in soft spots in the mud. However it was totally accepted by the birds who came to within feet of it on several occasions and so made a great filming/observation platform. If the birds saw a human form on the shore or out in the lake they would run for hundreds of metres and not return until the person was long gone.

Mark said Argo would be good catching platform. Also good for herding chicks where ground firm

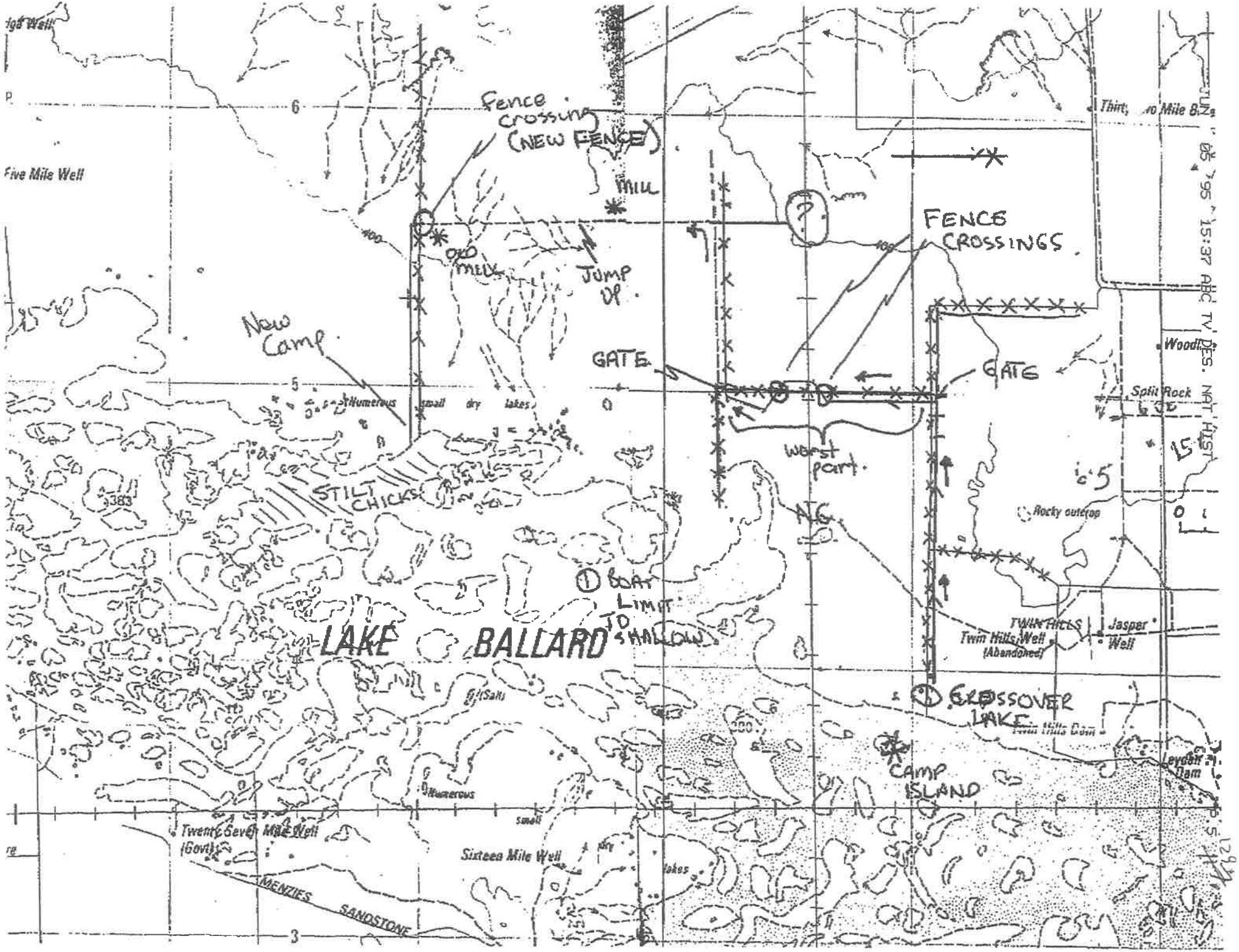
The final page of this fax is a map that we have marked up with the route to New Camp. John Finlayson (Jeedamya) gave us the general directions and told us of the track that goes right to the edge of the lake at New Camp that I have marked on the map.

Best of luck on your next trip and if there is anything I can do to help you please don't hesitate to contact me via our fax number as I am working very odd hours at the moment and out more often than not.

Regards

Mark Lamble

P.S. Jim the fully marked up map will follow tomorrow.



Notes made (05/6/1995) by JL apparently recording a phone conversation with Mark Lamble on this day (note that it is the same day as that of the fax above).

ML described in considerable detail his time (with sound recordist Campbell Miller at Lake Ballard in mid May 1995 (from 09/5 - 18/5/1995, according to the fax above)..

5/6/95
Marla Lake
5/6/95

Mounted them up with Argo on hard ground c 1 person.

3 yrs flying — date & place

Kay — with Janine

boat — CALM depot

If water supports weight — OK
> 1 km away.

New camp — 2 days — — big sand dune – visibility for c 2 km.

Birds v.v. flighty to people —> 1 km +

Argo filming platform.

Cat coming down sanddune & birds running away.

Adults interposed & come and went.

↓

No strict creches
– loose groups – all diff stages.

½ km — from New camp
had walking past v. close.

at least 2 thousand birds at that Island!
— they filmed it.
over 2½ – 3 hrs.

* Both colonies were empty. 130. 120. 119

Conditions changed day to day.
— wind direction
water condit.

> 6 cm firm for Argo

— No Artemia near New camp, V. thick around breeding islands.

c 2 hrs doing trailer from Crossover Lake to New Camp when you have done it once.

60 km / hr in good stretch.

3 fences to cross then ~~any~~ camp 500 m from Lake

Birds marked E during day & west at night.

2–3 cm depth

Chicks are wading ~~X~~ not swimming.

Two pages of rough notes by JL that record bits of: a 'Message from Jeremy Hogarth [on] Th 18/5/95 at 1310hrs' relaying information about:

- **Mark Lamble's observations on Lake Ballard in mid-May 1995 (from 09/5 to 18/5/1995, see above);**
- **a phone conversation between Jeremy Hogarth (ABC Natural History Unit) on 30/5/1995, and**
- **a phone conversation with Clive Minton (CDTM) about how to go about asking people to look out for the BaSt leg-flagged on Lake Ballard (& Lake Marmion) in 1995.**

Tues — all birds left 2nd island.
transit metward — all creching at W end of lake.
– pinnacle.

ABC left that night

– talked about pushing boats + camp at W end. (plan 1)
– land access (plan 2)

Andy ~~[illegible]~~ [illegible] → weekend OK.

Jeremy 30/5 — pay for air survey?

– he will get back to me re paying for a next flight – probably NO.
– Mark will contact me also with info on last days.
— how is Argo etc?

Clive — – photos coming.
– flag without bands.
– [illegible]. – 4 weeks.

Clive – will do SA + Vict.

Aluminium Bands ~~[illegible]~~

out for → Stilt + Wrangling — ✱ PROJECT

2 – 18 mths → WA – go out looking for banded + flagged
– record relative to marked areas
(= relative propn. without black + chest bands)
50% juveniles.
– Rottnest – adults back first, or juveniles.

✱ Fax BirdNotes article to Clive

Message from Jeremy Hogarth Th 18/5/95 at 1310 hrs

- 70 km from Island they (Mark + Cam) found 1000's of chicks ~~[illegible]~~ - at least some near flying stage.
- ~~[illegible]~~ Mark will fly to Mill Sat
- Will fax his maps / notes to me next week and ring me
- they logged the Argo many times.
- no predators except wild dogs / raptor
- caught one banded chick - didn't get number but did record date, time, location

A seven page fax (24/04/1995) from CDTM (at Broome Bird Observatory) to JL (at Busselton) with a cover note that reads 'Herewith 6 pages of data – some of it partly processed and/or with comments. It will give you knowledge of what we've got & what we still need!'. These data were collected by CDTM (some with GBP) while he was on Lake Ballard in April 1995.

Note that JL's only copy of this fax has small amounts of important text missing due to cropped borders.

90.
94.

FAX to Jim Lane, CALM Busselton

24/4/95 097-521 432

From Clive Minton at Broome B.O.

Herewith 6 pages of data — some of it partly processed and/or with comments.
90 will give you knowledge of what we've got & what we still need!

Best of luck,
Clive

84.
53.

Biometric data

Adults (collected with 1 or 2 day old broods)

Family	Sex (dissection)	Bill	THL	Wing	Wt.	Plumage
1	♂	74.5	110.7	205	210	Full breeding plumage
2	♀	64.1	101.5	196	197	*Some white feathers in breast band & [illegible]
3	♂	74.6	109.4	209	203	*Some white feathers still in breast band & [illegible]
4	♂	74.2	111.2	210	241	* "
5	♂	69.1	103.9	198	209	* " distinct white/black areas [illegible] as extensive as some [illegible]

* No active moult occurring in breast feathers.

? appearance that males are bigger than females?

All five birds had active large double brood patches ie, they had been incubating (even the heavy one).

Chicks – collected with above adults 1-3 km west of colony (probably 1-2 da[ys] after leaving nes[t])

11/4/95

Family	Bill length	Weight
1	—	23
	—	23.5
	—	25.4
2	24.4	26.3
	20.3	26.6
	20.2	26.3
	22.5	24.6
3	23.3	28.5
	25.2	27.8
	21.7	26.7
4	22.5	— (22.8 – gizzard)
	19.7	— (22.5 – gizzard)
	23.1	26.9
5	21.2	25.2
	22.5	26.5
	26.1	26.7

Average chick weight (only of birds in 3 chick broods) = 25.8 gm at 1-2 days after leaving nest

Chicks – caught & released as they left the colony before reaching water ie just left nest 12/4/95

Bill length	Weight
—	28.5
	29.5
	30.5
—	24
	29
	31
—	22 – had difficulty walking / keeping up with rest of broo[d]
	26
	30
—	25.5
	27

Average chick weight (all 3 chick[s]) = 27.6 gm at leaving col[ony]

28 S

[Eggshell etc. must therefore weigh close to [illegible]

Chicks — caught & banded some [illegible] from colony

Band No.	Bill	Wt.	
11	18.8	27	2/2
12	22.2	31	
13	21.2	27.5	2/4
14	18.9	23	
15	19.1	26	2/2

Band No.	Bill	Wt.	
17	22.0	29.5	4/4
18	23.6	30.5	
19	20.5	26.5	
20	22.6	28.0	

13/4/95 (probably [illegible] after leaving [illegible]

Average chick weight = 27.4 gm (soon after leaving colony)

88. 92.

Brood sizes

Colony 1. Lake Ballard. 1995. 87. 91.

Brood Size \ Date →	as leaving the colony 9/4	%	12/4	%	14/4	%	on water * 1-3km from colony 11/4
1 Y	0		15		16		9
2 Y	23		40		57		37
3 Y	24		55		61		29
4 Y	11		17		16		6
5 Y	2		3		3		0
6 Y	0		1		—		0
Total broods	60		131		153		81
Average brood size	2·87		2·67		2·56		2·40

344
288
56

* probably 1-2 day(s) after leaving colony.

Egg weights — Colony 1, Lake Ballard 19

12/4/95 (S. end of colony) Eggs within a week of hatching. 3 clutches of each clutch size

Clutch Size	Weights (gm)		
1	40	38	33·5
2	41 40	39·5 38·5	39 37
3	40·5 37 33	40 39 37	44 41·5 40·5
4	36·5 33 31·5 30	40 39 39 32·5	37 36 36 30

86.
90.

14/4/95 (S. end of colony – 5m from above sample) Eggs within a few days of hatching

5 clutches of each size except 1 & 2 egg clutches.

Clutch Size	Weights (gm)				
1	43·5	41	39	36	35·5
2	39 39·5	39·5 38·5	34 33·5	36 34·5	34 33·5
3	40 39 39	40 40 39	41 38 38	36 33 30·5	39 38·5
4	38·5 37 35 35	39 39 38·5 37	38 38 37·5 35·5	41 38·5 36 36	38·5 36
5	40 39 34 33 28	45 42 41 38·5 38·5	38·5 37 36·5 34 28	38·5 36 35·5 35 31	46·5 45 41 41 38·5

* chipping egg.

1	35	33·5
2	40 39·5	

Average egg weights (from combination of above two sets of data

Clutch Size	No. of clutches weighed	No. of eggs weighed	Average egg weight (gm.)	% 40g or over
1	10	10	37·5	30%
2	9	18	37·3	17%
3	8	24	38·4	37%
4	8	32	36·5	6%
5	5	25	37·6	32%

or 20% if one clutch is omit

Differences between heaviest & lightest egg in a clutch

25.89.

Clutch Size	Difference									Average
2	1	6	2	0·5	1	0·5	1·5	0·5	0·5	1·5
3	7·5	3	3·5	1	1	3	5·5	0·5		3·1
4	6·5	7·5	7	3·5	2	2·5	5	2·5		4·6
5	12	6·5	9·5	7·5	8					8·7

84
88

Nest changeovers

1pm 9/4/95
1½ hour period. 60 birds watched returning to colony & commencing incubating. 58 returned to unoccupied nest. 2 displaced already incubating birds i.e. a changeover. I suspect most of the birds had just left to nest for a drink to drink, cool down & wet their feathers (it was a warm afternoon).

9am 12/4/95
1 hr. period. 14 birds watched. 11 did changeovers at the nest. 1 went to unattended nests. One wandered around for 20 mins looking for nest (even briefly sat on x 1 egg unoccupied nest). I then gave up following it. It is possible its mate had deserted the colony with the chick leaving only an addled egg & a puzzled mate!

Conclusion – incubation changeovers do take place though how regularly & in what proportion of nests is not clear.

Water depth

At marked beside island. 4pm 14/4/95. 51 cm (depth of water)

Incubation period

83.
87.

Estimates

① Main gridded area.

Hatching commenced on April 3rd. Birds apparently incubating on first aerial survey (March 12th). Assume incubation commenced March 12th. Therefore incubation period 23 days (if count the day on which incub commenced + day on which hatching started – otherwise 22 days).

② Area where we marked c. 250 mainly one + two egg clutches on March 15th.

Assuming mainly 3 or 4 egg clutches then average clutch complete / start of incubation would have been Mar 17th.

Hatching of this area (fr Mal Lamboll) mainly took place April 6, 7 + 8th – average day 7th.

Incubation period average 22 days (counting day of hatching) – say 21–23 days.

I visited this area on 9th April + the only marked eggs I could find were

Egg marking	Single addled egg + eggshells of hatched chicks	Two addled eggs + eggshells of hatched chicks	3 egg	4 egg	Other
1	4	3		1*	
2	3		1	1	3E+1Y●
3			1	1	1E+1Y†
4	1				

*3 eggs were chipped (this gives incubation period of 23 days counting start day on the day of hatching)

† It is possible some older chicks had 'run off'; we thus don't know the full clutch size. Still potentially consistent with a 23 day max. incubation period if hatching commenced on previous day.

● Two of the three eggs were chipped. Assuming incubation started on lay. of 5th egg on 18/3 then incubation period is 23 days

All other marked eggs / clutches had already hatched + gone so

Presumably these 191 measurements are at the upper end of the range.
I suspect therefore period is c. 21–23 days.

82.
86.

88. 85.

Status of originally gridded squares after main hatching

Complete photo record (2 per square) taken + approx. count of eggs etc made of each of 15 gridded areas. 14/4/95 Colony 1. Lake Ballard.

Grid	Currently occupied nests 1E	2E	3E	4E	Other	Dead chicks	Addled eggs	"Dumped" eggs
3HG		4	1		3E+1Y	5	58	6
2IH		1	1			6	76	—
DJI		2	2		1E+2Y	3	73	50
EKJ		1		1		8	53	56
FLK		1	5		2E+1Y	13	73	—
HNM	3	1				9	55	20
HION					1Y	3	68	57
IJPO			2		1E+1Y	4	64	37
JKQP	1	1	3		1E+1Y	11	60	46
KLRQ		3**	2		1Y	14	57	22
MNTS			5*			4	80	17
NOUT		1	1		1E+2Y	3	78	13
OPVU		2	3			8	62	41
PQWV		1	3			5	58	—
QRXW		2	2		2E+1Y	10	56	33

* eggs chipping in these nests.

Addled eggs = eggs apparently left unhatched in a scrape

"Dumped" eggs = eggs in clusters, not in a scrape

These figures are accurate to ± 10% (probably better) & should be corroborated/improved by detailed examination of the photos as they become available. I did the counts without the fishing tape in place & there might be some inaccuracies at boundaries, & tape were in place for the photos.

All of the nests still occupied would not have been present on the original 15/3/95 photos. ie just hatching.

E+Y refers to contents of a single nest

Currently occupied nests were readily identifiable in most cases by an accumulation of nesting material around the periphery of the nest + a still perfect scrape + hot eggs!

JL's recordings (three pages of notes, headed 'Clive Conversation of ... April '95') of a phone conversation with CDTM after he had left Lake Ballard for Broome.

These notes cover a range of topics including data collected by CDTM while he was on Lake Ballard during April 1995, including: data yet to be collected, writing up for publication, , 'big unknown(s)', etc.

See also "Seven page fax (24/4/1995) from CDTM ... to JL ..." above.

Claire — Conversation of – April 95

091 935 600

- data to be posted to Grant (exchange)
- write up ASAP (me, Grant + Claire) — Fri 4/4?
- outline + chapters +
- original pegged area – took 2 photos of each of 15 quadrats. Fri last week.
  - don't need to do again.
- also counted addled eggs, dead chicks, + active nests.
- me to exactly measure up Colony 1 once receded. (guesses 20,000 nests)
- Colony 2 80 × (20 × 5 = av 15) = 1200 = 12000 –15 000 nests.
  - also measure exactly.
- ✱ do aerial survey – other colonies.
  - could find no chicks > 2 days old even 11 days after hatching started.
- additional boat fuel – proper engine oil ✱ at least 2 jerry cans.
- indirect evidence of renesting – "4 out of 5 were males" — took chicks off
- big unknown
  1. When do family parties start creching?
  2. What role do sexes play?
- AM genuine metabolic changes
  PM left nest dumb etc returned.
- what proportion of pop. are sleeping metabolic
- no evidence of more than 1 parent with chicks when leave colonies.
- ~~rain added~~ 13 cm (51 cm & 4 days after rain water depth at shelter m)
- banding: did not band in colony
  - didn't band any ~~going to water~~
  - did catch broods going to water for

(2)

- fill in footprints cause they
- banded 10 chicks (4 families) on water.
  scooped with plankton net — easiest way.
- * if took whole brood parent left (disappeared)
  & did not reappear
- 5-10 min to weigh measure, head, leg flag glue.
  + bill length.
  take 2,
- keep in night, return to brood.
- drop youngsters you have done before catching the next 2.

- flags : - open minimum + push on
  - dab of glue between ends
  - hold glued tab for 1-2 mins. — be v. careful
  it doesn't move.

- need more bird bags *

- do 20-40 to day near colony if can't corral.
- expect movement to be very high.
- 7-7.5 mm on "knee".
- did 10 in 2 hours.
- Flag on right tibia (of the bird) band on left
- Laypoint at Tjaeden
  first bedroom in sleeping gear
  and in kitchen — need bags to
  Argo.
— Argo is 30 m from where
— 1 hut next to trailer. — gas under an
  is at station
— petrol outboard motor — petrol in.
— fuel tank in trailer.
— electric in on island in ABC hut.

(3)

- lots of good [illegible] on [illegible]
- 2 [illegible] at station
-

- weighed 10 clutches of 1 – 5
  one clutch all 5 eggs over 40 gm (→ 48 ..
- leaving Broome Th May 3/4 → [illegible]
- not through [illegible] → 20-25 May.

- 3.4
  2.8
  2.4 2 days later.

- 2000 per day leaving [illegible]

Fax (13/04/1995) from Ron Johnstone (WA Museum) to JL detailing the observations made during an aerial survey on 07/4/1995 for breeding BaSt that he and ... [not specified in fax, but were Phil Stone and Nick Kolichis] made of Lakes Goongarrie [or Raeside? See notes of 11/04/1995 below], Marmion, Ballard and Barlee on ... [date not specified in fax, but was on 07/04/1995].

Also some details of their subsequent ground visit (08/4/1995) to Lake Ballard, in kayaks,

74. 75.

13/4/95

FAX TO: JIM LANE
CALM BUSSELTON

FAX NO: 097 - 521432

FROM: R.E. JOHNSTONE

Western Australian museum
Francis Street Perth
Western Australia 6000
Telephone (09) 328 4411
Facsimile (09) 328 8686

Date:

Your Ref:

Our Ref:

Dear Jim,

Here are the details of our Banded Stilt survey. We flew over Lake Goongarrie, Lake Marmion, Lake Ballard and the central arm and northern portion of Lake Barlee.

Lake Marmion.
About 500 - 1000 birds on the north end, (One large group of about 500 another of 300 and several smaller groups).

Lake Ballard.
On the eastern end of lake Ballard we located your main site with c. 3 - 5000 pairs.
About 4 km further west at 29°27'S. 120°58'E we located another breeding colony (your site 2) with about 2 - 3000 pairs.
Further west at 29°23'S 120°51'E we located another small colony of 500 - 1000 pairs.
Also near the western end of Ballard (on map) there was a group of 500 - 1000 birds which appeared to be breeding on a small circular island. They lifted and returned quickly.

Lake Barlee.
On central northern portion of Lake Barlee at 29°07'56"S 119°32'20"E we found another small colony of about 1000 pairs all sitting on one end of a small island.

Branches:
Western Australian Maritime Museum
Cliff Street, Fremantle
Western Australia 6160
Telephone (09) 431 8444
Fax (09) 430 5120

Fremantle Museum
Finnerty Street, Fremantle
Western Australia 6160
Telephone (09) 431 8444
Fax (09) 430 5120

Geraldton Region Museum
Marine Terrace
P.O. Box 112, Geraldton
Western Australia 6530
Telephone (099) 21 5080
Fax (099) 21 5156

Albany Residency Museum
Residency Road, Albany
Western Australia 6330
Telephone (098) 41 4844
Fax (098) 41 4027

Museum of the Goldfields
P.O. Box 25
Kalgoorlie, Western Australia 6430
Telephone (090) 21 8533
Fax (090) 91 2791

73.
74.

I will send you details of specimen storage contents etc at a later date. As I mentioned over the phone I would be grateful if you could help me with the following.

1. Measure a few nest scrapes.
2. Collect some of the semi-buried clutches and some of the groups of eggs that I think are normally gathered by non-breeders.
3. Collect a series of different age chicks.

Any WAM collections of this species are poor so anything you can get will be useful.

Best Wishes
Ron Johnstone.

Ron J. (7/6/95) he says 1 has (from full clutch to zero clutch) range 1 of adults that were incubating on his visit (10-12 birds)

He also has c 4 chicks.

↑ telephone conversation of 7/6/95

Photocopy (2 A4 pages) of six small notepad pages of notes made by JL during phone conversation (11/4/1995) with Ron Johnstone (WA Museum) in which RJo shared details of his aerial survey (with Phil Stone and Nick Kolichis) for breeding BaSt on 07/04/1995 and their subsequent ground visit (08/4/1995) to Lake Ballard, in kayaks, which JL recorded as being on 12/04/1995 but couldn't have been, given date (11/04) of phone conversation. Notation that '[Ron] Will check his lats & longs & fax me if incorrect'. See above for RJo's fax of 13/04/1994.

(2) 71. 72.

2000 pairs on
– 3000 pairs on 2nd breeding islands.

– eggs for variation for handbook.

– got bands – just a trace of band & were markedly – collected small series. (2 clutches + ?)

– food – chicks forming small creches – 5 chicks alone, 2 just alone – others crow perched & too smelly to return.

(Phone call from Ron Johnstone 11/4/95) (P) 72. 73

Ron Johnstone
Phil Stone (Mermaid) & his caravan
Nick Kolichis

Flew on 7/4/95 central arm
Mermaid Bedout, & Barlee
Rosemary (central)

Noted Mermaid 1000 birds feeding parties.

3 km west – on ground
another further west – order of couple of 1000 birds
small colony on central arm of Barlee.

has notes from: (4) 69. 70.
John Darnell – Port Hedland
50–60,000 80% inshore

(12/4/95)
had one day only on Bedout
– kayaks (single)

–

Headlands – taken this

Phil Stone took "view CAM"

They took photos

Cold squalls.

Creches of 50–100 birds.

(3) 70. 71.

(a) Nest scrapes – please measure
10–12 scrapes & distance apart.

(b) collect chicks at various stages. – fridged – plastic bags.

(c) collect eggs from groups

forward fresh

– partial banded bird rolled egg back to (6) large cluster
~~BE~~ (with foot) tried to sit on it.
~~(Frost of 210g) (...)~~

(5) (4) Kayaks? 18. 69.

Hoard of
Crows came off 2nd island
at Ballard

Wedge L.

Ballard Lake
Central Crow

29°07' 56" S
119°32 20

1000 birds.

Furthest West on Ballard "Small"
29°23' 40"
120 51 91 E.

Mammin – mostly near N end – or of
big 3 shaped island (viewed
nearhere → 427 2739. from N).

---

(6) 17. 68.

West end of Ballard

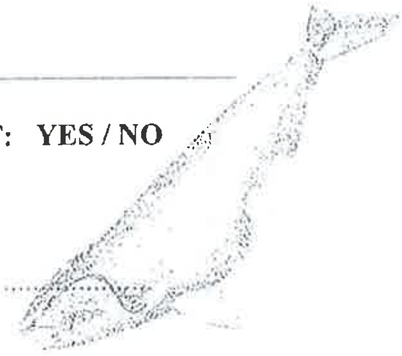
Simpsons Well

2 roads in + ferndrain

Will check his lat + longs
+ fax me if incorrect.

Fax (20/3/1995) from JL (at CALM Busselton) to Raelene [Hick] (at CALM Woodvale) with corrections (typos) to her typescript of the 'Banded Stilt Research Programme – Lake Ballard, March/April 1995' that CDTM had hand-drafted (see 14/03/1995 below

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



TO: KAELENE **URGENT: YES / NO**

AT: WOODVALE

Fax No.

FROM: JIM L.

DATE: 20/3/95 **Your Ref:**
Local Ref:

Please amend draft and place copy in my pigeon hole for Dee
(and fax to me in Bus if completed today)

Thanks

No. of pages inc. this page: 5

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

Of the 70 species of wader which have been recorded in Australia (55 regularly), it is one of the eight resident endemic species.

There are estimated to be 250 000 Banded Stilts in Australia (Watkins 199). Some 60-70% of these live in Western Australia, the remainder being in South Australia and Victoria.

Breeding has only been recorded about 20 times (Higgins ~~1985~~ 1993) since it was first proved in 1930 (at Lake King in W.A. and at Lake Callabonna in S.A.). All but three of these attempts have been in Western Australia, with Lakes Barlee, Ballard and Marmion most favoured. The last known breeding occurred at Lake Barlee in 1992 and at Lake Torrens (S.A.) in 1989.

The Banded Stilt is one of the least studied species of wader in Australia. In particular its breeding biology is little understood. This is because breeding takes place in remote locations, which are especially inaccessible after the heavy rains which precede such events. In fact most breeding records relate to colonies found after

DRAFT

Single Species plan 23

BANDED STILT RESEARCH PROGRAMME - LAKE BALLARD, MARCH/APRIL 1995

(drafted by C.D. Minton)

Background

See folios 3-10 of this file for Chris's handwritten originals of this.

The Banded Stilt is unique amongst the 214 species of wading birds in the world in that it

(a) nests colonially

(b) rears its chicks in crêches

(c) only nests intermittently - when inland salt lakes become flooded by exceptional rains

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breeding has finished (often abandoned in mid-breeding because of declining water levels/food supplies) or at the chick stage (often roaming many kilometres from the actual breeding site).

The discovery of a nesting colony on Lake Ballard on 12th March 1995, only 15 days after the commencement of a three day 'wet' from the aftermath of cyclone "Bobby", provides a unique opportunity to study the breeding process throughout the full cycle. The aerial survey showed several thousand (3-5000) birds apparently already with nests but there was another 5000+ birds (mostly in pairs) on adjacent parts of the lake which seem likely to join the colony in the near future. The colony is thus still at the formative stage.

There are many scientific reasons why the systematic study of a Banded Stilt breeding event should be undertaken. Basic information such as even the incubation period is still not known. And for a species where the majority of the world population lives in one area (the southern half of W.A.) and is subject to vagaries of the climate for rare breeding opportunities it is important to determine breeding success and lay the foundations for future survival measurements - and to determine the factors governing these.

It is important also, from a conservation viewpoint, to assess the predator impact at a Western Australian breeding colony. Historical information suggests this has in the past been very low. However at Lake Torrens (S.A.) in 1989 there was a huge influx of Silver Gulls during the breeding event and this resulted in severe egg losses (and some chicks too) - the last two thousand nests were totally predated because the Banded Stilts were outnumbered by gulls. The Silver Gull population in Australia has increased enormously over the past 50 years and may well pose a long-term threat to the Banded Stilt (at least at South Australian locations).

Objectives

The broad objective should be to collect all practicable data on the breeding event, with a particular emphasis on the special adaptations developed by the Banded Stilt to maximise its breeding productivity in the limited 'window of opportunity' which it seeks to exploit.

The specific parameters which should be studied/measured/assessed include (not in order of priority):

a) Courtship, pairing, nest site selection (within a colony).

b) Plumage of breeding birds, especially early in the event.

c) Frequency of laying and commencement of incubation (and egg protection prior to incubation).

d) Clutch size and nest density.

e) Incubation period and sharing of incubation duties.

f) Hatching success (related to clutch size e.g. can they successfully hatch 5 egg clutches?).

g) DNA analysis of clutches (especially 5 egg ones) to assess egg dumping and ex-pair copulation frequency.

h) Crêche formation - initial formation and development over the fledging period.

i) Fledging success.

j) Re-nesting attempts.

k) Predator activity at the colony and subsequently on chick crêches.

l) Food availability/water level/salinity.

m) Dispersal after breeding (by banding/colour marking adults and chicks).

n) Survival/mortality rates (by banding/colour marking of adults and chicks).

o) The practicability of visits by other ornithologists, film crews etc. to the breeding site without undue disturbance of nesting birds.

Fieldwork programmes

The initial visit by Jim Lane, Grant Pearson, Reni and Clive Minton on 15th March can make initial observations and measurements on many of the specific study objectives (a, b, part of c, d, part of e, k, l, and o).

In particular the main existing nesting area can be 'pegged out' and eggs (particularly of incomplete clutches) marked as a foundation for future follow up (e.g. to determine incubation period/hatching success).

It is desirable that ~~a scientist be made available to undertake the~~ detailed study over the whole nesting cycle. This would involve extended periods of observation and activity at the breeding colony, preferably commencing whilst new pairs are still arriving and especially covering the hatching period (likely to be extended). Subsequent follow up during the fledging period could be done more intermittently by boat and/or from the air.

It is also desirable that occasional (aerial and/or ground) surveys be made of Lake Barlee to determine breeding activities there and their outcome.

This breeding event is likely to continue until the end of April, and longer still if any re-nesting occurs.

Publication

Results should be published in both the scientific literature (e.g. Emu), and in more widely circulated "popular" journals. If the ABC decided to make a half hour documentary then this will provide further dissemination of the information gained of this spectacular Banded Stilt breeding phenomena.

References

Watkins, D. (199_). A national shorebird plan for Australia. WWF and RAOU Publn.

Marchant, S. and P.J. Higgins (Eds) (1993). Handbook of Australian, New Zealand and Antarctic Birds. Vol II Raptors to Lapwings. Oxford University Press, Melbourne

Fax (14/03/1995) from CDTM to JL with his (CDTM's) draft manuscript headed 'Banded Stilt Research Programme – Lake Ballard, March/April 1995'. Inter alia, CDTM lists '... specific parameters which should be studied / measured / assessed'.

DRAFT (1)

14/3/95

Banded Stilt Research Programme — Lake Ballard March/April 19

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